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KOREA – IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES

REPORT OF THE PANEL

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US – Large Civil Aircraft (2nd complaint)	Panel Report, *United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)*, WT/DS353/R, adopted 23 March 2012, as modified by Appellate Body Report WT/DS353/AB/R, DSR 2012:II, p. 649
US – Poultry (China)	Panel Report, *United States – Certain Measures Affecting Imports of Poultry from China*, WT/DS392/R, adopted 25 October 2010, DSR 2010:V, p. 1909
US – Shrimp	Appellate Body Report, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted 6 November 1998, DSR 1998:VII, p. 2755
US – Softwood Lumber VI (Article 21.5 – Canada)	Appellate Body Report, *United States – Investigation of the International Trade Commission in Softwood Lumber from Canada – Recourse to Article 21.5 of the DSU by Canada*, WT/DS277/AB/RW, adopted 9 May 2006, and Corr.1, DSR 2006:XI, p. 4865
US – Tax Incentives	Panel Report, *United States – Conditional Tax Incentives for Large Civil Aircraft*, WT/DS487/R and Add.1, circulated to WTO Members 28 November 2016 [appealed by the United States 16 December 2016]
US – Tuna II (Mexico)	Panel Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/R, adopted 13 June 2012, as modified by Appellate Body Report WT/DS381/AB/R, DSR 2012:IV, p. 2013
US – Underwear	Appellate Body Report, *United States – Restrictions on Imports of Cotton and Man-made Fibre Underwear*, WT/DS24/AB/R, adopted 25 February 1997, DSR 1997:I, p. 11
US – Underwear	Panel Report, *United States – Restrictions on Imports of Cotton and Man-made Fibre Underwear*, WT/DS24/R, adopted 25 February 1997, as modified by Appellate Body Report WT/DS24/AB/R, DSR 1997:I, p. 31
US – Upland Cotton	Appellate Body Report, *United States – Subsidies on Upland Cotton*, WT/DS267/AB/R, adopted 21 March 2005, DSR 2005:I, p. 3

Short title	Full case title and citation
US – Upland Cotton	Panel Report, *United States – Subsidies on Upland Cotton*, WT/DS267/R, Add.1 to Add.3 and Corr.1, adopted 21 March 2005, as modified by Appellate Body Report WT/DS267/AB/R, DSR 2005:II, p. 299
US – Upland Cotton (Article 21.5 – Brazil)	Panel Report, *United States – Subsidies on Upland Cotton – Recourse to Article 21.5 of the DSU by Brazil*, WT/DS267/RW and Corr.1, adopted 20 June 2008, as modified by Appellate Body Report WT/DS267/AB/RW, DSR 2008:III, p. 997
US – Wool Shirts and Blouses	Appellate Body Report, *United States – Measure Affecting Imports of Woven Wool Shirts and Blouses from India*, WT/DS33/AB/R, adopted 23 May 1997, and Corr.1, DSR 1997:I, p. 323

EXHIBITS FREQUENTLY REFERRED TO IN THIS REPORT[1]

Exhibit No.	Short title	Title
JPN-2	2015 IAEA DG report	International Atomic Energy Agency, "The Fukushima Daiichi Accident: Report by the Director General" (August 2015)
JPN-3.b	PMO Blanket Import Ban and Additional Testing Requirements Press Release	Korea Prime Minister's Office, Press Release, "Government Bans Import of All Fishery Products from 8 ken near Fukushima" (6 September 2013)
JPN-7	2015 IAEA DG Report, Technical Volume 1	International Atomic Energy Agency, "The Fukushima Daiichi Accident - Technical Volume 1/5 – Description and Context of the Accident" (August 2015)
JPN-11	Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world	Professor David J. Brenner and Dr. Ken O. Buesseler, "Analysis of the Presence of Cesium and the Ratio of Additional Radionuclides to Cesium in Food Products from Japan and the Rest of the World" (11 March 2016)
JPN-24	WHO Fact sheet on ionizing radiation	World Health Organization, "Ionizing radiation, health effects and protective measures" (November 2012), Fact Sheet No. 371
JPN-30	Response by Korea's SPS Enquiry Point	Response by Korea's SPS Enquiry Point to Request of 24 June 2014 from Japan's SPS Enquiry Point (26 August 2014)
JPN-31	Japan's June 2014 Request to Korea's SPS Enquiry Point	Japan's SPS Enquiry Point, "Request for relevant documents and information related to SPS measures following the Fukushima nuclear power plant accident" (24 June 2014)
JPN-32	CODEX STAN 193-1995	Codex Alimentarius Commission, "Codex General Standard for Contaminants and Toxins in Food and Feed", CODEX STAN 193-1995 (1995, as updated in 2015)
JPN-42.b	MHLW Concepts of Inspection Planning and Items and Areas to which Restrictions of Distribution and/or Consumption of foods applies	Japan's Ministry of Health, Labour and Welfare, "The Revision of the 'Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of Foods concerned Applies" (Developed by the Nuclear Emergency Response Headquarters)" (20 March 2015)
JPN-43	FAJ Monitoring Report	Fisheries Agency of Japan, "Report on the Monitoring of Radionuclides in Fishery Products (March 2011 – January 2015)" (April 2015)
JPN-48	Japan MHLW Internal Distribution Restrictions on Food	Japan Ministry of Health, Labour and Welfare, "The instructions associated with food by Director-General of the Nuclear Emergency Response Headquarters" (as of 9 February 2016)
JPN-55.b (revised), KOR-72 (revised)	Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis (5)	Korea Food and Drug Administration, Press Release, "Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis (5)" (14 April 2011)
JPN-75.b	MFDS notice for 2013 blanket import ban and additional testing requirements	Korea Ministry of Food and Drug Safety, Press Release, "Notice of Temporary Special Measure for Safety for Food Imported from Japan" (6 September 2013)
JPN-76.b	Product-Specific ban on Cod from Miyagi and Iwate	Korea's Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Miyagi-ken and Iwate-ken, Japan" (3 May 2012)
JPN-77.b	Product-Specific ban on 35 Fishery Products from Fukushima	Korea's Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on 35 Fishery Products, including Yellowfish from Fukushima-ken, Japan" (26 June 2012)
JPN-78.b	Product-Specific ban on Cod from Aomori	Korea's Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Aomori-ken, Japan" (29 August 2012)
JPN-79.b	Product-Specific ban on Cod from Ibaraki	Korea's Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Ibaraki-ken, Japan" (13 November 2012)

[1] This table only includes exhibits which are cited more than three times in the Report. If an exhibit was presented in the original Japanese or Korean along with a translation, the citation will be to the English translation.

Exhibit No.	Short title	Title
JPN-127	MAFF strontium inspection results (April 2011-June 2016)	Japan's Ministry of Agriculture, Forestry and Fisheries, "Inspection Results for Radioactive Strontium in Fishery Products" ("MAFF Strontium Inspection Results") (April 2011-June 2016) (This is an updated version of Exhibit JPN-95) Japanese original available at: http://www.jfa.maff.go.jp/j/housyanou/pdf/strontium_7.pdf
JPN-130(revised)	ERD Fisheries Data	Japan's Ministry of Agriculture, Forestry and Fisheries, Nuclear Regulation Authority's Environmental Radioactivity Database: radioactivity of fisheries products" (1963-2015)
JPN-131.1	ERD Agricultural Products Data	Japan's Ministry of Agriculture, Forestry and Fisheries, Nuclear Regulation Authority's Environmental Radioactivity Database: agricultural and livestock products (agricultural products) (1963-2016)
JPN-131.2	ERD Agricultural Products Data (milk)	Japan's Ministry of Agriculture, Forestry and Fisheries, Nuclear Regulation Authority's Environmental Radioactivity Database: agricultural and livestock products (milk) (1963-2016)
JPN-131.3	ERD Agricultural Products Data (other food)	Japan's Ministry of Agriculture, Forestry and Fisheries, Nuclear Regulation Authority's Environmental Radioactivity Database: agricultural and livestock products (other food) (1963-2016)
JPN-135	Fukushima Duplicate Diet Survey	Fukushima Prefecture, "Effective dose from Duplicate Diet Survey (Fukushima prefecture)" ("Fukushima Duplicate Diet Survey: Raw Data") (2012-2015) (This is an update of Exhibit JPN-102)
JPN-148	Japan's scientific response to Korea's arguments in its first written submission	D.J. Brenner and K. Buesseler, "A scientific response to Korea's arguments in its first written submission" (11 July 2016)
JPN-155	MAFF overview of food monitoring results (April 2012– March 2016)	Japan's Ministry of Agriculture, Forestry and Fisheries, "Overview of food monitoring results" (April 2012 – March 2016) This is an update of Exhibit JPN-45
JPN-157	MHLW Caesium Monitoring Data of Food Products	Japan's Ministry of Health, Labour and Welfare, "Cesium Monitoring Data of Food Products" (April 2012 – July 2016) This is an update of Exhibit JPN-47
JPN-210	2013 UNSCEAR Report Annex A	UNSCEAR 2013 Report: Sources, Effects and Risks of Ionizing Radiation, Volume 1, Scientific Annex A
JPN-211	2015 UNSCEAR White Paper	UNSCEAR, "Developments since the 2013 UNSCEAR Report on the Levels and Effects of Radiation Exposure due to the Nuclear Accident Following the Great East-Japan Earthquake and Tsunami: A 2015 white paper to guide the Scientific Committee's future programme of work"(2015)
JPN-245	Japan's Slides presented at the Expert Meeting	Slides presented by Professor Brenner and Dr. Buesseler during the Panel meeting with the Panel-appointed experts, 9-10 February 2017
JPN-272		Overview of Japan's food monitoring data submitted to the Panel
JPN-278	Implementation Guides on Sea Area Monitoring (2016)	Implementation Guides on Sea Area Monitoring (2016), available at: http://radioactivity.nsr.go.jp/en/contents/12000/11108/24/274_s_20160401.pdf.pdf, (last viewed 1 March 2017)
KOR-1, ICRP-3	ICRP Publication 103: 2007 Recommendations	ICRP, "The 2007 Recommendations of the International Commission on Radiological Protection", ICRP Publication 103. Annals of the ICRP, 37(2) (2007)
KOR-6	National Geographic: Fukushima's Radioactive Water Leak: What You Should Know	P. Kiger, "Fukushima's Radioactive Water Leak: What You Should Know", NATIONAL GEOGRAPHIC NEWS (9 August 2013)
KOR-26	CDC radioactive isotopes	Centers for Disease Control and Prevention, "Radioactive Isotopes" listing I-131, Cs-137, Sr-90, Pu
KOR-31	ICRP Publication 78: Individual monitoring	International Commission on Radiological Protection, "Publication 78: Individual monitoring for internal exposure of workers", Annals of the ICRP, Vol. 27, Nos. 3-4 (1997)
KOR-32	ICRP Publication 67:Age-dependent doses	International Commission on Radiological Protection, "Publication 67: Age-dependent Doses to Members of the Public from Intake of Radionuclides – Part 2 Ingestion Dose Coefficients", Annals of the ICRP, Vol. 23, Nos. 3-4 (1993)
KOR-40.b	KFDA 2011 Instruction on new certification	Korea Food & Drug Administration, "Instruction of Changed Measure including Certificate of Food Imports Originated

Exhibit No.	Short title	Title
	requirements for Japanese food	from Japan" (15 April 2011)
KOR-43	Bloomberg: TEPCO President Apologizes for Fukushima Leak Disclosure Delay	J. Adelman and Y. Okada, "TEPCO President Apologizes for Fukushima Leak Disclosure Delay", BLOOMBERG (26 July 2013), http://www.bloomberg.com/news/articles/2013-07-26/tepco-president-apologizes-for-fukushima-leak-disclosure-delay
KOR-123		Korea Food Code (2012), Art. 1
KOR-134	Buesseler et al. (2016)	K. Buesseler et al., "Fukushima Daiichi-Derived Radionuclides in the Ocean: Transport, Fate, and Impacts" (30 June 2016). First published online as a Review in Advance
KOR-158	2014 Guidelines for Food Safety Management	2014 Guidelines for Food Safety Management, Ministry of Food and Drug Safety.
KOR-159	2016 Guidelines for Food Safety Management	2016 Safety Management of Radioactivity in Food, Guidelines for Food Safety Management.
KOR-213	Statement of Korea's experts	Professor Timothy Mousseau, Dr. JinHo Song and Professor Yongsung Joo Joint Statement (23 August 2016).
KOR-281	2015 Guidelines for Food Safety Management	"Safety Management of Radioactivity in Food", 2015 Guidelines for Food Safety Management
KOR-283		Results of Further Sr and Pu Analysis of the Samples at the Point-of-Sale

ABBREVIATIONS USED IN THIS REPORT

Abbreviation	Description
ALARA	As Low as Reasonably Achievable
ALOP	Appropriate Level of Protection
Bq	Becquerel
Codex	Codex Alimentarius Commission
Codex Radionuclide GLs	Codex "Guideline Levels for Radionuclides in Foods Contaminated Following a Nuclear or Radiological Emergency"
Codex Stan 193-1995	Codex General Standard for Contaminants and Toxins in Food and Feed, Codex Stan 193-1995 (as updated in 2015)
DNA	Deoxyribonucleic Acid
DSB	Dispute Settlement Body
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes
FAJ	Fisheries Agency of Japan
FAO	Food and Agriculture Organization of the United Nations
FDNPP	Fukushima Dai-ichi Nuclear Power Plant
FM	Fresh Mass
GATT 1994	General Agreement on Tariffs and Trade 1994
GBq	Gigabecquerel
GLs	Guideline Levels
GRS	Gesellschaft für Anlagen- und Reaktorsicherheit (Global Research for Safety)
Ha	Hectare
HS	Harmonized system
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer
ICRP	International Commission on Radiological Protection
INES	International Nuclear and Radiological Event Scale
IRSN	*Institut de Radioprotection et de Surete Nucleaire of France*
ISO	International Organization for Standardization
JAEA	Japan Atomic Energy Agency
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
KFDA	Korea Food and Drug Administration (KFDA was replaced by the MFDS in March 2013.)
Kg	Kilogram
L	Litre
LOD	Limit of Detection
M	Metre
MAFRA	Ministry of Agriculture, Food and Rural Affairs of Korea (MAFRA replaced MIFAFF in March 2013.)
MBq	Megabecquerel
MDA	Minimum detectable activity
METI	Ministry of Economy, Trade and Industry of Japan
MFDS	Ministry of Food and Drug Safety of Korea MFDS replaced KFDA in March 2013.
MHLW	Ministry of Health, Labour and Welfare of Japan
MIFAFF	Ministry for Food, Agriculture, Forestry and Fisheries of Korea (MIFAFF was replaced by MAFRA in March 2013.)
MLs	Maximum Levels
MOE	Ministry of the Environment of Japan
mSv	Millisievert
NEA	Nuclear Energy Agency
NISA	Nuclear and Industrial Safety Agency of Japan
NRA	Nuclear Regulation Authority of Japan
NSC	Nuclear Safety Commission of Japan
OECD	Organisation for Economic Co-operation and Development
PBq	Petabecquerel
PCV	Primary Containment Vessel
RESQ	Radiometric Environment Survey and Quantification
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures
Sv	Sievert
TBq	Terabecquerel
TBT Agreement	Agreement on Technical Barriers to Trade
TEPCO	Tokyo Electric Power Company

Abbreviation	Description
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
VCLT	Vienna Convention on the Law of Treaties, done at Vienna, 23 May 1969, 1155 UNTS 331; 8 International Legal Materials 679
WHO	World Health Organization
WTO	World Trade Organization

LIST OF RADIONUCLIDES

Symbol	Full Name
Am-241*	Americium-241
C-14*	Carbon-14
Ce-144*	Cerium-144
Co-60*	Cobalt-60
Cs-134*	Caesium-134
Cs-137*	Caesium-137
H-3*	Tritium (Hydrogen-3)
I-129*	Iodine-129
I-131*	Iodine-131
Ir-192*	Iridium-192
Kr-85	Krypton-85
Pu-238*	Plutonium-238
Pu-239*	Plutonium-239
Pu-240*	Plutonium-240
Ru-103*	Ruthenium-103
Ru-106*	Ruthenium-106
S-35*	Sulfur-35
Sr-89*	Strontium-89
Sr-90*	Strontium-90
Tc-99 *	Technetium-99
U-235*	Uranium-235
Xe-133	Xenon-133

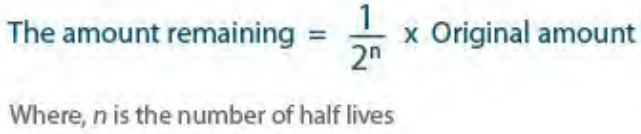
*Codex radionuclides see section 2.3.1.1 of this report.

GLOSSARY OF SCIENTIFIC TERMS[2]

Scientific Term	Explanation
Abscopal effects	The changes that occur in tissues not close to irradiated body parts
Alpha particle	Consists of two protons and two neutrons, Alpha particles are released by high mass, proton rich unstable nuclei. They are positively charged particles moving at high speeds. Examples of alpha emitters are uranium-235, plutonium-238, plutonium-239, plutonium-240, and americium-241.
Atom	The smallest constituent unit of ordinary matter that has the properties of a chemical element Every atom is composed of a nucleus and one or more electrons bound to the nucleus.
Becquerel (Bq)	The unit of radioactivity. One becquerel equals one atomic disintegration per second
Benthic organisms	Organisms that live in and on the bottom of the ocean floor
Beta particle	Beta particles are emitted by neutron rich unstable nuclei and are high energy electrons. Beta-emitters include strontium-89, strontium-90, tritium (hydrogen-3) and carbon-14.
Bioavailability	The proportion of a drug or other substance which enters the circulation when introduced into the body and so is able to have an active effect
Biological half-life	The time for one half of a radionuclide to be expelled from the body by natural metabolic processes, in light of its properties (whether it deposits in blood, bone, or particular organs) and the age of the person, not counting radioactive decay.
Bystander effects	The phenomenon in which un-irradiated cells exhibit irradiated effects as a result of signals received from nearby irradiated cells
Carcinogen	Any substance, radionuclide, or radiation that is an agent directly involved in

[2] For additional definitions of radiation related scientific terms, see https://emergency.cdc.gov/radiation/glossary.asp.

Scientific Term	Explanation
	causing cancer
Carcinogenic	Capable of causing cancer
Clastogenic factors	The disruption of chromosomes in un-irradiated cells in the plasma of an animal or human body exposed to radiation
Decay	The process by which nuclides that have an inherent tendency to do so undergo spontaneous nuclear transformation
Decay heat	The heat produced by the decay of radioactive fission products after a nuclear reactor has been shut down
Demersal fish	Demersal fish live and feed on or near the bottom of seas or lakes
Deterministic health effects	Tissue- or organ-based reactions to high doses of radiation The severity of deterministic effects increases as the radiation dose increases. An example is radiation-induced cataract, where, for acute exposure, the dose threshold is considered to be in excess of 500 millisievert (mSv).
Dietary exposure	Exposure from food chemicals that are inadvertently present in food, or added to food for a technological purpose
Dose coefficient	The coefficient that expresses, for radionuclides, the relationship between radioactivity levels, in Bq, and the effective dose, in mSv
Duplicate diet survey	In dietary and nutritional surveys, subjects weigh and set aside a duplicate portion of all the foods they have eaten, for chemical analysis. Such surveys are a method of assessing dietary intake at the household level of any specified substances in foods – in this case radionuclides.
Effective dose	The measurement of radiation exposure based on several factors, including the characteristics of the radiation at issue and the different sensitivities to radiation exposure of different organs and tissues
Effective dose per year	Overall effective dose of radiation in a year. It covers contributions from all sources, including from radionuclides present in food. It is expressed in mSv/year.
Excretion	That which is separated and ejected from the body
External exposure	Exposure to radioactivity from outside the body, such as from an x-ray machine
Fission	A nuclear reaction or a radioactive decay process in which the nucleus of an atom splits into smaller parts
FM	Fresh Mass
Gamma ray	Gamma rays are emitted by most radioactive sources along with alpha or beta particles. After alpha or beta emission, the remaining nucleus may still be in an excited energy state. Gamma-emitters include caesium-134, caesium-137, iodine-131, ruthenium-103, ruthenium-106, cobalt-60, cerium-144, and iridium-192.
Heritable effects	A child, who is born after his/her parent is exposed to radiation, shows radiation effects
Internal exposure	Exposure from inside the body, such as from ingestion of food containing radionuclides
Intervention exemption level	Below such a level, regulators are not expected to intervene – in particular, in the context of international trade. Various terms are used to describe this threshold level: and "intervention level of dose" and "protective action guide".
Intervention level of dose	Below such a level, regulators are not expected to intervene – in particular, in the context of international trade. Various terms are used to describe this threshold level" Intervention exemption level" and "protective action guide".
Ion	An atom or a molecule in which the total number of electrons is not equal to the total number of protons, giving the atom or molecule a net positive or negative electrical charge. Ions can be created, by either chemical or physical means, via ionization.
Ionization	The process of converting (an atom, molecule, etc.) into an ion or ions
Ionizing radiation	Radiation that produces ionization in matter through which it passes
Isotope	Atoms of the same element (same numbers of protons) that have different numbers of neutrons. Atomic mass (as indicated by the number next to the element) = mass of protons + mass of neutrons. For example, plutonium has several isotopes, including plutonium-239 and plutonium-240. While the two isotopes share the same number of protons (94), their numbers of neutrons differ (145 and 146 respectively).
Kuroshio current	A northward flowing ocean current on the western side of the North Pacific Ocean

Scientific Term	Explanation
Level of radioactivity per kg of food ("Bq/kg")	To ensure compliance with the overall effective dose limit, the overall level must be expressed in terms of the measurable radioactivity from specific radionuclides in food. Typically, this is done through a formula that converts the overall mSv/year level into separate thresholds for the level of radioactivity (Becquerels) emitted by specific radionuclides per kg of food ("radionuclide-specific thresholds").
Market basket survey	A method of estimating dietary intake at the household level of any specified substances in foods, which bases testing on a basket of food products purchased at markets throughout the concerned region. Food categories are purchased to make up the basket in proportion to the average amount of an individual's consumption of food in each category.
Millisievert (mSv)	Thousandths of a Sievert (see definition of Sievert below)
MLs	Maximum Levels
Nuclei	Plural form of nucleus
Nucleus	The small, dense region consisting of protons and neutrons at the center of an atom. The nucleus is made of one or more protons and typically a similar number of neutrons.
Nuclide	An atomic species characterized by the specific constitution of its nucleus, i.e., by its number of protons, its number of neutrons, and its nuclear energy state
Neutron	A subatomic particle, with no net electric charge and a mass slightly larger than that of a proton
North Pacific Ocean gyre	One of the five major oceanic gyres, covering most of the North Pacific Ocean; it has a clockwise circular pattern and is formed by the North Pacific Ocean current to the north, the California current to the east, the north equatorial current to the south, and the Kuroshio current to the west
Physical half-life	The amount of time it takes for half of the atoms in a sample to decay  For instance, for an atom with a half-life of 100 years, half of the original radioactive nuclei remain after 100 years, and one quarter remain after 200 years.
Protective action guide	Below such a level, regulators are not expected to intervene – in particular, in the context of international trade. Various terms are used to describe this threshold level: a "intervention level of dose" (above) and "intervention exemption level".
Proton	A subatomic particle with a positive electric charge of +1e elementary charge and mass slightly less than that of a neutron The number of protons in the nucleus defines the element. For instance, all plutonium isotopes have 94 protons.
Radiation-induced genomic instability	If a cell survives radiation exposure, its daughter cells that have not been exposed to radiation also show chromosomal anomalies, such as a mutation, change in the chromosome number, or reduction in cell numbers in somatic cell cloning, for the next several generations.
Radioactive (n. radioactivity)	Nuclides that have an inherent tendency to undergo spontaneous nuclear transformation (decay) involving the emission of ionizing radiation in the form of alpha or beta particles or gamma rays
Radioactive isotopes	Nuclide that is radioactive. Same as "radionuclide" and "radioisotopes"
Radiological protection	The protection of people from harmful effects of exposure to ionizing radiation, and the means for achieving this It is also referred to as radiation protection.
Radioisotopes	Nuclide that is radioactive Same as "radionuclide" and "radioactive isotopes"
Radionuclide	Nuclide that is radioactive. Same as "radioisotopes" and "radioactive isotopes"
Radionuclide-specific thresholds	Separate thresholds for the level of radioactivity emitted by specific radionuclides per kg of food
Richter scale	A mathematical device to compare the size of earthquakes
Sievert ("Sv")	A unit used to measure the radiation exposure of the human body to a given amount of radiation It is also the unit of measurement for the effective dose.
Soft tissue	Tissues that connect, support, or surround other structures and organs of the body, not being hard tissue such as bone

Scientific Term	Explanation
	Soft tissue includes tendons, ligaments, fascia, skin, fibrous tissues, fat, and synovial membranes (which are connective tissue), and muscles, nerves and blood vessels (which are not connective tissue).
Stochastic effects	Human health effects after exposure to lower doses of ionizing radiation are stochastic effects The probability of an adverse effect increases with increasing dose; the severity of the effect does not, however, increase with radiation dose. The most important stochastic health effect of low radiation doses is radiation-induced cancer.
Transfer factor	In evaluating radionuclide uptake by plants from contaminated soil, the soil-plant transfer factor is defined as the ratio of plant-specific activity to soil-specific activity.
Transuranium elements	Chemical elements with atomic numbers greater than 92 (the atomic number of uranium). All of these elements are unstable and decay radioactively into other elements.
Uptake	Absorption or incorporation by a living system
Vent	The voluntary release of radioactive material from the containment vessels of a nuclear reactor into the environment

1 INTRODUCTION

1.1. This dispute concerns the Republic of Korea's (Korea) imposition of import bans and additional testing and certification requirements following the Fukushima Dai-ichi Nuclear Power Plant (FDNPP) accident on Japan's north-eastern coast on 11 March 2011. The measures affect imports of certain food products from Japan.

1.1 Complaint by Japan

1.2. On 21 May 2015, Japan requested consultations with Korea pursuant to Article 4 of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU) and Article XXII:1 of the General Agreement on Tariffs and Trade 1994 (GATT 1994), and Article 11.1 of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) with respect to the measures and claims set out in sections 2.7 and 3 below.[3]

1.3. Consultations were held on 24 and 25 June 2015.

1.2 Panel establishment and composition

1.4. On 20 August 2015, Japan requested the establishment of a panel pursuant to Articles 4 and 6 of the DSU with standard terms of reference.[4] At its meeting on 28 September 2015, the Dispute Settlement Body (DSB) established a panel pursuant to the request of Japan in document WT/DS495/3, in accordance with Article 6 of the DSU.[5]

1.5. The Panel's terms of reference are the following:

> To examine, in the light of the relevant provisions of the covered agreements cited by the parties to the dispute, the matter referred to the DSB by Japan in document WT/DS495/3 and to make such findings as will assist the DSB in making the recommendations or in giving the rulings provided for in those agreements.[6]

1.6. On 27 January 2016, Japan requested the Director-General to determine the composition of the panel, pursuant to Article 8.7 of the DSU. Accordingly, on 8 February 2016, the Director-General composed the Panel as follows:

Chairperson:	Mr William Ehlers
Members:	Mr Ezzeddine Boutrif Mr Minn Naing Oo

1.7. Brazil, Canada, China, the European Union, Guatemala, India, Norway, New Zealand, the Russian Federation, Chinese Taipei, and the United States notified their interest in participating in the Panel proceedings as third parties.

1.3 Panel proceedings

1.3.1 General

1.8. After consultation with the parties, the Panel adopted its Working Procedures, its Working Procedures for Consultations with the Experts[7] and timetable on 24 February 2016.[8]

1.9. The Panel received written submissions from both parties and sent advance questions[9] prior to holding its first meeting with the parties on 12-13 July 2016. A session with the third parties

[3] See WT/DS495/1.
[4] WT/DS495/3.
[5] See WT/DSB/M/368.
[6] WT/DS495/4.
[7] See the Panel's Working Procedures in Annex A-1 and A-2.
[8] The Panel amended its timetable, in consultations with the parties, on multiple occasions, most recently on 6 October 2017.

took place on 12 July 2016. In the period between the first written submissions and the first meeting the Panel conducted its expert selection process. More information on this process and the consultation with the experts and relevant international organizations can be found in section 1.3.3 .

1.10. Subsequent to the first meeting, the Panel sent the parties questions to be answered in writing and received responses on 2 August 2016. The parties submitted their second written submissions on 24 August 2016. The Panel held a second meeting with the parties on 13-14 February 2017. The Panel sent additional questions in writing after the second meeting and received the parties' responses on 3 March 2017. The parties commented on each other's responses on 17 March 2017. Two weeks later, Japan requested an opportunity to comment on certain exhibits (KOR-294 to KOR-296, KOR-299, and KOR-303 and KOR-304) that Korea had submitted with its comments on Japan's responses to the Panel's questions after the second meeting. Korea objected to Japan's request to provide comments on the specific exhibits but requested that in the event the Panel granted Japan's request, Korea also be accorded an opportunity to provide comments on Japan's comments. The Panel gave Japan leave to comment on two of the new exhibits (KOR-299 and KOR-304). In its response to Japan's request, the Panel noted that paragraph 9 of the Working Procedures provides that new factual evidence can be submitted in comments on answers provided by the other party. The Panel acknowledged that because Exhibits KOR-299 and KOR-304, were in response to factual assertions Japan made in its answer to Panel question No. 123(c), Korea had submitted them at the earliest opportunity possible. Nevertheless, the Panel found that because they contained information relating to issues that the parties had not already discussed in detail, it would be appropriate to give Japan an opportunity to respond.[10] In its decision granting Japan the opportunity to comment on Exhibits KOR-299 and KOR-304, the Panel indicated that it would determine whether Korea needed an opportunity to respond to Japan's comments once it had received Japan's submission. In its comments, Japan did not contest the exhibits as such, but rather took issue with the fact that Korea did not provide a translation of all relevant parts of the exhibits. Therefore, the Panel determined that there would be no need for additional comments from Korea. However, the Panel did request that Korea provide full translations of certain pages of KOR-299 relating to measures to prevent fish movement inside and outside Fukushima harbour and the entirety of KOR-304(a).[11] Korea provided these on 28 April 2017.

1.11. On 10 April 2017, the Panel issued the descriptive part[12] of its Report to the parties. The parties submitted comments on the descriptive part on 24 April 2017. On 28 April 2017, Japan requested the opportunity to comment on Korea's comments.[13] The Panel declined this request noting that parties could comment on any revisions to the descriptive part when the Panel issued its Interim Report.[14] The Panel issued its Interim Report to the parties on 23 August 2017. The parties each submitted written requests for review of precise aspects of the Interim Report on 19 September 2017. Neither party requested an interim review meeting. The parties submitted comments on each other's requests for review on 29 September 2017

1.12. The Panel received communications from Korea on 30 August 2017 and 21 September 2017 enquiring why the estimated date of issuance of the final report to the parties was available on the WTO website.[15] Korea expressed concern that the public might be confused and believe that the report would be publicly available as of the date displayed on the WTO website. In its responses, the Panel noted that it was required under Articles 12.8 and 12.9 of the DSU to report the date of issuance of the final report to the parties to the DSB[16] and that it was the DSB which had made the Panel's letter to the DSB public pursuant to the May 2002 decision of the General Council on circulation of WTO documents.[17] To address Korea's concerns, the Panel sent a new letter to the chairperson of the DSB to clarify that the report would only be public after circulation to all

[9] Japan's first written submission was submitted on 14 March 2016 while Korea submitted its first written submission on 25 April 2016. The Panel sent advanced questions to the parties on 30 June 2016.
[10] Annex D-4.
[11] Email from the Panel to the parties, 19 April 2017.
[12] The descriptive part of the Panel report comprises sections 1 to 5.
[13] Letter from Japan to the Panel, 28 April 2017.
[14] Email from the Panel to the parties, 11 May 2017.
[15] Email to the Panel, 30 August 2017 and letter to the Panel, 21 September 2017.
[16] Email from the Panel to the parties, 1 September 2017.
[17] Letter from the Panel to the parties, 26 September 2017 (citing WT/L/452). See WT/DS495/7.

Members in the three official languages of the WTO. As such date depended on the completion of translation the Panel was not in a position to provide an estimated date of circulation.

1.13. The Panel issued its Final Report to the parties on 16 October 2017.

1.3.2 Request for enhanced third-party rights

1.14. Canada, Norway, and Chinese Taipei requested that the Panel exercise its discretion under Article 12.1 of the DSU to grant third parties enhanced rights in the Working Procedures "in order to ensure that the interests of third parties can be fully taken into account."[18] Specifically, the requesting third parties asked the Panel to grant them rights to (i) "receive an electronic copy of all submissions and statements of the parties, including responses to Panel questions, up to the issuance of the interim report"; and (ii) "be present for the entirety of all of the meetings of the Panel with the parties".

1.15. In making their joint request, Canada, Norway, and Chinese Taipei identified as the basis for receiving enhanced third-party rights their systemic interests in the case as it would be "breaking new legal ground" regarding the transparency obligations under the SPS Agreement, as well as the need to be fully apprised of arguments and evidence so as not to compromise their ability to make submissions in the event of an appeal.

1.16. The Panel invited the parties and other third parties to provide their views on the request.[19] Korea expressed its opposition to the granting of enhanced third-party rights.[20] Japan indicated that it did not oppose the request so long as certain procedural concerns could be accommodated and that confidential information would be protected.[21] The European Union, Guatemala, India, and New Zealand expressly supported the request.[22] The United States did not specifically oppose the concept of enhanced third-party rights, but argued that any deviation from the DSU should only be granted with the parties' consent.

1.17. After consideration of the views of the parties and third parties, the Panel informed Canada, Norway, and Chinese Taipei that it had declined their request.[23] In providing its reasons to these third parties, the Panel held that when drafting the DSU, WTO Members were aware that panels would regularly be called upon to consider important systemic issues of first impression and they had drafted the basis for third-party access with this in mind. Similarly, the Panel considered that the DSU drafters devised Article 10 knowing that third parties would be given the opportunity to make submissions and be heard by the Appellate Body and considered that the access permitted under Article 10 would be sufficient to allow them to participate effectively. The Panel was also mindful that the distinction drawn in the DSU between parties and third parties should not be blurred.[24]

1.3.3 Consultation with experts and international organizations

1.3.3.1 Panel's decision to consult experts

1.18. As Japan's request for establishment of a panel identified provisions of the SPS Agreement and was likely to deal with complex scientific matters, the Panel was of the view that in accordance with Article 11.2 of the SPS Agreement it should consult experts and international organizations to facilitate the carrying out of its mandate.[25] Therefore, the Panel's timetable and Working

[18] Letter from Canada, Norway, and Chinese Taipei to the Panel, 1 March 2016.
[19] Email from the Panel to the parties and third parties, 3 March 2016.
[20] Letter from Korea to the Panel, 11 March 2016.
[21] Letter from Japan to the Panel, 11 March 2016.
[22] European Union's communication to the Panel, 2 March 2016, India's communication to the Panel, 3 March 2016, New Zealand's communication to the Panel, 9 March 2016, United States' communication to the Panel, 11 March 2016, and Guatemala's communication to the Panel, 11 March 2016.
[23] The full text of the Panel's decision is contained in Annex D-1.
[24] Panel's decision on enhanced third-party rights, 26 May 2016 (citing Panel Report, *EC – Bananas III (Guatemala and Honduras)*, para. 7.9). See also Panel Report, *EC – Tariff Preferences*, Annex A, para. 7(d); Panel Report, *EC – Export Subsidies on Sugar (Australia, Brazil and Thailand)*, para. 2.7; and Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.166.
[25] The Panel's consultation with experts was also carried out pursuant to the Panel's authority under Article 13 of the DSU.

Procedures contemplated from the outset that experts and international organizations would be consulted. Thus the Panel adopted both regular Working Procedures and the Working Procedures for Consultations with Experts shortly after the organizational meeting. In light of the often time-consuming process of expert selection and seeking efficiencies in the process to ensure prompt settlement of the dispute, the Panel's timetable called for the process of selecting experts to take place between the date of the respondent's first written submission and the date of the first meeting.

1.19. Shortly after the Panel received Korea's first written submission, the Panel sent a communication to the parties seeking their views on the use of scientific experts and consultation with relevant international organizations.[26] In particular, the Panel asked the parties whether it should seek scientific or technical advice from experts and relevant international organizations and, if so, from which international organizations and in what scientific or technical areas. In its response to the Panel's letter Japan proposed that the Panel should consider waiting to make its decision on whether to consult experts until after it had received the parties' second written submissions. According to Japan, it would only be at this point that the Panel would be able to assess the number, nature, and degree of contested facts. Japan did not respond to the specific questions posed by the Panel.[27] In its response, Korea "consider[ed] that the Panel could seek expert advice and consult international organizations in the following scientific areas: severe nuclear accidents, human health impact from exposure to radiation, radionuclide contamination in foods, and radionuclides in the marine environments: biota, seawater, sediments". Korea also proposed that Codex Alimentarius Commission (Codex), the Food and Agriculture Organization (FAO), the International Atomic Energy Agency (IAEA), International Agency for Research on Cancer (IARC), the International Commission on Radiological Protection (ICRP), the World Health Organization (WHO), Global Research for Safety (GRS), and the *Institut de radioprotection et de sûreté nucléaire* (IRSN) were relevant international organizations for the dispute.[28]

1.20. The Panel informed the parties that it saw no reason to delay the beginning of the expert selection process until after the second written submissions for a variety of reasons. First, the Panel could determine from the nature of the evidence and argumentation already on the record that it would benefit from an expert consultation process. Moreover, the core elements in the dispute were readily discernible from the parties' first written submissions. The Panel noted that it was not proposing to draft the questions to the experts until after it had received the parties' second written submissions. Finally, the Panel decided that waiting until after the receipt of the parties' second written submissions to commence the expert selection process would most probably have a significantly deleterious impact on the timetable.[29]

1.3.3.2 Panel's selection of individual experts

1.21. Promptly after making its decision, the Panel contacted the Codex Secretariat, the FAO, the IAEA, the ICRP, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and the WHO requesting the assistance of these agencies in identifying scientific or technical experts in the following areas: (i) release of nuclear materials into the environment (by accident or by other means); (ii) radionuclide contamination in food including testing methods and any differences in contamination based on the source of contamination (air, groundwater, or naturally occurring); and (iii) radionuclides in marine environments including issues of radionuclide deposits in the ocean and levels of radioactivity in marine organisms.[30] Although neither party had mentioned UNSCEAR, the Panel decided to contact this organization as it is the United Nations agency tasked with assessing the global levels and effects of ionizing radiation and therefore is well placed to know of experts with the requisite scientific knowledge throughout the world. With respect to Global Research for Safety (GRS), and the *Institut de radioprotection et de sûreté nucléaire* (IRSN) the Panel notes that these and other national nuclear safety agencies and NGOs are part of the international network available to the IAEA and UNSCEAR.[31] The Panel did not contact the IARC as it was not seeking expertise in the health effects of exposure to ionizing

[26] Letter from the Panel to the parties, 26 April 2016.
[27] Letter from Japan to the Panel, 2 May 2016.
[28] Letter from Korea to the Panel, 2 May 2016.
[29] Letter from the Panel to the parties, 9 May 2016.
[30] Letter from the Panel to the parties, 9 May 2016. See also email from Panel to the parties, 6 June 2016. Letter from the Panel to the parties, 15 July 2016.
[31] For further information on the organizations that UNSCEAR liaises with see http://www.unscear.org/unscear/en/media/links.html.

radiation[32] because the issue of the risk to human health from consumption of radionuclides was not in dispute.

1.22. Between 18 May 2016 and 20 June 2016, the Panel received the names of 25 experts who the above-mentioned international organizations considered would be able to advise the Panel on the matters identified.[33]

1.23. The WTO Secretariat contacted each of the individuals identified by the international organizations to determine whether they were available and willing to assist the Panel as well as to gather their curricula vitae and potential conflicts of interest. The Panel transmitted to the parties all the names proposed by the international organizations indicating which of them had indicated that they were willing and available to assist the Panel. The Panel also provided the curricula vitae and disclosure statements of the 15 experts who were available and willing to assist.

1.24. In accordance with paragraph 31 of the Working Procedures for Consultations with Experts, the Panel invited the parties to comment on the available potential experts identified and to make known any compelling objections to any of the experts. The Panel communicated the names of the experts to the parties in two communications. [34] Japan accepted all of the proposed experts, although it expressed preferences for some over others. Korea accepted five of the proposed experts and objected to the rest.[35] In Korea's 13 June 2016 letter commenting on the first set of expert names proposed, Korea objected to every expert proposed with expertise in radionuclides in marine environments. Korea also objected to one expert due to his employment and objected to other proposed experts due to their prior statements or participation in risk assessments related to the FDNPP (e.g. the 2013 UNSCEAR Report) that Korea alleged could possibly affect their independence or impartiality. In its comments on the second set of proposed experts dated 7 July 2016, Japan also included responses to Korea's objections to the first set of proposed experts stating that it was "difficult to reconcile Korea's objections to the experts, with the need, advocated by Korea itself, to possess expertise in the [stated] areas." With respect to the second set of names, Korea objected to one of the proposed experts due to Korea's previous consultation with that expert on this dispute. Korea objected to two other experts because it argued that there was information that gives rise to justifiable doubts about their impartiality. Korea accepted the other two experts who were proposed. Upon Korea's request, the Panel allowed Korea to respond to Japan's comments in its 7 July 2016 letter that were rebuttals of Korea's earlier objections to the first set of proposed experts. In its 12 July 2016 comments, Korea reiterated and augmented its arguments with respect to not selecting experts that had specifically assisted in preparing UNSCEAR's 2013 Report.

1.25. The Panel provided its reasoning on the selection of experts to the parties on 15 July 2016.[36] In making its decision, the Panel sought expertise in the three different areas referred to in paragraph 1.21. above. The Panel also sought to ensure that there were at least two individuals who were experts in each area.

1.26. The Panel accepted Korea's objections to three experts because there was a potential for partiality or bias. The Panel did not accept Korea's objections to four experts simply because these particular experts appeared to have participated in the drafting of the 2013 UNSCEAR Report on the FDNPP accident. The Panel noted that the report was commissioned by an organ of the United Nations that had sought the best experts in the field. The report was concerned with the immediate effects of the accident on the people living in and around the FDNPP and not with people who consume some Japanese food products as part of their diet. Although some elements in the report addressed internal exposure of people living in and around the FDNPP through consumption of contaminated food, the Panel noted that the report was not an assessment of the risks arising from human consumption of radionuclides in food products. Therefore, it was the Panel's view that participation of these experts in the preparation of the report would not *per se*

[32] Letter from the Panel to the parties, 9 May 2016.

[33] Communications from UNSCEAR on 18 May 2017, ICRP on 19 May 2016, IAEA on 7 June 2016; FAO on 16 June 2016, and WHO on 20 June 2016. On 8 July 2016, Codex informed the Panel that the FAO's reply included input from Codex.

[34] The Panel provided the first list on 6 June 2016 and sent an updated list on 30 June 2016 as the international organizations had provided names at different times and thus the Panel received the responses from the experts on a staggered basis.

[35] Japan's and Korea's communications to the Panel, 13 June 2016 and 7 July 2016.

[36] See Annex D-2.

disqualify them. Nevertheless, the Panel was able to identify enough suitable experts without selecting the four experts who participated in the preparation of the 2013 UNSCEAR Report.

1.27. In considering Korea's other objections, the Panel noted that although it required assistance in the area of radionuclides in marine environments Korea had objected to every expert identified with expertise in this field. The Panel carefully scrutinized Korea's objections. With respect to two of the experts, the Panel found that Korea's objections were either unsubstantiated or did not demonstrate any reasonable concerns about conflict of interest, bias, or partiality on the part of these experts. Therefore, in the circumstances of this dispute and after full consideration of the argumentation presented by both parties, the Panel found that Korea's objections to the two experts were not sufficient to preclude them from assisting the Panel in evaluating the evidence presented in an objective and independent manner.

1.28. The Panel informed the parties that it had selected the following experts: Professor Lynn ANSPAUGH[37], Ms Joanne BROWN[38], Professor Rolf MICHEL[39], Dr Lavrans SKUTERUD[40], and Dr Patsy THOMPSON[41]. Each of the selected experts had expertise in at least two of the areas identified by the Panel (see paragraph 1.21. above), and two of the experts were able to advise in all three areas.

1.29. At the time it made its selection, the Panel noted that Korea had also requested that the Panel seek additional experts in the areas of severe nuclear accidents and the risks of radionuclides to human health.[42] The Panel did not accede to Korea's request. In particular, the Panel found that expertise in nuclear accidents was covered by the area (i) "release of nuclear materials into the environment (by accident or by other means)". Moreover, the Panel noted that the issue of the risk to human health from consumption of radionuclides was not in dispute and thus, the Panel did not need assistance in assessing any evidence in this area.

1.30. In its opening statement at the second meeting, Korea stated that it had requested the Panel to seek experts "with broader experience as food safety risk assessors." According to Korea it "had emphasized early in the proceedings the importance of having experts with expertise in the

[37] Professor Anspaugh's fields of research cover (i) trace elements in human metabolism, (ii) aeolian resuspension of transuranic radionuclides, (iii) public health implications of the use of nuclear energy, (iv) environmental and health effects of utilizing geothermal energy, (v) calculation of radiation doses from nuclear reactor accidents, (vi) reconstruction of radiation doses from releases from plutonium-production facilities, (vii) reconstruction of radiation doses from NTS and (viii) global nuclear weapons tests. He is currently Research Professor Emeritus of Radiology, at the University of Utah School of Medicine.

[38] Ms Joanne Brown is experienced in radiation protection in the area of health risk assessment and development of public health guidance and advice on radiation protection issues, including drinking water and radioactive contaminated land. She is also experienced in emergency response following nuclear accidents on transfer in the terrestrial environment, dose assessment, environmental monitoring and the implementation of remediation options for drinking water and inhabited areas, including waste water.

[39] Professor Michel's fields of research cover (i) radiation transport, (ii) nuclear metrology and nuclear analytical methods, (iii) production of radionuclides in nuclear reactions, (iv) interactions of cosmic radiation with matter, and (v) radioecology and exposure assessment. Until his retirement, Professor Michel was responsible for radiation protection auditing at Hannover University. Among other things, from 1999 – 2006 and 2008-2016 Professor Michel was a member of the German Commission on Radiological Protection (SSK). From 2012-2016, he was chairman. From 2007-2016 he was the German delegate to UNSCEAR.

[40] Dr Lavrans Skuterud's fields of research cover (i) radiation protection and (ii) environmental radioactivity and nuclear accident consequence assessment and management, nationally and internationally. Dr Skuterud is presently a research scientist/senior scientist with the Norwegian Radiation Protection Authority. He is also a member of the working committee of the Norwegian Scientific Committee for Food Safety. The working committee assesses health risks associated with radionuclides in diets in Norway.

[41] Dr Patsy Thompson is experienced in the development and validation of ecological risk assessment approaches to assess radiological risks to non-human biota; in the development and implementation of a regulatory framework for protection of the environment within a nuclear regulatory body (protection requirements; human health and ecological risk assessments; effluent and environmental monitoring); in the development and implementation of a strategic research agenda (effects of radioactivity and metals (U, As, Ni, Se) on aquatic biota and small mammals; behaviour of tritium in the terrestrial environment and effects of tritium on human health; epidemiological studies on uranium miners and nuclear energy workers and populations living around nuclear facilities; health impacts of severe nuclear accidents). For ten years (until July 2016), Dr Thompson was Director General, Directorate of Environmental and Radiation Protection and Assessment at the Canadian Nuclear Safety Commission. At the time of the proceedings, Dr Thompson held or had recently held a number of scientific and regulatory functions, including as Canadian delegate to UNSCEAR and as Canadian delegate to the IAEA Radiation Safety Standards Committee.

[42] Korea's communications to the Panel, 2 May 2016 and 7 July 2016.

scientific assessment of food safety issues having regulatory impact".[43] Following a request from the Panel to identify where Korea made this request, Korea stated that the relevant communications were its letters of 2 May 2016, 7 July 2016 and 12 July 2016. In those letters Korea indicated its view that the Panel needed expertise in "radionuclide contamination in foods" and in "human health impact from exposure to radiation." In its 7 July letter, Korea also noted the importance of the Codex as "one of the international organizations recognized as a relevant authority for food safety in paragraph 3(a) of Annex A of the SPS Agreement". The Panel is unable to find in the communications identified by Korea, a specific request for experts in the assessment of food safety issues having a regulatory impact or food safety risk assessors. With regard to Korea's comment about Codex, the Panel notes that in its 8 July 2016 email, the Codex Secretariat stated that it had provided a consolidated response with the FAO and that no separate list of experts from Codex would be forthcoming.[44]

1.3.3.3 Panel's questions to the individual experts and the international organizations

1.31. Paragraph 36 of the Panel's Working Procedures for Consultation with Experts set forth that the Panel may provide the experts, on a confidential basis, with relevant parts of the parties' submissions. In light of the high volume of submissions and exhibits, on 29 August 2016, the Panel sent a communication to the parties indicating that it would prefer to provide the entirety of the parties' submissions to the experts and indicate to the experts which portions were relevant for their review. Japan agreed to this approach. However, citing paragraph 36 of the Working Procedures for Consultations with Experts as well as Article 13 of the DSU Korea requested that the Panel redact the submissions so that only the relevant parts were visible to the experts. In particular, Korea argued that Article 13 of the DSU provides only for panels to seek factual information and technical advice from experts and thus the experts should not see the portions of the submissions containing legal arguments. Persuaded by Korea, the Panel provided redacted versions of the submissions to the parties for their comments.[45] After receiving the parties' comments on the redactions[46], the Panel made some final adjustments. Furthermore, in response to a request from Japan, the Panel provided a more lengthy explanation of its decision to redact submissions and how it determined what portions to redact.[47] The Panel applied the following criteria in redacting the submissions: (i) argumentation that was solely legal in nature; (ii) argumentation on facts and claims that the Panel was not seeking advice from the experts on, and (iii) potentially inflammatory characterizations of the parties' actions or arguments. In particular, the Panel noted that despite the additional work the redaction process entailed, the Panel felt a conservative approach to the interpretation of its Working Procedures was appropriate. Moreover, the Panel was of the view that redaction would provide the experts with a clear picture of the factual issues they needed to consider without the distraction of the legal argumentation.

1.32. Before the Panel sent its questions to the experts and to the international organizations, both parties were given an opportunity to provide their own proposed questions for the Panel to consider including in its list. The parties provided their proposed questions on 31 August 2016. One week later, 7 September 2016, the Panel sent its questions to the experts, including some, but not all, of those proposed by the parties. At that time, the Panel informed the experts that it was in the process of redacting the parties' submissions and that the experts could expect to receive these and the relevant exhibits in an encrypted electronic format in the near future.

1.33. Due to the redacting process, the experts were not sent the submissions and exhibits until 23 September 2016, three full weeks after they had been sent the questions. Therefore, the experts were granted more time than originally contemplated in the timetable to complete their answers to the Panel's questions. The Panel received all the experts' answers by 18 November 2016.

1.34. As the parties had raised specific arguments with respect to certain of their publications, the Panel also sent the Codex Secretariat, the IAEA and the ICRP a limited number of questions. The

[43] Korea's opening statement at the second meeting of the Panel, para. 10.
[44] In its 12 July 2016 letter, Korea repeated its comment that Codex was one of the international organizations recognized as a relevant authority for food safety. This comment came after Codex's message of 8 July 2017 stating that it had sent a consolidated list of experts with the FAO and that it would not be sending a separate list.
[45] See email from the Panel to the parties, 7 September 2016.
[46] See parties' comments on the redacting of submissions, 14 September 2016.
[47] Annex D-3.

Panel also received responses to its questions from all the organizations consulted by 18 November 2016.

1.3.3.4 Panel meeting with the experts and the parties

1.35. In preparation for the Panel's meeting with the experts and the parties, the Panel provided the parties with an opportunity to submit advance questions, through the Panel, to the experts. On 30 January 2017, the parties submitted to the Panel advance questions for the experts.[48] The questions were sent on to the experts shortly afterwards. The Panel held a meeting with the experts and the parties on 9-10 February 2017.

1.36. On 13 March 2017, the Panel sent a transcript of the meeting with the experts and the parties to the individual experts and the parties with a request for the experts and parties to verify that the transcript accurately reflected the information they provided. After receiving comments, the Panel sent a final version of the transcript to the parties on 21 April 2017.

2 FACTUAL ASPECTS

2.1 Radioactive contamination of food

2.1. Radionuclides – nuclides that are radioactive – are a source of ionizing radiation.[49] Radionuclides occur in both natural and man-made forms throughout the world and humans are exposed to them on a continuous basis. Natural sources of ionizing radiation can be found in soil, water, or vegetation; certain X-rays and medical devices are a source of human-made ionizing radiation.[50] They can also occur as a consequence of nuclear weapons usage or testing or following accidental events in nuclear facilities.

2.2. Background levels of radionuclides in foods vary and are dependent on several factors, including the type of food and the geographic region where the food has been produced. The common radionuclides in food are potassium-40 (K-40), radium-226 (Ra-226) and uranium 238 (U-238) and their associated progeny. In general, K-40 is the most commonly occurring natural radionuclide (or radioisotope).

2.3. Radioactive material, whether natural or man-made, can enter the food chain following release events in the same way as non-radioactive material. The potential impact on human health depends on the type of radionuclides and the length of time people are exposed to them as well as the manner of exposure (environmental or ingestion). The amount of radiation people are exposed to varies from place to place and among individuals.[51]

2.4. Once released, radionuclides are transported through dispersion and dilution mechanisms and may become incorporated into the environment. Once in the environment, the fate of radionuclides is governed by a number of physical, chemical, and biological processes. The interplay between these various mechanisms will determine how, and to what extent, various

[48] In its response to questions after the second meeting Korea notes that no representative of the Codex had an opportunity to present their views to the Panel at the meeting with the experts. See Korea's response to Panel question No. 119. The Panel informed the parties on 30 January 2017 that it had not invited representatives of the international organizations to the meeting. The Panel notes that Korea raised this issue only after the meeting had already occurred.

[49] "Ionizing radiation is 'radiation which produces ionization in matter through which it passes', and ionization is the "process" of "convert[ing] (an atom, molecule, etc.) into an ion or ions", which are positively or negatively charged particles." Japan's first written submission, para. 27 (citing the Oxford English Dictionary, OED online, (Exhibit JPN-17 and Exhibit JPN-18)).

[50] World Health Organization, "Ionizing radiation, health effects and protective measures", Fact Sheet No. 371 (November 2012), (WHO Fact sheet on ionizing radiation) (Exhibit JPN-24).

[51] WHO/FAO International Food Safety Authorities Network (INFOSAN), "Nuclear accidents and radioactive contamination of foods", 30 March 2011, http://www.who.int/foodsafety/fs_management/radionuclides_and_food_300311.pdf?ua=1; Dr Thompson's responses to Panel question Nos. 1 and 11, paras. 2.15-3.17; Transcript of the Panel's meeting with the scientific experts on 9-10 February 2017 (Expert Meeting Transcript), paras. 1.73, 2.4 and 2.29.

radionuclides may become incorporated into plants and animals[52] and thus eventually enter the human food chain.

2.5. When large amounts of radioisotopes are discharged into the environment, they can affect foods by either falling onto the surface of foods like fruits and vegetables or animal feed as deposits from the air or through contaminated rain or snow. Radioactivity in water can also accumulate in rivers and the sea, depositing on fish and seafood. Once in the environment, radioactive material can also become incorporated into food as it is taken up by plants, seafood or ingested by animals. Although there are many different radionuclides that can be discharged following a major nuclear emergency, some are very short-lived and others do not readily transfer into food. Radionuclides generated in nuclear installations that could be significant for the food chain include radioactive hydrogen (H-3), carbon (C-14), technetium (Tc-99), sulphur (S-35), cobalt (Co-60) strontium (Sr-89 and Sr-90), ruthenium (Ru-103 and Ru-106), iodine (I-131 and I-129), uranium (U-235) plutonium (Pu-238, Pu-239 and Pu-240), caesium (Cs-134 and Cs-137), cerium (Ce-144), iridium (Ir-192), and americium (Am-241).

2.6. The products most affected by the atmospheric release of radionuclides are leafy vegetables. Milk is also associated with early phase contamination due to the rapid transfer of radioactive iodine and the "relatively" rapid transfer of radioactive caesium from contaminated feed into milk. Foods collected from the wild, such as mushrooms, berries and game meat, may continue to be a radiological problem for a long time.[53] Fish and aquatic microflora may bioconcentrate certain radionuclides; the levels of concentration can be affected by the rate of dilution of radionuclides in water, in light of currents or settling into sediment.

2.7. Uptake of radionuclides occurs through two major pathways – from contaminated water and from contaminated food. Radionuclides are eliminated from the body through metabolic activities. Uptake and elimination rates will vary among radionuclides, and even for one radionuclide depending on the environmental characteristics and among species.[54]

2.8. Consumption of food contaminated with radionuclides will lead to a dose of internal radiation measured in Sieverts (Sv) (more generally in millisievert - mSv). Exposure is usually calculated based on a dose received from food consumption. International organizations such as the Codex or individual Members may set an annual dose limit, for example 1 mSv/year. Dose coefficients, also called dose conversion factors, correspond to the radiation dose (Sv) per unit intake of a radioactive substance (Becquerel, Bq)[55], in other words the "radiation damage" for a type of radiation. Dose coefficients are calculated for a particular radionuclide as applied to individual organs or to the whole body, and depend, *inter alia*, on the radionuclide itself, its longevity in the body, the type of incorporation (inhalation, ingestion), the tissues and organs in which the radionuclide is incorporated, and the age of the individual. Dose conversion factors allow the calculation of a dose Bq of radionuclides ingested. The general formula is:

Dose (Sv/year) = Bq/kg food X Kg food/year X Sv/Bq

2.9. If there is more than one radionuclide present in food, the doses for each radionuclide calculated using the above formula are then added together to obtain a total dose of radiation from radionuclides ingested with the contaminated food product.[56]

2.10. Korea informed Japan that the twenty radionuclides listed in the Codex Alimentarius Commission General Standard for Contaminants and Toxins in Food and Feed, CODEX STAN 193-1995 (CODEX STAN 193-1995) were the subject of Korea's concerns with respect to food-borne

[52] Dr Thompson's response to Panel question No. 2 to the experts.

[53] WHO/FAO International Food Safety Authorities Network (INFOSAN), "Nuclear accidents and radioactive contamination of foods", 30 March 2011; Professor Michel's response to Panel question Nos. 2 and 19 to the experts; Dr. Skuterud's response to Panel question No. 1 to the experts'.

[54] Dr Thompson's response to Panel question No. 75 to the experts.

[55] The becquerel (symbol Bq) is the unit of radioactivity in the *Système International*. One Bq represents a rate of radioactive decay equal to 1 disintegration per second, see United States Nuclear Regulatory Commission. Commonly used multiples are kBq (kilobecquerel, 10^3 Bq), MBq (megabecquerel, 10^6 Bq), GBq (gigabecquerel, 10^9 Bq), TBq (terabecquerel, 10^{12} Bq), and PBq (petabecquerel, 10^{15} Bq).

[56] Dr Thompson's response to Panel question No. 35 to the experts.

radionuclides.[57] Because of prior release events resulting from the Chernobyl accident and nuclear weapons detonations, these 20 radionuclides – most of which are man-made – can be found at varying levels, everywhere in the world.

2.11. There are six radionuclides that are particularly referenced in this dispute: caesium (Cs-134 and Cs-137), strontium (Sr-90), plutonium (Pu-239 and 240)[58] and radioactive iodine (I-131).

2.2 The health risks from exposure to ionizing radiation

2.12. It is undisputed that exposure to ionizing radiation can have detrimental impacts on human health. The types of adverse health effects depend on whether the exposure is to high doses (a deterministic effect) or to low doses (stochastic effects). It is the risk of these stochastic effects from the potential presence of radionuclides in food exports from Japan that Korea states it is addressing through the measures at issue. One of the most significant adverse health effects of low radiation doses is radiation-induced cancer.[59]

2.13. In particular, potential health risks associated with exposure to the six radionuclides principally referred to in this dispute include the following[60]:

a. Caesium 134 and 137: is absorbed through body fluids, deposited in muscles and soft tissues in the human body, and its dose is evenly spread to all body organs.[61] Because caesium is evenly spread to all body organs, uptake of a large dose of caesium may increase cancer incidence in the muscles and soft tissues where caesium is deposited.[62]

b. Strontium 90: Strontium is absorbed through body fluids and deposited in bones and teeth.[63] Similar to calcium, strontium's chemical behaviour causes it to accumulate in bones.[64] Uptake of a large dose of strontium may increase cancer incidence in the bone and bone marrow. Strontium replaces a part of calcium that composes the bones and teeth of humans and animals. β-rays from Sr-90, which enters the body in place of calcium, and Y-90, which is produced by radioactive decay of Sr-90, kill or damage live cells with high energy and turn them into cancer cells, thereby increasing the risk of bone cancer and causing various bone diseases.[65]

c. Plutonium 239 and 240: Plutonium is absorbed in body fluids, deposited in the liver and bones, and then travels to other organs through body fluids.[66] For adults, 30% of plutonium absorbed in the body remains in the liver and the remaining plutonium spreads to other tissues, including bone marrow and the kidneys. When plutonium particles are inhaled, they lodge in the lung tissue. Uptake of plutonium has been

[57] Response by Korea's SPS Enquiry Point to Request of 24 June 2014 from Japan's SPS Enquiry Point (26 August 2014) (Response by Korea's SPS Enquiry Point) (Exhibit JPN-30). This communication was in response to the communication from Japan's SPS Enquiry Point, "Request for relevant documents and information related to SPS measures following the Fukushima nuclear power plant accident" (24 June 2014) (Japan's June 2014 Request to Korea's SPS Enquiry Point) (Exhibit JPN-31).

[58] Korea also tests for Pu-238.

[59] Japan's first written submission, paras. 30-31 (citing WHO Fact sheet on ionizing radiation, (Exhibit JPN-24)).

[60] Korea's first written submission, para. 29.

[61] International Commission on Radiological Protection, "Publication 78: Individual monitoring for internal exposure of workers", Annals of the ICRP, Vol. 27, Nos. 3-4 (1997), (ICRP Publication 78: Individual monitoring), (Exhibit KOR-31); International Commission on Radiological Protection, "Publication 67: Age-dependent Doses to Members of the Public from Intake of Radionuclides – Part 2 Ingestion Dose Coefficients", Annals of the ICRP, Vol. 23, Nos. 3-4 (1993), (ICRP Publication 67:Age-dependent doses), (Exhibit KOR-32).

[62] Centers for Disease Control and Prevention, "Radioactive Isotopes" listing I-131, Cs-137, Sr-90, Pu (http://emergency.cdc.gov/radiation/isotopes/index.asp), (CDC radioactive isotopes listing), (Exhibit KOR-26).

[63] ICRP Publication 78: Individual monitoring, (Exhibit KOR-31) and ICRP Publication 67: Age-dependent doses, (Exhibit KOR-32).

[64] Fukushima accident raised levels of radioactive strontium off the east coast of Japan by up to 100 times, Science Daily, 11 June 2013, https://www.sciencedaily.com/releases/2013/06/130611084207.htm, (Exhibit KOR-33).

[65] Korea's first written submission, para. 29 citing CDC radioactive isotopes listing, (Exhibit KOR-26).

[66] ICRP Publication 78: Individual monitoring, (Exhibit KOR-31); ICRP Publication 67: Age-dependent doses, (Exhibit KOR-32).

reported to increase cancer incidence in organs such as the lungs, liver, and bone marrow.[67]

d. For the iodine absorbed in the blood, 30% is accumulated in the thyroid and the remaining 70% is directly released through urine.[68] It was found that because of radioactive iodine's accumulation in thyroid, thyroid cancer incidence increased among those who were exposed to radiation as children when the Chernobyl nuclear accident occurred.[69] As a gas, iodine contamination may also occur through inhalation or absorption through the skin.

2.14. The potential impact of radioactivity on the human body can be determined by calculating the effective dose. The effective dose measures radiation exposure based on several factors. These include the type of radiation at issue, and the sensitivities to radiation exposure of the organs and tissues. The unit of measurement for the effective dose is the sievert (Sv); it measures the radiation in terms of the potential for causing harm. As this is a very large unit, it is more practical to use smaller units such as millisieverts (mSv). There are 1,000 mSv in 1 Sv.[70]

2.15. Beyond certain levels, radiation can cause tissue damage, skin redness, hair loss, radiation burn or acute radiation syndrome. Acute radiation exposure has a different dose threshold than low doses or those delivered over a longer period of time. This is because over time there is more chance of the damaged cells successfully repairing themselves. This does not mean that there is no risk from exposure at low doses. There may still be long-term effects if errors are incorporated at the cell-repair stage, meaning that a cell may still retain its capacity for cell division. This transformation may lead to cancer many years later. The likelihood of this happening is in proportion to the radiation dose received. The risk is higher for adolescents and children as they are significantly more susceptible to radiation exposure than adults. Relevant epidemiological studies have shown a significant cancer risk increase at doses above 100 mSv[71]; by contrast the dose threshold for acute radiation syndrome (more or less immediate effects) is 1 Sv (1,000 mSv).

2.16. According to the WHO, with regards to radiation exposure in nuclear emergencies such as the FDNPP, people living in close vicinity to the nuclear power plant can be externally contaminated by particles deposited on skin and clothes. They can also be externally exposed to radionuclides present in a radioactive cloud or deposited on the ground. Populations living near a nuclear power plant can also suffer internal exposure if radionuclides are inhaled, ingested, or enter an open wound. According to the WHO "the general population is not likely to be exposed to doses high enough to cause acute effects but they may be exposed to low doses which could result in increased risk of long term effects like cancer. Consumption of radionuclides contaminated food and/or water contributes to overall radiation exposure."[72] At present, the Korean population is not directly exposed to radiation from the FDNPP accident, but only potentially through food imported from affected areas.

2.17. Despite questions that remain regarding the effects from exposure to low-dose radiation, currently a linear extrapolation of cancer risks from intermediate to very low doses appears to be the most appropriate methodology.[73] The linear-no-threshold (LNT) model currently represents the most widely accepted dose-response model relating exposure to radiation and increase in cancer incidence.[74] The LNT model assumes that there is no threshold below which adverse effects can be guaranteed not to occur. All of the experts consulted and both parties agreed that the LNT model is the current standard used worldwide in assessing risks from radionuclide exposure. Although

[67] CDC radioactive isotopes listing, (http://emergency.cdc.gov/radiation/isotopes/index.asp, (Exhibit KOR-26); Toxicological Profile for Plutonium, (Exhibit KOR-27).

[68] International Atomic Energy Agency, "Assessment of Doses to the Public from Ingested Radionuclides" (1999), (Exhibit KOR-34); and ICRP Publication 78: Individual monitoring, (Exhibit KOR-31).

[69] Health effects of the Chernobyl accident, (Exhibit KOR-25); CDC radioactive isotopes listing, (Exhibit KOR-26).

[70] Japan's first written submission, paras. 33-34 and WHO Fact sheet on ionizing radiation, (Exhibit JPN-24).

[71] WHO Fact sheet on ionizing radiation, (Exhibit JPN-24).

[72] WHO Fact sheet on ionizing radiation, (Exhibit JPN-24).

[73] D.J. Brenner " Cancer risks attributable to low doses of ionizing radiation: Assessing what we really know", (25 November 2003) Vol. 100, No. 24, (Exhibit KOR-138), pp. 13761–13766. See also Korea's comments on the experts' responses to Panel question No. 1 to the experts.

[74] See e.g. Dr Thompson's response to Panel question No.1 to the experts.

there is uncertainty among experts regarding cancer rates associated with low doses, it is recognised that below certain thresholds it is impossible to detect adverse effects over and above natural background effects.[75] More on the LNT model and its applicability to this dispute is discussed in paragraph 7.239. below.

2.18. The six radionuclides principally referred to in this dispute have varying physical half-lives that indicate the potential for them to remain present in the environment after a release, such as an accident at a nuclear power plant. Dose coefficients are developed using physical half-lives. Biological half-lives represent the time for one half of a radionuclide to be expelled from the body by natural metabolic processes, in light of its properties (whether it deposits in blood, bone, or particular organs) and the age of the person, not counting radioactive decay. Therefore, the biological half-life of a particular radionuclide can vary. The biological half-lives in the table below are illustrative and are not meant to be seen as definitive as to the biological half-life of that radionuclide in a particular individual or group of individuals.[76] The below table lists the different half-lives of each radionuclide.

Table 1: Radionuclide half-lives

Radionuclide	Physical Half-Life	Biological Half-Life
Caesium (Cs-134)	2.1 years	110 days
Caesium (Cs-137)	30.1 years	
Strontium (Sr-90)	28.8 years	35 years
Plutonium (Pu-239)	24,110 years	200 years
Plutonium (Pu-240)	6,563 years	
Radioactive iodine (I-131)	8 days	80 days

Source: Figure 1, Korea's first written submission and Professor David J. Brenner and Dr. Ken O. Buesseler, "Analysis of the Presence of Cesium and the Ratio of Additional Radionuclides to Cesium in Food Products from Japan and the Rest of the World" (11 March 2016) (Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world), (Exhibit JPN-11).

2.3 International response to radioactive contamination

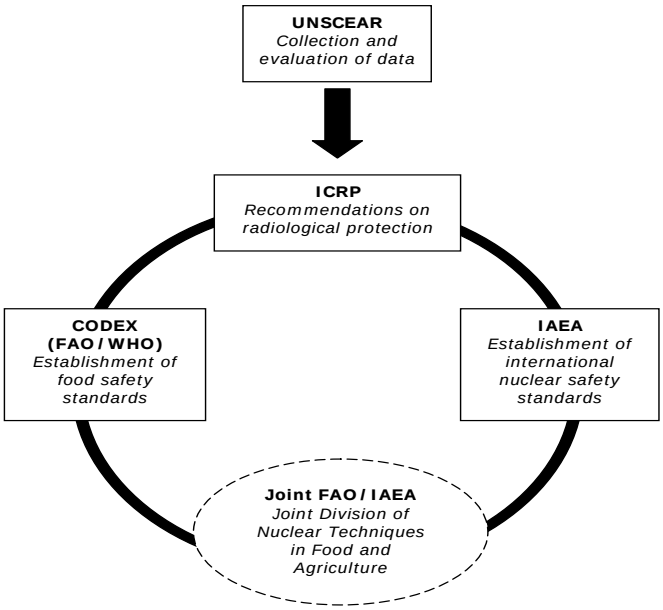
2.19. Radioactive contamination is a global issue; no matter where radionuclides were initially released, they can have an impact throughout the world. Therefore, a variety of international scientific organizations contribute to the assessment and management of radioactivity in the environment, including food. These are Codex (and its parent organizations the FAO and WHO), UNSCEAR, the ICRP, and the IAEA. The work of these organizations is complementary and provides a comprehensive coverage of the international response to radioactive contamination.

2.20. Figure 1 below is a visual representation of the complementarity of the work of these organizations.

[75] Expert Meeting Transcript, paras. 1.73-1.80.

[76] See e.g. Dr Thompson's response to Panel question No. 1 to the experts and UNSCEAR 2008 Report *Sources and Effects of Ionizing Radiation*. United Nations, New York, 2010, (Exhibit JPN-11.1(112)).

Figure 1: International response to radioactive contamination



2.21. As noted above, the Panel asked each of these organizations for assistance in identifying experts to assist the Panel. Moreover, the Panel sent questions to three of these organizations: IAEA, ICRP, and Codex. Additionally, documents published by these organizations have been provided by the parties in the course of this dispute.

2.3.1 The Codex Alimentarius Commission (Codex)

2.22. Codex is an inter-governmental body created in 1963 by the FAO and the WHO under the Joint FAO/WHO Food Standards Programme to develop food standards, guidelines and recommendations. Codex is recognized in Annex A(3) of the SPS Agreement as the source for international standards, guidelines and recommendations for food safety in respect of contaminants, such as radionuclides.[77] Codex has 188 members, including both Japan and Korea.[78] The main purposes of Codex are protecting the health of consumers and ensuring fair trade practices in food trade. Codex also promotes the coordination of all food standards work undertaken by international governmental and non-governmental organizations. The role of science is paramount in the work of Codex, and Codex standards, guidelines and recommendations are based on the principle of sound scientific analysis and evidence. Relevant for this dispute is Codex's development of guideline levels for radionuclides in contaminated foods in CODEX STAN 193-1995.

2.3.1.1 Codex guideline levels for radionuclides in foods contaminated following a nuclear or radiological emergency in CODEX STAN 193-1995

2.23. The establishment of "Guideline Levels for Radionuclides in Foods Contaminated Following a Nuclear or Radiological Emergency" (Codex Radionuclide GLs) was first discussed in the aftermath of the 1986 Chernobyl nuclear accident, as no comprehensive international guidance on this existed. The first version of the Codex Radionuclide GLs was adopted by Codex in 1989 (18th Session of the Codex Alimentarius Commission). The Codex Radionuclide GLs were elaborated by

[77] Specifically, Annex A(3)(a) states "for food safety, the standards, guidelines and recommendations established by the Codex Alimentarius Commission relating to food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice" are considered "international standards, guidelines and recommendations".

[78] See website of the Codex Alimentarius Commission (Codex website), Codex Members and Observers.

the Codex Committee on Food Additives and Contaminants (CCFAC) based on a text prepared jointly by the FAO, the WHO and the IAEA.[79]

2.24. The Codex Radionuclide GLs were incorporated into the Codex General Standard for Contaminants and Toxins in Food and Feeds (GSCTFF) or CODEX STAN 193-1995 upon the creation of this document in 1995. CODEX STAN 193-1995 comprises the main principles recommended by Codex in dealing with contaminants and toxins in food and feed (including radionuclides), as well as its recommended maximum levels and sampling plans for a variety of contaminants moving in international trade.[80] CODEX STAN 193-1995 describes the Codex Radionuclide GLs as applying to "radionuclides contained in foods destined for human consumption and traded internationally, which have been contaminated following a nuclear or a radiological emergency". Although Codex has no specific sampling guidelines with respect to testing commodities for radionuclides[81], Codex has developed General Guidelines on Sampling (CAC/GL 50-2004) which provide guidance on sampling procedures to ensure that food being tested complies with a particular Codex commodity standard, as well as the Principles on the Use of Sampling and Testing in International Food Trade in the specific case of international trade. Korea's sampling procedures as stipulated in the Korea Food Code are based on both of these Codex principles.[82]

2.25. The Codex Radionuclide GLs contained in CODEX STAN 193-1995 were revised in 2006 (29th Session of Codex, ALINORM 06/29/41 paras. 63-66) following a request by the IAEA. The principal changes were the extension of the list of radionuclides from 6 to 20, and the reduction of the "intervention exemption level"[83] from 5 mSv per year to 1 mSv per year. The current intervention exemption level of 1 mSv/year is based on ICRP recommendations.[84] To determine the level of activity of each radionuclide that would lead to 1 mSv/year, Codex made assumptions on the quantity of food consumed per year, the proportion of food consumed which is contaminated, and the ICRP dose coefficients for the different radionuclides (see section 2.36.).[85] The current Codex Radionuclide GLs have been developed for 20 radionuclides separated into four groups of radionuclides for each of the two food categories: "infant foods" and "other than infant foods". CODEX STAN 193-1995 specifies that GLs "have been developed with the understanding that there is no need to add contributions from radionuclides in different groups. Each group should be treated independently. However, the activity concentrations of each radionuclide within the same group should be added together".[86]

2.26. Codex uses the following formula: 1 mSv = X x kg of all food consumed per year x ingestion-dose coefficient x 0.1:

> "X" is the radionuclide-specific threshold, in Bq/kg, that Codex intends to determine; "kg of all food consumed per year" is an assumed total amount of food consumed by the target population; "ingestion-dose coefficient", in mSv/Bq, is the coefficient used to convert a Bq amount into a mSv amount; and 0.1 represents an assumption that 10 percent of the food consumed per year is contaminated at the computed threshold level X.

2.27. The current Codex Radionuclide GLs are set forth in the table below:

[79] See Codex website, "Fact Sheet on Codex Guideline Levels for Radionuclides in Foods Contaminated Following a Nuclear or Radiological Emergency", <http://www.fao.org/crisis/27242-0bfef658358a6ed53980a5eb5c80685ef.pdf>, (accessed 24 February 2017); Codex Secretariat Fact Sheet on Codex Radionuclide GLs, (Exhibit JPN-11.1(24)).

[80] Codex Alimentarius Commission, "Codex General Standard for Contaminants and Toxins in Food and Feed", CODEX STAN 193-1995 (1995, as updated in 2015) (CODEX STAN 193-1995), (Exhibit JPN-32), para. 1.1.

[81] Codex Secretariat Fact Sheet on Codex Radionuclide GLs, (Exhibit JPN-11.1(24)).

[82] Korea's response to Panel question No. 100.

[83] The level of individual annual radiation intake from food consumption below which regulators are not expected to intervene.

[84] CODEX STAN 193-1995, (Exhibit JPN-32), p. 40.

[85] Codex recognizes that national authorities may wish to adopt different values for internal use within their own territories where the assumptions concerning food distribution that have been made to derive the guideline levels may not apply (e.g. in the case of wide-spread radioactive contamination. See CODEX STAN 193-1995, (Exhibit JPN-32), p. 51.

[86] CODEX STAN 193-1995, (Exhibit JPN-32), p. 51.

Table 2: Guideline levels for radionuclides[87]

Commodity / Product Name	Representative radionuclides	Codex GL (Bq/kg)
Infant foods	Plutonium-238 Plutonium-239 Plutonium-240 Americium-241	1
Infant foods	Strontium-90 Ruthenium-106 Iodine-129 Iodine-131 Uranium-235	100
Infant foods	Sulfur-35(*) Cobalt-60 Strontium-89 Ruthenium-103 **Caesium-134** **Caesium-137** Cerium-144 Iridium-192	1 000
Infant foods	Hydrogen-3(**) Carbon-14 Technetium-99	1 000

Commodity / Product Name	Representative radionuclides	Codex GL (Bq/kg)
Foods	Plutonium-238 Plutonium-239 Plutonium-240 Americium-241	10
Foods	Strontium-90 Ruthenium-106 Iodine-129 **Iodine-131** Uranium-235	100
Foods	Sulfur-35(*) Cobalt-60 Strontium-89 Ruthenium-103 **Caesium-134** **Caesium-137** Cerium-144 Iridium-192	1 000
Foods	Hydrogen-3(**) Carbon-14 Technetium-99	10 000

* This represents the value for organically bound sulphur
** This represents the value for organically bound tritium

2.28. Both parties have acknowledged the necessity of limiting exposure to these 20 radionuclides. Korea explains that it regulates the 20 Codex radionuclides through radionuclide-specific maximum levels expressed in Bq/kg.[88] Japan also maintains radionuclide specific maximum levels, however it regulates overall dose exposure by using the 100 Bq/kg limit for caesium as a proxy for the other radionuclides without specifically testing for them. Japan's method of regulation focuses on CS-134 and Cs-137, in light of the characteristics of the FDNPP accident. In particular, Japan has designed its regulatory framework in light of its understanding that if the amount of caesium in a product is below 100 Bq/kg the levels of the other radionuclides will be below the Codex limits.[89] Japan explains that its 100 Bq/kg limit for caesium is imposed to ensure that exposure from relevant radionuclides from the consumption of food products does not

[87] CODEX STAN 193-1995, (Exhibit JPN-32), p. 50. Korea applies the Codex GLs for all radionuclides except as indicated in the table for the radionuclides in bold: Both Japan and Korea apply lower maximum levels to Cs-134 and Cs-137, and Korea applies a lower maximum level for I-131 in infant foods.
[88] Korea's first written submission, para. 234; Response by Korea's SPS Enquiry Point, (Exhibit JPN-30) and CODEX STAN 193-1995, (Exhibit JPN-32), p. 50. See also Japan's first written submission, para. 38.
[89] Japan's first written submission, paras. 62 *et seq.*

exceed 1 mSv/year. Both Japan and Korea maintain a specific maximum level for caesium of 100 Bq/kg.

2.29. Codex standards are normally elaborated through an eight-step process which can be reduced to a minimum of five steps in certain cases. Draft standards are prepared by a Codex committee hosted by a member country and circulated throughout the different steps between the drafting committee, the Codex commission, the relevant general subject committees, as well as governments and interested parties. With regards to the management of contaminants in food, the preamble of CODEX STAN 193-1995 sets out the principle that "[c]ontaminant levels in food and feed shall be as low as reasonably achievable through best practice such as Good Agricultural Practice (GAP) and Good Manufacturing Practice (GMP) following an appropriate risk assessment".[90] Annex 1 of CODEX STAN 193-1995 also specifies that "MLs should be set at a level which is (slightly) higher than the normal range of variation in levels in food and feed".[91] The Codex Radionuclide GLs elaborated by the CCFAC also build in various conservative assumptions.[92] The establishment of the GLs rely on "the most conservative values of the radionuclide-specific and age-specific ingestion dose coefficients"[93] set by the IAEA in 1996 and based on the relevant ICRP publications; address infants and adults separately assuming respective consumptions of 200 kg and 550 kg of food per year; and assume that 10% of the diet consists of imported food which is contaminated giving an import to production factor of 0.1. In addition, the calculations of the Codex Radionuclide GLs are rounded downwards: for example, 1,400 Bq/kg for Cs-137 for other than infant foods has been rounded to 1,000 Bq/kg. For the one-year exposure assessment, "it is conservatively assumed that during the first year after major environmental radioactive contamination caused by a nuclear or radiological emergency it might be difficult to readily replace foods imported from contaminated regions with foods imported from unaffected areas"[94].

2.3.1.2 Potential revision of the Codex Radionuclide GLs

2.30. After the FDNPP accident, the Codex Committee on Contaminants in Food (CCCF)[95] considered whether the revision of the Codex Radionuclide GLs was necessary. In March 2012, the CCCF established an Electronic Working Group (EWG) to review the Codex Radionuclide GLs in food and develop guidance on their interpretation and application. The Netherlands and Japan co-chaired this group, which was open to all members and observers.[96] In July 2013, the CCCF agreed to keep the levels and approach used in the 2006 Codex Radionuclide GLs. As an Inter-agency Working Group between the IAEA, FAO and WHO had launched work on standards applied to radioactive substances in food, the CCCF also agreed to discontinue the work on development of guidance to facilitate the application and implementation of the GLs. The Committee noted that it "could decide to start new work on radionuclides as necessary" after the completion of the work by the Inter-agency Working Group.[97]

2.31. One year later, the CCCF re-established an EWG which the Netherlands and Japan co-chaired to follow-up on the conclusions and recommendations of the Inter-Agency Working Group. In particular, the EWG considered technical issues relating to the stage of food production to which the Codex guideline levels apply, and the development of sampling plans to enhance the implementation of the Codex Radionuclide GLs. The CCCF again requested the EWG to look into the development of guidance to facilitate the interpretation and implementation of the Codex Radionuclide GLs. Upon discussing the work of the EWG in March 2015, the CCCF noted that the ICRP was currently reviewing dose coefficients for ingestion of radionuclides to assess public exposure and the associated health risk from intake of radionuclides in food. The CCCF agreed that "any possible new work should be delayed until such time as the outcome of the review of the

[90] CODEX STAN 193-1995, (Exhibit JPN-32), para. 1.3.1.
[91] CODEX STAN 193-1995, (Exhibit JPN-32), p. 7.
[92] CODEX STAN 193-1995, (Exhibit JPN-32), p.52.
[93] Codex Secretariat Fact Sheet on Codex Radionuclide GLs, (Exhibit JPN-11.1(24)).
[94] CODEX STAN 193-1995, (Exhibit JPN-32), p.52.
[95] In 2006, the CCFAC was split into two committees: food additives (CCFA) and contaminants in foods (CCCF).
[96] Codex committee on Contaminants in Food, Report of the Sixth Session of the Codex Committee on Contaminants in Foods, 26-30 March 2012, (REP12/CF), (Exhibit KOR-178).
[97] Codex committee on Contaminants in Food, Report of the Seventh Session of the Codex Committee on Contaminants in Foods, 8-12 April 2013, (REP13/CF), (Exhibit KOR-179).

ICRP became available, which might lead to the revision of the Codex GLs in the GSCTFF."[98] The ICRP review is expected to be finalized by 2018. Since its 2015 decision, the CCCF has received no further information that might trigger the review of the provisions for radionuclides in the GSCTFF.[99]

2.32. The current status of the Codex Radionuclide GLs is an indication of the inter-agency collaboration on these standards and confirms that the work of each organization cannot be seen in isolation.

2.3.2 The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

2.33. The UNSCEAR, established by the United Nations in 1955, is responsible for reporting on the exposure of people to radiation worldwide and for assessing the scientific information on the effects of exposure to ionizing radiation.[100] The UNSCEAR publishes reports through the collaboration of scientists who study and evaluate data and literature from governments and international and non-governmental organizations that submit data and engage in the work of the Committee. Since 2006, the UNSCEAR has produced, at least every two years, a report on the sources, effects and risks of ionizing radiation comprising two volumes with scientific annexes. The UNSCEAR documents constitute major sources of information for governments and organizations; for example, the ICRP (see section 2.3.3) relies heavily on the scientific data collected in the UNSCEAR reports to develop its own recommendations on radiological protection.

2.34. The UNSCEAR played an active role in assessing the levels and effects of radiation exposure following the FDNPP accident. In May 2011, the Committee launched a two-year assessment study, the results of which were reported at the General Assembly in October 2013 and published as scientific Annex A to the UNSCEAR 2013 Report.[101] The UNSCEAR published two "white papers" in 2015[102] and 2016[103] in order to review its assessment following the FDNPP accident and guide the Committee's future programme of work, incorporating the evaluation of new data and publications.[104]

2.3.3 The International Commission on Radiological Protection (ICRP)

2.35. Founded in 1928, the ICRP is an international, independent, non-governmental organization - formally a charity registered in the United Kingdom - that brings together scientists and policy makers from approximately 30 countries across all continents. Its mandate is to provide recommendations and guidance on all aspects of radiological protection, also referred to as radiation protection and defined by the IAEA as "the protection of people from harmful effects of exposure to ionizing radiation, and the means for achieving this".[105] The ICRP looks at radiological protection both with regard to the protection of people – for example to help prevent cancer, diseases and effects associated with exposure to ionizing radiation – and with regard to the protection of the environment.[106] The ICRP operates committees that focus on different areas of radiological protection. For example, the work of Committee 2 focuses on "Doses From Radiation

[98] Codex committee on Contaminants in Food, Report of the Ninth Session of the Codex Committee on Contaminants in Foods, 16-20 March 2015, (REP15/CF), (Exhibit KOR-181), paras. 128-134.
[99] Codex's response to Panel question No. 9.
[100] See website of the United Nations Scientific Committee on the Effects of Atomic Radiation, *About Us*, http://www.unscear.org/unscear/en/about_us.html (accessed 24 February 2017).
[101] UNSCEAR 2013 Report, *Sources, effects and risks of ionizing radiation* Annex A: Levels and effects of radiation exposure due to the nuclear accident, ("2013 UNSCEAR Report Annex A") (Exhibit JPN-210).
[102] UNSCEAR, "Developments since the 2013 UNSCEAR Report on the Levels and Effects of Radiation Exposure due to the Nuclear Accident Following the Great East-Japan Earthquake and Tsunami (2015)" (2015 UNSCEAR White Paper), (Exhibit JPN-211).
[103] UNSCEAR, "Developments since the 2013 UNSCEAR Report on the Levels and Effects of Radiation Exposure due to the Nuclear Accident Following the Great East-Japan Earthquake and Tsunami (2016).
[104] Both reports and subsequent updates are available at: http://www.unscear.org/unscear/en/publications.html
[105] See website of the International Atomic Energy Agency (IAEA Website), *IAEA Safety Glossary Terminology Used in Nuclear Safety and Radiation Protection*, 2016 Revision, https://www-ns.iaea.org/downloads/standards/glossary/iaea-safety-glossary-draft-2016.pdf
[106] See website of the International Commission on Radiological Protection, *About ICRP*, http://www.icrp.org/index.asp (last accessed 24 February 2017).

Exposure" and one of its tasks is to develop dose coefficients (see paragraph 2.8.) for the assessment of internal and external radiation exposure.

2.36. The ICRP dose coefficients are a key component in the establishment of radionuclide-specific thresholds in food as they provide the radiation damage from ingestion of a certain type of radionuclide, and are relied upon by Codex and many regulators in their determination of radionuclide-specific thresholds applied to food commodities. In addition to determining dose coefficients for the different radionuclides, the ICRP has also set forth a recommended annual effective dose of radiation from consumption of food of 1 mSv per year utilized by Codex in its determination of guideline levels for radionuclides (see paragraph 2.32.).

2.37. While most ICRP publications address particular areas within radiological protection, a few constitute "fundamental recommendations". When preparing its recommendations, the ICRP considers the fundamental principles and quantitative bases upon which appropriate radiation protection measures can be established.[107] In establishing its recommendations, the ICRP uses the data from the UNSCEAR reports (see section 2.3.2) and works closely with many other organizations that contribute to the international system of radiological protection such as the IAEA (see section 2.3.4). The latest fundamental ICRP recommendations are contained in its Publication 103.[108] The ICRP dose coefficients for the ingestion and inhalation of radionuclides are contained in its fundamental recommendations, and the ICRP is currently revising them to incorporate the scientific knowledge gained in the last few decades.[109] Based on ICRP recommendations, national protection bodies are responsible for formulating specific advice, codes of practice, or regulations best suited to the needs of their country.

2.3.4 The International Atomic Energy Agency (IAEA)

2.38. The IAEA, established in 1957, is an autonomous international organization within the United Nations system whose mandate is to "work with (…) Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies."[110] The IAEA's work especially focuses on the development of international standards in the field of nuclear safety, primarily based on the recommendations of the ICRP (see section 2.3.3). The IAEA cooperates with other international organizations; for instance, a Joint Division of Nuclear Techniques in Food and Agriculture was created in 1964 with the FAO. The IAEA also plays a proactive role in ensuring reliable and timely analysis of samples for radioactivity by coordinating activities, developing standardized methods for sample collection and analysis, and organizing inter-laboratory comparison for external analytical quality control.[111]

2.39. Following the FDNPP accident, the IAEA provided information and advice to Japan through various missions it made to the country and reports as well as the monitoring of Japanese measures, including inter-laboratory comparisons with Japan of sea water, sea sediments and fishery products near the FDNPP starting in September 2014. A report by the IAEA Director General accompanied by five technical volumes on the FDNPP accident was published in 2015 based on the evaluation of the latest available data.[112] The report found a number of failures in the design of the FDNPP that contributed to the accident.[113] Japan provides relevant ministries and organizations with information on the FDNPP situation on a regular basis such as its monthly report

[107] ICRP's response to the Panel questions.
[108] ICRP, "The 2007 Recommendations of the International Commission on Radiological Protection", ICRP Publication 103. Annals of the ICRP, 37(2) (2007) (ICRP Publication 103: 2007 Recommendations), (Exhibit KOR-1), (Exhibit ICRP-3).
[109] The results of this revision process, which is expected to be finalized by 2018, will be part of ICRP Publication 130 Occupational Intakes of Radionuclides (Part 1) and will supersede previous ICRP publications on the same subject.
[110] See IAEA website, *History*,< https://www.iaea.org/about/overview/history>, accessed 24 February 2017).
[111] See IAEA website, Reference Products for Environment and Trade, https://nucleus.iaea.org/rpst/referenceproducts/almera/index.htm (accessed 24 February 2017).
[112] International Atomic Energy Agency, "The Fukushima Daiichi Accident: Report by the Director General" (August 2015) (2015 IAEA DG Report), (Exhibit JPN-2).
[113] 2015 IAEA DG Report, (Exhibit JPN-2).

on the discharge record and the sea water monitoring results at the FDNPP.[114] Japan's Nuclear Regulatory Authority (NRA) provides updates to the IAEA.

2.4 The Fukushima Dai-ichi Nuclear Power Plant (FDNPP) accident

2.40. The Great East Japan Earthquake, measuring 9.0 on the Richter scale, struck the coast of Japan in the early afternoon of 11 March 2011.[115] The earthquake triggered a tsunami, and caused great loss of life, and widespread devastation in Japan. More than 15,000 people were killed, over 6,000 were injured, and around 2,500 people were reported to be missing. Considerable damage was caused to buildings and infrastructure, particularly along Japan's north-eastern coast.[116] In particular the human impact of the Fukushima Dai-ichi accident was immense. The 2015 IAEA DG report explains that, as of the time of writing, there were still more than 100,000 evacuees from the region due to the release of radionuclides to the environment.[117]

2.41. The tragedy of the devastating earthquake and tsunami was further compounded by the ensuing nuclear emergency.[118] Approximately 40 minutes after the earthquake, the tsunami reached the FDNPP, operated by Tokyo Electric Power Company (TEPCO).[119] The tsunami caused substantial damage to the operational and safety infrastructure of the site, including to the replacement power facilities.[120] As a result, five of the six nuclear reactors lost all cooling power.[121] Due to this, there was overheating of the reactor cores in Units 1-3, nuclear fuel melting and the breaching of the three containment vessels in these units. Hydrogen was released from the reactor pressure vessels and the primary containment vessels (PCV), leading to explosions inside the reactor buildings in Units 1, 3 and 4 that damaged structures and equipment and injured personnel. At the point at which the pressure inside the primary containment vessel exceeded the design pressure, the authorities decided that the only way to manage the pressure inside the containment vessels was a deliberate release of material, including radioactive material, into the environment.[122] This process is known as venting. As well as intentional venting, there were also uncontrolled releases of radioactive material. This radioactive material was released from the plant into the atmosphere and was deposited on land and into the ocean.[123] There were also direct releases into the ocean, which occurred up to the date of Panel establishment and beyond.[124] People within a radius of 20 km of the site and in other designated areas were evacuated, and those within a radius of between 20 to 30 km were instructed to shelter before later being advised to voluntarily evacuate. Restrictions were placed on the distribution and consumption of food and the consumption of drinking water.[125]

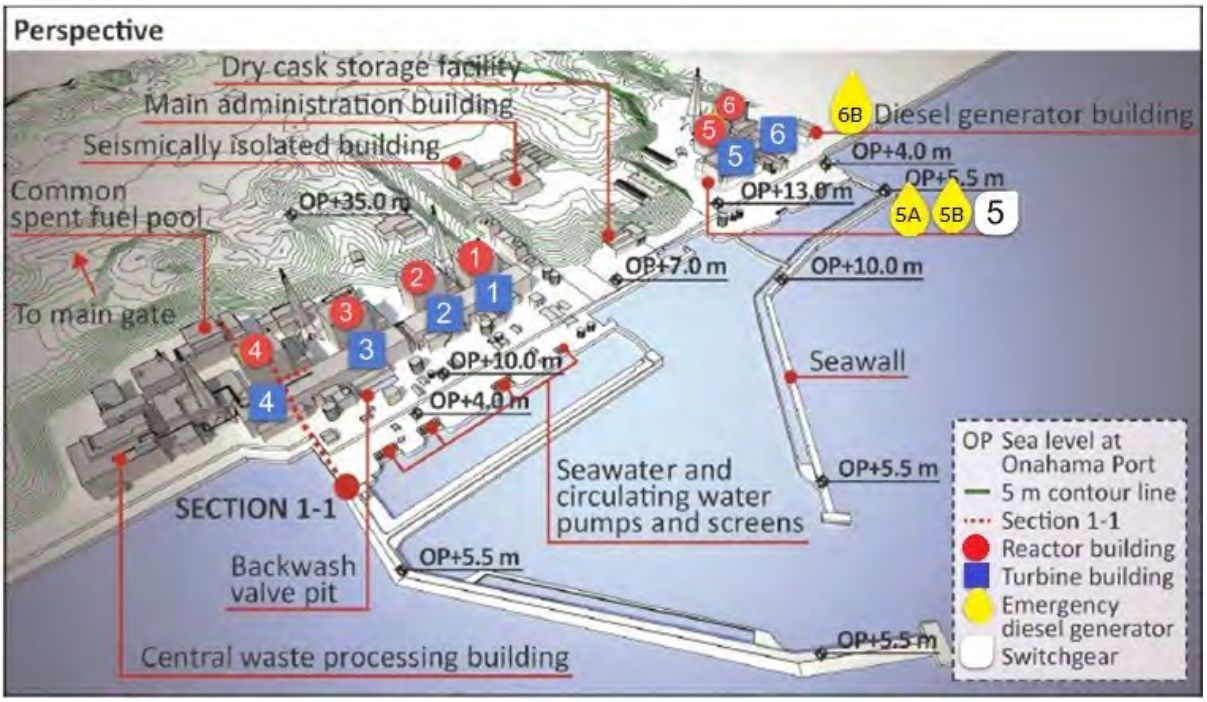
2.42. One month after the accident, the Japanese government formally declared an International Nuclear and Radiological Event Scale (INES) rating of Level 7 for the FDNPP accident. According to the IAEA, Level 7 represents an "event resulting in an environmental release corresponding to a

[114] Japan Ministry of Foreign Affairs, "Briefing session on the recent updates regarding TEPCO's Fukushima Daiichi Nuclear Power Station (NPS)" (18 September 2015), (Exhibit JPN-53) available at: http://www.mofa.go.jp/dns/inec/page22e_000751.html (last accessed 4 July 2017).
[115] Japan's first written submission, para. 10; Korea's first written submission, para. 12.
[116] 2015 IAEA DG Report, (Exhibit JPN-2), p. 19.
[117] 2015 IAEA DG Report, (Exhibit JPN-2), [foreword].
[118] World Health Organization, Western Pacific Region, "The Great East Japan Earthquake – A Story of Devastating Natural Disaster, A Tale of Human Compassion" (2012), (Exhibit JPN-1), p. 48.
[119] 2015 IAEA DG Report, (Exhibit JPN-2), p. 30.
[120] Korea's first written submission, para. 12.
[121] 2015 IAEA DG Report, (Exhibit JPN-2), p. 31.
[122] TEPCO, "Fukushima Nuclear Accident: Investigation Report (Interim Report - Supplementary Volume)", 2 December 2011 (Exhibit KOR-10), p. 28.
[123] 2015 IAEA DG Report, (Exhibit JPN-2), [foreword], p. 19.
[124] See Japan's response to advance Panel question No. 8. See also Dr K. Buesseler, "Fukushima radiation continues to seep into the Pacific Ocean", 9 March 2016, (Exhibit KOR-279).
[125] 2015 IAEA DG Report, (Exhibit JPN-2), p. 1. Certain product-specific distribution restrictions in Japan remain in place and can be found at http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html; Japan's response to Panel question No. 28.

quantity of radioactivity radiologically equivalent to a release to the atmosphere of more than several tens of thousands of terabecquerels of I-131".[126]

2.43. Figure 2 shows a layout of the FDNPP with the six reactor buildings (circles numbered 1 through 6) and associated turbine buildings (squares numbered 1 through 6). Figure 3 provides a detailed view of a reactor and turbine building unit; these constitute a boiling water reactor.

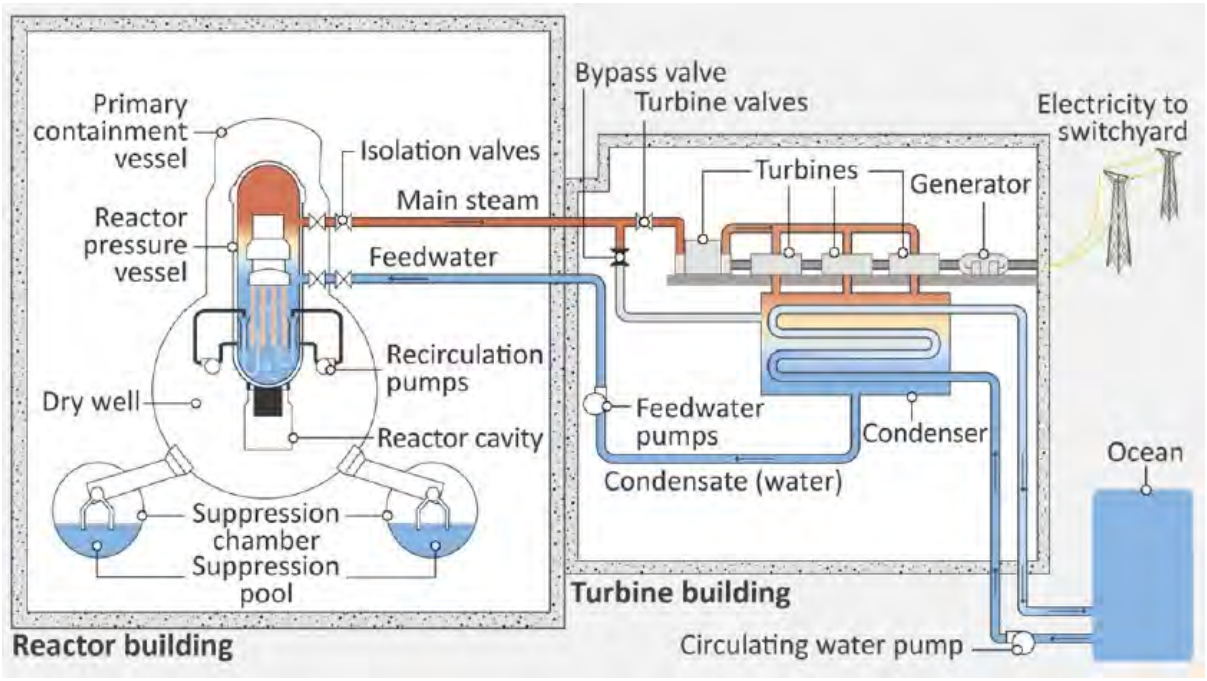
Figure 2: Layout of Fukushima Daiichi Nuclear Power Plant



Source: International Atomic Energy Agency, "The Fukushima Daiichi Accident - Technical Volume 1 – Description and Context of the Accident" (August 2015) ("2015 IAEA DG Report, Technical Volume 1"), (Exhibit JPN-7), p. 13.

[126] International Atomic Energy Agency, "Fukushima Nuclear Accident Update Log: IAEA Briefing on Fukushima Nuclear Accident" (12 April 2011), (Exhibit KOR-11) available at https://www.iaea.org/newscenter/news/fukushima-nuclear-accident-update-log-15.

Figure 3: Boiling water reactor at the FDNPP



Source: 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 7.

2.5 Radioactive contamination from the FDNPP

2.5.1 The initial release

2.44. As noted above, the explosions in the reactor buildings, the venting, and direct release of contaminated water into the ocean at the time of the accident released radioactive material in the atmosphere, land, and ocean.

2.45. The amount of radionuclides released, also called the "source term", comprises radionuclides released from the cores and confining structures into the environment during and after the accident at the FDNPP. Source term analyses indicate that the major releases that contributed most to the radiological consequences on Japanese territory occurred on 15 March 2011. The releases were likely related to release of activity in Unit 2 due to core melting and subsequent loss of PCV integrity early in the morning, or to PCV venting at Unit 3. Other large peaks of activity release are thought to have occurred in the afternoon on 12 March 2011 (explosion at Unit 1), at noon on 14 March 2011 (explosion at Unit 3), and late at night on the same day (probably due to venting of Unit 3).[127]

2.46. Based on estimates, approximately 17.5 PBq of Cs-134 and 15 Pbq of Cs-137 were released via the atmospheric fallout, 5 PBq of Cs-137 was directly discharged into the environment, 15-20 TBq/year of Cs-137 is released via ongoing groundwater discharge, and 10-12 TBq/year is released through ongoing river runoff.[128] The total atmospheric release of I-131 was estimated to be approximately 150-160 PBq.[129] In total, approximately 1.0-2.4 x 10^9 Bq of Pu-239 and 240 was released into the environment from the FDNPP reactors.[130] Most of the Sr-90 released from the FDNPP was directly discharged into the North Pacific, with estimates of total inventories ranging

[127] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 143.
[128] K. Buesseler et al., "Fukushima Daiichi-Derived Radionuclides in the Ocean: Transport, Fate, and Impacts", 30 June 2016. First published online as a Review in Advance, (Buesseler et al. (2016), (Exhibit KOR-134), p. 3.
[129] P.P. Provinec, K. Hirose and M. Aoyama, *Fukushima Accident: Radioactivity Impact on the Environment* (2013), (Elsevier, 2013), (Exhibit KOR-97), p. ix.
[130] Buesseler et al. (2016), (Exhibit KOR-134), p. 6.

from 0.04 to 1.0 PBq.[131] Estimates to this day have varied and there is no definitive calculation of the amounts released.[132]

2.5.1.1 Releases to the atmosphere

2.47. In the early phase of the accident, the noble gases krypton-85 (Kr-85) and xenon-133 (xe-133), with half-lives of 10.76 years and 5.25 days, respectively, contributed to external exposure from the plume of the atmospheric releases. Around 6,000–12,000 PBq of Xe-133 are estimated to have been released (or 500–15 000 PBq, if early estimates are included in the evaluation)[133]. Iodine-131 (I-131, half-life of 8.02 days) and caesium-137 (Cs-137, half-life of 30.17 years were "the two most significant radionuclides from the perspective of exposures of people and the environment"[134] The estimated releases to the atmosphere ranged from 100 to 500 PBq for I-131 and from 6 to 20 PBq for Cs-137. The mean total activity of I-131 released was around 100-400 PBq, and that of Cs-137 was around 7–20 PBq (or 90–700 PBq and 7–50 PBq, if early estimates are included).[135] Other radionuclides were also released in amounts relative to their volatility.[136] Estimates for the release of other radionuclides, such as strontium and plutonium, have been more limited. The IRSN estimated the amount of Sr-90 released into the atmosphere to be 0.003 PBq. However, the IRSN added the qualification that "estimates of the radioactivity released by these radionuclides remain rough due to the lack of a sufficient body of measurements and information on the actual condition of the damaged reactors."[137] The Nuclear and Industrial Safety Agency of Japan estimated the amount of Sr-90 released into the atmosphere to be 0.14 PBq, and the amount of Pu-238, Pu-239, Pu-240 to be 0.025 TBq.[138]

2.48. The fission products were released from the overheated reactor core, their vapours were transported by flows of gas or steam into cooler regions of the PCV where they condensed into aerosols. These aerosols either retained in the containment vessel or released into the environment through leaks. Aerosols formed and dispersed from the accident sooner or later deposit on surfaces. Three different release paths to the environment were distinguished at the FDNPP: (i) design leakage into the reactor building (where these aerosols could remain for a long time); (ii) containment venting where radioactive products (which had already been scrubbed within the water pool) were released unfiltered to the environment through vent stacks; and (iii) containment failure of three of the PCVs in three FDNPP units whereby significant amounts of radioactive airborne aerosols leaked into the reactor building and eventually into the environment.[139]

2.49. UNSCEAR reported that, unlike the Chernobyl accident, where less volatile elements (such as strontium and plutonium) were released in relatively larger amounts directly into the atmosphere as a result of the initial explosion and physical destruction of parts of the core, such mechanisms did not occur in the FDNPP accident. According to UNSCEAR, the volatility of the elements, and the extent to which they were retained within the containment by other mechanisms (for example the suppression pool), were the principal determinants of the amounts released.[140] The IAEA confirms that the atmospheric release was dominated by the volatile isotopes of iodine and caesium because of their low vapour pressure, which resulted in their virtually complete release from the nuclear fuel during the core meltdown. The IAEA also indicates that the release of strontium was three to four orders of magnitude less than the release of caesium. Plutonium was released to the environment as a result of the FDNPP accident; however,

[131] Buesseler et al. (2016), (Exhibit KOR-134), p. 6.
[132] Buesseler et al. (2016), (Exhibit KOR-134), p. 4, Table 1.
[133] 2015 IAEA DG Report, (Exhibit JPN-2), p. 107.
[134] 2015 UNSCEAR White Paper, (Exhibit JPN-211), p. 4.
[135] 2015 IAEA DG Report, (Exhibit JPN-2), p. 107.
[136] UNSCEAR 2013 Report Annex A, (Exhibit JPN-210), p. 49.
[137] *Institut de radioprotection et de sûreté nucléaire*, "Fukushima, one year later: Initial analyses of the accident and its consequences" (12 March 2012), IRSN_Fukushima-1-year-later_2012-003.pdf, (Exhibit KOR-93), p. 48.
[138] Japan, Nuclear and Industrial Safety Agency, Table 5: Estimates of the Amount (Bq) of Radioactive Materials Released into the Atmosphere During the Period Subject to the Analysis, (Exhibit KOR-94); J. Zheng, K. Tagami and S. Uchida, "Release of plutonium isotopes from the Fukushima Daiichi Nuclear Power Plant accident", Environmental Science & Technology, Vol. 47, No. 17 (2013), pp. 9584-9595, (Exhibit KOR-95).
[139] 2015 IAEA DG Report Technical Volume 1, (Exhibit JPN-7), pp. 142-143.
[140] UNSCEAR 2013 Report Annex A, (Exhibit JPN-210).

the amounts released were more limited than the other radionuclides.[141] Data indicate that plutonium release due to the core melts in the FDNPP did not notably increase the pre-existing environmental distribution of plutonium. The chemical composition of the radionuclides released had a direct consequence on the land contamination, which was dominated by iodine and caesium.[142]

2.50. The release of lower volatility radionuclides such as strontium, barium and plutonium were much lower than those of iodine and caesium as confirmed by measurements of their levels in the environment.[143] Neutrons were also detected near the main gate of the plant (which is approximately 1 km away from Units 1–3). It is estimated that the neutrons came from the spontaneous nuclear fission of radionuclides that could have been released as a result of damage to the reactor core.[144] On a number of occasions, the meteorological conditions were such that radionuclides released to the atmosphere were dispersed over mainland Japan, and then were deposited on the ground by means of dry deposition and wet deposition with rain or snow.[145] The main deposition occurred to the north-west of the FDNPP site, but significant deposition also occurred to the north, south and west of the FDNPP site.[146] A significant amount of atmospheric release was also deposited in the ocean and on land, as discussed in the sections below.

2.5.1.2 Releases to the ocean

2.51. The ocean received two types of radionuclide deposits. First, atmospheric releases dispersed over the North Pacific Ocean and fell on the oceanic surface layer. Second, there were direct releases and discharges into the Pacific Ocean at the site, with the primary source being highly radioactive water from a trench at the FDNPP. The peak radioactive releases were observed at the beginning of April 2011. The direct releases and discharges of I-131 into the sea were estimated to be 10–20 PBq. The direct releases and discharges of Cs-137 were estimated by most analyses to be in the range of 1–6 PBq, but some assessments reported estimates of 2.3–26.9 PBq.[147] In addition to I-131 and Cs-137, other radionuclides were released to the ocean directly and indirectly. Radionuclides of low volatility such as strontium and plutonium were measured in seawater and sediments. Estimates of direct release of Sr-90 to the ocean range from 0.04 to 1 Pbq, while plutonium radioisotopes in seawater have generally been below limits of detection.[148]

2.52. There have been reports of additional spills of liquid radioactive waste from the FDNPP into the ocean causing Sr-90 activities to exceed those of Cs-137 in the ocean near the FDNPP for short periods of time. It is hypothesized that the decrease in the ratio of caesium to strontium is a result of continuing accidental spills of strontium or the higher mobility of strontium. While the ratio has been decreasing, caesium is still in greater quantities than strontium.[149]

2.5.1.3 Dispersion

2.53. The effect of a release of radionuclides is not necessarily localized, but may be dispersed through the atmosphere and ocean currents. Extensive measurements of activity concentration of I-131, caesium-134 (Cs-134) and Cs-137 in the environment, including in air, soil, sea water, sediments and biota, were performed and have been used for estimating the dispersion of the releases.[150] The IAEA report includes a variety of theoretical models used to estimate the dispersion patterns of the radionuclides released during the accident at the FDNPP.

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[141] This conclusion finds support in the statement of the IAEA that the fact that concentration of plutonium isotopes found at the FDNPP site corresponded to the background level was an indication of the limited nature of the release of plutonium during the accident. See 2015 IAEA DG Report Technical Volume 1, (Exhibit JPN-7), p. 149.

[142] 2015 IAEA DG Report Technical Volume 1, (Exhibit JPN-7), pp. 148-149.

[143] 2013 UNSCEAR Report Annex A, (Exhibit JPN-210), pp. 40-41.

[144] 2015 IAEA DG Report, (Exhibit JPN-2), p. 107.

[145] 2015 UNSCEAR White Paper, (Exhibit JPN-211), p. 4.

[146] 2015 UNSCEAR White Paper, (Exhibit JPN-211), p. 4.

[147] 2015 IAEA DG Report, (Exhibit JPN-2), p. 107.

[148] 2013 UNSCEAR Report Annex A, (Exhibit JPN-210); see also 2015 IAEA DG Report Technical Volume 1, (Exhibit JPN-7), pp. 148-149; and Expert Meeting Transcript, pp. 6-8.

[149] Buesseler et al. (2016), (Exhibit KOR-134), p. 6. The Cs-137 to Sr-90 ratio has gone from 12.5 at the FDNPP site in June 2011 to 3.8 in 2013. Korea's second written submission, para. 38.

[150] 2015 IAEA DG Report, (Exhibit JPN-2), p. 107.

2.5.1.3.1 Atmospheric dispersion

2.54. The transport of the atmospheric radioactive releases was directed mainly to the east and north of Japan, following the prevailing wind directions, and then around the globe.[151] According to the models that were used to estimate the atmospheric transport of the various radionuclides and their deposition patterns, the activity concentration in the atmosphere decreased noticeably with increase in distance from the FDNPP.[152] Highly sensitive radiation monitoring networks detected some radioactivity attributable to the accident as far away as Europe and North America.[153]

2.55. Months after the FDNPP accident, Japan's Science Ministry reported that caesium had contaminated 11,580 square miles of the land surface of Japan, and about 4,500 square miles were found to have radiation levels that exceeded Japan's allowable exposure rate of 1 mSv/year.[154]

2.5.1.3.2 Ocean dispersion

2.56. Most of the released and discharged radionuclides that entered into the Pacific Ocean from the FDNPP site moved eastward with the Kuroshio current[155] and were transported over large distances via the North Pacific Ocean gyre.[156] A number of oceanic transport models have been used to assess dispersion patterns of radionuclides in the ocean.[157] Studies have shown that dispersion within the ocean, for example whether the radionuclide stays on the surface or sinks to the sediment, varies according to the type of radionuclide. Testing in various areas of the ocean can be used to confirm whether radionuclides from the FDNPP accident have been dispersed there. For example, the high caesium-activity ratios in samples from the North Western Pacific taken two years after the accident suggest that these samples were contaminated by caesium released from the FDNPP. On the other hand, plutonium fingerprints from the same area suggest that the plutonium contamination found is predominantly from other sources such as fallout from nuclear weapons use and testing.[158]

2.57. The Fukushima prefecture and neighbouring prefectures have several river systems that flow from contaminated upland forests to coastal plains, and ultimately empty into the Pacific Ocean. Studies estimate that 17.1 TBq of total radionuclides were released into the Pacific Ocean from 1 June to 30 September 2012, which is only a fraction of the radiocaesium inventory of the upland forests of the Fukushima prefecture.[159] Some scientists hypothesize that river catchments will be a longer-term, ongoing source of radiocaesium to estuaries and coastal areas.[160]

[151] 2015 IAEA DG Report, (Exhibit JPN-2), p. 11.
[152] 2015 IAEA DG Report, (Exhibit JPN-2), pp. 107-108.
[153] 2015 IAEA DG Report, (Exhibit JPN-2), p. 108.
[154] *Asahi Shimbun*, "Contaminated regions having radiation doses of 1 mSv/year account for 3% of Japanese territory", 11 October 2011, (Exhibit KOR-28); S. Starr, "The Implications of The Massive Contamination of Japan with Radioactive Cesium" (2013), http://www.ratical.org/radiation/Fukushima/StevenStarr.html, (Exhibit KOR-29).
[155] The Kuroshio current is a northward flowing ocean current on the western side of the North Pacific Ocean that flows past the FDNPP.
[156] The North Pacific Ocean gyre is one of the five major oceanic gyres, covering most of the North Pacific Ocean; it has a clockwise circular pattern and is formed by the North Pacific Ocean current to the north, the California current to the east, the north equatorial current to the south, and the Kuroshio current to the west.
[157] 2015 IAEA DG Report, (Exhibit JPN-2), p. 109.
[158] W. Bu, M. Fukuda, J. Zheng, T. Aono, T. Ishimaru, J. Kanda, G. Yang, K. Tagami, S. Uchida, Q. Guo, M. Yamada, "Release of Pu isotopes from the Fukushima Daiichi Nuclear Power Plant accident to the marine environment was negligible", Environmental Science & Technology, (2014); Vol. 48, (Exhibit JPN-11.1(10)), pp. 9070-9078. See also para. 7.209.
[159] Y. Yamashiki, Y. Onda, H. Smith, W. Blake, T. Wakahara, Y. Igarashi, Y. Matsuura, K. Yoshimura, "Initial Flux of Sediment-Associated Radiocesium to the Ocean from the Largest River Impacted by Fukushima Daiichi Nuclear Power Plant", *Scientific Reports*, 21 November 2013 (Exhibit KOR-185), p. 2.
[160] O. Evrad, C. Chartin, Y. Onda, H. Lepage, O. Cerdan, I. Lefevre, S. Ayrault, "Renewed Soil Erosion and Remobilization of Radioactive Sediment in Fukushima Coastal Rivers After the 2013 Typhoons", *Scientific Reports*, 3 April 2014, (Exhibit KOR-184).

2.5.2 Releases after the initial accident

2.58. The releases of radionuclides occurring at the moment of the accident were not the only releases from the FDNPP. There have been a number of leakages and releases into the ocean subsequent to the initial March 2011 accident. These release events, their dates, their routes and the amount of radioactive material released into the ocean are matters of dispute between the parties. According to the exhibits provided by Japan and Korea, more than 70 release events of varying magnitudes have occurred at multiple areas of the power plant with differing possible routes to the ocean between April 2011 and September 2015.[161] While some release events are reported to have been retained inside dikes or buildings, others are reported to have flowed out into the ocean. There is no evidence of additional atmospheric releases on the record of this dispute.

2.59. After the initial accident, as a result of the on-going nuclear emergency in the reactors additional releases of radionuclide-contaminated water from the FDNPP occurred. In August 2013, media reports cited a Japanese energy ministry official as stating that the government estimated that up to 300 tonnes of radioactive water were being released into the ocean each day. TEPCO, for its part, indicated that this was only a guess and that the exact figure was unknown.[162] TEPCO has issued press releases disclosing release events. In most of these press releases, TEPCO maintained that the radioactive materials either did not reach the ocean or did not cause significant changes in radioactivity measured in seawater.[163] Japan cites to contamination levels detected in the sea water at the FDNPP port around the time of these releases to support its position.[164] The parties disagree on whether every release event was disclosed and whether certain releases have been contained or reached the ocean.[165] The parties agree that some of the release events between 1 April 2011 and 29 May 2015 have been confirmed to have reached the ocean.[166]

2.60. Radionuclides from the damaged fuel located in the reactor vessel or in the pedestal area of the PCV are continuously dissolved once they come into contact with water.[167] As a result of the dissolution of radionuclides, contaminated water has been accumulating in tanks stored at the FDNPP[168] and certain leaks have reached the ocean. Moreover, when there is heavy rain, more caesium, strontium, and other isotopes from the FDNPP are carried into the ocean – whether carried in groundwater or from the run-off of sediment.[169] Groundwater has been continuously flowing from the hills into the FDNPP where it interacts with damaged fuel and becomes contaminated.[170] Researchers have estimated that the release of Sr-90 through contaminated water has continued and that FDNPP was leaking Sr-90 at a rate of 2.3-8.5 GBq/day into the Pacific Ocean in September 2013.[171] In particular, the Sr-90 level in seawater was found to be

[161] Japan's and Korea's responses to Panel question No. 8.
[162] BBC News, "Fukushima leak: Japan government 'to take measures'", 8 August 2013, http://www.bbc.com/news/world-asia-23602362, (Exhibit KOR-3).
[163] Japan's response to Panel question No. 8, Table 3 describing 14 leak events between 27 June 2011 and 9 September 2015 and Table 4 describing 50 leak events between 29 June 2011 and 29 September 2015 as being retained inside the building, the dike or not having an available route to the ocean.
[164] Japan's response to Panel question No. 9(i).
[165] J. Adelman and Y. Okada, "Tepco President Apologizes for Fukushima Leak Disclosure Delay", *Bloomberg*, 26 July 2013, http://www.bloomberg.com/news/articles/2013-07-26/tepco-president-apologizes-for-fukushima-leak-disclosure-delay ,(Exhibit KOR-43). See also Korea's and Japan's responses to Panel question No. 8 where Korea maintains that 100 tons of contaminated water leaked from a storage tank and flowed into the ocean on 19-20 February 2014 while Japan maintains the water leakage at the upper part of a tank did not flow into the ocean.
[166] Japan's response to Panel question No. 8, Table 2.
[167] Korea's second written submission, para. 26.
[168] Agency for Natural Resources and Energy, Presentation on "Current status of strontium removal from contaminated water stored in tanks" (2013-2016), (Exhibit JPN-146).
[169] Woods Hole Oceanographic Institution, "Fukushima Site Sill Leaking After Five years, Research Shows", 7 March 2016, available at https://www.whoi.edu/news-release/fukushima-site-still-leaking, (Exhibit KOR-164).
[170] M. Castrillejo, et al., "Reassessment of 90Sr, 137Cs, and 134Cs in the Coast off Japan Derived from the Fukushima Dai-ichi Nuclear Accident" (2016), (Castrillejo et al. (2016)) Environmental Science & Technology, Vol. 50, No. 1, (Exhibit KOR-49),TEPCO, "Current Strategy to Respond to the Phenomenon of Ground Water Contamination: The Flow of Groundwater around Units 1-4", 8 August 2013, (Exhibit KOR-106), p.18.
[171] Castrillejo et al. (2016), (Exhibit KOR-49), pp. 173-180.

400 Bq/l in December 2011 and in 850 Bq/l in March 2012.[172] Japan asserts that TEPCO has undertaken a number of steps to control ongoing leaks and prevent future leakages, including prevention of outflow of contaminated water from the reactor building, installation of sea-side wall, removal of strontium and other radionuclides from contaminated water stored in tanks, and usage of circulated and decontaminated water to cool the fuel debris.[173] Japan notes that the concentration of radioactivity in the seawater at the FDNPP port has also decreased since immediately after the accident.[174]

2.61. TEPCO monitors the levels of caesium isotopes and total beta activity (from which strontium can be deduced) in seawater at various points of the FDNPP. These measurements have been published on a daily basis beginning in March 2011. Since April 2015, the seawater near the FDNPP port entrance has been measured on an hourly basis. The hourly data were uploaded onto a publicly accessible website on a daily basis. Since October 2016, the measurements near the FDNPP port entrance are published every 10 minutes.[175]

2.62. Although scientific studies have estimated the amounts of the initial release as well as the amounts remaining in the reactor (see section 2.5.3 below), the information on the record with respect to the subsequent releases does not establish how much of and which radionuclides were released into the ocean.[176] The relevance of this information will be discussed in section 7.7.6 below.

2.5.3 Radioactive material still in the reactor

2.63. TEPCO has been investigating the PCVs, including through the collection of water samples from the PCVs in units 2 and 3 in August 2013 and October 2015. The utilization of new robot technologies to collect information from the PCVs was introduced in 2015. Both units 2 and 3 contain reactor vessels that are being cooled with water so that the damaged fuel inside them does not heat up; and there has been uncertainty about how the damaged fuel has evolved. A variety of radionuclides were detected in the samples measured in the PCVs, with levels of Cs-137 ranging between 960 and 4200 Bq/cm^3 and Sr-90 between 4400 and 66000 Bq/cm^3.The measurements in the containment vessels confirm that caesium was the primary radionuclide released in the initial accident while strontium and other radionuclides were differentially retained within the containment vessel relative to the amount that was released.[177]

2.64. The following tables include measurements of the radionuclides in the PCVs for Units 2 and 3[178] of the FDNPP reactors. The measurements of other radionuclides in the coolant water inside the facility indicated the presence of less volatile radionuclides such as Sr-90, Ru-106, Ce-144, Pu-238 and Pu-239 and 240 in the contaminated water, which are among the radionuclides regulated in CODEX STAN 193-1995.

[172] Japan Atomic Energy Agency, "Distribution of radioactivity concentration in the seawater around Fukushima Dai-ichi NPP by TEPCO" (2015), (Exhibit KOR-213.7.a and Exhibit KOR-213.7.b.) cited in Korea's second written submission, para. 73.

[173] Japan's comments on Korea's response to Panel question No. 117. See also e.g. Japan's first written submission, para. 23; opening statement at the first meeting of the Panel, para. 32.

[174] 2015 IAEA DG Report Technical Volume 1, (Exhibit JPN-7), p. 158.

[175] D.J. Brenner and K. Buesseler, "A scientific response to Korea's arguments in its first written submission", 11 July 2016 (Japan's scientific response to Korea's arguments in its first written submission), (Exhibit JPN-148), p. 23; Japan's comments on the experts' responses to Panel question No. 59 to the experts.

[176] Japan's and Korea's responses to Panel question No. 8; and Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11), para. 67; Japan's slides at the Expert Meeting, (Exhibit JPN-245), slide 19; Japan's opening statement at the second meeting of the Panel, Annex A slide 5 and Annex B.

[177] Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11), p. 65.

[178] Samples LI-2RB5-1 and LI-2RB5-2 were collected on 7 August 2013 from PCV of Unit 2.
Sample LI-3RB5-1 was collected on 22 October 2015 near the water surface of PCV of Unit 3, and sample LI-3RB5-2 was collected on the same date near the grating of PCV of Unit 3.

Table 3: Result of the nuclide analysis of the retained water in the PCV in Units 2 and 3

Result (1) of the nuclide analysis of the retained water in the PCV in Units 2 and 3

Radioactive Concentration (Bq/cm^3)						
Name of the Sample	H-3 (Approx. 12 Yrs)	Co-60 (Approx. 5.3 Yrs)	Sr-90 (Approx. 29 Yrs)	Nb-94 (App. 2.0 x 10^4 Yrs)	Ru-106 (Approx. 374 Days)	Sb-125 (Approx. 2.8 Yrs)
LI-2RB5-1	(6.9±0.1) x 10^2	(3.6±0.1) x 10^1	(6.6±0.1) x 10^4	< 3 x 10^{-1}	< 2 x 10^2	(3.3±0.3) x 10^1
LI-2RB5-2	(7.0±0.1) x 10^2	(4.1±0.1) x 10^1	(6.8±0.1) x 10^4	< 3 x 10^{-1}	< 2 x 10^2	(9.4±0.3) x 10^1
LI-3RB5-1	(3.5±0.1) x 10^2	(2.2±0.1) x 10^1	(7.5±0.2) x 10^3	< 3 x 10^{-1}	(7.1±2.0) x 10^1	(5.3±0.2) x 10^1
LI-3RB5-2	(2.0±0.1) x 10^2	(1.1±0.1) x 10^1	(4.4±0.1) x 10^3	< 2 x 10^{-1}	< 8 x 10^1	(1.6±0.2) x 10^1

Radioactive Concentration (Bq/cm^3)				
Name of the Sample	Cs-137 (Approx. 30 Yrs)	Ce-144 (App. 285 Days)	Eu-152 (Approx. 14 Yrs)	Eu-154 (Approx. 8.6 Yrs)
LI-2RB5-1	(4.0±0.1) X 10^3	(3.7±1.0) X 10^2	< 2 x 10^0	< 9 x 10^{-1}
LI-2RB5-2	(4.2±0.1) X 10^3	< 3 X 10^2	< 3 x 10^0	< 9 x 10^{-1}
LI-3RB5-1	(1.8±0.1) X 10^3	(2.9±0.4) X 10^2	< 2 x 10^0	(1.9±0.2) X 10^0
LI-3RB5-2	(9.6±0.1) X 10^2	(1.4±0.3) X 10^2	< 1 x 10^0	(7.8±0.9) X 10^{-1}

Result (2) of the nuclide analysis of the retained water in the PCV in Units 2 and 3

Radioactive Concentration (Bq/cm^3)					
Name of the Sample	U-234 (Approx. 2.5 X 10^5 Yrs)	U-235 (Approx. 7.0 X 10^8 Yrs)	U236 (Approx. 2.3 X 10^7 Yrs)	U-238 (Approx. 4.5 x 10^9 Yrs)	U-235/U-238 Mass Ratio
LI-2RB5-1	(1.8±0.2) x 10^{-4}	(4.2±0.4) x 10^{-6}	(2.8±0.3) x 10^{-5}	(4.1±0.2) x 10^{-5}	1.6 x 10^{-2}
LI-2RB5-2	(1.4±0.1) x 10^{-4}	(3.6±0.2) x 10^{-6}	(2.0±0.1) x 10^{-5}	(2.9±0.1) x 10^{-5}	1.9 x 10^{-2}
LI-3RB5-1	(7.7±0.6) x 10^{-4}	(1.8±0.2) x 10^{-5}	(1.2±0.1) x 10^{-4}	(1.7±0.1) x 10^{-4}	1.6 x 10^{-2}
LI-3RB5-2	(1.9±0.1) x 10^{-4}	(5.1±0.2) x 10^{-6}	(3.0±0.1) x 10^{-5}	(4.2±0.1) x 10^{-5}	1.9 x 10^{-2}

Radioactive Concentration (Bq/cm^3)					
Name of the Sample	Pu-238 (Approx. 88 Yrs)	Pu-239+Pu-240 (Approx. 2.4 x10^4 Yrs) (Approx. 6.6 x 10^3 Yrs)	Am-241 (Approx. 4.3 x 10^2 Yrs)	Am-242 (Approx. 163 Days)	Cm-244 (Approx. 18 Yrs)
LI-2RB5-1	(2.4±0.1) X 10^{-1}	(7.3±0.5) X 10^{-2}	(6.3±0.5) X 10^{-2}	< 8 x 10^0	(1.5±0.1) X 10^{-1}
LI-2RB5-2	(2.2±0.1) X 10^{-1}	(7.2±0.5) X 10^{-2}	(6.9±0.5) X 10^{-2}	< 8 x 10^0	(1.5±0.1) X 10^{-1}
LI-3RB5-1	(9.4±0.2) X 10^{-1}	(2.7±0.1) X 10^{-1}	(2.7±0.1) X 10^{-1}	(3.0±0.7) X 10^1	(3.8±0.2) X 10^{-1}
LI-3RB5-2	(5.8±0.2) X 10^{-1}	(1.8±0.1) X 10^{-1}	(1.7±0.1) X 10^{-1}	(2.6±0.6) X 10^1	(2.3±0.1) X 10^{-1}

Source: Japan Atomic Energy Agency / International Research Institute for Nuclear Decommissioning, Analysis Results of Waste Samples (23 February 2017) (Exhibit KOR-302)

2.6 Japan's response to the effect of the FNDPP accident on food

2.65. In immediate response to the accident, Japan imposed a variety of measures restricting the distribution and sale of certain products from the most affected regions. Japan also re-evaluated its maximum levels for certain radionuclides and modified aspects of its food and sea water monitoring regimes. Additionally, Japan banned coastal fishing and bottom trawling in the waters within 20 km of the FDNPP.[179] The response to the FDNPP accident was coordinated horizontally amongst a variety of government authorities with relevant competence, including the Ministry of

[179] Fisheries Agency of Japan, "Report on the Monitoring of Radionuclides in Fishery Products (March 2011 – January 2015)" (April 2015) (FAJ Monitoring Report), (Exhibit JPN-43), pp. 11, 46.

Health, Labour and Welfare (MHLW), Nuclear Emergency Response Headquarters (NERH), Ministry of Agriculture, Forestry and Fisheries (MAFF), and the Ministry of the Environment (MOE). Additionally, the national government also coordinated its activities with those of prefectural and local governments as well as with TEPCO.

2.66. On 17 March 2011, the criteria in the table below were established as provisional regulation values for radionuclide levels in food and drinking water under the Food Sanitation Act.[180] The levels set were to ensure that overall exposure to radiation in food would not exceed 5 mSv/year for radioactive caesium, and 50 mSv/year for radioactive iodine.[181]

Table 4: Provisional regulation values for radionuclide levels in food and drinking water

Nuclide	Type of Food	Bq/kg
Radioactive Iodine (I-131)	Drinking Water	300
	Milk, Dairy Products	
	Vegetables (except root vegetables and tubers)	2000
	Fishery products	
Radioactive Caesium (Cs-134 and 137)	Drinking Water	200
	Milk, Dairy Products	
	Vegetables	500
	Grains	
	Meat, eggs, fish, etc.	
Uranium	Infant foods	20
	Drinking Water	
	Milk, Dairy Products	
	Vegetables	100
	Grains	
	Meat, eggs, fish, etc.	
Alpha-emitting nuclides of plutonium and transuranic elements (total radioactive concentration of Pu-238, 239, 240, and 242; Am-241; Cm-242, 243, 244)	Infant foods	1
	Drinking Water	
	Milk, Dairy Products	
	Vegetables	10
	Grains	
	Meat, eggs, fish, etc.	

Source: FAJ Monitoring Report, (Exhibit JPN-43), p. 11; Japan Ministry of Health, Labour and Welfare, Notice, "Handling of food contaminated by radioactivity" (17 March 2011), (Exhibit JPN-41.b), p. 2.

2.67. Food that exceeded the levels was not allowed to be sold, collected, produced, imported, processed, used, cooked, stored, or displayed for the purpose of marketing.[182] In April 2011, the Nuclear Emergency Response Headquarters (NERH) established and publicly announced guidelines on monitoring for radionuclides in foods, and the handling of the restrictions on distribution.[183] In June 2011, Japan established a certification system for food products intended for export, which was extended in September 2011 to cover shipping containers and some industrial products intended for export as well.[184]

2.68. At the request of the MHLW, the Food Safety Commission carried out a risk assessment, which it completed in October 2011.[185] Based on this, new standards were established and came into effect on 1 April 2012[186], in which the maximum level for overall exposure to radiation in food

[180] FAJ Monitoring Report, (Exhibit JPN-43), p. 12; Japan Ministry of Health, Labour and Welfare, Notice, "Handling of food contaminated by radioactivity" (17 March 2011), (Exhibit JPN-41.b), pp. 1-2.
[181] Report of the Japan's Committee on Radionuclides in Foods, "Report on Standard Setting Regarding Radioactive Substance in Food" (23 February 2012) (Report of Japan's Committee on Radionuclides in Foods), (Exhibit JPN-40.b), pp. 3-4.
[182] Japan Ministry of Health, Labour and Welfare, Notice, "Handling of food contaminated by radioactivity" (17 March 2011), (Exhibit JPN-41.b), p. 1.
[183] Japan Ministry of Health, Labour and Welfare, Press Release, "The Revision of the 'Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of Foods concerned Applies' (Developed by the Nuclear Emergency Response Headquarters)" (MHLW Concepts of Inspection Planning and Items and Areas to which Restrictions of Distribution and/or Consumption of foods applies), (20 March 2015), (Exhibit JPN-42.b), p. 1.
[184] 2015 IAEA DG Report, (Exhibit JPN-2), p. 91.
[185] FAJ Monitoring Report, (Exhibit JPN-43), p. 12.
[186] 2015 IAEA DG Report, (Exhibit JPN-2), p. 90.

was lowered to 1 mSv/year, consistent with the Codex standard.[187] The new levels set radioactive caesium as the representative radionuclide due to its large effect on internal radiation exposure relative to other radionuclides considered, such as Pu-239 and 240 and Sr-90.[188] New levels for radioactive caesium were set for four food categories: drinking water (10 Bq/kg), infant foods (50 Bq/kg), milk (50 Bq/kg), and general foods (100 Bq/kg)[189], and excluded radioactive iodine, due to its short half-life.[190] If caesium was detected below the level, the food was considered safe for market distribution, because Japan's derivation of its caesium thresholds account for a dose contribution from Sr-90 and other radionuclides consistent with its assumptions on the relative share of each radionuclide in the releases.[191]

2.69. Japan placed restrictions on products for public consumption[192], the distribution of certain foods in specific areas[193], and the use of agricultural land and the collection of wild food products.[194] Amongst these restrictions are those on drinking water, food, leafy vegetables and fresh milk[195], in line with national guidelines that were developed by the NERH. These were continuously revised, most recently in 2015.[196]

2.70. Additionally, Japan imposes restrictions on the distribution and shipping of food items across an entire region or in multiple locations if the NERH determines that an item might exceed the limits.[197] These restrictions are maintained in the relevant area until the radionuclide level in the contaminated food item has been consistently found by the national food monitoring programme to be below the maximum level. For a distribution restriction to be lifted, all caesium tests conducted at multiple locations within, at least, the previous month must be below the maximum level.[198] In that situation, the NERH may lift the restriction upon application by the prefectural government(s) for the affected area. For fisheries products, specifically, the lifting of a domestic distribution restriction requires an increased number of samples, consideration of the species and its migratory behaviour, and confirmation that the caesium level falls below the maximum level in a stable manner.[199] While distribution restrictions have been lifted progressively over time[200], some restrictions were in place at the time the Panel was established and have continued to the present.[201] For example, Japan's internal restrictions on the specific fishery products that are the subject of its import ban-related claims against Korea, have all been lifted; whereas the Korean measures remain in force.[202]

2.71. Japan imposed restrictions on the following products from Fukushima prefecture.[203] The products in *italics* were still under restriction as of 9 February 2016:

a. Raw milk

b. Vegetables: (i) Non-head type leafy vegetables (e.g. spinach, komatsuna), (ii) head-type leafy vegetables, (iii) Flowerhead brassicas (e.g. broccoli, cauliflower), (iv) Turnip, (v)

[187] Report of the Committee on Radionuclides in Foods, (Exhibit JPN-40.b), pp. 3-4.
[188] FAJ Monitoring Report, (Exhibit JPN-43), p. 12.
[189] FAJ Monitoring Report, (Exhibit JPN-43), p. 12.
[190] FAJ Monitoring Report, (Exhibit JPN-43), p. 12.
[191] FAJ Monitoring Report, (Exhibit JPN-43), p. 12.
[192] 2015 IAEA DG Report, (Exhibit JPN-2), p. 89.
[193] 2015 IAEA DG Report, (Exhibit JPN-2), p. 89.
[194] 2015 IAEA DG Report, (Exhibit JPN-2), p. 140.
[195] 2015 IAEA DG Report, (Exhibit JPN-2), p. 120.
[196] MHLW Concepts of Inspection Planning and Items and Areas to which Restrictions of Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b).
[197] FAJ Monitoring Report, (Exhibit JPN-43), pp. 18-20.
[198] Japan's first written submission, para. 75; FAJ Monitoring Report, (Exhibit JPN-43), p. 18.
[199] MHLW Concepts of Inspection Planning and Items and Areas to which Restrictions of Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p. 10; FAJ Monitoring Report, (Exhibit JPN-43), pp. 20-21.
[200] See section 2.7 ; Japan Ministry of Health, Labour and Welfare, "The instructions associated with food by Director-General of the Nuclear Emergency Response Headquarters" (as of 9 February 2016), ("Japan MHLW Internal Distribution Restrictions on Food"), (Exhibit JPN-48).
[201] See Japan's domestic restrictions at http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html (cited to in Korea's second written submission, fn. 121).
[202] Japan MHLW Internal Distribution Restrictions on Food, (Exhibit JPN-48).
[203] Japan MHLW Internal Distribution Restrictions on Food, (Exhibit JPN-48).

Mushrooms (*log-grown shiitake* (outdoor and indoor cultivation), *log-grown pholiota nameko* (outdoor cultivation), and *wild mushrooms*), (vi) *Bamboo shoots, (vii)* Other vegetables (*hatakewasabi*, *wild aralia cordata*, *ostrich fern*, *wild ostrich fern*, *koshiabura*, *Japanese royal fern*, *wild Japanese royal fern*, *wild uwabamisou*, *wild aralia sprout*, *giant butterbur*, *wild giant butterbur*, *wild Japanese butterbur scape*, *pteridium aquilinum*, *wild pteridium aquilinum*, *Japanese apricot (Ume)*, *yuzu*, *chestnut*, *kiwi fruit*.

c. Cereal: Azuki bean, *Soybean* and *rice* produced in 2011 (later extended each year through 2015)

d. Fishery products: Japanese sandlance *(*juvenile*)*, *cherry salmon (excluding farmed fish)*, *Japanese dace*, *Japanese eel*, *Ayu sweetfish (excluding farmed fish)*, *Whitespotted char (excluding farmed fish)*, *common carp (excluding farmed fish)*, *Any crucian carp (excluding farmed fish)*, *fat greenling*, *red tongue sole*, *Japanese* sandlance (excluding juvenile), *Stone flounder*, *Goldeye rockfish*, *Surfperch*, *Brown hakeling*, *Fox jacopever*, *Black cow-tongue*, *Black rockfish*, *Japanese black porgy*, Sea raven, *Ocellate spot skate*, *Cherry salmon (Sakuramasu)*, *Poacher*, *Rockfish (Sebastes cheni)*, *Japanese seabass*, Nibe croaker, *Starry flounder*, *Slime flounder*, Panther puffer, *Olive flounder*, Gurnard, *Spotted halibut*, *Conger eel*, *Marbled flounder*, *Flathead*, Pacific cod, Shotted halibut, *Brassblotched rockfish*, Ridged-eye flounder, *Venus clam*, Northern sea urchin, Flathead flounder, Alaska pollock, Littlemout flounder, *Long shanny*, *Barfin flounder*, Starspotted smooth-hound, Vermiculated puffer, Halfbeak, *Scorpion fish*, Hilgendor saucord.

e. Meat: *Beef*, *Boar meat*, *Spot-billed duck meat*, *Green pheasant meat*, *Bear meat*, *Hare meat*, *Copper pheasant meat*.

2.72. Japan also imposed restrictions on distribution of some products from Aomori, Iwate, Miyagi, Yamagata, Ibaraki, Tochigi, Gunma, Saitama, Chiba, Kanagawa, Niigata, Yamanashi, Nagano, and Shizuoka.[204] Various Japanese governmental authorities publish information both on these distribution restrictions[205] and the monitoring data collected under the national food monitoring programme.[206]

2.73. Japan monitors food and the environment, which covers, *inter alia*, seawater, sediment, marine biota, air and soil.[207] This monitoring is to provide sufficient data for officials to make decisions about regulating food for sale, collection, production, importation, processing, use, cooking, storage, or display for the purpose of marketing. The Environmental Radioactivity Database (ERD), established by the NRA collects and provides data on measurements of radioactivity in the environment as well as in food products. These data have been obtained and submitted by national/local governments and public institutions.[208]

2.74. Testing under the national food monitoring programme is focused on items that are more likely to exhibit higher levels of radioactive caesium.[209] Monitoring takes place in 17 of Japan's 47

[204] Japan MHLW Internal Distribution Restrictions on Food, (Exhibit JPN-48).
[205] Japan MHLW Internal Distribution Restrictions on Food, (Exhibit JPN-48).
[206] Ministry of Health, Labour and Welfare, "Levels of Radioactive Contaminants in Foods Tested in Respective Prefectures", available at http://www.mhlw.go.jp/english/topics/2011eq/index_food_radioactive.html (last viewed 6 March 2016) and Fisheries Agency Japan, "Results of the monitoring on radioactivity level in fisheries products", available at http://www.jfa.maff.go.jp/e/inspection/index.html (last viewed 6 March 2016). The Japanese originals are available at the following webpages: http://www.mhlw.go.jp/stf/kinkyu/0000045250.html (Ministry of Health, Labour and Welfare) and http://www.jfa.maff.go.jp/j/housyanou/kekka.html (Fisheries Agency Japan). Japan refers to these web pages in para. 78 of its first written submission.
[207] Japan's Ministry of Agriculture, Forestry and Fisheries, "Data from the Environmental Radioactivity Database on radioactivity of soil", (Exhibit JPN-94); Nuclear Regulation Authority, Airborne Monitoring, available at: http://radioactivity.nsr.go.jp/en/list/278/list-1.html, International Atomic Energy Agency, 2015 IAEA DG Report, (Exhibit JPN-2), p. 107; Implementation Guides on Sea Area Monitoring (2016), available at: http://radioactivity.nsr.go.jp/en/contents/12000/11108/24/274_s_20160401.pdf.pdf, (Exhibit JPN-278).
[208] The environmental radioactivity database is available at: http://search.kankyohoshano.go.jp/servlet/search.SelectMain?paraSelectKind=0&pageSID=202417241. See Overview of Japan's food monitoring data submitted to the Panel, (Exhibit JPN-272), p. 22.
[209] FAJ Monitoring Report, (Exhibit JPN-43), p. 14.

prefectures[210], and covers: grains, vegetables, fruits, edible fungi (cultivated), fishery products (fresh water and non-freshwater), cattle meat, livestock products (other than cattle meat), game meat, wild plants and wild edible fungi, milk for children and adults and infant foods, tea and drinking water, and processed foods.[211] Testing of food samples is conducted on a weekly basis.[212] However, when radionuclide content close to or exceeding the maximum limit is detected, the frequency of inspection increases[213]; the government may separately instruct the local governments on the frequency of inspections as needed.[214]

2.75. The food monitoring programme aims to identify and monitor contamination levels in food relative to Japan's maximum level for caesium, initially 370 Bq/kg and since April 2012 100 Bq/kg.[215] Therefore, the level of detection mandated for use by local authorities in testing for caesium is normally one fifth of the maximum level – i.e., 20 Bq/kg.[216] However, many of the tests are undertaken with much lower levels of detection, including levels of detection below 1 Bq/kg.[217]

2.76. Japan also uses the "market basket survey" method to test food that has entered the marketplace. Food categories are purchased at markets throughout Japan in proportion to the average amount of an individual's consumption of food in each category. This "basket" of foods is then tested. Japan has also undertaken "duplicate diet surveys", where subjects weigh and set aside a duplicate portion of all the foods they have eaten, and the collected food is mixed uniformly for an analysis of radionuclide content. Such surveys are a method of assessing dietary intake at the household level of any specified substances in foods – in this case radionuclides.[218] The market basket and duplicate diet surveys focus on testing for caesium, and in some instances strontium and plutonium.[219]

2.77. The Fisheries Agency and the Fisheries Research Agency have been testing for strontium and plutonium since the Fukushima accident.[220] This testing also included testing for caesium and iodine, and has targeted a broad variety of fish including Japanese sardine, Japanese sandlance, Anchovy, Pacific cod, Flathead flounder, Swimming crab, Southern Mackerel, Rockfish, Shotted halibut, Ishikawa icefish, Alaska pollock, Pacific saury, Chub mackerel, Conger eel, Sakura shrimp,

[210] Japan's response to Panel question No. 7. Japan explains that the 17 prefectures are Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Chiba, Saitama, Tokyo, Kanagawa, Niigata, Yamanashi, Nagano, and Shizuoka. When selecting sampling locations, Japan takes into account concentrations of radioactive caesium in soils, the results of environmental radiation monitoring, and locations in which over half of the maximum level for radioactive caesium has been detected in the relevant items produced in the past. See MHLW Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p. 8.

[211] Japan Ministry of Agriculture, Forestry and Fisheries, "Overview of food monitoring results" (April 2012 – March 2016), (Exhibit JPN-155).

[212] MHLW Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p. 8.

[213] Japan's response to Panel question No. 123(b); MHLW Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p. 8.

[214] Japan's response to Panel question No. 123(b); MHLW Concepts of Inspection Planning and the Establishment and Cancellation of Items and Areas to which Restriction on Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p. 8.

[215] Japan Ministry of Health, Labour and Welfare, "Testing Methods for Radioactive Substances in Food" (15 March 2012), (Exhibit JPN-44.b).

[216] Japan's second written submission, para. 503; Japan Ministry of Health, Labour and Welfare, "Testing Methods for Radioactive Substances in Food" (15 March 2012), (Exhibit JPN-44.b), p. 4.

[217] Japan Ministry of Agriculture, Forestry and Fisheries, "Data underlying Overview of food monitoring results" (April 2012 – March 2016), (Exhibit JPN-156), which is derived from: Japan Ministry of Health, Labour and Welfare, "Cesium Monitoring Data of Food Products" (April 2012 – July 2016), (Exhibit JPN-157).

[218] FAJ Monitoring Report, (Exhibit JPN-43), p. 24.

[219] Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Market Basket Survey and Duplicate Meal Survey" (2011-2015), (Exhibit JPN-101); Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Duplicate Diet Survey"(2014), (Exhibit JPN-102); Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Nationwide Market Basket Survey and Duplicate Meal Survey: Overview of Data"(2011-2015), (Exhibit JPN-132); Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Market Basket Survey: Raw Data (multiple prefectures)"(2011-2015), (Exhibit JPN-133 revised); and Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective Dose from Duplicate Diet Survey: Raw Data (multiple prefectures)"(2011-2015), (Exhibit JPN-134); and Fukushima Prefecture, "Effective dose from Duplicate Diet Survey (Fukushima prefecture)" (Fukushima Duplicate Diet Survey), (Exhibit JPN-135).

[220] FAJ Monitoring Report (Exhibit JPN-43), pp. 49-52.

Black scraper, Blunthead puffer, Mahi-mahi, Japanese jack mackerel, Round herring, Chum salmon, Scallop, Black rockfish, Steller's sculpin, Neon Flying squid , Alfonsino, Pacific grenadier, Giant pacific octopus, flounder, Flame snapper, Laver, Wakame seaweed, Olive flounder, Redwing searobin, Stone flounder, Crimson sea bream, Krill, Spiny dogfish, Beach conger, Red seabream, Common sea squirt and Shortfin mako shark.[221] Samples of these fish were harvested from all of the representative sea zones around Japan. Usually the whole body of the sample is analysed: however, in some cases, the viscera, the shell or the head are excluded. In other cases, only the edible part of the body is tested.[222]

2.78. Under a Comprehensive Radiation Monitoring plan, the MOE measures the concentration of radioactive materials in the aquatic environment, including aquatic organisms.[223] Aquatic organisms are obtained from rivers, lakes and coastal areas located mainly within a 50 km radius of the FDNPP. This testing covers both species that are not consumed by humans but form part of the aquatic food chain, such as algae and insects, and species that humans ordinarily consume.[224]

2.79. Japan adopted a Sea Area Monitoring plan in October 2011, which was further modified in 2012.[225] Japan also published specific implementation guidelines for sea area monitoring in 2013.[226] The sea area around FDNPP is divided into the following four areas in terms of their distance from the plant (a) Area close to FDNPP is the area within approximately 3 km from FDNPP. (b) Coastal area is the area within approximately 30 km from the coastline (including river outlets) of Aomori, Iwate, Miyagi, Fukushima and Ibaraki Prefectures; (c) Offshore area is the area between approximately 30 km and 90 km from the coastline; (d) Outer sea area is the area approximately 90 km or more from the coastline. Since 2012, Tokyo Bay is also monitored.[227] Each sampling point in the five areas covered by the seawater monitoring plan falls under the authority of a responsible organization. Organizations involved in seawater monitoring are NRA, Fisheries Agency, Ministry of Land, Infrastructure, Transport and Tourism (MLIT); Japan Coast Guard; MOE; Fukushima Prefectural Government; TEPCO; Local governments; Local fishery FDNPP site unions; and Research institutes.[228] The NRA plays a leading and coordinating role for all monitoring activities.[229]

2.80. When a leakage of contaminated water is suspected or confirmed, TEPCO and the central governmental organizations work together to investigate and monitor the situation through the collection of seawater samples.[230] The monitoring frequency, the radionuclides being monitored, detection limits, sampling depth and monitoring organization vary according to the extent of contamination and the sampling points.[231]

[221] FAJ Monitoring Report (Exhibit JPN-43), pp. 49-52.
[222] FAJ Monitoring Report (Exhibit JPN-43), p. 49-52.
[223] Ministry of Education, Culture, Sports, Science and Technology, Fisheries Agency, Ministry of Land, Infrastructure, Transport and Tourism, Japan Coast Guard, Japan Meteorological Agency, Ministry of the Environment, Fukushima Prefecture, Tokyo Electric Power Co., Inc., "Sea Area Monitoring Plan in FY2012" (30 March 2012), (Exhibit KOR-246); Secretariat of Nuclear Regulation Authority, Fisheries Agency, Ministry of Land, Infrastructure, Transport and Tourism, Japan Coast Guard, Japan Meteorological Agency, Ministry of the Environment, Fukushima Prefectural Government, Tokyo Electric Power Co., Inc., "Implementation Guides on Sea Area Monitoring in FY2013" (1 April 2013), (Exhibit KOR-247). See also Japan Ministry of Agriculture, Forestry and Fisheries, "Fish and shellfish monitoring data from 'Aquatic Monitoring' published by Japan Ministry of the Environment", (Exhibit JPN-96); Japan's first written submission, para. 70.
[224] Japan Ministry of Agriculture, Forestry and Fisheries, "Fish and shellfish monitoring data from "Aquatic Monitoring" published by Japan Ministry of the Environment", (Exhibit JPN-96), MOE Fish and Shellfish Data, (Exhibit JPN-272), p. 17, and Japan's first written submission, para. 70.
[225] Ministry of Education, Culture, Sports, Science and Technology, Fisheries Agency, Ministry of Land, Infrastructure, Transport and Tourism, Japan Coast Guard, Japan Meteorological Agency, Ministry of the Environment, Fukushima Prefecture, Tokyo Electric Power Co., Inc., "Sea Area Monitoring Plan in FY2012" (30 March 2012), (Exhibit KOR-246).
[226] Secretariat of Nuclear Regulation Authority, Fisheries Agency, Ministry of Land, Infrastructure, Transport and Tourism, Japan Coast Guard, Japan Meteorological Agency, Ministry of the Environment, Fukushima Prefectural Government, Tokyo Electric Power Co., Inc., "Implementation Guides on Sea Area Monitoring in FY2013" (1 April 2013), (Exhibit KOR-247).
[227] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), pp. 1-2.
[228] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), p. 1.
[229] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), p. 1.
[230] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), p. 2.
[231] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), pp. 2-9.

2.81. For seawater in the area close to the FDNPP, the monitoring frequency ranges from anywhere between once a day to once in six months depending on the sampling point and the radionuclide being monitored. The radionuclides tested for include caesium, iodine, strontium and plutonium. For the coastal area, sampling takes place once a year at minimum and can be as frequent as once a week also depending on the sampling point and radionuclide being monitored. The radionuclides tested for are caesium, iodine, strontium and plutonium. For the off-shore area, monitoring for caesium takes place once every three months for all sampling points. The outer sea area is also divided up into sampling points depending on which the monitoring organization does monitoring either once in six months or once every year. The radionuclides tested also depend on the sampling points and include caesium and strontium. Tokyo Bay is monitored for caesium between once a month to once a year, depending on the sampling point and the radionuclide being monitored.[232]

2.82. For sediment, in the area close to the FDNPP the frequency of monitoring ranges from once a month to once in six months. Similarly, for the coastal areas, depending on the sampling point, the monitoring frequency ranges from once a month to once a year. For both these areas, monitoring is for caesium, strontium and plutonium, and the frequency changes depending on the sampling point and the radionuclides being monitored. For the off-shore area, monitoring for caesium is done once every three months for all sampling points. For the outer sea area there is no monitoring for sediment. Tokyo Bay is monitored for caesium, with a frequency between four to seven times per year, once every three months, six times per year or once every three months depending on which sampling point is being monitored.[233]

2.83. Marine biota is monitored for caesium. Sampling is conducted in the sea areas mainly facing the Fukushima prefecture. It ranges from once a week to once in three to four months depending on the area.[234]

2.84. Japan cooperates with the IAEA to carry out inter-laboratory comparisons of sea water since September 2014, and with sediment and fisheries products since May and November 2015, respectively.[235]

2.85. Monitoring data from the mouth of the FDNPP port are made publicly available on an hourly basis and is available at www.tepco.co.jp/en/nu/fukushima-np/f1/smp/index-e.html.[236]

2.7 Korea's response to the FDNPP accident

2.86. Korea responded to the nuclear accident by establishing a task force under the supervision of the Prime Minister's Office to coordinate the government's emergency response measures, including monitoring radioactive contamination levels of products at airports and harbours, establishing safety management systems for food products, and reporting detection results to the public in a timely manner.[237]

2.87. Korea imposed a variety of control measures within days of the accident. Korea's Ministry of Food, Agriculture, Forestry and Fisheries (MIFAFF)[238] was responsible for regulating fishery products and livestock products, and Korea's Food and Drug Administration (KFDA)[239] was

[232] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), pp. 2-6.
[233] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), Table 10.
[234] Implementation Guides on Sea Area Monitoring (2016), (Exhibit JPN-278), p. 9.
[235] International Atomic Energy Agency, "Fourth IAEA Mission to Collect Marine Samples in Fukushima Prefecture" (12 November 2015), (Exhibit JPN-51); International Atomic Energy Agency, "IAEA finds Japanese labs reliable in analysing fish from sea near Fukushima" (4 March 2016), (Exhibit JPN-52).
[236] Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148), para. 52; Japan's comments on the experts' responses to Panel question No. 59 to the experts. See also para. 2.61. above.
[237] OECD Nuclear Energy Agency, "Report of the Korean Government Response to the Fukushima Daiichi Nuclear Accident" (2011), https://www.oecd-nea.org/nsd/fukushima/documents/Korea_2011_08Policy00GovernmentResponsetoFukushimaAccident.pdf, (Exhibit KOR-35).
[238] MIFAFF was administering the import measures related to fishery products until the Korea Ministry of Food and Drug Safety (MFDS) began administering the measures in March 2013. MIFAFF was subsequently succeeded by the Ministry of Agriculture, Food and Rural Affairs (MAFRA).
[239] Korea Food and Drug Administration was succeeded in March 2013 by MFDS.

responsible for regulating agro-forestry products, processed foods, food additives and health functional foods. This second set of products will be referred to as "non-fishery products".–Over time, Korea progressively imposed measures relating to imports of both fishery and non-fishery products. Korea applies certain testing and certification requirements both prior to export and at the border prior to placing onto the Korean market. Additionally, as part of its testing requirements, Korea lowered its tolerance level for caesium-134 and 137 to 100 Bq/kg, which is the same tolerance level used in Japan.. Korea also imposed a variety of import bans on various products from specified regions.

2.7.1 Pre-export certification requirements

2.88. Korea introduced certain certification requirements on products that are allowed to be imported from Japan. On 1 May 2011, KFDA imposed a measure requiring that the import of non-fishery products (except livestock) from all Japanese prefectures be accompanied by a certificate of origin.[240] MIFAFF began to apply this certificate of origin requirement to fishery products and livestock products imported from all Japanese prefectures two weeks later.[241]

2.89. Korea and Japan adopted the origin certificate format agreed upon between Japan and the European Union. For fresh agricultural products and agricultural products destined to be processed, origin refers to the location where the product is cultivated and harvested. For processed products, it is the location where the last substantial step of the production process occurs. For fishery products, origin corresponds to the place of harvest, processing and/or packaging; if these steps happen in different prefectures, the prefecture for which Korea's import regime is the most restrictive is considered to be the prefecture of origin.[242]

2.90. Japan does not challenge Korea's requirement to provide a certificate of origin with all products imported into Korea from Japan.

2.91. Korea imposed requirements for a pre-export certificate of caesium and iodine testing on certain non-fishery products simultaneously with the requirements for a certificate of origin for certain prefectures.[243] The measure required a certificate attesting that caesium and iodine levels were within the tolerance limits applied by Korea.[244] Korea later expanded the application of the pre-export caesium and iodine testing certification requirements to fishery and livestock products between 14 May 2011 and 9 September 2013.

2.92. Initially, non-fishery products (except livestock) from 13 Japanese prefectures[245] were required to be accompanied by a pre-export caesium and iodine testing certificate attesting that the products had been tested for caesium and iodine and that they were within the maximum levels set by Korea. The prefectures subject to the requirements were regions in which Japan had detected radioactive materials in food.[246]

2.93. Korea applied the same testing and certification requirements to fishery and livestock products two weeks later.[247] With regards to fishery products, the list of prefectures requiring this certificate was modified twice[248] following the detection of radioactive materials in certain regions

[240] Korea Food and Drug Administration, Press Release, "Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis (5)" (14 April 2011), (KFDA 14 April 2011 Press Release), (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).

[241] Korea National Fishery Inspection Services, "Notification of Strengthened Inspection on Fishery Products Originated from Japan" (4 May 2011), (Exhibit KOR-75).

[242] Japan and Korea's responses to Panel question No. 127.

[243] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).

[244] For Cs-134 and Cs-137, the level applied by Korea was 370 Bq/kg before 1 April 2012 and 100 Bq/kg after; for I-131, the level remained unchanged and is 300 Bq/kg.

[245] Chiba, Fukushima, Gunma, Miyagi, Ibaraki, Kanagawa, Nagano, Niigata, Saitama, Shizuoka, Tochigi, Tokyo and Yamagata. See KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b).

[246] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)), p. 2.

[247] Korea National Fishery Inspection Services, "Notification of Strengthened Inspection on Fishery Products Originated from Japan" (4 May 2011), (Exhibit KOR-75).

[248] In June 2012, five prefectures were excluded from the list of the thirteen prefectures decided on 14 May 2011 and seven prefectures were added to the same list. This amounted to 15 prefectures that required a pre-export certificate for caesium testing. In October 2012, one prefecture was excluded from the

either as a result of monitoring in Japan or of import inspection in Korea, amounting to 16 prefectures[249] by mid-2013.[250] Following the application of a blanket import ban (see section 2.7.7) in 2013 on all fishery products from 8 of these 16 prefectures, only Aichi, Ehime, Hokkaido, Kagoshima, Kanagawa, Kumamoto, Mie and Tokyo can export fishery products to Korea subject to the various certification requirements including certificates of origin and results of caesium and iodine testing.[251]

2.94. Japan does not challenge Korea's requirement to provide a certificate indicating that caesium and iodine has been tested for prior to export and is within Korea's tolerance levels as currently applied to Japanese non-fishery products from Miyagi, Fukushima, Gunma, Tochigi, Ibaraki, Chiba, Saitama, Kanagawa, Shizuoka, Nagano, Tokyo, Yamagata, Niigata and to fishery products from Aichi, Ehime, Hokkaido, Kagoshima, Kanagawa, Kumamoto, Mie and Tokyo.[252]

2.95. Although Japan does not challenge either the origin certificate or the requirement for a pre-export caesium and iodine testing certificate, the parties disagree on how the two requirements operate in tandem. Japan asserts that the pre-export certificate for caesium and iodine testing replaces the certificate of origin in the prefectures where it is required[253], whereas Korea has indicated that the "requirement to provide a pre-export cesium testing certificate does not supersede the requirement for a certificate of origin".[254]

2.7.2 At-the-border testing for every consignment

2.96. The first measure Korea put in place intensified the "at-the-border-testing" regime for caesium and iodine in Japanese products. Before the accident, Korea tested for caesium and iodine in Japanese products in samples from randomly selected consignments, as it currently does for most products from third sources.[255] Three days after the accident the KFDA and MIFAFF began to test for caesium and iodine in samples from every consignment of fresh agro-forestry products and livestock products from all Japanese prefectures[256], and fishery products from four prefectures in which Japan had detected radioactive materials (Fukushima, Aomori, Miyagi, Iwate). Fishery products from all other prefectures were tested for caesium and iodine at the border on a weekly

list of 15 prefectures decided in June 2012 and two prefectures were added to the same list; Japan's and Korea's responses to Panel question No. 111(c).

[249] Aichi, Aomori, Chiba, Ehime, Fukushima, Gunma, Hokkaido, Ibaraki, Iwate, Kagoshima, Kanagawa, Kumamoto, Mie, Miyagi, Tochigi and Tokyo; Japan and Korea's responses to Panel question No. 111(c).

[250] Korea Ministry of Food, Agriculture, Forestry and Fisheries, "Notification of adjusted areas subject to radioactive material inspection certificate requirements for Japanese fishery products" (26 September 2012) (Redacted), (Exhibit KOR-76 (revised)).

[251] See KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)). The 13 prefectures for which pre-export testing was originally required for fisheries products are: Miyagi, Yamagata, Niigata, Nagano, Saitama, Kanagawa, Shizuoka and Tokyo-to, in addition to Fukushima, Ibaraki, Tochigi, Gunma and Chiba. Subsequent to this press release, on 1 June 2012, Yamagata, Saitama, Niigata, Nagano and Shizuoka were removed from the list of prefectures required to undergo pre-export testing, and Hokkaido, Aomori, Iwate, Mie, Ehime, Nagasaki, and Kumamoto were added to the list. On 15 October 2012, Nagasaki was moved from the list of prefectures subject to pre-export testing requirements and the prefectures Kagoshima and Aichi were added. According to the information provided, the Panel understands that the prefectures subject to pre-export testing have not changed since this time. On 6 September 2013, Korea's blanket import ban was applied to fisheries products from Aomori, Iwate, Miyagi, Fukushima, Ibaraki, Tochigi, Gunma and Chiba, and as such pre-export testing was no longer relevant. See Korea's Ministry of Food, Agriculture, Forestry and Fisheries, "Notification of adjusted areas subject to radioactive material inspection certificate requirements for Japanese fisheries products" (26 September 2012) (redacted), (Exhibit KOR-76) and Korea's Ministry of Food and Drug Safety, Press Release, "Notice of Temporary Special Measure for Safety for Food Imported from Japan" (6 September 2013) (English translation), ("MFDS notice for 2013 blanket import ban and additional testing requirements"), (Exhibit JPN-75.b).

[252] See Japan's first written submission, para. 127 and footnote 192.

[253] Japan's response to Panel question No. 111(c).

[254] Korea's comments on Japan's response to Panel question No. 111(c).

[255] During the second meeting, Korea indicated that for certain commodities (mushrooms, blueberries) from certain countries (Ukraine, Belarus, their neighbouring countries; and China), caesium is tested more frequently at the Korean border than for most food imports from third sources. See Korea's response to Panel question No. 23 and Korea's comments on Japan's response to Panel question No. 136 which specified the frequency of caesium testing for food imports from third countries.

[256] Korea Food and Drug Administration, Press Release, "Import-stage Radiation Inspection on Fresh Agricultural/Forest Production Originating in Japan Enhanced" (14 March 2011), (Exhibit JPN-82.b).

basis.[257] A few days later[258] KFDA extended the scope of non-fishery products for which samples from every consignment are tested for caesium and iodine at the border to all agro-forestry products (fresh, dried, refrigerated and frozen), processed foods, food additives and health functional foods imported from Japan. By the end of March 2011, MIFAFF had broadened the scope of its testing requirements even further so that samples from every consignment of fishery products from all Japanese prefectures were required to be tested for caesium and iodine at the border. This testing of samples from every consignment for all Japanese products imported into Korea remains in place to this day. During the second meeting, Korea averred that caesium testing of every consignment at the border is applied to all consignments from Japan except if products are accompanied by a pre-export certificate for caesium testing indicating that caesium is above 1 but below 100 Bq/kg and certificates attesting that the additional radionuclides are within the Codex levels.[259]

2.97. Japan does not challenge Korea's requirements that all consignments from Japan, regardless of product or prefecture of origin, be tested for caesium at the border.[260]

2.7.3 Testing for additional radionuclides

2.98. The third and last requirement for non-fishery products (except livestock) from all Japanese prefectures, put in place by KFDA in early May 2011, required that, when caesium is detected, an "additional certification and testing on strontium, plutonium, etc. shall be requested."[261] Two weeks earlier, administrative instructions were sent to enforcement agencies by KFDA specifying that when caesium is detected "within the domestic standard limit, additional certification shall be requested (…) which confirms that the product has not been contaminated with 'other radionuclides such as plutonium and strontium'".[262] The administrative instructions provided a table with 17 out of the 20 Codex radionuclides and their corresponding Codex limits (I-131, Cs-134 and Cs-137, Sr-90, Pu-238, 239, 240 are included in this table; H-3, C-14 and Tc-99 are not included). The notice indicates that the standards adopted by Codex are applied to the radionuclides subject to additional certification, and that the analytical report of the additional radionuclide certification must be made "either by [a] Japanese official laboratory or by [a] laboratory designated by the Government of Japan".

2.99. In the case of fishery and livestock products, the May 2011[263] information document by MIFAFF setting up the requirements for a pre-export certificate for caesium testing from 13 prefectures and certificate of origin from all prefectures indicated that "when certificate and testing standards for radionuclides including strontium and plutonium become available in the future, additional certification for other radionuclides are expected to be requested".

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[257] Korea Prime Minister's Office, Press Release, "Prime Minister Hwang-Shik Kim Demand Stringent Inspection of Imported Food Products" (23 March 2011), (Exhibit JPN-84.b).

[258] Korea Food and Drug Administration, Press Release, "KFDA Expands Scope of Radiation Inspection to Cover Dried Agricultural/Forest Products, Processed Foods, etc. from Japan" (21 March 2011), (Exhibit JPN-83.b).

[259] Korea's response to Panel question No. 129. The revised Annex B submitted with Korea's responses to the Panel questions after both the first and second meeting also assert this exception. In support of this contention Korea cites to the language of the 2011 press release announcing the additional testing requirements. In particular, Korea relies on the wording:

> [w]here iodine or cesium (134Cs+137Cs) is detected in the food products but within the domestic standard limit, additional certification shall be requested to importer with analytical report which confirms that the product has not been contaminated with 'other radionuclides such as plutonium and strontium.

See Korea Food & Drug Administration, "Instruction of Changed Measure including Certificate of Food Imports Originated from Japan", (KFDA 2011 Instruction on new certification requirements for Japanese food), (Exhibit KOR-40.b). It is not clear to the Panel that detection "at the import stage" refers to pre-export testing in Japan rather than the at-the-border testing called for in the measures.

[260] See Japan's first written submission, para. 127 and fn. 192.

[261] Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis (5), (Exhibits JPN-55.b (revised), KOR-72 (revised)).

[262] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b).

[263] Korea National Fishery Inspection Services, "Notification of Strengthened Inspection on Fishery Products Originated from Japan" (4 May 2011), (Exhibit KOR-75).

2.7.4 Expanded testing for additional radionuclides

2.100. More than two years later, in September 2013 [264], Korea adopted three additional measures: (1) extending the requirements for additional testing to fishery and livestock products; (2) lowering the maximum tolerance level for caesium (both Cs-134 and Cs-137) to 100 Bq/kg, which is the level used in Japan; and (3) a "blanket" import ban on all fishery products from eight prefectures. Korea adopted these measures soon after news reports that there had been continuing releases of contaminated water into the ocean that had not previously been disclosed.[265] The caesium level is addressed in section 2.7.5 below and the blanket import ban in 2.7.7 below.

2.101. In a press release from the Prime Minister's Office of 6 September 2013 Korea announced that testing "regarding [the] presence of other nuclides such as plutonium and strontium" for all fishery and livestock products from any Japanese prefecture was mandatory if "even trace amounts" of caesium was detected. On the same day KFDA sent a communication to the following agencies: Head of Ministry of Food and Drug Safety, National Institute of Food and Drug Safety Evaluation, Minister of Oceans and Fisheries (Head of Aquaculture Policy Division), National Fisheries Products Quality Inspection Service (Head of Quarantine Inspection Division). The communication stated that "it will be required to submit additional test certificate on other nuclides as specified by [Codex] regarding radiation level."[266] The communication also noted that the measure would take effect on 9 September 2013. The effective date was also included in Korea's notification to the WTO on 16 September 2013. [267]

2.102. Japan challenges Korea's requirement to test for additional radionuclides if caesium or iodine is detected, as applied to both non-fishery (2011 and 2013 for livestock) and fishery products (2013). The parties disagree about various factual aspects of the requirement to test for additional radionuclides: the location where the testing for additional radionuclides must take place – whether necessarily in Japan or not - the level of caesium or iodine that would trigger the requirement to test for the additional radionuclides, and which additional radionuclides would be tested and for what tolerance levels. The factual issues under dispute will be dealt with in the section 7.5 below.

2.7.5 Caesium-134 and caesium-137 threshold levels

2.103. As part of its response to the FDNPP accident, Korea lowered its Cs-134 and Cs-137 levels in food products. Korea first aligned its Cs-134 and Cs-137 levels for products imported from Japan to Japan's tightened levels on 1 April 2012 (Table 5). In particular, the maximum level for general food products imported from Japan into Korea was lowered from 370 Bq/kg to 100 Bq/kg. On 9 September 2013, Korea extended this 100 Bq/kg level for Cs-134 and Cs-137 to all general food products regardless of the origin.[268] Japan does not challenge any of Korea's radionuclide levels.

[264] Korea Prime Minister's Office, Press Release, "Government Bans Import of All Fishery Products from 8 ken near Fukushima" (6 September 2013), ("PMO Blanket Import Ban and Additional Testing Requirements Press Release"), (Exhibit JPN-3.b).

[265] Korea's first written submission, paras. 39-56. Korea refers to: A. Slodkowski and M. Saito, Fukushima clean-up turns toxic for Japan's Tepco, *Reuters*, 30 July 2013, http://www.reuters.com/article/us-japan-fukushima-nuclear-idUSBRE96T1BC20130730, (Exhibit KOR-41); A. Slodkowski and M. Saito, REFILE-Japanese utility, and the public, in dark about crippled nuclear plant, *Reuters*, 30 July 2013, http://www.reuters.com/article/japan-fukushima-nuclear-idUSL4N0FZ31J20130731, (Exhibit KOR-42); J. Adelman and Y. Okada, "Tepco President Apologizes for Fukushima Leak Disclosure Delay", *Bloomberg*, 26 July 2013, http://www.bloomberg.com/news/articles/2013-07-26/tepco-president-apologizes-for-fukushima-leak-disclosure-delay, (Exhibit KOR-43).

[266] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b).

[267] G/SPS/N/KOR/454.

[268] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

Table 5: Japan and Korea's caesium-134 and caesium-137 levels over time

Product type	Codex Level (Bq/kg)	Japan's caesium (Cs-134, Cs-137) level (Bq/kg)		Korea's caesium (Cs-134, Cs-137) level (Bq/kg)		
		Before 1 April 2012	After 1 April 2012	Prior to FDNPP accident	For Japanese imports after 1 April 2012 until present	For products from all origins (other than products from Japan) after 9 September 2013 until present
General food	1000	500	100	370	100	100
Milk and dairy products	1000	200	50	370	50	100
Beverages	1000	200	10	10	10	10[269]

2.7.6 Product-specific import bans

2.104. Korea quickly put in place bans on specific products from certain locations within Japan following the FDNPP accident. These product-specific import bans coincided with and generally followed the distribution restrictions Japan applied within its own territory.[270] Following the detection of radiation levels exceeding 500 Bq/kg in Japanese spinach, in March 2011[271] the KFDA put in place its first product-specific import bans on non-fishery products from five prefectures.[272] As of the Panel's establishment on 28 September 2015, 27 non-fishery products from 13 prefectures[273] are subject to product-specific import bans.[274] Japan does not challenge any of Korea's non-fishery product-specific import bans.[275]

2.105. MIFAFF also progressively imposed product-specific import bans on 50 fishery products from 8 prefectures between 20 April 2011 and 8 August 2013.[276] Japan challenges Korea's product-specific import bans with regards to *two* fishery products: Alaska pollock from Fukushima and Pacific cod from five prefectures: Aomori, Fukushima, Ibaraki, Iwate and Miyagi.

2.106. The import ban on Alaska pollock from Fukushima began to apply on 22 June 2012 and the bans on Pacific cod from Iwate, Miyagi, Fukushima, Aomori and Ibaraki between 2 May 2012 and 9 November 2012. In setting these product-specific bans, Korea followed Japan's own product-specific distribution restrictions. Whereas the Korean product-specific bans are still in force, the Japanese bans for these fishery products from the prefectures at hand were removed between

[269] Korea's level for caesium in beverages is based on the WHO Guidelines on Drinking Water Quality (2006).

[270] Korea Prime Minister's Office, Press Release, "Temporary Import Suspension of Foods from Regions in Japan Contaminated with Radioactivity" (25 March 2011) (English translation), (Exhibit JPN-170.b). As noted previously, certain product-specific distribution restrictions in Japan remain in place and can be found at http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html, referred to in Japan's response to Panel question No. 28.

[271] KFDA 14 April 2011 Press Release, (Exhibits JPN-55.b (revised)), (Exhibit KOR-72 (revised)).

[272] Chiba, Fukushima, Gunma, Ibaraki and Tochigi.

[273] Aomori, Chiba, Fukushima, Gunma, Ibaraki, Iwate, Kanagawa, Miyagi, Nagano, Saitama, Shizuoka, Tochigi and Yamanashi. See Korea Prime Minister's Office, Press Release, "Temporary Import Ban on food from regions contaminated by radioactivity in Japan" (25 March 2011), (Exhibit KOR-36); Korea Food & Drug Administration, "Response and Management Trends of the Korea Food and Drug Administration Related to the Nuclear Power Plant Accident in Japan" (20 March 2013), (Exhibit KOR-38).

[274] Information on these products is available in Japanese on the Ministry of Agriculture, Forestry and Fisheries website: http://www.maff.go.jp/j/export/e_info/pdf/kisei_all_160718.pdf.

[275] Japan's responses to Panel question Nos. 7and 28.

[276] Aomori, Chiba, Fukushima, Gunma, Ibaraki, Iwate, Miyagi and Tochigi.

October 2012 and February 2015 (Table 6) following inspections confirming that caesium levels have fallen below the tolerance level in a stable manner.

Table 6: Distribution restrictions on pacific cod and Alaska pollock in Japan and Korea

Product-specific distribution restrictions					
		JAPAN		KOREA	
Product(s)	Prefecture(s)	adopted	status	adopted	status
Alaska pollock	Fukushima	22/06/2012[277]	removed on 17/12/2013[278]	22/06/2012[279]	still in force
Pacific cod	Fukushima	22/06/2012[280]	removed on 24/02/2015[281]	22/06/2012[282]	Still in force
Pacific cod	Aomori	27/08/2012[283]	removed on 31/10/2012[284]	27/08/2012[285]	still in force
Pacific cod	Iwate	02/05/2012[286]	removed on 17/01/2013[287]	02/05/2012[288]	still in force
Pacific cod	Miyagi	02/05/2012[289]	removed on 17/01/2013[290]	02/05/2012[291]	still in force
Pacific cod	Ibaraki	09/11/2012[292]	removed on 20/11/2014[293]	09/11/2012[294]	still in force

[277] Japan Ministry of Health, Labour and Welfare, Press Release, "Insurance and cancellation of Instruction to restrict of distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (Ban, Alaska Pollock and Pacific Cod - Fukushima) (22 June 2012), (Exhibit JPN-119.b).

[278] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (Lift, Alaska Pollock - Fukushima) (17 December 2013) (English translation), (Exhibit JPN-125.b).

[279] Korea Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on 35 Fishery Products, including Yellowfish from Fukushima-*ken*, Japan" (Product-Specific ban on 35 Fishery Products from Fukushima) (26 June 2012), (Exhibit JPN-77.b).

[280] Japan Ministry of Health, Labour and Welfare, Press Release, "Insurance and cancellation of Instruction to restrict of distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters (22 June 2012), (Exhibit JPN-119.b).

[281] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (24 February 2015), (Exhibit JPN-120.b).

[282] Product-Specific ban on 35 Fishery Products from Fukushima, (Exhibit JPN-77.b).

[283] Japan Ministry of Health, Labour and Welfare, Press Release, "Restriction of distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (27 August 2012), (Exhibit JPN-121.b).

[284] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (31 October 2012), (Exhibit JPN-122.b).

[285] Korea Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Aomori-*ken*, Japan" (Product-Specific ban on Cod from Aomori) (29 August 2012), (Exhibit JPN-78.b).

[286] Japan Ministry of Health, Labour and Welfare, Press Release, "Restriction of distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (2 May 2012), (Exhibit JPN-117.b).

[287] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (17 January 2013), (Exhibit JPN-118.b).

[288] Korea Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Miyagi-*ken* and Iwate-*ken*, Japan" (Product-Specific ban on Cod from Miyagi and Iwate) (3 May 2012), (Exhibit JPN-76.b).

[289] Japan Ministry of Health, Labour and Welfare, Press Release, "Restriction of distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (2 May 2012), (Exhibit JPN-117.b).

[290] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution of foods based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (17 January 2013), (Exhibit JPN-118.b).

[291] Product-Specific ban on Cod from Miyagi and Iwate , (Exhibit JPN-76.b).

[292] Japan Ministry of Health, Labour and Welfare, Press Release, "Issuance and cancellation of Instruction to restrict distribution based on the Act on Special Measures Concerning Nuclear Emergency

2.7.7 Blanket import ban

2.107. In 2013, in a press release from Korea's Prime Minister's Office on 6 September[295], Korea announced not only the lowering of its Cs-134 and Cs-137 maximum level and the extension of its additional testing requirements to fishery and livestock products, but also an import ban on all fishery products from the following eight prefectures: Aomori, Chiba, Fukushima, Gunma, Ibaraki, Iwate, Miyagi and Tochigi. Japan refers to this as a "blanket import ban" to distinguish it from the product-specific bans imposed between 20 April 2011 and 8 August 2013 with respect to 50 fishery products from these same 8 prefectures. The blanket import ban overlaps with the product-specific bans, but also goes beyond them. Japan only challenges the blanket import ban with regards to 28 fishery products listed in Table 7 below.

2.108. Japan explains in response to a Panel question, as noted above, that under Korea's import bans, origin may be conferred by the "place of harvest", the place of "processing", or the place "packaging". Hence in table 7 provided by Japan and which the Panel reproduces in relevant part below, the place of harvest has been separated from the place of processing/packaging. The information in the table may be summarized as follows: First, for each of the 28 fishery products at issue, Korea's measures apply where the "place of harvest" is one of the eight prefectures. Gunma and Tochigi prefectures are landlocked (see Figure 4 below). Therefore, no harvest of the 28 fishery products takes place in these two prefectures. However, most of the 28 fishery products may be "harvested" from any of the 6 coastal prefectures at issue. These are Aomori, Iwate, Miyagi, Fukushima, Ibaraki and Chiba.

2.109. For each of the 28 fishery products, Korea's measures also apply where the fish is processed or packed in any of the 8 prefectures, irrespective of the place of harvest of the fish. Each of the 28 fishery products may be the subject of processing or packing activities undertaken in any of the 8 prefectures at issue. These are Aomori, Iwate, Miyagi, Fukushima, Ibaraki, Chiba, Gunma and Tochigi.

2.110. As for the product-specific bans, the Panel recalls that Japan only challenges those that affect Alaska pollock and Pacific cod from five prefectures, which are also subject to the blanket import ban. Therefore, Japan's entire claim with respect to import bans is limited to these 28 fishery products.

Table 7: Products covered by the import bans that are the subject of Japan's claims

Product	Place of Harvest	Place of processing or packing, irrespective of place of harvest
Alaska pollock[296] (*Theragra chalcogramma*)	All 6 coastal prefectures[297]	All 8 prefectures[298]
Pacific cod[299] (Gadus macrocephalus)	All 6 coastal prefectures	All 8 prefectures
Abalone (*Haliotis spp.*)	All 6 coastal prefectures	All 8 prefectures
Albacore (*Thunnus alalunga*)	All 6 coastal prefectures	All 8 prefectures

Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (Ban, Pacific Cod - Ibaraki) (9 November 2012), (Exhibit JPN-123.b).

[293] Japan Ministry of Health, Labour and Welfare, Press Release, "Cancellation of Instruction to restrict distribution based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, direction of Director-General of the Nuclear Emergency Response Headquarters" (Lift, Pacific Cod - Ibaraki) (20 November 2014), (Exhibit JPN-124.b).

[294] Korea Ministry of Food, Agriculture, Forestry and Fisheries, Press Release, "Temporary Import Suspension on Cod from Ibaraki-*ken*, Japan" (Product-Specific ban on Cod from Ibaraki) (13 November 2012), (Exhibit JPN-79.b).

[295] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

[296] The first product-specific ban on Alaska pollock from Fukushima prefecture was imposed on 22 June 2012. Korea included Alaska pollock in the blanket import ban on eight prefectures on 9 September 2013.

[297] The six coastal prefectures are Aomori, Iwate, Miyagi, Fukushima, Ibaraki and Chiba.

[298] The eight prefectures are Aomori, Iwate, Miyagi, Fukushima, Ibaraki, Chiba, Gunma and Tochigi.

[299] Pacific cod was banned from various prefectures from 2 May 2012 to 9 November 2012. Korea included Pacific cod in the blanket import ban on eight prefectures on 9 September 2013.

Product	Place of Harvest	Place of processing or packing, irrespective of place of harvest
Alfonsino (*Beryx splendens*)	All 6 coastal prefectures	All 8 prefectures
Anchovy (Engraulis japonicus)	All 6 coastal prefectures	All 8 prefectures
Bigeye tuna (*Thunnus obesus*)	All 6 coastal prefectures	All 8 prefectures
Blue shark (*Prionace glauca*)	All 6 coastal prefectures	All 8 prefectures
Bluefin tuna (*Thunnus orientalis*)	All 6 coastal prefectures	All 8 prefectures
Chestnut octopus (Octopus conispadiceus)	All 6 coastal prefectures	All 8 prefectures
Chub mackerel (Scomber japonicus)	All 6 coastal prefectures	All 8 prefectures
Chum salmon (Oncorhynchus keta)	All 6 coastal prefectures	All 8 prefectures
Common octopus (Octopus vulgaris)	All 6 coastal prefectures	All 8 prefectures
Common sea squirt (Halocynthia roretzi)	Aomori, Iwate, Miyagi, Fukushima[300]	All 8 prefectures
Giant Pacific octopus (Paroctopus dofleini)	All 6 coastal prefectures	All 8 prefectures
Japanese amberjack (Seriola quinqueradiata)	All 6 coastal prefectures	All 8 prefectures
Japanese flying squid (Todarodes pacificus)	All 6 coastal prefectures	All 8 prefectures
Japanese jack mackerel (Trachurus japonicus)	All 6 coastal prefectures	All 8 prefectures
Japanese sardine (Sardinops melanostictus)	All 6 coastal prefectures	All 8 prefectures
Pacific oyster (Crassostrea gigas)	All 6 coastal prefectures	All 8 prefectures
Pacific saury (Cololabis saira)	All 6 coastal prefectures	All 8 prefectures
Salmon shark (*Lamna ditropis*)	All 6 coastal prefectures	All 8 prefectures
Scallop (*Mizuhopecten yessoensis*)	Aomori, Iwate, Miyagi, Fukushima[301]	All 8 prefectures
Skipjack tuna (*Katsuwonus pelamis*)	All 6 coastal prefectures	All 8 prefectures
Southern mackerel (*Scomber australasicus*)	All 6 coastal prefectures	All 8 prefectures
Striped marlin (*Kajikia audax*)	All 6 coastal prefectures	All 8 prefectures
Swordfish (*Xiphias gladius*)	All 6 coastal prefectures	All 8 prefectures
Yellowfin tuna (*Thunnus albacares*)	All 6 coastal prefectures	All 8 prefectures

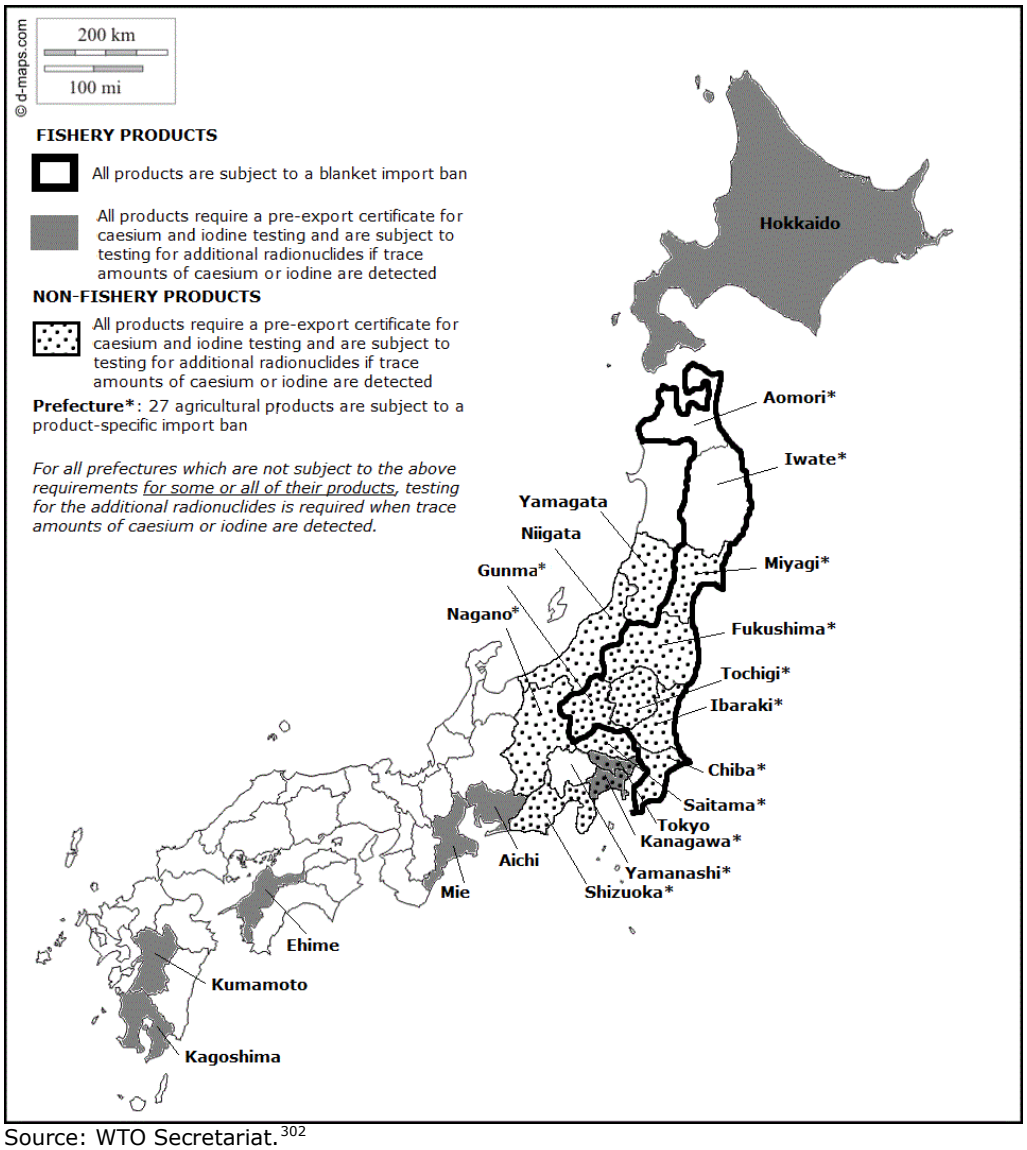
Source: Japan's response to advance Panel question No. 14.

2.111. Figure 4 below shows a graphic depiction of the prefectures subject to Korea's various measures and requirements:

[300] In light of environmental conditions in the eight prefectures, this product may come only from the four prefectures listed.

[301] In light of environmental conditions in the eight prefectures, this product may come only from the four prefectures listed.

Figure 4: Current distribution of prefectures subject to Korea's measures and requirements following the FDNPP accident



Source: WTO Secretariat.[302]

2.8 The measures Japan challenges

2.112. As noted above, Japan does not challenge all of the measures Korea has imposed in response to the FDNPP accident and its aftermath.

2.113. In these proceedings, Japan challenges the additional testing requirements dated 2011 for non-fishery products (except livestock) and dated 2013 for fishery and livestock products when trace amounts of caesium or iodine are detected.

2.114. Japan also challenges two types of import bans:

a. the product-specific import bans dated 2012 on Alaska pollock from Fukushima and on Pacific cod from Aomori, Iwate, Miyagi, Ibaraki and Fukushima;

b. the blanket import ban dated 2013 on all fishery products from 8 prefectures for 28 fishery products.

[302] Incorporating comments from the parties in response to Panel question No. 5. See also Korea's comments on the draft descriptive part of the Report.

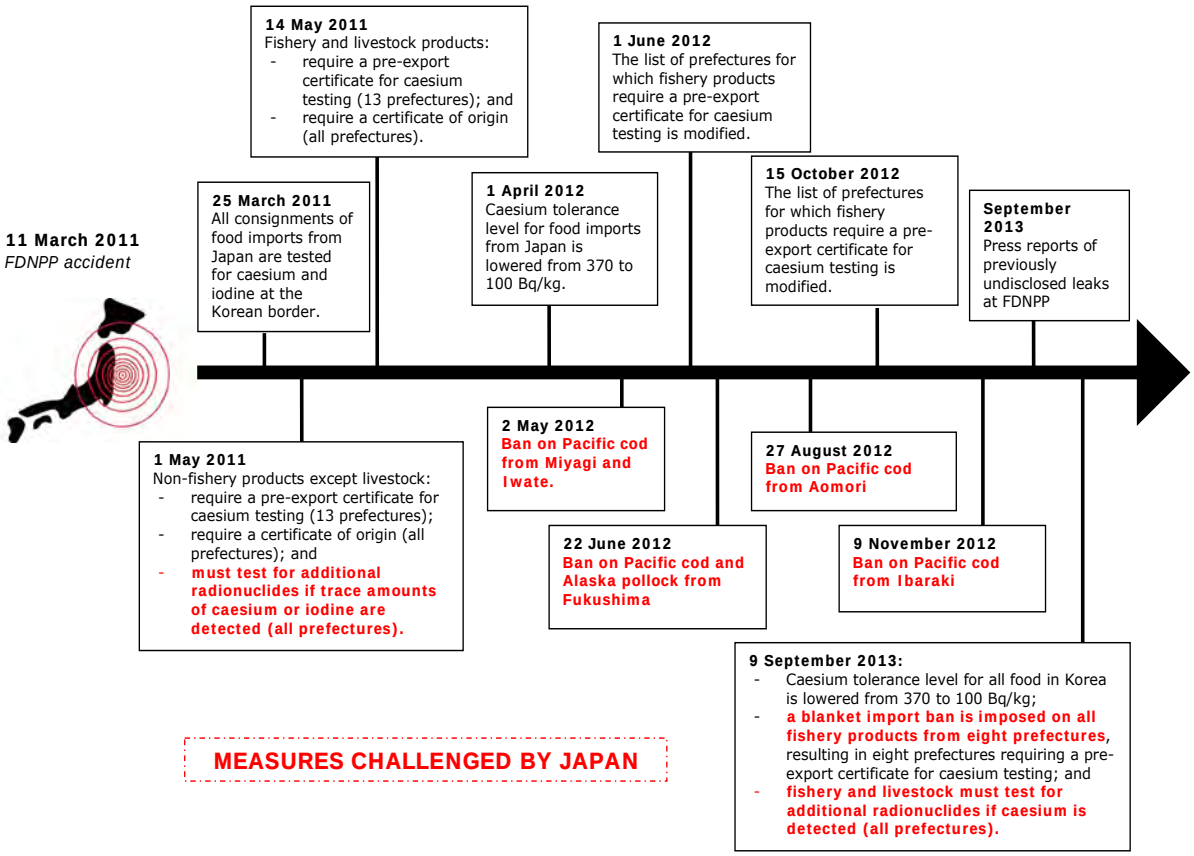
2.115. Table 8 summarizes the challenged measures, the products and regions that they apply to, and the date on which they were imposed.

Table 8: Korean measures that Japan challenges

CONTENT OF THE MEASURE	PRODUCTS COVERED BY JAPAN'S CLAIMS	PREFECTURES IN WHICH THE MEASURE APPLIES	DATE OF IMPOSITION OF THE MEASURE
Additional radionuclides must be tested for when trace amounts of caesium or iodine are detected	All agro-forestry products, processed foods, food additives and health functional foods	All 47 prefectures	1 May 2011
Product-specific ban	Pacific cod	Miyagi, Iwate	2 May 2012
Product-specific ban	Pacific cod, Alaska pollock	Fukushima	22 Jun 2012
Product-specific ban	Pacific cod	Aomori	27 Aug 2012
Product-specific ban	Pacific cod	Ibaraki	9 Nov 2012
Blanket import ban	28 fishery products	Aomori, Chiba, Fukushima, Gunma, Ibaraki, Iwate, Miyagi and Tochigi	9 Sep 2013
Additional radionuclides must be tested when more than trace amounts of caesium or iodine are detected	All fishery and livestock products	All 47 prefectures	9 Sep 2013

2.116. Figure 5 shows the chronology of the imposition of Korea's measures. The measures below the line are those that are challenged by Japan.

Figure 5: Chronology of imposition of Korea's measures



3 PARTIES' REQUESTS FOR FINDINGS AND RECOMMENDATIONS

3.1. Japan requests that the Panel find that:

a. with respect to the import bans and the additional testing requirements, Korea failed to comply with the transparency requirements in Article 7 and paragraphs 1 and 3 of Annex B to the SPS Agreement;

b. Korea's import bans on the 28 fisheries products identified in Table 7, and Korea's additional testing requirements, are inconsistent with Articles 2.3 and 5.6 of the SPS Agreement.

c. Korea's additional testing requirements are inconsistent with Article 8 and paragraphs 1(a), 1(c), 1(e) and 1(g) of Annex C to the SPS Agreement.

3.2. Japan further requests that the Panel recommend that Korea bring its import bans and additional testing requirements into conformity with its WTO obligations.

3.3. Korea requests that the Panel reject Japan's claims in this dispute in their entirety.

4 ARGUMENTS OF THE PARTIES

4.1. The arguments of the parties are reflected in their executive summaries, provided to the Panel in accordance with paragraph 21 of the Working Procedures adopted by the Panel (see Annexes B-1 and B-2).

5 ARGUMENTS OF THE THIRD PARTIES

5.1. The arguments of Brazil, Canada, the European Union, New Zealand, Norway and the United States are reflected in their executive summaries, provided in accordance with paragraph 22 of the Working Procedures adopted by the Panel (see Annexes C-1, C-2, C-3, C-4, C-5, C-6). China, Guatemala, India, the Russian Federation, and Chinese Taipei did not submit written or oral arguments to the Panel.

6 INTERIM REVIEW

6.1. The Panel issued its Interim Report to the parties on 23 August 2017. The parties each submitted written requests for review of precise aspects of the Interim Report on 19 September 2017. Neither party requested an interim review meeting. The parties submitted comments on each other's requests for review on 29 September 2017.

6.2. In accordance with Article 15.3 of the DSU, this section of the Panel Report sets out the Panel's response to the parties' requests for review of precise aspects of the Report made at the interim review stage. The Panel has modified aspects of its Report in light of the parties' comments where it considered it appropriate, as explained below.

6.3. Except where otherwise specifically indicated, the references to paragraph numbers in this section (and throughout this report) refer to the paragraph, section and footnote numbers in this Final Report and not the numbering in the Interim Report.

6.4. Both parties made requests for the Panel to clarify certain factual aspects or include additional elements of, or citations to, their arguments or exhibits or to the answers of the experts. The Panel has made changes in the following aspects of the Panel Report to respond to these requests: paragraphs 1.11, 1.26, 1.30, 2.1, 2.3 (footnote 52), 2.6 (footnote 54), 2.11, 2.12, 2.13, 2.14, 2.18 (including Table 1 and footnote 77), 2.28, 2.30, 2.37 (and footnote 114), 2.38 (and footnote 117), 2.41 (and footnote 131), 2.49 (and footnote 148), 2.52, 2.59, 2.60 (and footnotes 174, 176, 179, and 180), 2.61 (and footnote 182), 2.62 (and footnote 183), 2.63, 2.68, 2.69, 2.70 (and footnote 207), 2.76 (and footnote 226), 2.78 (and footnote 232), 2.79 (and footnotes 234 and 235), 2.84, 2.85, 2.87, 2.98, 2.100, 7.26 (footnote 429), 7.34, 7.38, 7.44, 7.46, 7.54, 7.65, 7.66, 7.70, 7.87, 7.91, 7.126, 7.136 (footnote 652), 7.149, 7.151, 7.154, 7.155, 7.168, 7.174, 7.175, 7.181, 7.183, 7.184, 7.194, 7.195, 7.198 (and footnote 785), 7.199, 7.200, 7.202, 7.205 (footnote 834), 7.206 (and footnotes 809 and 810), 7.208, 7.209, 7.210, 7.213, 7.214, 7.219, 7.220, 7.223 (footnote 846), 7.224, 7.225, 7.228, 7.229, 7.231, 7.233, 7.234, 7.235, 7.236, 7.237 (and footnotes 883 and 884), 7.239, 7.241, 7.242, 7.243, 7.246, 7.250. 7.251, 7.258, 7.261, 7.263, 7.265, 7.267, 7.278, 7.282 (footnote 998), 7.284, 7.285, 7.286 (footnote 977), 7.290, 7.301, 7.302, 7.305, 7.306, 7.308, 7.310, 7.311, 7.315 (and footnote 1047), 7.321, 7.322, 7.325, 7.335, 7.341, 7.350, 7.351, 7.354, 7.363 (footnote 1155), 7.376, 7.382, 7.398, 7.443, 7.460, 7.461, 7.463, 7.465, 7.473, 7.474, 7.512, and 7.515. The Panel has also made changes to the Glossary of Terms, Tables 1, 9, 11, 12, and 13-18, and Figure 4.

6.5. In addition to the requests by the parties, discussed below, corrections were made to correct typographical errors, verify citations, and make stylistic and other non-substantive changes to the Report, including those identified by the parties.

6.1 The purpose and scope of interim review

6.6. Before addressing the specific requests of the parties not referred to above, the Panel would like to recall the purpose and scope of interim review. The Panel recalls that Article 15.2 of the DSU, and paragraph 23 of the Panel's Working Procedures, provide parties with an opportunity to request the Panel to "review precise aspects of the interim report". The interim review is not the time to deal with general comments about the Panel's reasoning or requests to revise entire sections of the Report without particular items being specified. Our understanding of the purpose of the interim review is consistent with the approach adopted by previous panels.[303] We will review

[303] Panel Report, *India – Agricultural Products*, paras. 6.5-6.6; Panel Reports, *Japan – Alcoholic Beverages II*, para. 5.2; *Australia – Salmon*, para. 7.3; *Japan –Apples (Article 21.5 – US)*, para. 7.21; *India – Quantitative Restrictions*, para. 4.2; *Canada – Continued Suspension*, paras. 6.16-6.17; and *US – Continued Suspension*, paras. 6.17-6.18.

our Interim Report only in light of comments made by the parties which relate to "precise aspects" of the Interim Report.

6.7. Both parties have asked the Panel to augment or clarify the recitations of their arguments in certain areas. The Appellate Body has explained that panels need not refer explicitly to every argument made, or each piece of evidence adduced by the parties.[304] The Panel has the discretion to decide whether arguments made or evidence adduced are relevant or necessary to a particular claim or legal issue. As noted above, the Panel has acceded to some of the requests of the parties where appropriate. However, the Panel has determined that it is not necessary to include in its Report additional insertions the parties' requested in the following paragraphs: 2.7, 2.48, sections 2.5.1 and 2.5.2, 2.69, 2.113, 7.6 (footnote 304), 7.42, 7.45, 7.55, 7.52, 7.79, 7.88, 7.92, 7.94 7.168, 7.170, 7.171, 7.172, 7.196, 7.212, 7.220, 7.229, 7.235, 7.238, 7.247, 7.313, 7.326, 7.456, and 7.462 7. 463, 7. 465, 7.474, 7.484. The Panel has also not made the requested changes in Tables 1 and 10. In these instances the Panel found the additional language proposed by the parties to be unnecessary, addressed elsewhere in the Report, or not germane to the topic being discussed.

6.8. Finally, the Panel notes that the Interim Review stage is not the time to raise new arguments, re-litigate ones already put before the Panel, or to re-open the record. Most importantly, the Appellate Body clarified in *EC – Sardines* that the interim review stage is not the time to introduce new evidence.[305] The Panel reminded the parties of this in its letter of 14 September 2017 granting Korea's request for an extension of the date to file its request for review of precise aspects of the report.[306] Nevertheless, Korea submitted a new exhibit with its request for review of precise aspects of the report. This exhibit is offered to support Korea's request that the Panel modify certain findings with respect to the manner in which Korea made its measures available to the public and whether that was consistent with the obligations in Article 7 and Annex B(1) of the SPS Agreement. The Panel notes that Korea was notified of the potential issue through Japan's comments on Korea's answers to the Panel's questions after the second meeting which were submitted on 17 March 2017.[307] However, Korea did not seek leave to submit the documentation to the Panel at any time between that date and the issuance of the Interim Report. Consistent with the Appellate Body's approach and in the interest of protecting Japan's due process rights, the Panel will not consider the new Korean exhibit. The Panel addresses the substance of Korea's request in section 6.8 .

6.2 Descriptive part

6.9. Korea requests that the Panel include a reference to its 12 July letter in paragraph 1.30. and also to quote directly Korea's arguments in its 7 July letter with respect to the importance of Codex. Korea also requests that the Panel delete its conclusion that Korea's letters did not contain language referring to the importance of selecting experts with experience in the assessment of food safety issues having a regulatory impact or food safety risk assessors.[308] Japan does not oppose adding the additional citation, but opposes the deletion of the Panel's conclusion, because Korea has not explained the reason for doing so.[309] The Panel modified the paragraph to quote directly from Korea's 7 July letter. However, the Panel did not add a reference to the 12 July letter in the text of the paragraph. The Panel and the parties received a communication from Codex on 8 July indicating that the names provided by FAO reflected both organizations' suggested experts. Therefore, reference to the 12 July letter as having a bearing on this issue would be inappropriate. The Panel noted in the footnote that Korea reiterated its views in its 12 July letter. With respect to deleting the Panel's conclusion, the Panel notes that in its request Korea did not

[304] Appellate Body Reports, *EC – Poultry*, para. 135; *Dominican Republic – Import and Sale of Cigarettes*, para. 125; *EC – Hormones*, para. 138; *US – Upland Cotton*, para. 446; *US – COOL*, para. 410; and *EC – Seal Products*, para. 5.288.

[305] Appellate Body Report, *EC – Sardines*, para. 301. See also Appellate Body Report, *EC – Selected Customs Matters*, para. 259; Appellate Body Report, *EC – Bananas III (US)*, paras. 6.1-6.18; Panel Reports, *EC – IT Products*, para. 6.48.

[306] In deciding to extend the deadline, but not grant the full amount of time Korea requested, the Panel noted that in making its decision "the Panel took account of the fact that the interim review stage is not an opportunity for parties to re-litigate arguments already put before a panel or to adduce 'new and unanswered evidence'." Letter from the Panel to the parties, 14 September 2017 (footnotes omitted).

[307] See Japan's comments on Korea's response to Panel question No. 114.

[308] Korea's request for review of the Interim Report, para. 3.

[309] Japan's comments on Korea's request for review of the Interim Report, paras. 2-3.

point the Panel to the language in these letters that would support its claim that it specifically referred to the importance of having experience in the assessment of food safety issues having a regulatory impact or food safety risk assessors prior to the selection of experts. Therefore, the Panel maintains its conclusion.

6.10. Korea requests that the Panel add further discussion of the LNT model in paragraph 2.17. as well as indicating that there is uncertainty regarding cancer rates associated with low doses.[310] Japan opposes this request. Japan notes that the Panel accurately reflected the description of the LNT model and its relationship to uncertainty regarding exposure to low doses of radionuclides. Japan also notes that this section is more general background information and that the Panel goes into more detail in the findings about the LNT model and its relevance to this case.[311] The Panel notes that the phrasing Korea requests might leave a false impression as to the nature of the uncertainty surrounding low doses. The Panel understands that the uncertainty is that it is impossible to definitively correlate adverse effects (cancers) to low doses of radiation below a certain threshold. Therefore, the Panel finds its characterization is an accurate description of how the experts and the literature describe the LNT model and its relationship to low doses of radiation.

6.11. Japan requests that the Panel modify Table 1 to remove references to the biological and effective half-lives of the various radionuclides. Japan notes that the reference source used for the biological and effective half-lives was not provided by either party. Japan also suggests that instead of including the numbers in the table, the Panel explain the relevance of the biological and effective half–life to the calculation of dose coefficients in paragraph 2.18.[312] Korea objects to Japan's request. Korea notes that the concepts of biological and effective half-lives are critical to an evaluation of the risks associated with the consumption of contaminated food. Korea also notes that it raised these concepts in its first written submission.[313] The Panel did delete the reference to effective half-lives in Table 1, but maintains the reference to biological half-lives. The Panel added an explanation of their relevance in paragraph 2.18. The Panel added a citation to indicate that the source for the half-lives is Korea's first written submission.

6.12. Japan requests that the Panel delete the reference to leaks at the FDNPP continuing to the present day in paragraph 2.41. and the reference to ongoing spills in paragraph 2.52. .[314] Korea objects arguing that it has presented evidence that there are continuing leaks.[315] The Panel notes that neither Japan nor Korea dispute that there have been leaks that continued after the initial accident and beyond the date of establishment of the Panel. Therefore, the Panel has altered the language to refer to leaks up to the date of establishment of the Panel and beyond. The Panel has also added a footnote to Japan's response to question No. 8 from the Panel and a relevant exhibit from Korea.

6.13. Korea makes general comments that sections 2.5.1 and 2.5.2 do not adequately address Korea's arguments with respect to the impact of the initial release and ongoing spills of liquid radioactive waste on contamination of sea sediment and marine species. Korea also argues that section 2.5.3 and Table 3 does not address its arguments with respect to the continued release of water from the FDNPP that has become contaminated in the process of cooling the reactors. Korea requests that the Panel insert into these sections declarative language that Korea has demonstrated certain facts as well as additional information on the release of contaminated cooling water. Korea also asks the Panel to change the title of section 2.5.3 .[316] Japan objects to these requests. Japan notes that the Panel is not required to respond to every argument made by a party in its report so long as it makes an objective assessment. Japan also argues that Korea is seeking to change the meaning and purpose of section 2.5.3 rather than requesting a review of precise aspects of the report.[317] The Panel notes that these sections of the report are designed to set forth a general understanding of the factual situation surrounding the release of radionuclides and not their impact. The parties' arguments with respect to the impact of radionuclides in the marine environment on Japanese food products are dealt with at length in the findings. With

[310] Korea's request for review of the Interim Report, paras. 7-8.
[311] Japan's comments on Korea's request for review of the Interim Report, paras. 9-10.
[312] Japan's request for review of the Interim Report, paras. 21-23.
[313] Korea's comments on Japan's request for review of the Interim Report, para. 10.
[314] Japan's request for review of the Interim Report, para. 33.
[315] Korea's comments on Japan's request for review of the Interim Report, paras. 13 and 15.
[316] Korea's request for review of the Interim Report, paras. 14 and 18.
[317] Japan's comments on Korea's request for review of the Interim Report, paras. 19-25.

respect to section 2.5.3 its purpose is to address whether the amount released during the accident could be confirmed by reference to the amounts of radionuclides still in the reactor. It is not meant to address leaks, either those in the past or that could occur in the future. The Panel notes that paragraphs 2.59. and 2.60. already contain references to the contaminated water stored at the FDNPP. Therefore, the Panel did not make the requested changes.

6.3 Operation of Korea's testing requirements

6.14. Korea argues that the Panel incorrectly concluded in paragraph 7.42. that Korea had not provided the results of any tests conducted on domestic products at the production stage. Korea refers to the Panel to its response to question No. 95.[318] Japan contends that the Panel's conclusions are correct.[319] The Panel has reviewed Korea's response to question No. 95 and the accompanying table. The table contains caesium testing results for the 150 most frequently-consumed products distributed in the Korean market and notes that it includes results for both imported and domestic products. Nothing on the table indicates that any of the tests were conducted at the production stage. Moreover, there is no separation or distinguishing between the imported and domestic products. The only testing that both imported and domestic products are subject to under the same regime is point-of-sale testing. The Panel followed-up with Korea in question No. 131. In its response to that question Korea provided an updated number of test results which were attached in exhibit KOR-283. The exhibit contains a table of "results of further analysis on the samples at the point-of-sale." The Panel has found nothing on the record that demonstrates that testing was actually conducted at the production stage. Therefore, the Panel did not change its conclusion.

6.15. Korea requests that the Panel delete its conclusion in paragraph 7.45. that Korea has not provided documentary evidence of an increased frequency of testing for caesium in non-Japanese imports. Korea argues that its response to question No. 23 from the Panel and the excerpts of its various food safety laws and regulations provided in Exhibit KOR-156 demonstrate such increased frequency.[320] Japan notes that the exhibit Korea provided gives a general legal basis for testing imported products at the border for radionuclides, but does not mention the frequency of testing.[321] The Panel has reviewed Korea's response to question No. 23 and the accompanying exhibit. In its answer, Korea noted that prior to the FDNPP disaster Korea had tested other products from 44 countries for caesium and iodine. However, nothing in its answer refers to the frequency of testing. Exhibit KOR-156 contains an excerpt of Article 19 of the Food Sanitation Act of Korea which requires the Commissioner of Food and Drug Safety of Administration to order the necessary examination of foods before customs clearance. There is no reference to the frequency of that testing. Therefore, the Panel maintains its conclusion that Korea has not provided documentary evidence of an increased frequency of testing for caesium in non-Japanese imports.

6.16. The Panel, in paragraph 7.54. , has referred to an affidavit from a coffee exporter placed on the record by Japan. Korea requests that the Panel include in that paragraph a reference to its objection to the use of this affidavit, as Korea argues that it cannot confirm the veracity of the statements therein because the names of the employee and the company have been redacted.[322] Japan objects to this request and argues that the inclusion in the report and the probative value assigned to the exhibit is within the discretion of the Panel.[323] The Panel has added a footnote to paragraph 7.54. (footnote 474) noting Korea's objection and also noting that such objection was taken into account when the Panel determined the weight to be given to the affidavit.

6.17. Korea requests that the Panel delete the last sentence of paragraph 7.55. , where the Panel concludes that it cannot exclude the possibility that individual inspection authorities at various ports may interpret and apply Korea's measures differently than described by Korea and thus order additional testing at a lower limit than 0.5 Bq/kg.[324] Japan objects to this request as in its view the Panel's conclusions are supported by the evaluation of the evidence in the preceding paragraphs.[325] The sentence represents the Panel's understanding of the measures and how they

[318] Korea's request for review of the Interim Report, para. 34.
[319] Japan's comments on Korea's request for review, para. 49.
[320] Korea's request for review of the Interim Report, paras. 35-36.
[321] Japan's comments on Korea's request for review, paras. 58-60.
[322] Korea's request for review of the Interim Report, para. 38.
[323] Japan's comments on Korea's request for review, para. 62.
[324] Korea's request for review of the Interim Report, para. 39.
[325] Japan's comments on Korea's request for review, para. 63.

operate within the Korean domestic regulatory structure. As Korea explained the central authority issues instructions to the individual ports which carry them out. It would be unreasonable to conclude that the central authorities are able to ensure complete consistency and uniformity in such a situation. That is all that this statement is meant to reflect.

6.4 Provisional measures

6.18. Korea asks the Panel to alter the penultimate sentence of paragraph 7.91. to state that relevant information on releases from the FDNPP was "still unknown" prior to Korea's adoption of the 2013 measures.[326] Japan notes that this is not a minor edit, but rather would change entirely the sense of the Panel's conclusion that there was sufficient information available to Korea at the time it adopted its measures in 2013 to conduct a risk assessment.[327] The Panel did not make the requested change. The Panel indicated that some of the available information was estimated or not entirely precise. This does not equate to "unknown", especially in the context of determining whether there is sufficient scientific information to reach conclusions about the risks posed by Japanese food products.

6.19. Japan requests that the Panel insert the word "products" in the third sentence of paragraph 7.93. . Japan also asks the Panel to delete the last sentence in the paragraph. Japan argues that the sentence could be misread to imply that a Member must use the LNT model.[328] Korea disagrees with the addition of the word "products" as it does not fit within the context of the sentence. Korea also argues that the Panel should not delete the final sentence as it is not arguing that a Member must use the LNT model, but merely notes that it is an "appropriate" way of accounting for uncertainty at low doses.[329] The Panel will not insert the word "products", the sentence is referring to who is being protected (Koreans or Japanese) rather than what they are being protected from (potentially contaminated products). The Panel did not delete the last sentence of the paragraph. However, it modified it in the hopes of preventing any misunderstanding.

6.20. Korea asks the Panel to insert language in paragraphs 7.105. and 7.107. to reflect the difficulties it alleges it faced in obtaining information from Japan.[330] Japan argues that the language Korea seeks to insert is incorrect and misleading. Japan argues that if the Panel accepts Korea's request it should also reflect that Japan did respond to Korea's requests and to expand the summary of Japan's arguments on this topic.[331] The Panel notes that the focus of this paragraph is on Korea's obligation to seek additional information, which the Panel has concluded Korea complied with. Whether Japan responded to each and every request is not particularly relevant to the question at hand. For the sake of completeness the Panel will add additional text to paragraph 7.105. that Korea requested information from Japan and a footnote to indicate that although Japan did respond to Korea's requests and in its view provided all relevant information, Korea did not consider every response from Japan to be sufficient. The Panel has also made edits to paragraph 7.106. to more completely reflect the events that were listed in Korea's Diary of Radiological Food Safety Activity.

6.21. Korea requests that the Panel edit the conclusion in paragraph 7.108. because in its view the uncertainty and insufficiency of information related to the FDNPP exceeds the inherent uncertainty of life and that the insufficiencies relate to science including Japan's food monitoring program, sampling, and measurements of other radionuclides.[332] Japan opposes the request and notes that Korea's editorial request is really a request to have the Panel change its appreciation of the evidence without any evidentiary justification for the requested change.[333] The Panel agrees with Japan. The purpose of the sentence is to indicate that while there is indeed uncertainty about the possibility of future nuclear accidents this does not relate to the type of scientific uncertainty that would render information insufficient to assess the risks associated with the consumption of

[326] Korea's request for review of the Interim Report, para. 43.
[327] Japan's comments on Korea's request for review of the Interim Report, paras. 66-68.
[328] Japan's request for review of the Interim Report, paras. 117-188.
[329] Korea's comments on Japan's request for review of the Interim Report, para. 26.
[330] Korea's request for review of the Interim Report, paras. 69-70.
[331] Japan's comments on Korea's request for review of the Interim Report, para. 45.
[332] Korea's request for review of the Interim Report, para. 46.
[333] Japan's comments on Korea's request for review of the Interim Report, para. 71.

food products from Japan.[334] The latter can be addressed through recourse to Article 5.7 while the former cannot. The Panel has edited the sentence in an effort to prevent confusion.

6.5 Whether Korea's measures are more trade restrictive than required

6.22. Korea asks the Panel to delete "pre-export caesium and iodine testing for food products from 13 prefectures and fishery products from 8 prefectures" from the column "Existing Measures" in Table 11. Korea argues that Japan is not challenging this measure.[335] Japan notes that Table 11 is a side-by-side comparison of the measures currently in effect and Japan's proposed alternative measure. Thus the fact that Japan is not challenging pre-export caesium and iodine testing does not mean it is not appropriately listed as an existing measure.[336] The Panel did not delete the measure from the column on existing measures Table 11. However, as Japan does not challenge pre-export caesium and iodine testing the Panel assumes that Japan accepts that such testing will continue even if its proposed alternative measure applies. Therefore, the Panel added the same measure to the column on Japan's proposed alternative.

6.23. Japan requests that the Panel modify paragraph 7.154. to better reflect Japan's arguments regarding the time it takes to conduct additional testing and resulting trade restrictiveness. In particular, Japan requests the Panel to clarify whether consignments will be held at the border while awaiting the results of additional testing, which can affect their merchantability. Japan refers the Panel to paragraph 294 of its second written submission.[337] Korea has no comment on this request. Paragraph 294 of Japan's second written submission refers the Panel to Japan's response to question No. 70. In response to that question Japan refers to potential additional storage costs, but it also notes that the Japanese exporters could opt to have the products returned to Japan to attempt making sales on the domestic market. Therefore, the Panel has modified the paragraph, but in a manner that is consistent with what Japan stated in response to question No. 70 and that is contained in its exhibits. The Panel has also verified the estimate of the cost of the testing Japan referred to in its opening statement at the second meeting of the Panel and corrected a typographical error in the cost estimate in paragraph 7.154. .

6.24. Korea requests that the Panel correct footnote 716 to paragraph 7.171. to reflect that Korea has repeatedly cited to the statement of the ALARA principle in Korea's Food Code as proof that it has provided internal legislation or regulations setting forth its ALOP. Korea also requests that the Panel delete references to the ALARA principle being used to arrive at the dose limit for all radionuclides from paragraph 7.171. .[338] Japan opposes the request. Japan notes that the internal legislation may refer to the ALARA principle, but it does not set forth Korea's ALOP for radionuclides as Korea asserts. Japan also notes that none of the measures provided nor materials otherwise referenced show that Korea formulated its ALOP before this dispute settlement process was initiated. With respect to the dose limit, Japan notes that there is an inextricable link between the maximum levels for individual radionuclides and the dose limit. If ALARA is taken into account for one it is necessarily taken into account for the other.[339] The Panel altered footnote 716 to note that Korea has referred to the section of the Korea Food Code relating to the ALARA principle. However, the Panel maintains its conclusion that Korea has not provided the Panel with internal regulations or legislation setting forth its ALOP for radionuclides. With respect to the dose limit, the Panel did not delete the reference.

6.25. Japan suggests that the Panel move paragraph 7.177. to clarify that the Codex four steps for risk assessment are not the basis for its analytical approach, but rather that the approach was based on the arguments of the parties and the factors that Korea clarified are important and relevant when it conducts a risk assessment.[340] Korea makes no comment. The Panel has moved the paragraph. The Panel has also added language in paragraph 7.175. to clarify that its reference to the four steps is based on guidance from Article 5.1 to take into account the risk

[334] There was consensus among the experts that uncertainty in the source term does not prevent reasonably supported scientific conclusions about the potential levels of contamination in food (fishery and agricultural) products from Japan. See experts' responses to Panel question Nos. 12(b) and 55 to the experts.
[335] Korea's request for review of the Interim Report, para. 48.
[336] Japan's comments on Korea's request for review of the Interim Report, para. 72.
[337] Japan's request for review of the Interim Report, para. 138.
[338] Korea's request for review of the Interim Report, paras. 54-55.
[339] Japan's comments on Korea's request for review of the Interim Report, paras. 83-90.
[340] Japan's request for review of the Interim Report, paras. 151-154.

assessment techniques of the relevant international organizations. The Panel also notes that the Codex four steps have been discussed by a prior panel.

6.26. Japan suggests that the Panel add the experts' explanation on caesium-rich microparticles to the end of paragraph 7.195. c) and to footnotes 770 and 771. Japan also suggests that the Panel reflect in a separate sentence in paragraph 7.195. e) that every consignment of Japanese food is tested at the Korean border.[341] For its part Korea asks the Panel to refer to Exhibit KOR-213.6 as evidence to support its assertion that caesium rich microparticles were not found at Chernobyl. Korea also argues that Japan's statement that the microparticles have not been found in food is incorrect. Korea argues that insoluble caesium-rich microparticles can exist in food and water in the form of colloids and can be relevant both when inhaled and ingested.[342] The Panel has reviewed Exhibit KOR-213.6. While it does note that caesium-rich microparticles were found in Japan it does not speak to the fact of whether they were discovered in Chernobyl. The Panel also notes that the experts confirmed that because these microparticles are insoluble that even if they were consumed they would survive the passage through the human digestive system and contribute less to the intake compared to the usual soluble caesium. The Panel added a reference to Professor Michel's statement at the Expert Meeting to that effect in footnote 735. The Panel did not add the additional sentence to paragraph 7.195(e). This paragraph is dealing with the potential level of risk associated with the potential for Japanese food products to be contaminated with radionuclides, not with the mitigating measures that might be taken to prevent contaminated products from entering the market.

6.27. Korea also requests that the Panel include in paragraph 7.195. a summary of Korea's arguments about the lack of concrete barriers around the FDNPP such that fish can swim into and out of the 20km exclusion zone.[343] Japan notes that inserting arguments into paragraph 7.195. would be inappropriate as it is a summary of the experts' responses to questions. If the Panel were to accede to Korea's request, Japan asks that the Panel also include a reference to Dr Thompson's statement at the Expert Meeting that the risk that highly contaminated migratory fish species could be caught outside the 20km zone is negligible.[344] The Panel noted that there is no permanent impermeable structure blocking the port and that migratory fish that have spent time within the 20 km zone could be caught outside the zone. The Panel will also add the experts' assessment of the likelihood of such fish being highly contaminated.

6.28. Japan makes three comments to footnote 811 to paragraph 7.206. : (1) Japan requests that because the list of species does not cover all of the species for which there were test results for both caesium and strontium, that the Panel include the term "for example"; (2) to correct the reference to cherry salmon to chum salmon; and (3) to delete the reference to Japanese flying squid as test results for this species concern samples taken after the establishment of the Panel. Finally, Japan also seeks modification of the penultimate sentence of paragraph 7.206 to indicate that test results for some species, for which there are test results for both caesium and strontium, reveal non-detectable levels of caesium, strontium or both.[345] Korea disagrees with the deletion of Japanese flying squid from the footnote. In Korea's view, Japan cannot simply delete species or data that the Panel considered when arriving at its conclusions. Korea considers that Japan's insertion into paragraph 7.206. breaks the flow of the paragraph and that if the Panel decides to include the language the Panel put it in a footnote.[346]

6.29. The Panel added the term "for example" in the footnote and correct the reference to chum salmon. With respect to the flying squid, the Panel notes that in response to question No. 112, Japan stated that 16 samples of Japanese flying squid were tested in the Aomori prefecture between the second quarter of 2011 and the third quarter of 2015.[347] The Panel is puzzled by Japan's comment that no samples of Japanese flying squid were tested prior to the establishment of the Panel. In any event, the Panel finds in paragraph 7.206. that the data available as of establishment of the Panel contains test results for caesium and strontium for species representative for all of the 28 fishery products, for which Japan is challenging the blanket and

[341] Japan's request for review of the Interim Report, paras. 166-167.
[342] Korea's comments on Japan's request for review of the Interim Report, para. 31.
[343] Korea's request for review of the Interim Report, para. 60.
[344] Japan's comments on Korea's request for review of the Interim Report, para. 95.
[345] Japan's request for review of the Interim Report, paras. 181-192.
[346] Korea's comments on Japan's request for review of the Interim Report, para. 35.
[347] Revised Annex C, Sampling table for fishery & livestock products from eight Japanese prefectures, (Exhibit JPN-271), p. 82.

product-specific import bans. It is based on this data, assessed together with other relevant factors mentioned in paragraph 7.224. , in particular the knowledge about the releases of the Codex additional radionuclides, that the Panel makes its conclusions on the levels of contaminants in Japanese food products. In addition, the Panel notes that all 28 fishery products have been tested for strontium at some point in time. In that regard, the Panel recalls its finding that it may use post-establishment data as a means of confirming its conclusions.

6.30. Korea argues that the method of presentation of Tables 13-16 is misleading. In particular, Korea argues that the tables ignore all samples containing less than 100 Bq/kg of caesium. Korea argues that such measurements are relevant given Korea's ALOP. Korea argues that the data should be presented concerning the number of fish products for each species in each prefecture that show any detectable levels of contamination. Moreover, Korea also requests that the tables indicate the number of samples of each fish species upon which they are based. Korea also asks that the column indicating the number of samples exceeding the benchmark level should not include "0" if no samples were taken at all as the "0" could be confusing. Korea requests the Panel use "No data" instead.[348] Japan does not disagree specifically with Korea's requests, instead arguing that if the Panel were to make the changes that it also include language in paragraph 7.223. with respect to the representativeness of the data and the consensus among the experts that the data is statistically valid support for the conclusion that products containing less than 100 Bq/kg of caesium would contain additional radionuclides also below their tolerance levels.[349] The Panel fails to understand the relevance of food samples that contain less than 100 Bq/kg of caesium for the factual question at hand, which is the potential for Japanese food products to contain caesium in excess of the 100 Bq/kg limit. The Panel clarified in the text that the "0" in the table does not mean that there were no radionuclides detected at all. As regards the number of samples tested, this point has already been addressed by the Panel in paras. 7.201. through 7.219. , which adequately reflect Korea's arguments.

6.31. Japan requests that the Panel further develop its reasoning in paragraph 7.224. with respect to the existence of domestic, product-specific distribution restrictions in Japan. Japan notes that the existence, in 2012, of domestic distribution restrictions in Japan for Pacific cod and Alaska pollock from certain prefectures was a factor in the Panel's finding, at paragraphs 7.250. , 7.252. and 8.2. a), that Korea's product-specific import bans, when introduced in 2012, were not more trade-restrictive than necessary. Japan believes that it may be helpful for the Panel to explain a little further the role that the existence of distribution restrictions plays in its reasoning in this paragraph.[350] Korea finds the additional language unnecessary. However, if the Panel were to adopt Japan's language, Korea asks that the Panel fully quote the expert statements. In particular, Korea requests that the Panel include more of Professor Michel's response to question No. 44 to the experts and Ms Brown's response to question No. 57 to the experts.[351] The Panel modified the relevant paragraph in order to clarify that for specific fishery products subject to import bans, the Panel views Japan's own distribution restrictions as an indication that the radionuclide contamination levels in these products are such that under Japan's own criteria they should not be consumed. The Panel also included the quotations from Professor Michel and Ms Brown indicated by Japan. The Panel also quoted in a footnote the remaining language from Ms Brown's response. However, the Panel disagrees with Korea that it should supplement the quote from Professor Michel with an additional explanation provided in response to a different question which was asked in a different context.

6.32. Japan asks the Panel to consider several modifications of paragraphs 7.234. -7.236. that would enhance its reasoning by providing cross references to the section on Factual Aspects and other paragraphs of the findings where additional detail is contained. In paragraph 7.235. Japan suggests the Panel include more citations with references to Japan's analysis on average consumption doses and average concentration levels as well as the various Merz plots.[352] Korea for its part requests that the Panel delete the first sentence in paragraph 7.235. which notes that Korea did not address Japan's overall methodology. Korea contends that this statement is incorrect. Korea argues that it did address Japan's overall monitoring programme and food

[348] Korea's request for review of the Interim Report, para. 64.
[349] Japan's comments on Korea's request for review of the Interim Report, paras. 97-99.
[350] Japan's request for review of the Interim Report, paras. 220-224.
[351] Korea's comments on Japan's request for review of the Interim Report, para. 39.
[352] Japan's request for review of the Interim Report, paras. 236-245.

sampling methodology.[353] The Panel inserted additional cross references in these paragraphs as well as additional citations. The Panel did not delete the sentence. In this sentence the Panel was referring to Korea's argumentation on the methodology Japan used to determine permissible caesium levels in food products that ensures that overall dietary exposure does not exceed Korea's tolerance level of 1 mSv/year. The Panel was not referring to Japan's monitoring programme or food sampling methodology. The Panel does not dispute that Korea thoroughly addressed those issues.

6.33. Japan expresses concern that paragraphs 7.238. and 7.239. could be misread to imply a determination by the Panel that the ICRP and Codex dictate the characterization of the risks at issue that Korea or any other Member are required to accept. Japan proposes that the Panel modify the paragraphs to avoid any misinterpretation.[354] Korea finds Japan's proposed changes incorrect. Korea requests its own change to clarify that Members are not required to make a scientific determination when deciding to use international standards.[355] The Panel in no way meant to imply that the ICRP and Codex dictate what Members must accept. Rather the Panel was simply pointing out that Korea had adopted as its own the logic of the ICRP and Codex in developing its own limits. The Panel altered the language of the paragraph to provide additional clarity. Japan also requests that the Panel review its discussion of individual risk finding it not germane to the discussion and more appropriately addressed when a Member develops their ALOP.[356] The Panel is of the view that knowing the individual risk is relevant for determining whether a particular mitigating measure will achieve the ALOP. Therefore, the Panel did not revise the discussion.

6.34. Japan requests that the Panel add the word "caesium" before data in paragraph 7.242. when the Panel concludes that the data was sufficient to justify imposition of the product-specific bans in 2012.[357] Korea objects to this change. In Korea's view this does not match the reasoning in paragraph 7.96. , which the Panel cross-references in this paragraph.[358] In that paragraph, the Panel concludes that "there was not insufficient scientific evidence to conduct a risk assessment." The Panel agrees with Korea, in this sentence the Panel was referring to the data in general and not just on caesium. For consistency the Panel changed the word "data" to "evidence".

6.35. Korea notes that section 7.7 does not address Korea's explanation of the differences between the ICRP optimization approach and the Codex use of ALARA, particularly with respect to the differences between using ALARA for radiological protection and food safety. Korea asks the Panel to include an additional paragraph, although it does not indicate where in the section it would like the paragraph to be inserted although the Panel notes that Korea made similar comments with respect to paragraph 7.171. .[359] Indeed, Japan refers the Panel to its comments to Korea's comments on paragraph 7.171. .[360] The IAEA defines radiation protection as "the protection of people from harmful effects of exposure to ionizing radiation, and the means for achieving this".[361] The ICRP explains that rather than being separate from or defined in terms of optimisation, ALARA is in fact simply an acronym of text used in the definition of the optimisation of protection. In particular, ICRP defines the principle of optimisation as "the source related process to keep the likelihood of incurring exposures (where these are not certain to be received), the number of people exposed and the magnitude of individual doses as low as reasonably achievable, taking economic and social factors into account".[362] The ICRP clarified that the optimisation principle (of which ALARA is a part) applies in all circumstances and that it is a process rather than an endpoint.[363] ALARA is relevant to the development of the dose coefficients and the maximum exposure limit. This limit – 1 mSv/year – is what is used by Codex to derive the

[353] Korea's comments on Japan's request for review of the Interim Report, para. 40.
[354] Japan's request for review of the Interim Report, paras. 254 and 256.
[355] Korea's comments on Japan's request for review of the Interim Report, para. 41.
[356] Japan's request for review of the Interim Report, para. 255.
[357] Japan's request for review of the Interim Report, para. 261.
[358] Korea's comments on Japan's request for review of the Interim Report, para. 42.
[359] Korea's request for review of the Interim Report, para. 71.
[360] Japan's comments on Korea's request for review of the Interim Report, para. 104.
[361] See website of the International Atomic Energy Agency (IAEA Website), *IAEA Safety Glossary Terminology Used in Nuclear Safety and Radiation Protection*, 2016 Revision, https://www-ns.iaea.org/downloads/standards/glossary/iaea-safety-glossary-draft-2016.pdf
[362] ICRP's responses to Panel question No. 1. ICRP Publication 103: 2007 Recommendations, (Exhibit KOR-1), (Exhibit ICRP-3), p. 91.
[363] ICRP's responses to Panel question No. 1.

guideline levels of the individual radionuclides. Although some experts noted that ALARA was more commonly used in in the context of regulating exposure to radioactive materials in a workplace environment or for relating to discharges from nuclear power plants into the environment[364], the Panel has only referred to the work of the ICRP and the ALARA principle in the context of food safety. The Panel has accepted that Korea uses the ALARA principle in the food safety context and particularly in the development of its ALOP for radionuclides. Therefore, there is no need to include extensive arguments on or explanations of the differences between the optimization approach or the differing uses of ALARA for radiological protection and food safety.

6.6 Non-discrimination

6.36. Korea requests that the Panel reflects more comprehensively Korea's textual interpretation of Article 2.3 of the SPS Agreement in paragraph 7.267. of the Report.[365] Japan states that the Panel is not required to restate all of Korea's arguments, although, if the Panel were to do so, Japan requests the Panel to equally reflect its own arguments.[366] The Panel added language summarising Korea's arguments in footnote 934. The Panel considered that Japan's arguments are sufficiently reflected in the relevant section of the report. The Panel has also provided its evaluation of Korea's arguments.

6.37. Korea requests that the Panel reflect in paragraph 7.295. that when Korea provided Figure 7 in its submission it did so to demonstrate that information on the various pathways for contamination should also guide the regulator when assessing the risks of contamination of different food products, determining the level of radiation protection and confirming the extent of sampling required for different products to achieve the ALOP.[367] According to Japan, the Panel is not required to utilise the facts and evidence in the same way the parties presented them and there is no reason for the Panel to restate Korea's rationale behind providing Figure 7.[368] The Panel notes that Figure 7 depicts different pathways of absorption of contaminants in the marine environment. The source document provided by Korea refers to Figure 7 as "Transport of hazardous substances and transformation products through the food web". The relevant section of the document does not mention any particular approach that a regulator should take when assessing the risk of food contamination, nor does it refer to a sampling design or ALOP. Therefore, the Panel is of the view that the description of Figure 7 should remain limited to what Figure 7 actually depicts.

6.7 Control, inspection and approval procedures

6.38. Japan requests that the Panel further elaborate on its reasoning in paragraph 7.396. relating to the standard for demonstrating that the presumption of likeness can be used to demonstrate that Annex C(1)(a) is applicable. Japan understands that the Panel has relied upon the potential influence that differing contamination levels could have on the competitive relationship between Japanese food products and those from other origins in determining that Korea's measures do not distinguish *solely* on the basis of origin. Japan requests the Panel to clarify that the Panel's findings are indeed related to the inapplicability of the presumption of likeness under Annex C(1)(a), and not to any other provision of the SPS Agreement.[369] According to Korea, the Interim Report sufficiently lays out the Panel's reasoning with regard to why the likeness between imported and domestic products cannot be presumed in the case at hand.[370] The Panel recalls that its findings concerning the presumption of likeness are not based on an evaluation of the competitive relationship between products from Japan and Korean products. Rather the Panel's analysis focuses on whether Korea pursued grounds other than origin when imposing the measures in question. In this case, the Panel finds that Korea's concern with the potential contamination of food resulting from the FDNPP accident was a ground other than origin, which was a basis for the measures distinguishing between Japanese and domestic products. The Panel made changes to the language in paragraph 7.399. to reflect this rationale.

[364] Expert Meeting Transcript, para. 2.19, see also experts' responses to Panel question No. 10 to the experts.
[365] Korea's request for review of the Interim Report, para. 73.
[366] Japan's comments on Korea's request for review of the Interim Report, para. 105.
[367] Korea's request for review of the Interim Report, para. 82.
[368] Japan's comments on Korea's request for review of the Interim Report, paras. 115-116.
[369] Japan's request for review of the Interim Report, paras. 328-330.
[370] Korea's comments on Japan's request for review of the Interim Report, para. 45.

6.8 Transparency obligations

6.39. Japan requests that the Panel assess in its findings whether the press release announcing the measure was required to include the rules of origin applicable to the covered products in order to comply with the obligation in Annex B(1).[371] Korea made no comment on this request. The Panel has added some language in paragraph 7.463. addressing Japan's arguments on whether rules of origin are required in the publication of an SPS measure.

6.40. Korea requests that the Panel identify the exhibits which contain the Harmonized System of the World Customs Organization and the Aquatic Animal Health Code of the World Organization for Animal Health, which are referenced in paragraphs 7.481. through 7.483. .[372] Japan notes that given the nature of these documents it is questionable whether they need to have been provided by one of the parties.[373] These documents were not placed on the record by either party and are thus not contained in Exhibits. The Panel notes that pursuant to Article 13.2 of the DSU it retains discretion to seek information from any relevant source. The Panel also notes that these documents are from organizations of which both Japan and Korea are members and are used as sources for WTO Schedules (Harmonized System)[374]and international standards (Aquatic Animal Health Code)[375]. The Panel did not rely on the contents of the Harmonized System or the Aquatic Animal Health Code for its findings, but rather to note that Korea's measures did not reference or claim to be based on these commonly used sources for defining terms in international trade in fishery or other aquatic products. The Panel modified the language to these paragraphs to clarify this point.

6.41. Korea requests the Panel to modify its findings in paragraphs 7.473. and 7.484. where the Panel mentions that it could not verify the relevant content of the web-pages where Korea argues it posted the press releases. The Panel noted in those paragraphs that it was unable to access the MFDS website addresses provided by Korea. Korea argues that the websites were only temporarily unavailable and that the Panel should now be able to view them. With respect to one website address, Korea notes that the issue was a typographical error in the URL.[376] Japan argues that Korea's explanation is unconvincing because it appears to be factually inaccurate and that Japan was unsuccessful in accessing the "Food Safety Portal" prior to 17 March 2017. Moreover, Japan argues that it noted this problem with the website address in its comments on Korea's answer to question No. 114.[377] However, Korea's explanation comes only after the interim report had already been issued. While the ability to currently access the webpages is important for informing traders today of the measures and how they apply, it is not directly relevant to the Panel's findings on whether Korea complied with the obligation in Annex B(1) when it adopted the measures. In its findings, the Panel noted that Korea did not provide archived versions of the websites so that the Panel could confirm what was posted and where at the time the measures were adopted. Therefore, the relevance of this issue is limited. The Panel made some modifications to these paragraphs to ensure that the basis of its finding is clear and added a reference to Japan's comments on Korea's answer to question No. 114 in footnote 1353.

6.42. Japan asks the Panel to state and explain its findings with respect to whether the response of Korea's SPS Enquiry Point to its request of 24 June 2014 was in and of itself sufficient to comply with the obligation in Annex B(3).[378] Korea did not comment on this request. The Panel added additional language in paragraph 7.516. to address Japan's request.

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[371] Japan's request for review of the Interim Report, para. 344.
[372] Korea's request for review of the Interim Report, para. 91.
[373] Japan's comments on Korea's request for review, para. 125.
[374] The HS is used as a basis for the preparation of Members' goods schedules and has been considered relevant context for the interpretation of obligations under GATT 1994 Articles I and II. See Appellate Body Report, *EC – Chicken Cuts*, paras. 196 and 199, and Panel Report, *EC – Chicken Cuts*, para. 7.187. See also Panel Report, *EC – IT Products*, para. 7.439, and Appellate Body Report, *EC – Computer Equipment*, para. 89. We also note that the HS codes are used to define product coverage in the Agreement on Agriculture, the Agreement on Trade in Civil Aircraft, and the Information Technology Agreement (of which both Korea and Japan are members).
[375] The SPS Agreement, in Annex A(3)(b), specifically refers to the OIE as the relevant source of international standards for animal health and zoonoses.
[376] Korea's request for review of the Interim Report, paras. 93-96.
[377] Japan's comments on Korea's request for review, paras. 127-134.
[378] Japan's request for review of the Interim Report, para. 352.

7 FINDINGS

7.1 Standard of review

7.1. Japan has raised claims under the SPS Agreement. The standard of review applicable is that set forth in Article 11 of the DSU, which provides, in relevant part, that:

> [A] panel should make an objective assessment of the matter before it, including an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements.

7.2. The Appellate Body has explained that where a panel is reviewing an national authority's determination, the "objective assessment" standard in Article 11 of the DSU requires a panel to review whether the authority has provided a reasoned and adequate explanation of how (i) the evidence on the record supported its factual findings; and (ii) those factual findings support the overall determination.[379] The Appellate Body has clarified that this objective assessment neither mandates a *de novo* review nor "total deference" to national authorities. So, on the one hand, the panel must not completely repeat the fact-finding exercise conducted by the national authority substituting its judgement for that of the authority. On the other hand the panel must not simply accept without further inquiry the national authorities' determination.[380] Rather a panel's examination of the national authority's conclusions must be "in-depth" and "critical and searching".[381]

7.3. In particular, in SPS cases dealing with Article 5.1 of the SPS Agreement where a panel reviews a Member's risk assessment, the Appellate Body explicitly cautioned that a panel must not substitute its own scientific judgment for that of the domestic regulator even if the regulator were relying on a minority view of the science.[382] Korea argues that this obligation extends beyond the review of risk assessments and reflects a broader principle regarding a panel's mandate.[383] Korea relies on the Appellate Body's statement in *EC – Hormones* that the risk to be ascertained in a risk assessment includes the risk in human societies as they actually exist to support its position that "under the SPS Agreement, deference must be provided to the regulator".[384] Korea extends this concept of deference to the regulator to argue that the Panel is precluded from considering evidence not available to Korea at the time Korea made the decision to impose the measures. In particular, Korea argues that pursuant to Article 11 of the DSU:

> [T]he Panel must consider only the information that was available to the domestic regulator. Consideration by the Panel of information that was not available to Korea's regulator means that the Panel would be substituting its own judgment for that of the domestic regulator, and with the benefit of hindsight.[385]

7.4. The principle cited by Korea has been acknowledged in the context of a panel reviewing a determination by a regulator e.g. a risk assessment[386] or the imposition of a safeguard measure[387] or an anti-dumping or countervailing duty.[388] However, the Appellate Body has clarified that panels should not shy away from doing their own assessments of the complete facts, including scientific evidence, in cases involving Article 5.6 of the SPS Agreement.[389] Indeed, the Appellate Body noted that a panel need not fear conducting an impermissible *de novo* review, because the panel is not examining a scientific or legal determination made by the importing Member in its own risk assessment, but rather whether the importing Member could have adopted a less trade-restrictive

[379] See Appellate Body Report, *US – Cotton Yarn*, para. 74; Appellate Body Report, *US – Countervailing Duty Investigation on DRAMS*, para. 186; see also Appellate Body Report, *US – Lamb*, para. 103; and Appellate Body Report, *US – Softwood Lumber VI (Article 21.5 – Canada)*, para. 93.
[380] Appellate Body Report, *EC – Hormones*, para. 117.
[381] Appellate Body Report, *US – Softwood Lumber VI (Article 21.5 – Canada)*, para. 93.
[382] Appellate Body Report, *US/Canada – Continued Suspension*, paras. 590-591.
[383] Korea's first written submission, paras. 89-90.
[384] Korea's opening statement at the second meeting of the Panel, para. 7 (citing Appellate Body Report, *EC – Hormones*, para. 187).
[385] Korea's opening statement at the second meeting of the Panel, para. 13.
[386] Appellate Body Report, *US/Canada – Continued Suspension*.
[387] Appellate Body Report, *US – Cotton Yarn*.
[388] Appellate Body Report, *US – Softwood Lumber VI (Article 21.5 – Canada)*.
[389] Appellate Body Report, *Australia – Apples*, para. 354.

measure.[390] The Appellate Body explained that claims under Article 5.6 require the panel itself to objectively assess the situation.[391] In our view this means that the Panel should not simply defer to the importing Member. Similarly, an evaluation of whether arbitrary or unjustifiable discriminatory treatment exists, within the meaning of Article 2.3, or whether control, inspection or approval procedures conform to Article 8 and Annex C is not dependant on a review of any particular scientific judgment made by the regulator at the time of the adoption of the measure. Of course, such evidence would be relevant and useful, but other scientific evidence should also be considered.

7.5. The Appellate Body noted in *Australia – Apples* that it expected the complainant would submit scientific evidence in support of its position[392] and that factual elements outside a Member's risk assessment may be relevant in seeking to establish a claim under Article 5.6.[393] In that vein, the panel in *US – Animals* considered not only risk assessments and studies conducted by the respondent, but also primary source documents from the complainant, the determinations of the World Organisation for Animal Health, and risk assessments conducted by other WTO Members.[394] Our understanding of the obligations in Articles 2.3, 5.6, and 8 and Annex C leads us to conclude that this Panel is free to accept any evidence that will assist it in assessing the measures in question for compliance with the obligations therein.

7.6. We agree with the panel in *US – Animals* that a panel is not precluded from carrying out its assessment under Article 5.6, because at the time of the panel's establishment the respondent had not yet completed its own risk analyses.[395] Adopting Korea's position would allow Members to evade the disciplines of Article 5.6 simply by not concluding a risk assessment. This is precisely the opposite of what the Appellate Body intended when it explained in *Australia – Apples* that the obligations in Articles 5.1 and 5.6 are distinct. The Panel notes that Japan is raising a claim not only about the sanitary situation when Korea adopted the measures, but also about the continued application of the measures. Evidence of a continuing inconsistency is by its very nature unavailable at the time measures are adopted. Therefore, the Panel does not see how it could conduct the assessment called for by the Appellate Body in *Australia – Apples* and by the nature of Japan's claims if it were to limit itself to examining only the scientific evidence that was available to the regulator at the time it made its determination. Moreover, there is no evidence on the record as to how the regulator arrived at its decision or what evidence it considered.[396]

7.7. As mentioned in paragraph 7.3. above, Korea also argues that Article 11 would preclude the Panel from considering any evidence that did not exist prior to the dispute, in particular the analysis of relevant sampling data that was compiled by Japan's experts for the purposes of demonstrating the efficacy of its proposed alternative measure under Article 5.6.[397] We disagree. Prior panels and the Appellate Body have confirmed that "[e]vidence in support of a claim challenging measures that are within a panel's terms of reference may pre-date or post-date the

[390] Appellate Body Report, *Australia – Apples*, para. 348.
[391] Appellate Body Report, *Australia – Apples*, para. 356.
[392] Appellate Body Report, *Australia – Apples*, para. 364.
[393] Appellate Body Report, *Australia – Apples*, para. 365 (referring to Appellate Body Report, *Australia – Salmon*, paras. 209-213).
[394] Panel Report, *US – Animals*, paras. 7.437 – 7.539.
[395] Panel Report, *US – Animals*, para. 7.438.
[396] The Panel asked Korea to point the Panel to the documents on the record that reflect the scientific judgment of the domestic regulator at the time of the adoption of the measures or at any point since. Korea provided a list of over 70 exhibits with no explanation as to how those documents reflect Korea's scientific judgment. See Korea's response to Panel question No. 118. Korea's response does indeed "point" the Panel to a large volume of documents, but its answer did not enable the Panel to evaluate Korea's position that there exists a scientific judgment by the regulator at the time of the adoption of the measures that the Panel must defer to or any judgment thereafter that the Panel should consider. Many of the exhibits contain declarations of actions taken by Korean government authorities (such as the challenged measures or other product-specific bans which Japan does not challenge) with respect to radioactive contamination, but do not have any explanation as to how these actions objectively relate to any particular scientific evidence. Other exhibits relate to bilateral communications between Japan and Korea that may seek or even transmit data on the situation in Japan, but they do not contain any evaluation or judgment by the Korean government authorities. Therefore, even if the Panel were to agree with Korea's interpretation of the applicable standard of review, in this particular case the Panel does not have before it anything reflecting the scientific judgment of the importing Member.
[397] Korea's opening statement at the second meeting of the Panel, para. 14; second written submission, para. 122.

establishment of the panel", therefore a panel "is not precluded from assessing a piece of evidence for the mere reason that it pre-dates or post-dates its establishment".[398] In this regard, the Panel notes that several exhibits that Japan provided[399] for the purpose of supporting its analysis on the similarity of Japanese products to those from the rest of the world as well as its proposed alternative measure under Article 5.6 contain data that pre-dates the establishment of the Panel which has simply been analysed and packaged for purposes of explaining how it supports Japan's claims.

7.8. With respect to the data from 2015-2016 the Panel notes that Japan is not seeking to use it to justify its claims of inconsistency in relation to the adoption of the measures in 2011, 2012, and 2013, but rather to support its it challenge to the continuing inconsistency of the import bans and the additional testing requirements with Korea's obligations.[400] Therefore, the Panel is not of the view that consideration of these exhibits would *per se* violate our duty under Article 11 of the DSU and will accordingly accept the relevant exhibits. That being said, the Panel must make an objective assessment of the matter before it and thus maintains the discretion to decide how, and for what purpose, it will consider the information provided. As this issue relates specifically to Japan's claims under Article 5.6, the Panel will address what evidence it will use in evaluating Japan's claim in section 7.7 below.

7.2 Burden of proof

7.9. The DSU does not include any express rules concerning the burden of proof in panel proceedings. However, the Appellate Body has concluded that generally accepted canons of evidence (in civil law, common law, and, in fact, in most jurisdictions) apply in WTO dispute settlement, i.e. that the burden of proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence. Thus, the Appellate Body has explained that:

> [A]s a general matter, the burden of proof rests upon the complaining Member. That Member must make out a *prima facie* case by presenting sufficient evidence to raise a presumption in favour of its claim. If the complaining Member succeeds, the responding Member may then seek to rebut this presumption.[401]

7.10. Therefore, once the complaining party has made a *prima facie* case, the burden of proof shifts to the defending party, which must counter or refute the claimed inconsistency.[402] However, the Appellate Body has also clarified that it is generally for each party asserting a fact to provide proof thereof.[403]

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[398] See Appellate Body Report, *EC – Selected Customs Matters*, para. 188. Moreover, the Appellate Body concluded in *Canada – Aircraft*, that "a panel is vested with ample and extensive discretionary authority to determine *when* it needs information to resolve a dispute and *what* information it needs". Appellate Body Report, *Canada – Aircraft*, para. 192 (emphasis original). More recently, in *US – Animals*, the Panel considered data contained in risk assessments produced by the United States during the course of the proceedings in its analysis. Panel Report, *US – Animals*, para. 7.448.

[399] Japan specifically provided an analysis for food monitoring in Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11) and Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148). Japan further supplemented that data in Japan's Ministry of Agriculture, Forestry and Fisheries, "Inspection Results for Radioactive Strontium in Fishery Products" (April 2011-December 2016) (English translation) (This is an updated version of Exhibit JPN-127) Japanese original available at: http://www.jfa.maff.go.jp/j/housyanou/pdf/strontium_7.pdf, (Exhibit JPN-238); Tokyo Electric Power Company, "Testing results of fish products (sampled within 20km radius of F1NPS) in which strontium was detected by TEPCO" (April 2012-December 2016) (This is an updated version of Exhibit JPN-129), (Exhibit JPN-239); Japan's Ministry of Agriculture, Forestry and Fisheries, "Inspection Results for Radioactive Strontium in Fishery Products" (April 2011-December 2016)(This is an updated version of Exhibit JPN-238), (Exhibit JPN-251), and Tokyo Electric Power Company, "Testing results of fish products (sampled within 20km radius of F1NPS) in which strontium was detected by TEPCO"(April 2012-December 2016) (This is an updated version of Exhibit JPN-239), (Exhibit JPN-252).

[400] Japan's response to Panel question No. 115.

[401] Appellate Body Report, *Canada – Dairy (Article 21.5 New Zealand and US II)*, para. 66; see also Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14, DSR 1997:I, 323 at 335-337.

[402] Appellate Body Report, *EC – Hormones*, para. 98.

[403] Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

7.11. It is important to remember that "a *prima facie* case is one which, in the absence of effective refutation by the defending party, requires a panel, as a matter of law, to rule in favour of the complaining party presenting the *prima facie* case."[404] The Appellate Body also has clarified that in the context of WTO dispute settlement, "[a] *prima facie* case must be based on 'evidence and legal argument' put forward by the complaining party in relation to each of the elements of the claim. A complaining party may not simply submit evidence and expect the panel to divine from it a claim of WTO-inconsistency. Nor may a complaining party simply allege facts without relating them to its legal arguments."[405]

7.12. Therefore, as the complaining party, Japan bears the burden of demonstrating that Korea's measures at issue are inconsistent with the SPS Agreement. However, Korea bears the burden of proving the defences it invokes under the SPS Agreement or any facts that it asserts to support its arguments.

7.13. Korea argues that the panel cannot use its investigative authority under Article 13 of the DSU or 11.2 of the SPS Agreement "to rule in favour of a complaining party which has not established a *prima facie* case of inconsistency based on specific legal claims asserted by it."[406] Precisely how much and precisely what kind of evidence will be required to establish a *prima facie* case necessarily varies from measure to measure, provision to provision, and case to case.[407] Therefore, the Panel will address argumentation that Japan has failed to make a *prima facie* case with respect to a claim, in the context of its analysis of that claim.

7.3 Order of analysis

7.14. Japan has made claims under Articles 2.3, 5.6, 7, and 8, as well as Annexes B(1), B(3) and C(1)(a), (c), (e), and (g) of the SPS Agreement. These claims are with respect to multiple measures imposed by Korea that Japan alleges have the effect of prohibiting exports of food from Japan to Korea.

7.15. The Panel must decide in what order it will examine Japan's claims. In reaching its decision, the Panel is guided by the reasoning of the panel in *India – Autos*, which explained that it is important to consider first if a particular order is compelled by principles of valid interpretative methodology that, if not followed, might constitute an error of law.[408] In considering the order selected for examination of the claims, a panel should be aware that the order of analysis could have an impact on the potential to apply judicial economy.[409]

7.16. In the Panel's view, it is compelled by principles of valid interpretative methodology to first address the threshold question of whether the SPS Agreement is applicable to Korea's measures or, in other words, whether Korea's measures are SPS measures. Before turning to the substantive claims, the Panel will address the factual dispute between the parties as to the content of the measures. Thereafter, the Panel will turn to Japan's substantive claims in respect of those measures themselves.

7.17. It is well established that the provisions of Article 5 are a more specific expression of the provisions in Article 2 and panels typically address obligations under Article 5 first.[410] Although, there is no specific textual link between Article 5.6 and Article 2.3, the Panel does see some overlap in the factual questions addressed. Therefore, the Panel will analyse Japan's claims under Article 5.6, then Article 2.3 before turning to Article 8 and Annex C where Japan makes claims only with respect to the additional testing requirements. Thereafter, the Panel will move to Japan's claims with respect to Korea's adherence to its transparency obligations under Article 7 and Annex

[404] Appellate Body Report, *EC – Hormones*, para. 104.
[405] Appellate Body Report, *US – Gambling*, para. 140.
[406] Korea's first written submission, para. 94 (citing Appellate Body Report, *Japan – Agricultural Products II*, para. 129).
[407] Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14, DSR 1997:I, 323 at 335.
[408] Panel Report, *India – Autos*, para. 7.154
[409] Panel Report, *India – Autos*, para. 7.161
[410] Panel Report, *US – Animals*, para. 7.264. See Appellate Body Report, *EC – Hormones*, para. 180 and Appellate Body Reports, *US/Canada – Continued Suspension*, para. 674. See also Appellate Body Report, *Australia – Salmon*, para. 138; Panel Report, *Australia – Salmon (Article 21.5 – Canada)*, paras. 7.85 and 7.161; and Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.3399; *Panel Report, US – Poultry (China)*, para.157.

B. The Panel notes that Korea argues that the provisional nature of its measures is critical to the Panel's analysis of Japan's claims. In particular, Korea argues that the Panel's analysis of all of Japan's claims must be done in light of the fact that Korea's measures were adopted consistent with Article 5.7.[411] Therefore, the Panel will address the question of the relevance of Article 5.7 to this dispute prior to moving on to Japan's substantive claims.

7.18. Thus, the order of analysis will be: Article 1.1 and Annex A(1), the operation of Korea's testing requirements, Article 5.7, Article 5.6, Article 2.3, Article 8 and Annex C, and Article 7 and Annex B.

7.4 Whether Korea's measures are SPS measures

7.19. Article 11 of the DSU stipulates that a panel should make an objective assessment of the matter before it, which includes an objective assessment of the applicability of the relevant covered agreements. Accordingly, the Panel turns first to determine whether the challenged measures are subject to the disciplines of the SPS Agreement.

7.20. Article 1 of the SPS Agreement sets out the scope of application of the Agreement as follows:

> 1. This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.
>
> 2. For the purposes of this Agreement, the definitions provided in Annex A shall apply.

7.21. Annex A of the SPS Agreement defines SPS measures in relevant part as follows:

> 1. Sanitary or phytosanitary measure – Any measure applied:
>
> (b) to protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs;
>
> ...
>
> Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

7.22. Thus, there are two conditions for the application of the SPS Agreement. First, the measure must be an SPS measure as defined in Annex A and, second, according to Article 1.1 of the SPS Agreement, the measure must have the potential to affect international trade, directly or indirectly.[412]

7.23. To determine whether the obligations in the SPS Agreement are applicable to Korea's measures, the Panel must determine whether they are SPS measures within the meaning of Annex A(1) of the SPS Agreement and whether the measures directly or indirectly affect international trade.

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[411] Korea's opening statement at the first meeting of the Panel, para. 42 (citing European Union's third-party submission, paras. 44 and 84). See also Korea's response to Panel question No. 105.

[412] Panel Reports, *EC – Hormones (Canada)*, para. 8.39; *EC – Hormones (US)*, para. 8.36. See also Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.2554.

7.24. To recall, the measures in this dispute can be summarized as follows: import bans on various fishery products from particular regions of Japan and additional testing requirements on all Japanese products.

7.4.1 The objective(s) of the measures

7.25. The Appellate Body explained in *Australia – Apples* that Annex A(1) establishes a required link between the measure and the protected interest. In that sense, the Appellate Body noted that the word '"applied'" points to the application of the measure and, thus, suggests that the relationship of the measure and one of the objectives listed in Annex A(1) must be manifest in the measure itself or otherwise evident from the circumstances related to the application of the measure.[413] Thus, a determination of whether a measure is "applied ... to protect" in the sense of one of the subparagraphs in Annex A(1) must be based not only on the objectives of the measure as expressed by the responding party, but also on the text and structure of the relevant measure, its surrounding regulatory context, and the way in which it is designed and applied. Scrutiny of such circumstances "must reveal a clear and objective relationship" between that measure and the specific purposes enumerated in the relevant subparagraph.[414] If through such an analysis the objective purpose of the measures is seen to fall within one of the four subparagraphs in Annex A(1), then the measures are within the jurisdiction of the SPS Agreement.

7.26. Japan alleges[415] and Korea does not dispute[416] that Korea's measures are applied to protect human health from the risks arising from the presence of contaminants – the identified radionuclides - in food products.[417] We also note that the measures contain references to specific Korean safety standards and practices, which the Panel understands relate to Korea's appropriate level of protection (ALOP) for radioactive contamination of foods. For example, the press release announcing the 1 May 2011 certification requirements contains detailed references to the results of testing in Japan and whether they exceed or are within Korea's standards. The press release also refers to Korea conducting a safety evaluation of its existing radiation management standards.[418] The press release announcing the 2013 additional testing requirements as well as the lowering of Korea's maximum caesium level from 370 Bq/kg to 100 Bq/kg notes that one of the goals of the measure is to ensure "the same level of radioactivity safety applied to both local foods and Japanese foods".[419] The measure was also accompanied by a question and answer document that provides information on the risk, the monitoring mechanisms in Korea, test results, and the Codex guideline levels.[420] Similarly the import bans refer to the measures being taken since the outbreak of the nuclear crisis and also to precision testing of Japanese and domestic fishery products.[421]

7.27. In this dispute, the stated intent of the measures, the relationship of those measures to Korea's ALOP for radionuclides, and the timing of the measures all indicate that they were adopted for the purpose set forth in Annex A(1)(b). Therefore, the Panel finds, that Korea's measures are SPS measures within the meaning of Annex A(1)(b). We now turn to whether the measures affect

[413] Appellate Body Report, *Australia – Apples*, para. 172.
[414] Appellate Body Report, *Australia – Apples*, para. 173.
[415] Japan's first written submission, paras. 146-148.
[416] Korea's response to Panel question No. 29.
[417] Although Korea confirms that its measures were adopted for the purpose set forth in Annex A(1)(b) it attempts to undercut Japan's argument that Korea's measures are 'protectionist' by noting Japan itself asserts that the measures are applied to protect human health from consumption of contaminated food products (see Korea's first written submission, para. 200). Korea correctly points out what might be seen as a tension between the arguments necessary to establish the existence of an SPS measure based on the intent of the imposing Member and those necessary to support a claim of arbitrary or unjustifiable discrimination under Article 2.3. However, the two concepts must not be conflated. Otherwise, we would enter a vicious cycle whereby a claim under Article 2.3 would be seen as an admission that the SPS Agreement is inapplicable and then negate the ability to even raise the claim in the first place. Furthermore, there is no indication in the text of the SPS Agreement that measures falling within Annex (A)(1)(b) are immune from challenges under Article 2.3.
[418] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).
[419] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).
[420] Korea's OGPC, MFDS, MOF, NSSC, "Q&A on Radioactivity Safety Management of Fishery Products Imported from Japan" (September 2013), (English translation), (Exhibit JPN-4.b).
[421] Product-Specific ban on Cod from Miyagi and Iwate, (Exhibit JPN-76.b); Product-Specific ban on 35 Fishery Products from Fukushima, (26 June 2012), (Exhibit JPN-77.b); Product-Specific ban on Cod from Aomori, (Exhibit JPN-78.b); Product-Specific ban on Cod from Ibaraki, (Exhibit JPN-79.b).

international trade, such that they would fall within the scope of the obligations in the SPS Agreement.

7.4.2 Whether the measures directly or indirectly affect international trade

7.28. Even if a measure falls within the scope of Annex A(1), this on its own is not sufficient to bring it within the disciplines of the SPS Agreement. According to Article 1.1 of that Agreement, the measure must also be one that "may, directly or indirectly, affect international trade".

7.29. Japan asserts that Korea's measures affect international trade within the meaning of Article 1.1.[422] Korea does not contest this assertion.

7.30. We recall that the panel in *EC – Hormones* concluded that it could not be contested that an import ban affects international trade.[423]Furthermore, testing requirements or other administrative procedures that can delay or deny entry of products into a Member likewise affect international trade.[424]

7.31. Therefore, the Panel concludes that Korea's measures directly affect international trade.

7.4.3 Conclusion

7.32. The Panel finds that Korea's import bans and additional testing requirements are applied to protect human health from the risks arising from the presence of contaminants in foods. These measures directly affect international trade. Therefore, the measures are SPS measures within the meaning of Article 1 of the SPS Agreement.

7.33. Nevertheless, it is important to recall that the mere fact that a measure is an "SPS measure" within the meaning of the definition set forth in Annex A(1) "does not mean that it is, *ipso facto*, subject to every provision of the *SPS Agreement* which applies to 'SPS measures'."[425] As the panel in *US – Poultry (China)* explained, "a determination of which particular provisions are applicable to a given measure, must be done on a case-by-case basis".[426] In particular, Korea argues that certain provisions of the SPS Agreement are not applicable to its measures. The Panel will address these applicability issues as it addresses Japan's claims. However, before analysing Korea's measures for consistency with the provisions of the SPS Agreement raised by Japan, the Panel will first determine how the measures operate.

7.5 Operation of Korea's testing requirements

7.34. Korea requires testing for caesium and iodine of randomly selected samples[427] from all consignments originating from Japan. Additionally, Korea imposed testing requirements for the additional Codex radionuclides for agricultural products, processed foods and food additives in May 2011.[428] According to these requirements, detection of iodine and caesium in Japanese agricultural products/processed food/food additives requires the submission of a testing certificate for the additional Codex radionuclides.[429] These requirements were extended to Japanese fishery and livestock products through the measures announced in 2013.[430] Korea's testing requirements comprise (i) pre-market testing requirements (pre-export from Japan, at the border, and domestically) and (ii) point-of-sale testing requirements.

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[422] Japan's first written submission, para. 150 (citing Panel Report, *India – Agricultural Products*, para. 7.157).

[423] Panel Report, *EC – Hormones*, para. 8.23.

[424] Panel Reports, *EC – Approval and Marketing of Biotech Products*. para. 7.435. See also Appellate Body Report, *Australia – Apples*, para. 440.

[425] Panel Report *EC – Approval and Marketing of Biotech Products*, para. 7.1337.

[426] Panel Report, *US – Poultry (China)*, para. 7.139.

[427] When selecting samples to ensure that they are representative of the entire consignment Korean authorities follow the sampling methodology set forth in Article 8 of the Korea Food Code. See Sampling and Treatment of Samples, Korea Food Code, (Exhibit KOR-161).

[428] See section 2.7.3 above.

[429] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b(revised)), (Exhibit KOR-72 (revised)).

[430] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

7.35. In their first written submissions the parties presented divergent views on how the measures operate – in particular with respect to (i) the levels of caesium and iodine required to trigger the additional testing; (ii) what additional radionuclides would be tested for; and (iii) where the additional testing had to take place. The parties also disagreed on the similarity, or not, of the testing carried out on Japanese products and the procedures applied to other imports and Korean domestic products.

7.36. Prior to the first meeting the Panel sent the parties advance questions that it expected them to address during the first meeting with the Panel. With respect to the challenged measures, the Panel asked the parties to provide answers to the following and to specify in their answers the legal basis (i.e., a citation to a particular notice, press release, or statutory provision):

a. When must the testing take place? Can it take place prior to shipment?

b. Where must the testing take place?

   i. If the products have already been shipped can the testing take place in Korea?

   ii. Korea: What would be the process required for Japan to authorise a facility in Korea to perform this testing?

c. What level of caesium detection would trigger the requirement for additional testing?

   i. Is this level the same for Japanese, domestic, and other imported products?

d. If caesium *and* additional radionuclides are detected what level would trigger a decision to refuse entry of the shipment?

e. How long does the testing take? Does Korea provide for expedited procedures due to the perishable nature of some products?[431]

7.37. In their opening statements the parties attempted to address some of these issues. However, there continued to remain points of disagreement as well as a lack of clarity.

7.38. Following the first meeting with the Panel, the Panel presented the parties with its understanding of how the testing requirements Korea imposes (pre-market and point-of-sale) operate with respect to products from Japan, other sources, and Korea in an attachment (entitled Annex B) to the questions submitted to the parties. Both parties provided comments on the table in their answers. Korea confirmed the content of Annex B in its second written submission.

7.39. Because the Panel was unable to derive a single, coherent explanation of how the measures operate from the parties' responses, the Panel sees the need to explain its understanding of how the additional testing requirements operate based on the argumentation and evidence presented. It is on this basis that the Panel will make any subsequent findings on the consistency of the measures with the provisions of the SPS Agreement that Japan has raised. The measures require testing at various points in time between production and sale. We will address the regulatory regime in place at each stage.

7.5.1 Pre-market testing

7.40. Pre-market testing takes place before goods enter the Korean market. This can take place either prior to export from the country of origin, at the border, or with respect to domestic goods it could take place at a factory, farm, or distribution centre.

7.41. For domestic products, Korea first explained that these are only subject to point-of-sale caesium and iodine testing on randomly selected final products.[432] Korea later modified this information to state that since 2014 it has carried out caesium and iodine testing on randomly selected agricultural and fishery products at the pre-market stage (i.e. at the stage of

[431] Panel's questions to the parties in advance of the first meeting of the Panel.
[432] Korea's response to Panel question No. 5.

production).[433] Korea states that it tests for the most frequently consumed products in Korea. The 2014 Guidelines indicate that the food items to be analysed at the production stage are grain (rice, barley, buckwheat, corn, etc.), nut seeds (chestnuts, walnut, ginkgo, pine nut, etc.), fruits (apple, pear, tangerine, peach, jujube, plums, berries, etc.), crops cultivated outdoors such as mushroom, food items of which cultivation period till harvest is longer than three months, etc. For fishery products the items with the largest production volume (more than 500 tons/year) and priority control items shall be tested as part of a detailed action plan (to be submitted to MFDS by January 2014). These guidelines also include an attachment with the list of 28 most harvested fishery products.[434]

7.42. Korea further argues that it conducts testing at the production stage "in the same manner as radioactivity testing is conducted for imported foods both at the border and at the point-of-sale."[435] In response to the Panel's request for clarification on how it conducts pre-market testing on domestic products, Korea cited its response to Panel question No. 5, in which Korea indicates that the relevant caesium level is 100 Bq/kg.[436] This would imply that, as in the case of third-country products tested at the Korean border, pre-market testing on domestic products is meant to verify compliance with Korea's caesium tolerance level, rather than to trigger the additional testing. Moreover, Korea has not provided any evidence of tests conducted at the production stage that would allow verification of whether and to what extent such a measure is being implemented. Based on all of the foregoing, the Panel concludes that Korea has failed to demonstrate that it requires conducting additional testing on domestic products at pre-market stage.

7.43. The parties agree that pre-export testing in the country of origin is required only for Japanese products and does not apply to food products from other countries.[437] Pre-export testing for caesium and iodine is required for Japanese non-fishery food products from thirteen prefectures.[438] For Japanese fishery products, the list evolved over time beginning with thirteen prefectures in 2011[439], adding and deleting prefectures in June and October 2012, coming to a final list of 16 prefectures.[440] It is important to note, that 8 of the 16 prefectures covered by the pre-export testing requirements are also subject to the blanket import ban on all fishery products, meaning that the testing requirements currently apply to the 8 prefectures not subject to a ban.[441] Products from the specified prefectures must be accompanied by a certificate of caesium and iodine testing upon arrival in Korea. Products from other prefectures must be accompanied by a certificate of origin and will be subject to caesium and iodine testing at the border. If a certain level of caesium or iodine is detected during either pre-export or at-the-border testing, "an additional inspection certificate for strontium and plutonium etc. shall be requested."[442]

7.44. Imports from all countries can be subjected to at-the-border testing. However, the frequency of the testing differs according to the origin of the consignment. Korea's measures require at-the-border caesium and iodine testing for randomly selected samples from every consignment from Japan whereas imports from other countries are subjected to testing on

[433] Korea's response to Panel question No. 109. See Article 2.C.2 of the section on "Safety Management of Fishery Products" in the 2014 Guidelines for Food Safety Management (2014 Guidelines for Food Safety Management), (Exhibit KOR-158); Article 2.A of Section 2, "Safety Management of Radioactivity in Food" in the 2015 Guidelines for Food Safety Management, (2015 Guidelines for Food Safety Management), (Exhibit KOR-281); Article 2.A of Section 2, "Safety Management of Radioactivity in Food" in the 2016 Guidelines for Food Safety Management, (2016 Guidelines for Food Safety Management), (Exhibit KOR-159).

[434] 2014 Guidelines for Food Safety Management, (Exhibit KOR-158) Moreover, the 2015 Guidelines for Food Safety Management (Exhibit KOR-281) state that at the production stage, "highly consumed items" and items of "priority control" are to be selected for testing.

[435] Korea's response to Panel question No. 109.

[436] Korea's response to Panel question No. 109, referring to Korea's response to Panel question No. 5 and Annex B.

[437] Japan's response to Panel question No. 17.

[438] KFDA 2011 Changed Measure Instruction, (Exhibit KOR-40.b). The 13 prefectures are Miyagi, Fukushima, Gunma, Tochigi, Ibaraki, Chiba, Saitama, Kanagawa, Shizuoka, Nagano, Tokyo, Yamagata, Niigata.

[439] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).

[440] Korea Ministry of Food, Agriculture, Forestry and Fisheries, "Notification of adjusted areas subject to radioactive material inspection certificate requirements for Japanese fishery products" (26 September 2012) (Redacted), Translation errors such as "Japan's ocean", "territorial waters" in p. 2 were corrected, (Exhibit KOR-76 (revised)).

[441] See section 2.7.1 above.

[442] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b).

samples from randomly selected consignments.[443] Moreover, according to Japan, if a consignment consists of more than one food product or the same product from different origins within Japan, the different parts of the consignment are tested separately.[444] KFDA's instructions to Food Import Division refer to the radiation inspections being conducted for every import line.[445] This supports the conclusion that testing must be done for each product from each origin in a consignment.

7.45. Imports from countries other than Japan are subject to random testing for caesium or iodine at-the-border. At the second meeting with the Panel, Korea averred that it applies varying frequencies of testing by commodity and exporting country. For example Korea states that it subjects certain products (such as dried fruits and mushrooms) from more than 40 countries to testing at the border on a random basis, and blueberry products from certain manufacturers from Ukraine, France, Denmark and Sweden must be tested for every consignment at the border.[446] However, Korea did not present any documentary evidence to the Panel where such frequencies were defined in regulations or administrative guidance to import inspection authorities.[447] As a factual matter, the Panel notes that regardless of the frequency or the results of at-the-border testing for imports of other origins they are not subject to testing for the additional Codex radionuclides. Imports from other origins are simply refused entry if they are found to contain caesium or iodine exceeding 100 Bq/kg. If the levels are less than 100 Bq/kg they are permitted to be placed on the Korean market, although they may be randomly subjected to point-of-sale testing later (see section 7.5.2 below).

7.46. Japan argues that the Korean measures require testing of all food products from Japan for caesium and iodine at the border regardless of whether they had already undergone pre-export testing.[448] Korea initially accepted this assertion.[449] However, during the second meeting and in its answers to the Panel's questions after that meeting, Korea stated that it only tests for caesium again at the border if the pre-export caesium certification from Japan states that the product contains less than 1 Bq/kg of caesium[450], which, if confirmed, would mean that consignment would not be subject to the additional testing requirements.[451] According to Korea, for food products with pre-export caesium certificates indicating that the products contain more than 1 Bq/kg of caesium, Japanese exporters are required to submit a test certificate for additional radionuclides, but caesium and iodine testing is not conducted again at the border.[452] Korea points to the internal administrative instructions for the 2011 testing requirements, in particular the language that "[i]n the event where iodine or caesium is detected at the import stage, an additional inspection certificate for strontium, plutonium, etc. shall be requested".[453] It is not clear to the Panel that this language means that detection of caesium or iodine "at the import stage" refers to pre-export testing rather than testing at the border. It is also not clear how such language relates to whether the caesium and iodine testing will be conducted at the border as opposed to the request for testing certificates for other radionuclides. Moreover, there is no indication whether the testing for additional radionuclides has to be done at the border or could be done in Japan prior to export.

[443] Korea's response to Panel question No. 109.
[444] Japan's second written submission, para. 30.
[445] See KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b).
[446] Korea's comment on Japan's response to Panel question No. 136; Ministry of Food and Drug Safety, "Food Safety Information Portal", (Exhibit KOR-282).
[447] Korea's comment on Japan's response to Panel question No. 136; Korea refers to its Ministry of Food and Drug Safety, "Food Safety Information Portal", (Exhibit KOR-282), but does not provide any regulation or administrative guidance where such frequency is defined. Korea also refers to its response to Panel question No. 23 and Relevant Laws or Regulations in force prior to the FDNPP accident, including Article 7 of the Standards and Specifications concerning Foods or Food Additives, Article 19 of the Import Declaration, and Korea Food Code Public Announcement by Minister of Food and Drug Safety, (Exhibit KOR-156). The excerpts from these documents set forth the general legal basis for Korean government officials to engage in food inspections without any reference to the frequency of those inspections or to specific countries.
[448] Japan's response to Panel question No. 17.
[449] Korea's response to Panel question No. 129.
[450] Korea's response to Panel question No. 129.
[451] Korea's response to Panel question No. 17.
[452] Korea's response to Panel question No. 129.
[453] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b).

7.47. Therefore, the Panel concludes that pre-export testing for caesium and iodine is required for Japanese food products from 13 prefectures [454] and Japanese fisheries products from 8 prefectures. [455] The measures also require at-the-border caesium and iodine testing for all Japanese food products from any prefecture. Whether Korea opts to conduct such testing on each and every consignment or only those with a pre-export certificate indicating a level of less than 1 Bq/kg is not relevant to the present dispute as Japan does not challenge this aspect of the measure.

7.5.2 Point-of-sale testing

7.48. Products that are already in the market are randomly selected for caesium and iodine testing and then referred for additional testing if the level of contamination is greater than the specified amount. This testing is referred to as point-of-sale testing. Japan initially argued that Korean products are not subject to any testing for radionuclides.[456] However, Korea presented evidence in the form of the Korea Food Code and the annual Guidelines for Food Safety Management from 2014-2016[457], which require point-of-sale caesium testing, focusing on the 150 most consumed food products distributed in the Korean market (both imported and domestic).[458] The Korea Food Code does not mention point-of-sale additional testing in particular, but states that "[i]n case of leakage accident of radioactive materials…[i]f radioactive iodine or cesium is detected, the contamination of other radionuclides…such as plutonium, strontium, etc. may be determined". [459] The 2014 Guidelines provide a testing and surveillance plan for frequently consumed agricultural and fishery products both at the production and point-of-sale stages. According to these guidelines, the radionuclides to be analysed as part of this testing are caesium and iodine – without any mention of testing for the other radionuclides.[460] However, according to a Korean MFDS administrative instruction distributed internally to its local offices, "[w]hen radioactivity is detected in any laboratories, it is required to send the concerned samples...for further analysis of other radionuclides (Sr, Pu, etc)".[461] The 2015 Guidelines provide an inspection plan for iodine and caesium in the 150 most frequently consumed food items at the harvest and distribution stages (see paragraph 7.41. above). These guidelines note that "[w]hen radioactivity has been detected from each inspection agency… specimen should be sent to National Institute of Food and Drug Safety Evaluation (Food Contaminants Division) to test for additional radionuclides (Sr, Pu, etc.)".[462] The 2016 Guidelines only differ from the earlier ones with respect to the break-up of domestic and imported food items in the 150 food items to be inspected (80 domestic and 70 imported food items). With regard to additional testing, these guidelines state that the radionuclides to be analysed as part of the inspection programme are iodine and caesium – if trace amounts of these radionuclides are detected further inspection is required for strontium and plutonium.[463]

7.49. Korea also explained to the Panel that since 2014, 251 samples that were the subject of point-of-sale testing have been referred for additional testing because caesium or iodine had been

[454] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b). The 13 prefectures are: Miyagi, Fukushima, Gunma, Tochigi, Ibaraki, Chiba, Saitama, Kanagawa, Shizuoka, Nagano, Tokyo, Yamagata, Niigata.

[455] FAJ Monitoring Report, (Exhibit JPN-43), p. 108. The eight prefectures are: Hokkaido, Tokyo, Kanagawa, Aichi, Mie, Ehime, Kumamoto, Kagoshima.

[456] Japan's response to Panel question No. 17.c.ii.

[457] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281); Korea Food Code (2012), (Exhibit KOR-123), p. 6.

[458] Korea's responses to Panel question Nos. 109 and 121.

[459] Korea Food Code (2012), (Exhibit KOR-123), p. 6.

[460] 2014 Guidelines for Food Safety Management, (Exhibit KOR-158).

[461] Ministry of Food and Drug Safety, "Letter re: Development of 2014 Monitoring Plan for Radioactivity in Food Distributed in the Market" January 17, 2014, (Exhibit KOR-221), p. 4.

[462] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281), pp. 5-6, 9, 11-12. The 100 domestic products include 29 agricultural, 38 fishery, 7 livestock products, and 26 processed foods. The 50 imported products include 15 agricultural, 15 fishery, 6 livestock products, and 14 processed foods.

[463] 2016 Guidelines for Food Safety Management, (Exhibit KOR-159), p. 6. The 2016 Guidelines for Food Safety Management, (Exhibit KOR-159) revised the break-up of the 150 most frequently consumed products to 80 and 70 for domestic and imported products, respectively. While the 80 domestic products include 23 agricultural, 31 fishery, 12 livestock products, and 14 processed foods, the imported foods include 20 agricultural, 20 fishery, 11 livestock products, and 19 processed foods.

detected in levels exceeding the 1 Bq/kg level.[464] Korea provided the Panel with data on how many samples were tested, how many exceeded the 1 Bq/kg level, and the results of the strontium and plutonium testing.[465]

7.50. Therefore, the Panel concludes that point-of-sale testing occurs pursuant to the Korea Food Code and the Guidelines for Food Safety Management on the 150 most frequently consumed products.

7.5.3 Levels required to trigger additional testing

7.51. The measures do not specify the caesium or iodine level that would trigger the need for additional testing, instead they refer to "trace amounts"[466], or simply if iodine or caesium "is detected."[467] Japan argues, therefore, that it is unclear from the measures what levels will trigger the additional testing.

7.52. In its responses to the Panel's questions after the first meeting, Korea stated that the pre-market additional testing requirements apply when 1 Bq/kg of caesium is detected.[468] Additionally, Korea explained that it requires detection results to be expressed to one decimal place, and then either rounded up or down to the nearest whole number.[469] Thus, a detection level of more than 0.5 Bq/kg would trigger the additional testing.

7.53. Korea cited the Korea Food Code (2012), and the 2014-2016 Guidelines for Food Safety Management as proof that the 1 Bq/kg limit is codified and thus it is understood that this is what is being referred to in the press releases.[470] However, there is no reference to the 1 Bq/kg level in the extract of the Korea Food Code provided.[471] Although the 2014 and 2015 guidelines state this level, the 2016 guidelines merely mention trace amounts of caesium.[472] In its Diary of Radiological Safety Management Activity for Food After Fukushima Nuclear Accident, Korea lists the applicable minimum detectable activity as "0.7 Bq/kg, etc".[473] Korea does not point the Panel to any publicly available documents from the time the measures were initially adopted in 2011 for non-fishery (excluding livestock) or in 2013 when they were extended to cover fishery and livestock products that refer to a specific detection level that would trigger the additional testing.

7.54. Japan argues that Korea does not adhere to a 1 Bq/kg level and has provided the Panel with evidence that in at least one instance Korean authorities have requested the certificate for the additional radionuclides on a Japanese consignment in which 0.2 Bq/kg of caesium was detected during at-the-border testing.[474] Japan also provided an exhibit which contains the results of Korea's at-the-border testing on Japanese products from30 March 2011 through 12 July 2016. In that list, 187 products were referred for additional testing. Of those products referred for additional testing, four had caesium levels listed as "unknown", of the remaining 183 – the lowest

[464] Korea's response to Panel question No. 95, Korea initially referred to 147 results out of 161 samples referred to for testing and then updated that information in its response to Panel question No. 131 and in Results of Further Sr and Pu Analysis of the Samples at the Point-of-Sale, (Results of Further Analysis at Point-of-Sale), (Exhibit KOR-283).

[465] Korea's responses to Panel question Nos. 95 and 131; Results of Further Analysis at Point-of-Sale, (Exhibit KOR-283).

[466] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

[467] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).

[468] Korea's responses to Panel question Nos. 17(a) and 59. In its first written submission, Korea had similarly referred to 1 Bq/kg, although it also stated that the pre-market additional testing requirements were triggered when "trace" amounts of caesium were found. See Korea's first written submission, para. 320 and fig. 2.

[469] Korea's response to Panel question No. 35 (citing Article 1 of Korea Food Code, (Exhibit KOR-123)).

[470] Korea's response to Panel question No. 109; second written submission, para. 84.

[471] Korea Food Code (2012), Art. 1, (Exhibit KOR-123).

[472] 2014 Guidelines for Food Safety Management, (Exhibit KOR-158); 2016 Guidelines for Food Safety Management, (Exhibit KOR-159), 2015 Guidelines for Food Safety Management, (Exhibit KOR-281).

[473] Diary of Radiological Safety Management Activity for Food after Fukushima Nuclear Accident (Exhibit KOR-171 (revised)) (Diary of Radiological Safety Management Activity), item 42.

[474] Fisheries Agency of Japan, "Notarized Affidavit of a coffee exporter" [CONFIDENTIAL] (English translation), (Coffee Exporter Affidavit), (Exhibit JPN-89.b). Korea objects to the use of this affidavit because the names of the employee and the company are redacted. See Korea's first written submission, para. 225. The Panel has taken note of Korea's objection and has considered this in the weight it has given to the affidavit in its reaching its findings.

caesium detection level was 0.7 Bq/kg.[475] The Panel is unable to conclude based on one request from a regional MFDS office for one consignment that Korea's measures apply to all Japanese products with a detection level as low as 0.2 Bq/kg. At the same time the Panel cannot conclude that in each and every instance Korean authorities have adhered to the 1 Bq/kg level, particularly in light of the fact that the Guidelines Korea provided the Panel only begin in 2014 and do not cover the early years that the measure was in place.

7.55. Thus, the Panel concludes, based on the evidence before us, that detection of "trace amounts" of caesium or iodine will trigger the additional testing. At least since 2014, "trace amounts" can be defined as normally anything above 0.5 Bq/kg. Nevertheless, the Panel cannot exclude that individual inspection authorities at various ports may interpret this differently and order additional testing for even lower amounts of caesium or iodine.

7.5.4 The additional radionuclides tested for by the Korean authorities

7.56. The press release announcing the 2011 additional testing requirements states that "If iodine or cesium is detected, an inspection certificate on strontium and plutonium shall be required additionally".[476] Similarly, the press release announcing the 2013 additional testing requirements states that "the government will require the submission of test reports regarding presence of other nuclides such as plutonium and strontium".[477] The document containing the administrative instructions for the 2011 testing requirements states that "The standard adopted by Codex Alimentarius is applied to radionuclides subject to additional certification".[478] A similar document for the 2013 requirements also states that an exporter must "submit [an] additional test certificate on other nuclides as specified by Codex Alimentarius Commission (Codex) regarding radiation level".[479] Japan provided evidence of specific requests from Korean import authorities for additional testing. In those requests, the authorities asked for testing on a specific list of 14 radionuclides, including Cs-134 and Cs-137 and iodine according to the Codex standard.[480] In its notification of the measure Korea provided to the WTO, Korea stated that it requires testing of additional radionuclides as specified by the CODEX Standard 193-1995.[481] Korea's SPS Enquiry Point, in its response to Japan's 24 June 2014 request, stated that the additional testing requirements are to be conducted for the remaining 17 radionuclides according to the limits prescribed by Codex.[482]

7.57. With respect to the testing Korea conducts on domestic products, Korea first states that testing for strontium and plutonium is compulsory for food products distributed in the Korean market where more than 1 Bq/kg of caesium or iodine is detected.[483] In its later submission, Korea states that the additional testing is required for strontium, plutonium and other radionuclides.[484] As evidence for this Korea refers to the Korea Food Code (2012) and the 2015 Guidelines for Food Safety Management.[485] Article 1 of the Food Code refers to determining contamination with other

[475] Japan's Ministry of Agriculture Forestry and Fisheries, "Overview of Korea's test results" (March 2011 - July 2016), (Exhibit JPN-158).
[476] KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)).
[477] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).
[478] Korea Food & Drug Administration, "Instruction of Changed Measure including Certificate of Food Imports Originated from Japan" (15 April 2011), (Exhibit KOR-40).
[479] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b). The Panel understands Korea to be referring to the maximum guideline levels for the 17 other Codex radionuclides set forth in CODEX STAN 193-1995.
[480] Korea's Ministry of Food and Drug Safety, "Notification on complementary information in response to the detection of radioactivity in imported food, mako shark"[CONFIDENTIAL], (Busan branch additional testing request), (Exhibit JPN-86.b); Korea's Ministry of Food and Drug Safety, "Notification on complementary information in response to the detection of radioactivity in imported food, dried bonito" [CONFIDENTIAL], (Exhibit JPN-87.b); Korea's Ministry of Food and Drug Safety, "Notification on complementary information in response to the detection of radioactivity in imported food, milk chocolate" [CONFIDENTIAL], (Exhibit JPN-88.b).
[481] G/SPS/N/KOR/454/Add.1.
[482] Response by Korea's SPS Enquiry Point, (Exhibit JPN-30).
[483] Korea's response to Panel question No. 25.
[484] Korea's second written submissions, para. 363.
[485] 2014 Guidelines for Food Safety Management, (Exhibit KOR-158); 2016 Guidelines for Food Safety, (Exhibit KOR-159); 2015 Guidelines for Food Safety Management, (Exhibit KOR-281); Korea Food Code (2012), Art. 1, (Exhibit KOR-123).

radionuclides, "such as plutonium, strontium, etc."[486] The 2014 Guidelines for Food Safety Management do not address additional testing. The 2015 Guidelines for Food Safety Management state that testing should be "for additional radionuclides (Sr, Pu, etc.)".[487] The 2016 Guidelines for Food Safety Management provide that "when trace amount of iodine or cesium is detected, further inspection to be conducted for other radionuclides (Sr-90, Pu-238, Pu-239, Pu-240) by National Institute of Food and Drug Evaluation".[488]

7.58. During the second meeting Korea indicated that for point-of-sale testing this additional testing is normally only for strontium and plutonium and that the remaining radionuclides are only tested for if the test results indicate that the strontium or plutonium exceeded Codex levels. Korea indicated that this was because of a lack of capacity in government laboratories and that for testing the other radionuclides external laboratories would be needed. When Korea was requested to confirm this in the questions following the second meeting, Korea stated that pursuant to the Korea Food Code (2012) "MFDS is authorized to require additional testing for strontium, plutonium, and other radionuclides", and that based on the 2015 Guidelines for Food Safety Management[489], the Korean MFDS has required additional testing for strontium, plutonium, and other radionuclides if caesium or iodine was detected.[490] The Panel notes that when Korea provided the Panel with its results of further analyses on the samples taken at the point-of-sale, the data only reflects testing for strontium and plutonium and no other radionuclides.[491]

7.59. Based on the foregoing, the Panel concludes that additional testing for Japanese products when required is normally for strontium and plutonium, but import authorities could demand additional testing for all the Codex radionuclides. We note that neither the measures, the internal administrative instructions, nor the 2014-2016 Guidelines for Food Safety Management specify under what conditions the import authorities would make such a demand.

7.5.5 Location of additional testing

7.60. The parties also disagree on where the additional testing must take place.[492] Japan argues that Korea's measures require additional testing to be conducted in Japan, as a result of which food products have to be shipped back to Japan for testing.[493] Korea maintains that the additional testing can be conducted in Korea, as long as it is by a Japanese government-authorized inspection institution.

7.61. The press releases announcing the measures themselves as well as other exhibits, as mentioned below, provided to the Panel contain references to testing facilities designated, authorized or acknowledged by the Government of Japan. For example, the document announcing introduction of the 2011 testing requirements states that "[f]or additional certification, analytical report [is] made either by Japanese official laboratory or by the laboratory designated by the Government of Japan".[494] An MFDS request from the regional office in Gyeongin to an importer to conduct the additional testing contains similar language.[495] Additionally, an affidavit from a coffee exporter submitted by Japan shows that testing for strontium and plutonium could be conducted in Korea for Japanese products.[496] With respect to the 2013 measure, a notice by MFDS and a request to conduct the additional testing from the MFDS' regional office in Busan, require that the test be conducted by "any inspection agency of the Japanese government or any certified inspection institution acknowledged by the Japanese government."[497] A request from the MFDS' regional office in Seoul differs from the above and mandates that "[t]he test report [for the

[486] Korea Food Code (2012), Art. 1, (Exhibit KOR-123), p. 6.
[487] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281), p. 9.
[488] 2016 Guidelines for Food Safety Management, (Exhibit KOR-159).
[489] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281).
[490] Korea's response to Panel question No. 109. (emphasis added).
[491] Results of Further Analysis at Point-of-Sale, (Exhibit KOR-283).
[492] Korea's first written submission, para. 296; opening statement at the first meeting of the Panel, para.31; response to Panel question No. 17; Japan's response to Panel question No. 96.
[493] Japan's first written submission, para. 136.
[494] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p. 6. (emphasis original).
[495] Gyeongin branch additional testing request, (Exhibit JPN-88.b), p. 1.
[496] Coffee Exporter Affidavit, (Exhibit JPN-89.b), p. 2.
[497] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b), p. 1; Busan branch additional testing request, (Exhibit JPN-86.b), p. 1.

presence of the additional radionuclides] shall be issued by test organization of Japanese Government or test organization in Japan approved by Japanese government."[498]

7.62. Japan interprets a laboratory designated, authorized, or acknowledged by the Government of Japan as meaning that items to be tested must be shipped back to Japan for the additional testing and certification, before they can then be returned to Korea for sale on the Korean market.[499] However, Korea contends that Korean laboratories could be acknowledged by Japan.[500] Korea points to a list of Japanese certified laboratories in Korea.[501] Japan responds that those laboratories are certified to provide pre-export testing for Korean products destined for Japan. Japan explains that it contacted the institutes on Korea's list to assess their ability to test for the additional radionuclides and determined that 11 of the 25 institutes are incapable of testing for the additional radionuclides. One institute confirmed that it was capable of testing, but only for some of the additional radionuclides. For the remaining 13 institutes, Japan says that it was unable to obtain sufficient information to make an informed assessment. For the one institute that indicated it could conduct additional testing, Japan states that it is still unknown whether it is capable of conducting such testing for the other additional Codex radionuclides on a commercial scale and in the time-frame required for the importation of perishable food products.[502]

7.63. Except for one instance, in which the MFDS regional office in Seoul requested an importer to conduct the additional testing in Japan, the evidence before the Panel does not support Japan's assertion that imported products must be sent to Japan for the additional testing. In particular, the language in the measures and administrative instructions does not require return of the goods to Japan for testing. Additionally, the affidavit from a coffee exporter that Japan provided to support its position on the level of radionuclides tested for, shows that although the exporter could not find a private laboratory to conduct the tests, a Korean government laboratory was willing to do so, although the tests were costly and took some time to complete.[503] The Panel has asked both parties for information on the additional testing and they both averred that it had never actually been undertaken.[504] Indeed, the case of the coffee exporter is the only one the Panel is aware of where an exporter even attempted to find a laboratory to conduct the additional testing either in Korea or Japan. Moreover, Japan also concedes that it had initially understood that the additional testing of Japanese products could take place in Korea.[505]

7.64. The balance of the evidence does not support Japan's assertion that Korea requires that Japanese products must be shipped back to Japan to undergo the additional testing. We therefore, conclude that while individual import authorities may have at times misinterpreted the measures, the measures themselves permit the testing to take place in Korea so long as the Japanese Government has designated, authorized, or acknowledged the testing facility.

7.65. In light of the foregoing, the Panel concludes the following with respect to Korea's testing requirements:

a. Caesium and iodine testing is required prior to export for all consignments of Japanese food products from 13 prefectures[506] and Japanese fisheries products from 8 prefectures.

b. Caesium and iodine testing at the border is required

   i. Randomly for imports from sources other than those specified below (for a tolerance level of 100 Bq/kg),

[498] Seoul branch additional testing request, (Exhibit JPN-87.b), p. 1.
[499] Japan's first written submission, para. 136.
[500] Korea's first written submission, para. 343.
[501] Korea's response to Panel question No. 31.
[502] Japan's response to Panel question No. 31. Japan refers to List of testing institutes and their web addresses cited to by Korea in footnote 63 of its first written submission. See also List of Japanese authorized testing institutes in Korea, (Exhibit JPN-196), pp. 1-2.
[503] Coffee Exporter Affidavit, (Exhibit JPN-89.b), p. 2.
[504] Japan's and Korea's responses to Panel question No. 128.
[505] Japan's response to Panel question No. 96.
[506] KFDA 2011 Changed Measure Instruction, (Exhibit KOR-40.b). The 13 prefectures are: Miyagi, Fukushima, Gunma, Tochigi, Ibaraki, Chiba, Saitama, Kanagawa, Shizuoka, Nagano, Tokyo, Yamagata, Niigata.

ii. with an increased frequency for certain products (such as dried fruits and mushrooms) from more than 40 countries to testing at the border on a random basis and for every consignment of blueberry products from certain manufacturers from Ukraine, France, Denmark and Sweden (for a tolerance level of 100 Bq/kg), and

iii. always for products originating from Japan. However, Korea may elect not to conduct that testing if the pre-export certificate indicated a caesium or iodine level above 1 Bq/kg (if the level of caesium or iodine detected is more than 0.5 Bq/kg it is referred for additional testing. If the level of caesium or iodine is above 100 Bq/kg the product is rejected).

c. Since 2014 Korea has conducted pre-market caesium and iodine (for a tolerance level of 100 Bq/kg) testing on randomly selected domestic agricultural and fishery products, but there is no record evidence that the additional testing is conducted at that stage.

d. Point-of-sale caesium and iodine testing, as well as additional testing if required[507], is conducted randomly on the 150 most consumed products in Korea. If caesium is found at a level higher than 0.5 Bq/kg in any of these 150 most consumed products, additional testing for at least strontium and plutonium will be conducted.

e. If a sample is referred for additional testing the testing will be conducted for strontium and plutonium for Japanese products, other imports, and Korean domestic products. Korean authorities may, at their discretion, require test certificates for the other Codex radionuclides.

f. The additional testing may take place in Korea so long as the Japanese Government has designated, authorized, or acknowledged the testing facility.

7.66. A summary of these conclusions can be found in Table 9 below.

Table 9: Summary of Korea's testing requirements:

PRE-EXPORT		
Japan	**Other countries**	**Domestic**
Certificate of caesium and iodine testing for food products from 13 prefectures and fishery products from 8 prefectures.		

AT-THE-BORDER		PRODUCTION STAGE
Japan	**Other countries**	**Domestic**
Certificate of origin	Certificate of origin	
Caesium and Iodine testing of samples from every consignment	Caesium and iodine testing of samples from randomly selected consignments, increased frequency for certain products from more than 40 countries and for every consignment of blueberry products from certain manufacturers from Ukraine, France, Denmark and Sweden	Caesium and iodine testing on randomly selected samples of 100 frequently consumed priority agricultural and fishery products

[507] See Korea's revised Annex B submitted in response to Panel question No. 109; second written submission, para. 376.

AT-THE-BORDER		PRODUCTION STAGE
Japan	Other countries	Domestic
If caesium or iodine is more than 0.5 Bq/kg, additional testing for at least strontium and plutonium If caesium or iodine is more than 100 Bq/kg, shipment is rejected	If caesium or iodine is more than 100 Bq/kg, shipment is rejected	With a tolerance level of 100 Bq/kg for caesium or iodine

POINT-OF-SALE		
Japan	Other countries	Domestic
Caesium and iodine testing on randomly selected samples of the 150 most frequently consumed products	Caesium and iodine testing on randomly selected samples of the 150 most frequently consumed products	Caesium and iodine testing on randomly selected samples of the 150 most frequently consumed products
If caesium or iodine is more than 0.5 Bq/kg, additional testing for at least strontium and plutonium	If caesium or iodine is more than 0.5 Bq/kg, additional testing for at least strontium and plutonium	If caesium or iodine is more than 0.5 Bq/kg, additional testing for at least strontium and plutonium

7.6 Provisional measures

7.67. Korea argues that its measures were adopted provisionally pursuant to Article 5.7 of the SPS Agreement. Korea maintains that because the measures were adopted provisionally this affects the Panel's analysis of the substantive elements of Japan's claims under other provisions of the SPS Agreement. The Panel will first turn to an analysis of whether Korea's measures fall within the scope of Article 5.7 and then, if necessary, turn to the question of how that might affect the Panel's analysis of Japan's claims.

7.68. Article 2.2 of the SPS Agreement provides:

> Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.

7.69. Article 5.7 provides:

> In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.

7.6.1 Burden of proof under Article 5.7

7.70. Korea argues that its SPS measures have been taken pursuant to Article 5.7 of the SPS Agreement.[508] According to Korea, Article 5.7 is a "core" part of the SPS Agreement, providing context for the interpretation of every provision of the SPS Agreement.[509] Thus, although Japan did not make a claim under Article 5.1, Korea submits that the insufficiency of scientific evidence

[508] Korea's first written submission, para. 83.
[509] Korea's response to Panel question No. 108.

is a relevant factor[510] that the Panel would need to consider in evaluating Japan's claims with respect to Article 2.3[511]; Article 5.6[512]; and Article 8 and Annex C(1)(a) and C(1)(e).[513] Korea argues that as Japan bears the burden of proof under Article 5.7 and that because Japan did not raise the article in its claims, the Panel must presume that Korea's provisional measures fall within the scope of Article 5.7 because they are consistent with all of the elements of that provision.[514] Korea also argues that there is no burden of proof for matters of interpretation.[515]

7.71. Japan argues that, when properly invoked, Article 5.7 acts as a qualified exemption from the obligation of Article 5.1, but not from the obligations under Articles 2.3, 5.6, 7, and 8. Japan does not dispute that the nature and quality of scientific evidence, including its sufficiency, are relevant to the Panel's assessment of the facts of the dispute.[516] Japan does agree that the insufficiency of scientific evidence may be taken into account in the analysis of other provisions; it argues that it may be useful with respect to the analysis of discrimination under Article 2.3 and Article 8 and Annexes C(1)(a) and C(1)(g), to the analysis of whether an alternative measure achieves the importing Member's ALOP under Article 5.6, and the assessment of necessity under Article 8 and Annexes C(1)(c) and C(1)(e).[517] Japan maintains that insufficiency of scientific evidence does not constitute a valid basis to allow Members to bypass their transparency obligations under Article 7 and Annex B.[518] With respect to the burden of proof, Japan argues that Korea, as the party raising Article 5.7, bears the burden of proving that the requirements of that provision have been satisfied.[519]

7.72. The third parties generally agree that the insufficiency of the scientific evidence can be relevant to an analysis of conformity with the other obligations – such as in determining whether similar conditions prevail or a measure arbitrarily or unjustifiably discriminates within the meaning of Article 2.3; or to the demonstration of the various criteria required to establish an inconsistency with Article 5.6 such as whether an alternative measure achieves the ALOP or is technically feasible.[520] New Zealand argues that compliance with the publication obligations in Annex B(1) is especially important in the case of provisional measures which are adopted without prior notice and without Members having had an opportunity to comment.[521]

7.73. The European Union implied that a different standard should be applied to provisional measures when reviewing them for non-discrimination under Article 2.3.[522] It also maintained that such different standards could be applicable even if the challenged measure did not satisfy all of the requirements of Article 5.7.[523] Canada cited the finding of the Panel in *EC – Approval and Marketing of Biotech Products* for the principle that Article 2.3 applies to measures adopted pursuant to Article 5.7 and that there are not two "parallel universes" in the SPS Agreement with a different set of obligations for provisional measures and definitive measures.[524] Canada and New Zealand agreed that if the Panel were to take into account the provisional nature of the measures in an analysis under Articles 2.3 and 5.6 then it must be demonstrated that the measures are provisional within the meaning of Article 5.7. New Zealand also submitted that the burden of demonstrating compliance with Article 5.7 is on the party invoking the provision.[525]

7.74. With respect to the burden of proof, the panel in *EC – Approval and Marketing of Biotech Products*, operating under the premise that Article 5.7 is a "qualified right", concluded that

[510] Korea's responses to Panel question Nos. 104, 105, 107(a), 107(c), and 108; second written submission, paras. 173 and 298.
[511] Korea's response to Panel question No. 107(a).
[512] Korea's second written submission, para. 298.
[513] Korea's response to Panel question No. 107(c).
[514] Korea's responses to Panel question Nos. 105 and 151.
[515] Korea's response to Panel question No. 105.
[516] Japan's second written submission, para. 54.
[517] Japan's response to Panel question No. 108.
[518] Japan's response to Panel question No. 108.
[519] Japan's second written submission, paras. 58-60.
[520] Canada, European Union, and New Zealand's responses to Panel question No. 6 to third parties.
[521] New Zealand's third-party statement, para. 9.
[522] European Union's third-party submission, para. 44.
[523] European Union's response to Panel question No. 6 to third parties.
[524] Canada's response to Panel question No. 6 to third parties (citing Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.2947). See also New Zealand's third-party statement, para. 6.
[525] New Zealand's third-party statement, paras. 6-7; Canada's response to Panel question No. 6 to third parties.

because Article 5.1 is only applicable if Article 5.7 is not, "when a complaining party presents a claim of violation under Article 5.1, the burden is on the complaining party to establish a *prima facie* case of inconsistency with both Articles 5.1 and 5.7".[526] The Appellate Body has referred to Article 5.7 as a qualified exemption from the obligation in Article 2.2.[527] In both *Japan – Agricultural Products II* and *Japan – Apples* it was the responding party that invoked Article 5.7 and neither the panels nor the Appellate Body questioned that it was the responding party that bore the burden of proof.[528] In the Panel's view, adopting Korea's premise would mean that if a complainant does not assert Article 5.7 in its request for establishment of a panel all a respondent needs to do is assert that its measure is a provisional measure within the meaning of Article 5.7, without any proof, and it is thus automatically exempted from a variety of obligations under the SPS Agreement. Such an interpretation would require every complainant raising claims under the SPS Agreement to invoke Article 5.7 in its request, even if it were irrelevant, and expend considerable time disproving its applicability simply to forestall such a litigation tactic being employed. This would generate considerable additional work for the parties and the panels in dealing with such issues and would not facilitate the fair, prompt and effective resolution of the actual matter in dispute.[529]

7.75. Korea has asserted several factual premises underlying its arguments – most importantly that there was insufficient scientific evidence to conduct an objective assessment of the risk. The panel in *US – Animals* rightly noted that "nothing in the case law on Article 5.7 or other provisions which establish exemptions or provide the ability to derogate from certain WTO obligations supersedes the basic premise that the party asserting something bears the burden of proving it."[530] Therefore, in our view, Korea bears the burden of proving that Article 5.7 is applicable to its measures.

7.6.2 Four requirements for the applicability of Article 5.7

7.76. Article 5.7 provides that Members may adopt and maintain provisional SPS measures without basing them on a risk assessment that conforms to Article 5.1 so long as the four requirements set forth in Article 5.7 are satisfied. First, the relevant scientific information must be insufficient to conduct a risk assessment. Second, the provisional measure must be adopted on the basis of available pertinent information. Third, the Member adopting the provisional measure must seek to obtain the additional information necessary for a more objective assessment of risk. Fourth, the Member maintaining the SPS measure must review that measure within a reasonable period of time. The Appellate Body has explained that the first two requirements relate to the adoption of the measure while the latter two requirements "relate to the maintenance of a provisional phytosanitary measure and highlight the provisional nature of measures adopted pursuant to Article 5.7".[531] Nevertheless, the four requirements are cumulative, with the consequence that an SPS measure falls within the scope of Article 5.7 only if all four requirements are fulfilled.[532]

7.77. As regards the first requirement, in *Japan – Apples* the Appellate Body clarified that mere scientific uncertainty regarding aspects of the risk addressed is insufficient to trigger the

[526] Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.3000. We note that the panel in *EC – Approval and Marketing of Biotech Products* based its reasoning on the Appellate Body decision in *EC – Tariff Preferences* on similar language in the Enabling Clause, which was issued later in time than the Appellate Body decision that discussed Article 5.7 of the SPS Agreement. The Appellate Body in *EC – Tariff Preferences* stated that where the permissive provision constitutes a right rather than an exception, "the complaining party bears the burden of establishing that a challenged measure is inconsistent with the provision permitting particular behaviour". Appellate Body Report, *EC – Tariff Preferences*, para. 88.

[527] Appellate Body Report, *Japan – Agricultural Products II*, para. 80.

[528] Appellate Body Report, *Japan – Agricultural Products II*, paras. 86-94 and Appellate Body Report, *Japan – Apples*, paras. 169-188.

[529] See Appellate Body Report, *US - FSC*, para. 166.

[530] Panel Report, *US – Animals*, para. 7.292 (citing Appellate Body Report, *Japan – Apples*, para. 157 ("the party that asserts a fact is responsible for providing proof thereof."). Our view is confirmed by the Appellate Body in *Canada – Renewable Energy / Canada – Feed-in Tariff Program* (where the Appellate Body concluded that "the characterization of [a] provision as a derogation does not pre-determine the question as to which party bears the burden of proof with regard to the requirements stipulated in the provision".) (Appellate Body Report, *Canada – Renewable Energy / Canada – Feed-in Tariff Program*, para. 5.56 (referring to Appellate Body Report, *China – Raw Materials*, para. 334)).

[531] Appellate Body Report, *Japan – Apples*, fn. 318 to para. 176 (emphasis original).

[532] Appellate Body Report, *Japan – Agricultural Products II*, para. 89.

application of Article 5.7.[533] Furthermore, in *US/Canada – Continued Suspension*, the Appellate Body concluded "[t]he possibility of conducting further research or of analysing additional information, by itself, should not mean that the relevant scientific evidence is or becomes insufficient."[534] Indeed, the Appellate Body explained that the "insufficiency" of the scientific evidence is "not a perennial state, but rather a transitory one".[535]

7.78. Scientific evidence is insufficient when "the body of available scientific evidence does not allow, in quantitative or qualitative terms, the performance of an adequate assessment of risks as required under Article 5.1 and as defined in Annex A to the SPS Agreement".[536] In order to assess the existence of sufficient scientific evidence, the panel in *Russia – Pigs (EU)* considered a number of sources, including general scientific evidence in scientific reports and opinions produced by international organizations and in articles published in scientific journals, scientific evidence provided by the experts consulted by the panel in response to the questions from the panel, and scientific evidence available in respect of the relevant international standards.[537]

7.79. According to Korea, there is insufficient scientific evidence to conduct an adequate assessment of the risks of consuming Japanese food products contaminated with radionuclides released from the FDNPP.[538] Korea does not argue that there is insufficient scientific evidence to determine the risk of radionuclides to human health or how to test for radionuclides in food products to ensure they are below established levels, but rather that the information is insufficient to know the extent of the release of radionuclides during and after the Fukushima Dai-ichi accident.[539]

7.80. In particular, when the Panel asked Korea to identify the relevant insufficiency it pointed to a variety of factors *inter alia* where evidence was insufficient:

a. the amount and types of radionuclides released during the FDNPP accident (particularly radionuclides other than caesium);

b. the amount and type of radionuclides released since the FDNPP accident;

c. the types and amount of radionuclides remaining at the FDNPP;

d. the status of the radioactive material remaining in the FDNPP;

e. the likelihood of future releases of radioactive materials into the ocean;

f. the amount and type of radionuclides on land and in the ocean off the coast of Japan;

g. the amount and type of radionuclides in the seabed;

h. the amount and type of radionuclides ingested by marine species living in the ocean off the coast of Japan; and

i. the relationship between caesium and other radionuclides.[540]

7.81. Korea further argues that the data collected as part of Japan's food monitoring programme is of limited usefulness and representativeness for purposes of conducting a proper risk assessment.[541] Korea argues that information on radionuclides other than caesium is insufficient due to the unique features of the FDNPP accident, including ongoing spills of liquid radioactive

[533] Appellate Body Report, *Japan – Apples*, para. 184.
[534] Appellate Body Report, *US/Canada – Continued Suspension*, para. 702.
[535] Appellate Body Report, *US/Canada – Continued Suspension*, para. 679.
[536] Appellate Body Report, *Japan – Apples*, para. 179.
[537] Panel Report, *Russia – Pigs (EU)*, para. 7.661.
[538] Korea's second written submission, para. 298.
[539] Korea's second written submission, paras. 33-34.
[540] Korea's response to Panel question No. 105.
[541] Korea's second written submission, para. 92.

waste, making Japan's estimates of amounts of strontium, based on the assumption of a constant ratio between Sr-90 and Cs-137, unwarranted.[542]

7.82. Japan submits that there is no relevant uncertainty or insufficiency in the scientific evidence that would justify discrimination against Japanese food products or that would render necessary the trade restrictions imposed on these products. According to Japan, Korea has failed to assess the relevant scientific evidence and "seems intent on ignoring the extensive scientific evidence".[543] Japan cites reports from UNSCEAR, from the IAEA, and from the WHO, as well as a joint review by the IAEA and the FAO.[544] According to Japan, Korea's choice not to consider the available scientific evidence does not refute the existence of that evidence.[545]

7.83. The Panel notes that it is not looking at one measure, but a series of measures adopted over time. Some measures were adopted shortly after the accident, while others several years later. Therefore, the Panel cannot take a single approach to the sufficiency of the scientific evidence, but rather must look at the scientific evidence that was available at the time of adoption of each measure.

7.84. Simply because a measure is adopted in response to an emergency situation does not necessarily mean that there is insufficient scientific evidence to conduct a risk assessment. It may be that the risks are so well known that other risks assessments on the same matter might already exist or that it would be sufficient to conduct a risk assessment "appropriate to the circumstances" to identify the hazard and the measure in light of that hazard.[546] The Panel recalls that the Codex guideline levels as well as the ICRP dose coefficients and 1 mSv/year dose limit were established well before the FDNPP accident. The Panel also recalls that the ability to test for radionuclides already existed at the time Korea imposed the measures. At the same time, the Panel notes that regulators were uncertain about the extent of the accident in particular, the radionuclides that had been released into the environment and in what amounts. The Panel notes that Japan adopted its own measures in March 2011 on an emergency basis in the absence of a risk assessment.[547] Therefore, with respect to the additional testing requirements adopted in 2011, the Panel agrees that they were adopted in a situation where there was insufficient scientific evidence.

7.85. The Panel now turns to the measures adopted after the immediacy of the accident. In that regard, Korea argues that there continues to be insufficient scientific evidence on the amount and types of radionuclides released during and since the accident.

7.86. Korea adopted the product-specific import bans that are the subject of Japan's claim (namely those on Alaska pollock from Fukushima and Pacific cod from Aomori, Iwate, Miyagi, Ibaraki, and Fukushima) to mirror those internal restrictions imposed by Japan. Japan imposed (and then removed) these measures based on an assessment from its Food Safety Commission on the levels of radiation in food that would have an impact on health in combination with monitoring data on the specific products in specific prefectures.[548] Korea itself, states that it relied on Japan's conclusions in crafting its measures.[549]

7.87. In 2013, Korea tightened its existing measures by instituting a blanket import ban on all fishery products from eight prefectures as well as extending the additional testing requirements to fishery and livestock products. These measures were a response to the disclosure, in July 2013, of leaks at the FDNPP. Both parties agree that there have been leaks at the FDNPP since the initial accident in March 2011. Table 10 summarizes the leak events that one or both parties allege to

[542] Korea's second written submission, para. 182. The Panel notes that Japan maintains and all the experts confirmed that Japan's methodology does not assume a constant ratio between Cs-137 and Sr-90.
[543] Japan's second written submission, paras. 61-62.
[544] Japan's response to Panel question No. 108.
[545] Japan's second written submission, para. 10.
[546] For example, the panel in *US – Animals* concluded that in light of the extensive scientific knowledge of foot-and-mouth disease and the relevant recommendations from the OIE that simply identifying that there had been an outbreak and the potential effects on the US industry if the disease spread in the US was an appropriate risk assessment upon which to base a temporary ban on all imports. See Panel Report, *US – Animals*, paras. 7.330-7.335.
[547] FAJ Monitoring Report (Exhibit JPN-43), p. 11.
[548] FAJ Monitoring Report (Exhibit JPN-43).
[549] Korea's first written submission, paras. 33-35.

have left the FDNPP site and entered the environment[550] between the initial accident and the adoption of Korea's blanket import ban and extension of the additional testing requirements in September 2013. The table includes the view of each party on the possible impact of each particular leak event and on whether it actually reached the ocean. For one leak in August 2013, Korea disputes with Japan that the contaminated water reached the ocean. With respect to one leak in May 2013, Japan and Korea agree that the tanks affected were related to reactor units Nos. 5 and 6 at the FDNPP. However, Japan maintains that, because reactor units Nos. 5 and 6 were not damaged during the accident, the water inside the tanks was not contaminated, while Korea maintains that the water was contaminated.

[550] There were numerous other leaks or overflows at the FDNPP in this time-period. However, Japan maintains and Korea does not contest that these leaks did not leave the building or the dike and actually enter the ocean. See Japan's response to Panel's advance question No. 8, Korea's response to Panel question No. 9.

Table 10: Leak events at the FNDPP from Apr. 2011 – Sept. 2013 that are alleged to have reached the ocean[551]

Date	Leak Event	Water amount outflowed to the ocean (estimate)	Radioactive materials outflowed to the ocean (estimate)	Disagreement between Korea[552] and Japan
1 Apr. 2011	Leakage from the pit near the intake channel of Unit 2	Approximately 500m3	I-131 2.8x10^15Bq Cs-134 9.4x10^14Bq Cs-137 9.4x10^14Bq	-
4 Apr. 2011	Discharge of contaminated water from the Central Radioactive Waste Disposal Facility, etc.	Approximately 1,0393m3	I-131 6.6x10^10Bq Cs-134 4.2x10^10Bq Cs-137 4.2x10^10Bq	-
10 May 2011	Leakage from the pit near the intake channel of Unit 3	Approximately 250m3	I-131 9.8x10^12Bq Cs-134 9.3x10^12Bq Cs-137 8.5x10^11Bq	-
27 June 2011	Leakage at the piping between the treated water tank and the water injection pump to the reactor		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS[553]	Korea disagrees with Japan's claim that many of the leak events it presented to the Panel resulted in no significant release of radioactivity as TEPCO's data confirmed that prior to the initial operation of the ALPS in 2013, contaminated water leaked from the FDNPP included Sr-90 and other radionuclides at levels that were more than a million times the threshold of Japan.
29 June 2011	Two pinholes at cooling water injection line at the accumulated water treatment facility		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
29 June 2011	Leakage at the drain, lower part of Reverse Osmosis concentrated water storage		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
31 July 2011	Leakage at Reverse Osmosis transfer line		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
8 Oct. 2011	Leakage from the piping of the Water Desalinations		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
24 Oct. 2011	Suspension of the Water Desalinations (Reverse Osmosis) (Leakage from pump gland)		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	

[551] Unless otherwise noted, the information in this table comes from Japan's response to Panel's advance question No. 8; Korea's response to Panel question No. 9; and Japan's second written submission, Table 6.

[552] Unless otherwise specified, Korea's disagreements with Japan are contained in Korea's second written submission, para. 74, where Korea cites Tokyo Electric Power Company Holdings, Inc., "The Amount of Tritium and the Chemical Quality of the Water Treated by the Multi-Nuclide Removal Equipment in the Case of the Fukushima Dai-ichi Nuclear Power Plant", April 24, 2014, available at http://www.meti.go.jp/earthquake/nuclear/pdf/140424/140424_02_003.pdf, (Exhibit KOR-201).

[553] In its response to Panel question No. 9, Japan explains that the results of its seawater monitoring were and are used to determine if a release event results in a significant increase of radioactivity. According to Japan, where, around the time of the leak event there was no clearly identifiable and discernible increase in the level of radioactivity in seawater Japan concluded that the leak event resulted in no significant increase of radioactivity. To support this, Japan cites to raw data in "Data underlying Seawater Monitoring near the Fukushima Dai-ichi Site", (Exhibit JPN-163) and graphs in "Seawater Monitoring near the Fukushima Dai-ichi Site", (Exhibit JPN-162).

Date	Leak Event	Water amount outflowed to the ocean (estimate)	Radioactive materials outflowed to the ocean (estimate)	Disagreement between Korea[552] and Japan
17 Nov. 2011	Suspension of the Water Desalinations (Reverse Osmosis)		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
25 Nov. 2011	The Water Desalinations (Reverse Osmosis) -Water leakage at the transfer line to the buffering tank-		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
4 Dec. 2011	Water leakage from the Evaporative Concentration Unit	Approximately 0.15m3	Cs-134 1.8x10^6Bq Cs-137 2.3x10^6Bq Sr-89 7.4x10^9Bq Sr-90 1.7x10^10Bq	
14 Jan.2012	Leakage was detected during the water passing check at the Unit 1 accumulated water transfer line		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS Radioactive Materials in the leaked water I-131: Non-Detectable Cs134:1.8x10^2Bq/L Cs137:2.0x10^2Bq/L	Korea disagrees with Japan's claim that many of the leak events it presented to the Panel resulted in no significant release of radioactivity as TEPCO's data confirmed that prior to the initial operation of the ALPS in 2013, contaminated water leaked from the FDNPP included Sr-90 and other radionuclides at levels that were more than a million times the threshold of Japan.
29 Jan.2012	Water leakage (Unit 3 Condensate storage tank, flowmeter of pump, etc.)		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	Korea disagrees with Japan's claim that many of the leak events it presented to the Panel resulted in no significant release of radioactivity as TEPCO's data confirmed that prior to the initial operation of the ALPS in 2013, contaminated water leaked from the FDNPP included Sr-90 and other radionuclides at levels that were more than a million times the threshold of Japan.
30 Jan. 2012	Water Leakage (Water injection line A on a rising ground, mini flow line flange)		No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS	
26 Mar. 2012	Leakagae from Kanaflex piping at H4 area	Approximately 0.08m3	Grossβ 1.1x10^10Bq Cs-134 3.3x10^5Bq Cs-137 5.0x10^5Bq	-
5 Apr. 2012	Leakage from reverse osmosis transfer line	Approximately 0.00015m3	Grossβ 2.0x10^7Bq Cs-134 1.0x10^3Bq Cs-137 1.5x10^3Bq	-
17 May 2013	Overflow of water treated water units No. 5, 6 (Tank D7) and seeped into surrounding ground.	27.5 tonnes	Below detection levels	(Japan) This leakage was observed from a tank D7, located around Units 5-6 of FDNPP, which were not damaged by the accident. The water

Date	Leak Event	Water amount outflowed to the ocean (estimate)	Radioactive materials outflowed to the ocean (estimate)	Disagreement between Korea[552] and Japan
				contained in the tank was not contaminated. The sampling results obtained yesterday (16 May 2013) for treated water having overflowed from the D7 tank are below the detection limits. (Korea) Leakage of contaminated water
19 Aug. 2013	Water from the drain valve of the dike at H4 tank area..[554]	300 metric tons	No significant increase of radioactivity was detected in the seawater adjacent to the FDNPS. (Japan)Leaked Radioactive Materials: Sr90:4.5x10^13Bq (Korea) – Cs-134: 4.4×10 Bq/cm^3 Cs-137: 9.2×10Bq/cm^3 Sb-125: 5. 3 × 10Bq/cm^3 Grossβ: 2.0 × 105Bq/cm^3	According to Japan this leakage is not confirmed to have reached the sea. Korea says that there has been leakage into the sea as a result of this event. Korea disagrees with Japan's claim that many of the leak events it presented to the Panel resulted in no significant release of radioactivity as TEPCO's data confirmed that prior to the initial operation of the ALPS in 2013, contaminated water leaked from the FDNPP included Sr-90 and other radionuclides at levels that were more than a million times the threshold of Japan.

7.88. Korea points to news articles from July 2013 to argue that there are undisclosed amounts of leaks of radionuclides and that this uncertainty about the total amount released means that there is insufficient scientific evidence to conduct a risk assessment.[555]

7.89. The Panel recognizes the importance of confidence in the regulatory authorities of an exporting country with respect to food safety and does not discount Korea's concerns about transparency as to what could be occurring at the FDNPP. At the same time, the Panel must weigh these concerns against their relevance to the question at hand, which is whether Korea had sufficient evidence to assess the risk of the presence of radionuclides in food consumed by Korean consumers in excess of Korea's appropriate level of protection. We recall in this respect that scientific evidence need not be 100% complete or perfect to be sufficient to form the basis for an objective assessment of the risk.

7.90. Korea provided the Panel with media reports from late July 2013 noting that TEPCO had not admitted that due to data collected from monitoring points they had concluded that more radioactively contaminated water was leaking from the plant than previously disclosed. TEPCO first suspected that the water was leaking into the ocean on 19 June when it found strontium and

[554] Korea's first written submission, para. 45; Y. Kubota and Y. Obayashi, Wrecked Fukushima storage tank leaking highly radioactive water, Reuters, 20 August 2013, http://www.reuters.com/article/us-japan-fukushima-leak-idUSBRE97J02920130820, (Reuters – Wrecked Fukushima storage tank), (Exhibit KOR-46).
[555] Korea's first written submission, paras. 39-55.

tritium in a monitoring well at a turbine complex within the FDNPP.[556] TEPCO informed the public of these test results, but did not clarify that there was a risk of the contaminated water reaching the port. The Japanese Nuclear Regulation Authority suspected on 10 July that there was a leak and contacted TEPCO.[557] The Japanese authorities informed the public of their suspicions. A *New York Times* article from 10 July 2013 indicated that spikes in caesium had been detected since May as well as higher strontium and tritium readings offshore.[558] TEPCO and Japanese authorities suspected there were leaks because there were spikes in readings of radioactive elements in sea water and at other monitoring points in turbines and groundwater. In a *National Geographic* article from August 2013, Dr Buesseler is quoted as saying that his consistent readings for Cs-134 since the accident indicated that there were continuing releases as otherwise the numbers should diminish as the radionuclides decay.[559] The *National Geographic* article also provides a link to an article in Nature, summarizing the work of Jota Kanda, an oceanographer at Tokyo University of Marine Science and Technology, who estimated in 2012 that the FDNPP was leaking 0.3 terabecquerels (trillion becquerels) of Cs-137 per month and a similar amount of CS-134.[560]

7.91. Although specific amounts could not be tied to specific dates, such as in the table above, some estimates were publicly available. For example, TEPCO provided sampling data of ground water observation holes Nos. 1 to 5 from 31 July 2013 that showed Cs-134 at 21 Bq/L and Cs-137 at 44 Bq/L. However, on 5 August 2013 those rates at the same testing site had spiked to Cs-134 310 Bq/L and Cs-137 650 Bq/L.[561] The *National Geographic* also indicated that releases of strontium were proportionally higher *vis-à-vis* caesium than they had been in the initial accident, but did not address absolute levels of strontium being released.[562] Several sources also indicated that approximately 300-400 tons a day of water were being released from the FDNPP. How much of that water was contaminated and by what radionuclides was not precisely indicated.[563] All of the above-referenced information was available prior to Korea's adoption of the 2013 measures. The Panel also notes that sea water monitoring data at the FDNPP site, the ERD data, the UNSCEAR data [564], and other scientific studies as to the on-going environmental situation in Japan are all publicly available.

7.92. The Panel asked the experts about the relevance of additional leaks or an uncertainty about the amounts and share of radionuclides to an assessment of the risk associated with consumption of Japanese food products. The experts again reiterated that the best way to know what is in food consumed is by testing it.[565] Professor Anspaugh noted that uncertainty about the amounts of radionuclides and relative share of different radionuclides released in the FDNPP accident is not an important issue as it is far more useful to perform measurements on the foods.[566] Ms Brown noted

[556] J. Adelman and Y. Okada, "Tepco President Apologizes for Fukushima Leak Disclosure Delay", *Bloomberg*, 26 July 2013, http://www.bloomberg.com/news/articles/2013-07-26/tepco-president-apologizes-for-fukushima-leak-disclosure-delay, (*Bloomberg*: TEPCO President Apologizes for Fukushima Leak Disclosure Delay),(Exhibit KOR-43).

[557] *Bloomberg*: TEPCO President Apologizes for Fukushima Leak Disclosure Delay, (Exhibit KOR-43).

[558] (10 July 2013): Head of Japan's NRA has told reporters the contaminated water has probably been leaking since March 2011: http://www.nytimes.com/2013/07/11/world/asia/japanese-nuclear-plant-may-have-been-leaking-for-two-years.html?_r=3& cited in P. Kiger, "Fukushima's Radioactive Water Leak: What You Should Know", *National Geographic News*, 9 August 2013, (*National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know) (Exhibit KOR-6).

[559] *National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know, (Exhibit KOR-6).

[560] *National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know, (Exhibit KOR-6) (citing http://www.nature.com/news/ocean-still-suffering-from-fukushima-fallout-1.11823.)

[561] Fukushima Daiichi NPS Prompt Report (Aug 05,2013) http://www.tepco.co.jp/en/press/corp-com/release/2013/1229511_5130.html cited in *National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know, (Exhibit KOR-6).

[562] *National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know, (Exhibit KOR-6).

[563] See R. Yoshida, "Tepco raises toxic water estimate to 400 tons a day", *Japan Times* (27 Sept 2013), (Exhibit KOR-107); "Fukushima leak: Japan government 'to take measures'", *BBC News*, 8 August 2013, (Exhibit KOR-3); *National Geographic*: Fukushima's Radioactive Water Leak: What You Should Know, (Exhibit KOR-6).

[564] The Panel notes that the first post-FDNPP accident UNSCEAR Report was published in October 2014, however two scientific documents were discussed at the Committee's 60th session from 27-31 May 2013. The first document reported the results of an assessment of the levels and effects of radiation exposure due to the nuclear accident after the 2011 great east-Japan earthquake and tsunami. The Panel also notes that Korea was invited to become a Member of the Committee in December 2011. 2013 UNSCEAR Report Annex A, (Exhibit JPN-210), p. 2.

[565] Experts' responses to Panel question Nos. 12(b), 55 and 59 to the experts.

[566] Professor Anspaugh's response to Panel question No. 12(b) to the experts.

the importance of using measurements in foods and that models extrapolated from measured levels in the environment should only be used if measurement in food is not possible. Ms Brown also indicated that uncertainty in the source term does not prevent reasonably supported scientific conclusions about the potential levels of contamination in food (fishery and agricultural) products from Japan.[567] Dr Skuterud noted that because the total amounts of later releases were much smaller than the initial release, the uncertainties surrounding them are much smaller as well. He did not see how such uncertainties could prevent sound conclusions being reached about the potential levels of contamination in foods.[568]

7.93. The same can be said for Korea's arguments with respect to uncertainty about the amounts of radionuclides remaining in the reactor; uncertainty about environmental contamination levels in seawater, sediment, soil and air; if there was a significant new leak; the potential presence of caesium-rich microparticles in soil; and radionuclide deposits in river catchments, marine estuaries, and coastal areas. The experts all indicated that such information is not critical to an assessment of the risk to humans from consumption of food containing radionuclides.[569] Moreover, the Panel recalls that Korea's measures are not meant to protect either Koreans or Japanese from environmental exposure to radionuclides, but rather to protect Korean consumers from exposure to products containing levels of radionuclides in excess of Korea's appropriate level of protection as expressed through its established tolerance levels. Therefore, Korea's concerns are not directly related to Korea's ability to conduct a risk assessment for the risk being addressed – exposure to radionuclides through consumption of contaminated food. The experts confirmed unanimously that such environmental information is irrelevant to a determination of the contamination levels in particular food products.[570] The experts emphasized the need to focus on the actual levels of radionuclides in fish and other food products which can be tested for using existing technology.[571] Korea seems to accept that this risk can be assessed as it applies the Codex guideline levels for all of the radionuclides except caesium, for which it establishes its own maximum levels. Moreover, while Korea is correct that the ICRP and others recommend further studies on the effects of exposure to low doses of radiation, the ICRP and others acknowledge that this uncertainty does not prevent the conclusion of a risk assessment. Rather, the ICRP uses the LNT model in making calculations for dose coefficients and intervention levels precisely to account for this uncertainty.[572]

[567] Ms Brown's response to Panel question No. 12 (a)-(b) to the experts. Professor Michel concurred that food-bans and recommendations on food consumptions should be based primarily on measured data for the food. Modelling should only be employed if still data are missing.

[568] Dr Skuterud's response to Panel question No. 12(b) to the experts. Dr Thompson concurred that any such uncertainty should not negatively impact the ability to draw reasonable science-based conclusions on the potential level of contamination in food (fishery and agricultural products) from Japan. Dr Thompson also noted the detailed real-time seawater monitoring program at the mouth of Fukushima Dai-ichi port would quickly alert authorities of any significant release of radionuclides to the sea. See also experts' responses to Panel question No. 55 to the experts.

[569] See experts' responses to Panel question Nos. 13 to the experts (status of the damaged core and the remaining fuel); No. 15 (uncertainty about environmental contamination levels in seawater, sediment, soil, and air); No. 16 (if there were a significant new leak); Nos. 4, 5, 6 and 17 (Caesium-rich microparticles); No. 18 (radionuclide deposits in river catchments, marine estuaries, and coastal areas). See also Expert Meeting Transcript, para. 3.170.

[570] See e.g. Dr Thompson's response to Panel question No. 15 to the experts "The dynamic nature of the marine environment means it cannot necessarily be assumed that fishery products are from the same location as environmental samples and focus should be on measurements in the products or groups of similar products."; Ms Brown's response to Panel question No. 91 to the experts "Levels in the environment can be used to predict activity concentrations in food but the focus should be on measuring the concentrations of radionuclides in foods where possible."; Dr Skuterud's response to Panel question No. 91 to the experts "in the current situation, where large numbers of samples have been analysed, and contamination levels in food products have been and still are determined by direct measurements, the amounts released have little relevance."

[571] Professor Anspaugh noted that "[t]he best, and direct, method is to simply measure the concentrations in food products at issue." Professor Anspaugh's response to Panel question No. 15 to the experts. See also Professor Michel's response to Panel question No. 15 to the experts "[t]he environmental radioactivity data allow deciding in which regions surveillance of the radioactivity in food has to be performed. In the end, always the data measured in the foodstuffs decide." See also Dr Thompson's response to Panel question No. 33 to the experts "As indicated in response to questions 12 and 13, at this time the most appropriate method of determining fishery product contamination is through measurements, as is being done by the Japanese authorities."

[572] ICRP Publication 103: 2007 Recommendations, (Exhibit KOR-1), (Exhibit ICRP-3), p. 58.

7.94. We understand Korea's reference to the relationship between caesium and other radionuclides to refer to the issue of whether there is a particular ratio between caesium and other radionuclides that can justify the adoption of a measure that tests only for caesium. The experts once again stated that this was irrelevant to an ability to conduct a risk assessment.[573] The ratio between the radionuclides might be relevant for determining whether a particular measure (e.g. the alternative measure proposed by Japan in its claim under Article 5.6) achieves Korea's ALOP.

7.95. Korea also refers to insufficiency in scientific evidence that is not related to existing contamination, but about potential future contamination. For example, Korea argues that the evidence is insufficient with respect to the types, amount and status of radionuclides remaining in the FDNPP and the likelihood of future releases of radioactive materials into the ocean. Korea is correct that it is unknown whether another accident could happen at the FDNPP that would release even more radioactive contamination into the environment – on land or water – and in what amounts and combinations. The Panel is sensitive to Korea's fear that an additional accident could increase the levels of radionuclides contaminating food products in international commerce. We recall the detailed, frequent, and public seawater monitoring data that is available around the FDNPP port in addition to the publicly available food monitoring data and ERD data. It would be expected that any significant new leak would be detected quickly and enable Japanese and Korean authorities to respond appropriately.[574] Moreover, such a risk is not limited to Fukushima Dai-ichi, but may happen to any nuclear power plant at any time. This is precisely the kind of inherent and permanent uncertainty that Article 5.7 was not meant to address. The Panel notes that if another incident were to occur, Korea would be within its rights, to re-evaluate the sanitary risk posed by food products affected by that incident and impose appropriate SPS measures.

7.96. Therefore, the Panel concludes that there was not insufficient scientific evidence to conduct a risk assessment with respect to the product specific import bans, the blanket import ban, and the extension of the additional testing requirements to fishery and livestock products in 2013.

7.97. As regards the second requirement, Korea argues that its measures were based on available pertinent information, including information about the release of caesium, iodine and strontium following the Fukushima Dai-ichi nuclear power plant accident, limited information about the levels of different radionuclides in the environment around Fukushima and in the ocean off Japan, information about the leaks of radioactive material after the accident, limited information about the effects of low dose radiation, and available Codex and other international standards and guidelines.[575] For its part, Japan argues that Korea has merely listed a variety of information, but has failed to provide it to the panel and to explain how its measure is based on that information.[576]

7.98. The Panel notes that Korea's 2011 additional testing requirements and the product-specific bans were adopted shortly after the FDNPP accident and mirrored closely Japan's own measures. The same can be said for the lowering of the maximum level for caesium to 100 Bq/kg. The Panel also recalls that for the other radionuclides Korea uses the guideline levels those set forth in the Codex Standard. Therefore, the Panel finds that the 2011 additional testing requirements and the product-specific bans were adopted based on available pertinent information.

7.99. With respect to the blanket import ban and the additional testing requirements adopted in September 2013, Korea refers to a variety of information it claims serves as the basis for its measures including estimates of releases of caesium, iodine, strontium and other radionuclides during the FDNPP accident; studies and information on the levels of the radionuclides in the area around the FDNPP and in the ocean off of Japan; limited studies on radionuclides in the seabed off Japan; data regarding caesium and strontium levels in Japanese agricultural and fisheries products; information about the leaks that have occurred at the FDNPP and the risk of future leaks; public information on TEPCO's lack of success in preventing further leaks; articles on the need for further study on low dose radiation; and the Codex Standard.

7.100. The obligation in Article 5.7 is to base measures on available pertinent information. Therefore, a mere listing of documents is not enough, rather a Member must demonstrate that the available pertinent information served as the basis for its measure. The Appellate Body has

[573] See experts' responses to Panel question No. 12 (a) and (b) to the experts.
[574] Experts' responses to Panel question No. 59 to the experts.
[575] Korea's response to Panel question No. 106(b).
[576] Japan's second written submission, para. 64.

explained that "[a] thing is commonly said to be 'based on' another thing when the former 'stands' or is 'founded' or 'built' upon or 'is supported by' the latter."[577] The measures themselves refer only to the (i) the growing public concern regarding hundreds of tons of contaminated water being discharged from the Fukushima nuclear plant to the ocean every day; (ii) uncertainties pertaining to how the situation in Japan will evolve; and (iii) the difficulties in clearly predicting future developments based only on data provided by the Japanese government thus far.[578] Moreover, a Q&A document on Radioactivity Safety Management of Fishery Products Imported from Japan published at the same time does not refer to any of the information Korea argues serves as the basis for its measures, other than the Codex Standard.[579] The Codex Standard does not call for the elimination of all trade or for the imposition of import bans, but rather for the establishment of intervention levels below which food can be safely traded. Something cannot serve as the basis for something else if the two are contradictory.[580] Therefore, at least with respect to the blanket import ban the Panel cannot conclude that the Codex Standard serves as a basis for the measure. With respect to the additional testing requirements, the only reference to the Codex Standard in the measure itself is to the reduction in the Korean acceptable level for caesium to less than 1/10 guideline level approved by Codex. We do note that in the administrative instructions sent to implementing agencies reference is made to the Codex guideline levels for the other radionuclides, but Korea has not demonstrated how these levels form a foundation for its requirement for additional testing if more than 0.5 Bq/kg of caesium or iodine is detected. Moreover, public concern, uncertainties, and the inability to predict the future are not, in our view, the type of available pertinent information contemplated under Article 5.7, which focuses on basing the measure on science.

7.101. With respect to the final two requirements that the importing Member seek additional information and review the measure within a reasonable period of time, the Appellate Body clarified that these two conditions "relate to the maintenance of a provisional SPS measure and highlight the provisional nature of measures adopted pursuant to Article 5.7."[581] Although Article 5.7 does not impose explicit prerequisites regarding the additional information to be collected or a specific collection procedure[582], the Appellate Body concluded that:

> The WTO Member adopting a provisional SPS measure should be able to identify the insufficiencies in the relevant scientific evidence, and the steps that it intends to take to obtain the additional information that will be necessary to address these deficiencies in order to make a more objective assessment and review the provisional measure within a reasonable period of time. The additional information to be collected must be "germane" to conducting the assessment of the specific risk.[583] A Member is required under Article 5.7 to seek to obtain additional information but is not expected to guarantee specific results. Nor is it expected to predict the actual results of its efforts to collect additional information at the time when it adopts the SPS measure. Finally, the Member taking the provisional SPS measure must review it within a reasonable period of time.[584] [585]

7.102. With respect to the "reasonable period of time" the Appellate Body considered in *Japan – Agricultural Products II* that this must be established on a case-by-case basis and depends on the specific circumstances of each case, including the difficulty of obtaining the additional information necessary for the review and the characteristics of the provisional SPS measure.[586] The panel in *EC – Approval and Marketing of Biotech Products* interpreted the term "reasonable

[577] Appellate Body Report, *EC – Hormones*, para. 163 (interpreting the term "based on" in Article 3.1 of the SPS Agreement).
[578] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).
[579] Korea's OGPC, MFDS, MOF, NSSC, "Q&A on Radioactivity Safety Management of Fishery Products Imported from Japan" (September 2013), (Exhibit JPN-4.b).
[580] Appellate Body Report, *EC – Sardines*, para. 248.
[581] Appellate Body Report, *Japan – Apples*, fn. 318 to para. 176. (emphasis original)
[582] Appellate Body Report *Japan – Agricultural Products II*, para. 92.
[583] (footnote original) *Ibid.*
[584] (footnote original) "[W]hat constitutes a 'reasonable period of time' ... depends on the specific circumstances of each case, including the difficulty of obtaining additional information necessary for the review and the characteristics of the provisional SPS measure." (*Ibid*. para. 93).
[585] Appellate Body Report, *US/Canada – Continued Suspension*, para. 679.
[586] Appellate Body Report, *Japan – Agricultural Products II*, para. 93.

period of time" in Article 5.7 in a manner similar to the term "undue delay" in Annex C(1)(a).[587] The panel *US – Animals* followed this approach and concluded that a reasonable period of time would mean as quickly as legally possible while accepting legitimate reasons for delay.[588]

7.103. Japan argues that Korea has not been proactive in either seeking to obtain new information or in reviewing such information. With regard to the requirement to seek to obtain additional information, Japan submits that, with the exception of the activities of the Korean /Civilian Expert Group, Korea has "essentially ceased trying to obtain and review additional information" since imposing the last of the measures at issue.[589] Additionally, Japan argues that Korea has failed to disclose the risk assessment prepared by the Korean/Civilian Expert Group, which according to Japan would demonstrate that the available evidence does not support Korea's measures.[590] Japan submits that, instead of seeking out and reviewing new information by itself, Korea is seeking to block the Panel's assessment of available information.[591]

7.104. Regarding the requirement that Members continuously review their provisional SPS measures, Japan argues that Korea scheduled in February 2014 a plan for review of its measures within 14-18 weeks but has not yet conducted such a review.[592] The Panel asked Korea whether it had reviewed its measures since they were adopted and to specifically address whether the steps described in the February 2014 plan were undertaken and completed.[593] Korea responded that every step had been completed except the last – preparing for the final re-assessment report. Korea provides no explanation as to why this last step was not completed other than to recall that "Japan has not pursued a claim under Article 5.7. In the absence of a claim under Article 5.7, Korea's SPS measures must be presumed to be in compliance with all of the requirements of that provision."[594]

7.105. Korea argues that it has been continuously reviewing its measures since 2011, but that its efforts are hampered by the constantly evolving nature of the situation at the FDNPP and new information.[595] Korea states that it sought information from Japan on numerous occasions.[596] In a press release from September 2014 MFDS refers to commencing the review of the 2013 measures as it was one year since the imposition of those measures.[597] Korea also submits a diary of the activities undertaken by its government with the aim of obtaining additional information to conduct a more objective assessment of the risks that does contain events going back to 2011.[598] In particular, Korea notes in the list of activities that Japan responded to specific requests for information in August and December 2011. Korea also notes several meetings between Korean and Japanese authorities, although most relate to Korea explaining its measures to Japanese emissaries rather than Korea seeking information from them. Korea also notes that it held a Korea-Japan working group meeting on radiation safety in June 2012. A report of a meeting of an Intergovernmental Meeting on Radiation Safety Management for Japanese Food Imports from February 2014 also mentions a written response from Japan having been received in January 2014.[599] MFDS issued a press release in September 2014 indicating that it had received materials from Japan in relation to the leakage of contaminated water as well as additional materials on 33 items in seven areas.[600] Korea disclosed this information on the MFDS website. Korea also

[587] Panel Reports, *EC – Approval and Marketing of Biotech Products*, paras. 7.1495-7.1497 (concerning Annex C(1)(a)) and para. 7.3245 (concerning Article 5.7).
[588] Panel Report, *US – Animals*, para. 7.301.
[589] Japan's second written submission, para. 65.
[590] Japan's second written submission, para. 66.
[591] Japan's response to Panel question No. 108.
[592] Japan's second written submission, para. 67 (referring to Exhibit KOR-172).
[593] Panel question No. 151.
[594] Korea's response to Panel question No. 151.
[595] Korea's first written submission, para. 84.
[596] See Korea's first written submission, paras. 67-71. Although Japan responded to Korea's requests and in its view provided all relevant information, Korea did not consider the responses sufficient.
[597] Korea's Ministry of Food and Drug Safety, Press Release, "Disclosure of the Japanese Replies Regarding Japanese Fishery Products and Opinion Gathering" (15 September 2014), (Exhibit JPN-62.b).
[598] Korea's response to Panel question No. 106(c) (citing Diary of Radiological Food Safety Activity, (Exhibit KOR-171)). The Panel notes that the review plan from February 2014 is not listed on this diary.
[599] Intergovernmental Meeting on Radiation Safety Management for Japanese Food Imports, February 17, 2014, Policy Coordination Office for Employment, Ministry of Food and Drug Safety. (Exhibit KOR-172).
[600] Korea's Ministry of Food and Drug Safety, Press Release, "Disclosure of the Japanese Replies Regarding Japanese Fishery Products and Opinion Gathering" (15 September 2014), (Exhibit JPN-62.b).

announced the formation of a private-sector led expert committee to analyse the materials provided by Japan, the opinions of the public, and if necessary conduct field inspections in Japan and Japan-Korea expert meetings. For the period from September 2014 to May 2015 all but one of the entries in Korea's diary relate to the activities of this Korean/Civilian Expert Group and lists MFDS as the managing department. However, Korea argued before this Panel that:

> The Civilian Expert Group did not represent the Korean Government, was not funded by the Korean Government, and did not have a legal basis under Korean law regarding its establishment. The Civilian Expert Group was formed as an *ad hoc* group of scholars, radiation specialists, nuclear experts, medical doctors, and members of NGOs. As such, the Korean Government never participated in the activities of the Civilian Expert Group.[601]

7.106. In light of Korea's clarification of the role of this Korean/Civilian Expert Group the Panel cannot conclude that this group's activities were part of the formal review of the measure within the meaning of Article 5.7. The one entry on the diary during this time-period not related to the Korean/Civilian Expert Group is "meeting regarding the special interim measures on Japanese fishery products." In the Panel's view, Korea has not presented sufficient evidence of activities to constitute review of the measure since September 2014 within the meaning of Article 5.7. Even if the Panel were to accept that the Korean/Civilian Expert Group's activities somehow constituted a review of the measure on the part of the Government of Korea, Korea also explained that "[t]he Civilian Expert Group voluntarily suspended its activities in June 2015 after Japan requested consultations with Korea for this dispute."[602]

7.107. The record evidence demonstrates that Korea did seek additional information from Japan as well as regularly accessed the publicly available data.[603] The evidence also shows that Korea announced the beginning of a review of the 2013 measures in 2014. However, such review has not been concluded. There is no evidence on the record of specific activity undertaken by the Korean Government related to the review since September 2014. Moreover, Korea has provided no legitimate justification for the suspension of this review.[604] Therefore, the Panel finds that Korea did not review the measures within a reasonable period of time.

7.108. After careful analysis, the Panel finds that while there was an insufficiency of scientific evidence with respect to the 2011 additional testing requirements, this was not the case for the product-specific bans, the blanket import ban, or the 2013 additional testing requirements. Although there is an uncertainty with respect to the potential for future nuclear accidents at the FDNPP or elsewhere this uncertainty does not relate to the science necessary to assess the risks associated with the consumption of contaminated food, but rather to the inherent uncertainty of life. The Panel notes that even if the Panel finds in favour of Japan, if another accident were to happen and contamination of food products were to increase, nothing in this report would prevent Korea from imposing new measures to ensure that its limits for radionuclides were enforced.

7.109. The Panel also finds that Korea has based its 2011 additional testing requirements and product-specific bans on available pertinent information. However, this was not the case for the blanket import ban and the 2013 additional testing requirements.

7.110. Korea did seek out additional information from Japan. However, Korea did not review the measures within a reasonable period of time.

7.111. In sum, Korea has failed to establish that there was insufficient scientific evidence with respect to the product-specific bans, the blanket import ban, or the 2013 additional testing requirements. Korea has not demonstrated that it based the blanket import ban or the 2013 additional testing requirements on available pertinent information. Moreover, it has failed to review any of its measures within a reasonable period of time. As none of the measures fulfils all four

[601] Korea's response to Panel question No. 11.
[602] Korea's response to Panel question No. 11.
[603] Korea's Ministry of Food and Drug Safety, Press Release, "Disclosure of the Japanese Replies Regarding Japanese Fishery Products and Opinion Gathering" (15 September 2014), (Exhibit JPN-62.b) and Diary of Radiological Food Safety Activities, (Exhibit KOR-171).
[604] The onset of consultations under the DSU cannot serve as a justified reason for delaying compliance with the relevant obligations.

cumulative elements of Article 5.7, the Panel finds that Korea's measures do not fall within the scope of Article 5.7.

7.112. As Korea's measures do not fall within the scope of Article 5.7, the Panel will not make any assumptions about the relationship between their provisional nature and their consistency with the provisions of the SPS Agreement raised by Japan. That being said, the Panel is mindful that the nature, scope, and quality of scientific evidence is particularly relevant in this case for determining whether the constituent elements of Japan's claims under Articles 2.3, 5.6, and 8 (Annex C) have been demonstrated. The Panel will carefully consider both parties' arguments on whether the scientific evidence adduced is sufficient to prove Japan's claims.

7.7 Whether Korea's measures are more trade-restrictive than required

7.113. Article 5 of the *SPS Agreement* contains three subparagraphs relating to a Member's appropriate level of protection (ALOP): subparagraphs 4, 5 and 6. In this dispute, Japan only makes claims under Article 5.6.

7.114. Article 5.6 concerns the relationship between the measures applied and the achievement of the ALOP and provides that:

> Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.[3]

[3] For purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

7.115. Annex A(5) of the SPS Agreement defines the "appropriate level of sanitary or phytosanitary protection" ("ALOP") as:

> The level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory.
>
> NOTE: Many Members otherwise refer to this concept as the "acceptable level of risk".

7.116. In *Australia – Salmon*, both the panel and the Appellate Body confirmed that footnote 3 to Article 5.6 provides a three-pronged test to establish a violation of Article 5.6. Specifically:

> [T]he three elements of this test under Article 5.6 are that there is another SPS measure which:
>
> (1) is reasonably available taking into account technical and economic feasibility;
>
> (2) achieves the Member's appropriate level of sanitary or phytosanitary protection; and
>
> (3) is significantly less restrictive to trade than the SPS measure contested.[605]

7.117. These three elements are cumulative in the sense that, to establish inconsistency with Article 5.6, the complainant must demonstrate that there is an alternative measure that fulfils all three requirements. Thus, if there is no alternative measure reasonably available, taking into account technical and economic feasibility, or if the alternative measure does not achieve the

[605] Appellate Body Report, *Australia – Salmon*, para. 194 (upholding the Panel's reasoning).

Member's appropriate level of sanitary or phytosanitary protection, or if it is not significantly less trade-restrictive, the complainant will not have established an inconsistency with Article 5.6.[606]

7.118. As these three elements are cumulative, they may be addressed in any order. In most prior SPS disputes, the main point of contention between the parties has been whether the measure achieves the ALOP and prior panels have begun their analysis by looking at this element. The Panel notes that if an alternative measure is not technically and economically feasible or significantly less trade restrictive, a comprehensive assessment of the alternative's ability to achieve the importing Member's ALOP may not be necessary. In the present dispute, Korea argues that, for the additional testing requirements, the alternative measure proposed by Japan is not significantly less trade restrictive than the current regime. Therefore, the Panel will address the first and third elements before moving on, if necessary, to whether Japan's alternative achieves Korea's ALOP.

7.119. With respect to the second element of the test, the Appellate Body explained in *Australia – Apples* that a panel must identify both the level of protection that the importing Member has set as its appropriate level and the level of protection that would be achieved by the alternative measure put forth by the complainant.[607] After identifying these two elements, the panel will then compare them.[608] It is only if the level of protection achieved by the alternative measure meets or exceeds the Member's appropriate level of protection that the second element is fulfilled.[609] Therefore, in its analysis of the second element the Panel must (i) identify Korea's ALOP[610]; then (ii) identify the level of protection that would be achieved by Japan's alternative; and finally (iii) compare the level of protection achieved by Japan's alternative measure and Korea's level of protection.

7.120. Japan proposes a single alternative measure that it argues can achieve Korea's ALOP with respect to the challenged measures that Korea is currently imposing on all products. Japan proposes testing for caesium, to verify that the products' caesium content does not exceed Korea's level of 100 Bq/kg, as a means to control both caesium contamination and contamination from additional radionuclides.[611] Japan submits that in light of the absolute levels of radionuclides released in the initial accident and thereafter; information on the ratios between the additional radionuclides and caesium; and the evidence of actual concentrations available from testing for both caesium and the additional radionuclides in the environment and in food products, that testing for caesium alone would be sufficient to ensure that Korean's exposure to radionuclides through the consumption of food would be below 1 mSv/year so long as caesium levels in Japanese imports were below 100 Bq/kg.[612] In particular, based on the reasoning and assumptions set forth in exhibits JPN-11 and JPN-148 as well as the data contained in exhibits JPN-11, JPN-148, JPN-238, JPN239, and others, Japan has calculated that applying this limit to imports would result in an estimated maximum exposure dose of 0.8 mSv/year (0.94 mSv/year in the worst case scenario).[613]

7.121. The Panel will proceed to examine whether Japan has adduced sufficient evidence to prove that its proposed alternative measure fulfils the three requirements in footnote 3 of the SPS Agreement. Before moving on to the substance, the Panel will address two issues Korea raises with respect to Japan's claim under Article 5.6. First, whether Japan has put forward "another measure" within the meaning of footnote 3. Second, the Panel will address whether there is any temporal limitation on the evidence Japan can rely upon in support of its claim that its alternative measure achieves Korea's ALOP.

[606] Appellate Body Report, *Japan – Agricultural Products II*, para. 126.
[607] (*footnote original)* Appellate Body Report, *Australia – Salmon*, para. 208.
[608] Appellate Body Report, *Australia – Apples*, para. 344.
[609] Appellate Body Report, *Australia – Apples*, paras. 344 and 368.
[610] Appellate Body Report, *Australia – Apples*, para. 344 (citing Appellate Body Report, *Australia – Salmon*, para. 208).
[611] Japan's first written submission, paras. 334 and 450.
[612] Japan's first written submission, para. 334.
[613] Japan's second written submission, paras. 239-241.

7.7.1 Whether testing for caesium with a 100 Bq/kg limit is "another measure"

7.122. In its second written submission, Korea argues that because caesium testing is already required for imports of Japanese food products it does not constitute "another measure" within the meaning of Article 5.6, because Korea already conducts caesium testing.[614]

7.123. Japan is challenging two types of measures applied by Korea: the import bans and the additional testing requirements on fishery and non-fishery products.[615] Japan has proposed that testing only for caesium and rejecting any food products with caesium levels over 100 Bq/kg would be the alternative measure for both types of challenged measures.

7.124. For the import bans, Korea's argument is unavailing. No testing at all is taking place as no importation is allowed. Therefore, Japan's proposal is an alternative to the current situation.

7.125. With respect to the additional testing requirements, Japan is conceding that both pre-export and at-the-border caesium testing will continue, but what it is arguing for is the complete removal of the additional testing so long as the caesium detected is lower than Korea's tolerance level of 100 Bq/kg. One round of testing (at 100 Bq/kg) is a qualitatively distinct measure than two rounds of testing (one for 0.5 Bq/kg of caesium and iodine and another for additional radionuclides). Moreover, the level of the caesium detected that triggers the additional testing and the one in Japan's proposal are significantly different.

7.126. Korea's interpretation of the term "another measure" to mean that the alternative measure cannot have any elements in common with the original measure is overly narrow. Prior panels have relied on the fact that a regulating Member already imposes the requirements that constitute the alternative measure as evidence in support of a conclusion that the measure is reasonably available under the three-prong test in Article 5.6.[616] These findings contradict Korea's position. Korea finds support in the panel report in *Brazil – Retreaded Tyres*, where the panel concluded that the alternative measures identified by the complainant "do not constitute alternatives that could apply as a substitute for [the challenged measures] to achieve its goal . . . to the maximum extent possible. Rather, they would appear to be complementary measures that Brazil in fact already applies, at least in part."[617] Korea notes that this finding was upheld on appeal. Korea misinterprets the finding of the panel. The Panel does not understand the conclusion of that panel to mean that any regulatory measure that might already be applied in some form could not serve as an alternative measure. Rather, the issue in *Brazil – Retreaded Tyres* was whether the proposed alternative could by itself substitute for the challenged measures and nevertheless achieve the goal of the measure to its maximum extent.

7.127. In this dispute, Japan is precisely arguing that caesium testing with a limit of 100 Bq/kg, a procedure that Korea already imposes, can substitute for the existing regime of a combination of caesium and iodine testing for trace amounts (more than 0.5 Bq/kg) and additional testing for the additional radionuclides. Thus, if Japan's proposal can substitute for Korea's current regime and fulfil the three requirements in footnote 3 then it will be "another measure" within the meaning of Article 5.6 of the SPS Agreement. In this sense, a measure cannot be rejected *a priori* because it contains some elements of the original measure, but only after a full evaluation of all the factors in footnote 3 and Article 5.6.

7.128. Table 11, below, compares the existing measures with Japan's proposed alternative.

[614] Korea's second written submission, paras. 270-279.

[615] We note that Japan is not challenging other product-specific bans currently maintained by Korea. However, if Korea were to lift the bans, the additional testing requirements, which apply to all non-banned products, would apply.

[616] Panel Report, *India – Agricultural Products*, para. 7.541. See also Panel Report, *Japan – Apples (Article 21.5 – US)*, para. 8.187.

[617] Panel Report, *Brazil – Retreaded Tyres*, para. 7.172.

Table 11: Comparison of the existing measures and Japan's proposed alternative

Existing Measures	Japan's Alternative
Import ban for 28 fishery products from 8 prefectures	Caesium and iodine testing of all consignments with a tolerance of 100 Bq/kg
• Pre-export caesium and iodine testing for food products from 13 prefectures and fishery products from 8 prefectures • Caesium and iodine testing of randomly selected samples from all consignments; • if the sample exceeds 0.5 Bq/kg of caesium or iodine, additional testing for at least strontium and plutonium	• Pre-export caesium and iodine testing for food products from 13 prefectures and fishery products from 8 prefectures • Caesium and iodine testing of all consignments with a tolerance of 100 Bq/kg

7.7.2 The temporal scope of Japan's claims

7.129. Japan has raised claims with respect to the consistency of Korea's measures with Articles 2.3 and 5.6 both for the adoption and the maintenance of the measures. In support of its claims, Japan has presented scientific studies that analyse Japanese sampling data for various food products.[618] Japan's exhibits accompanying its first written submission contain data up through the filing of its first written submission in March 2016. Japan later supplemented this information with even more recent sampling data.[619]

7.130. Korea argues that evidence relating to the levels of radionuclides in Japanese food products after the date of establishment of the Panel should not be considered.[620] Korea contends that "the breach of the relevant WTO provision must have materialized at the time the Panel was established".[621] Korea argues that, as a result, the Panel would overstep its mandate and act inconsistently with Article 11 of the DSU, if it were to consider information taking into account developments after its establishment.[622] Korea further points to a number of cases, in which panels have limited their assessment of the inconsistency of the challenged measures to the factual situation in existence at the time of the panel's establishment.[623]

7.131. Japan, for its part, submits that because its claims relate to the continuing obligations in Articles 2.3 and 5.6 the Panel must take into account the most up-to-date evidence available to determine whether, in light of the latest facts, Korea is presently complying with its obligations.[624] Japan finds support for its view in the requirement in Article 3.3 of the DSU that disputes be settled promptly. In particular, Japan argues that considering the most up-to-date evidence:

> [P]romotes the prompt resolution of a dispute, by providing an up-to-date assessment of consistency. If a panel fails to consider the most recent evidence, such dispute may be prolonged because of disagreement whether, in view of the most recent evidence, a measure is WTO-consistent. A complainant might be compelled to bring a

[618] See Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11) and Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148).
[619] See Japan's Ministry of Agriculture, Forestry and Fisheries, "Inspection Results for Radioactive Strontium in Fishery Products"(April 2011-December 2016) (This is an updated version of Exhibit JPN-127) Japanese original available at: http://www.jfa.maff.go.jp/j/housyanou/pdf/strontium_7.pdf, (Exhibit JPN-238), and TEPCO Within 20 km of FDNPP Data (April 2012- May 2016), (Exhibit JPN-239).
[620] Korea's opening statement at the second meeting of the Panel, paras. 20-21.
[621] Korea's response to Panel question No. 115.
[622] Korea's response to Panel question No. 115; comments on Japan's response to Panel question No. 115.
[623] Korea's response to Panel question No. 115; comments on Japan's response to Panel question No. 115.
[624] Japan's opening statement at the second meeting of the Panel, paras. 14-17; response to Panel question No. 115.

> second dispute to address evidence that was available during a first dispute, and that shows inconsistency. Or, a respondent might be forced into compliance proceedings to address evidence that was available during original proceedings, and that shows consistency.[625]

7.132. In that regard, Japan also refers to the obligations in Article 3.4 of the DSU, which requires the DSB's recommendations and rulings to "be aimed at achieving a satisfactory settlement of the matter" and Article 3.7 of the DSU, which states that the objective of dispute settlement is "to secure a positive solution to a dispute".[626] To illustrate its point Japan refers to several pieces of post-establishment evidence that Korea raises in its own defence – namely subsequent leak events and changes to Korea's regulatory treatment of domestic products.[627] Finally, Japan argues that considering post-establishment evidence would not extend the Panel's mandate beyond its terms of reference.[628]

7.133. Korea contends that allowing panels to take account of post-establishment developments would "convert WTO dispute settlement proceedings into a moving target" by the complainant with the view of prolonging the proceedings "until such time as it manages to establish that the breach has materialized".[629] According to Korea, this is the kind of practice that Japan has engaged in by prematurely initiating the case and subsequently largely relying on post-establishment evidence.[630] Moreover, Korea argues that Japan's interpretation of Articles 3.3, 3.4, and 3.7 of the DSU is flawed and unduly favours the complaining party in the WTO dispute settlement system.[631]

7.134. As mentioned in section 7.1 above, the Panel is of the view that it can consider evidence that was developed subsequent to its establishment. However, a separate question, which is illuminated by the parties' arguments, is whether the Panel's analysis of consistency with continuing obligations must focus on the factual situation in existence at the time of establishment of the Panel or whether the Panel should consider the factual situation post-establishment.

7.135. Japan argues that Articles 2.3 and 5.6 contain continuing obligations similar to those that have been found in other provisions of the SPS Agreement. We agree with Japan. The basic obligations of the SPS Agreement, set forth in Article 2, refer to the adoption and maintenance of SPS measures, use the present tense, and do not contain an express limitation on their temporal scope.[632] Similarly, the more specific obligations, such as Articles 5.1 and 6.1 have been found to require Members to adapt their measures to new scientific information on an on-going basis.[633] Moreover, Article 5.7 specifically contemplates Members assessing and reviewing measures to change their basis from a provisional nature to one based on a risk assessment.[634] The Panel finds similar language, context, and object and purpose in Articles 2.3 and 5.6. Therefore, the Panel understands these obligations to apply not only when the measures are adopted, but throughout the time they remain in force.

7.136. As the Panel is faced with claims relating to continuing obligations, it must consider at what point in time to examine the factual situation when determining the consistency of Korea's measures with the relevant obligations. Japan argues that the Panel should consider the WTO-consistency of the challenged measure based on evidence of the most up-to-date factual situation including evidence speaking to the factual situation post-dating establishment of the Panel. In support of its arguments, Japan cites a variety of panel reports under several covered agreements

[625] Japan's opening statement at the second meeting of the Panel, para. 22.
[626] Japan's opening statement at the second meeting of the Panel, para. 22; response to Panel question No. 115.
[627] Japan's opening statement at the second meeting of the Panel, para. 22; response to Panel question No. 115.
[628] Japan's comments on Korea's response to Panel question No. 115.
[629] Korea's response to Panel question No. 115.
[630] Korea's opening statement at the second meeting of the Panel, paras. 14-15; comments on Japan's response to Panel question No. 115.
[631] Korea's comments on Japan's response to Panel question No. 115.
[632] See Appellate Body Report, *India – Agricultural Products*, para. 5.132.
[633] Panel Reports, *EC – Approval and Marketing of Biotech Products*, paras. 7.3031-7.3032; *Russia – Pigs (EU)*, para. 7.1014; and *US – Animals*, para. 7.339.
[634] Panel Report, *US – Animals*, paras. 7.294-7.296.

where it argues the panels considered the WTO-consistency of a measure based on the factual situation existing after they were established.[635]

7.137. Several panels have expressly dealt with this question in the SPS context and have decided to limit their evaluation to the factual situation in existence at the time of the establishment of the panel. With respect to the continuing obligation to base a measure on a risk assessment, the panel in *EC – Approval and Marketing of Biotech Products* found that faced with a claim against maintenance of measures, a panel has to assess whether the challenged measures comply with the requirements of the SPS Agreement as of the date of the panel establishment.[636] The panels in *India – Agricultural Products, US – Animals,* and *Russia – Pigs (EU)* followed a similar approach with respect to the harmonization obligation, considering that the version of the OIE Terrestrial Code in force at the time of panel establishment was the one relevant to the assessment of consistency with Article 3.1.[637] Moreover, the panel in *US – Animals*, applied a similar temporal limitation to its analysis when examining claims regarding undue delay and under Article 5.6.[638] Japan takes issue with the reasoning of these panels, arguing that it is erroneous and unsupported by the text of the covered agreements. In Japan's view, following this approach would run counter to the dispute settlement's objective of promoting satisfactory, prompt, and positive resolution of the dispute.[639] Japan also notes that other SPS panels have assessed the consistency of challenged measures based on evidence that post-dated the establishment of the Panel.[640]

7.138. It is the Panel's view that complainants must make a cognizable claim of a breach in their panel request. Although complainants do not have to delineate the arguments and evidence they will use to support their claims in their panel requests[641], they do have to identify the measure and the alleged inconsistency. By submitting its request for establishment of a panel, a complaining Member identifies the boundaries of a dispute and decides that it is ripe for consideration before a panel. Pursuant to Article 3.7 of the DSU, Members are obliged to determine whether utilizing dispute settlement proceedings will be fruitful before bringing a case. It would be difficult to determine that a claim is fruitful if the position of the complainant is that it is only at some point during the panel proceedings that the factual situation may change such that an inconsistency might arise. In the Panel's view, a complainant must have a well-founded basis for believing that the challenged measures are inconsistent with the covered agreements before requesting the establishment of a Panel. Therefore, the Panel finds Japan's reliance on Article 3.7 of the DSU to be inapposite.

7.139. Members may challenge continuing obligations. They may challenge measures whose effects will materialize in the future, but which arise out of a situation existing at the time of the establishment of a panel.[642] They may challenge new measures that were adopted since the

[635] In its response to Panel question No. 115, Japan listed the following cases that it argues have assessed the consistency of a challenged measure with WTO obligations, on the basis of post-establishment evidence: Panel Reports, *Japan – Alcoholic Beverages II*; *Korea – Alcoholic Beverages*; *Argentina – Hides and Leather*; *Thailand – Cigarettes*; *China – Raw Materials*; *Philippines – Distilled Spirits*; *Argentina – Import Measures*; *Canada – Dairy (Article 21.5 – New Zealand and US)*; *US – Upland Cotton*; *US – Countervailing and Anti-Dumping Measures (China)*; *US – Large Civil Aircraft*; *EC – Large Civil Aircraft*; *Australia – Apples*; *Australia – Salmon*; *Japan – Apples*; *US – Tuna*; *US – COOL*; *US – Clove Cigarettes*; *EC – Seal Products*; *EC – Trademarks and Geographical Indications*; *China – Intellectual Property Rights*; and *Russia – Pigs (EU)*. In its response to Panel question No. 115, Korea cites to cases dealing with the provisions of the SPS Agreement (Panel Reports, *EC – Approval and Marketing of Biotech Products*, *Russia – Pigs (EU)*; Appellate Body Reports, *EC – Hormones*, *US/Canada – Continued Suspension*, *Australia – Apples*, *Russia – Pigs (EU)*).

[636] Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.3034. See also Panel Report, *US – Animals*, para. 7.339.

[637] Panel Report, *India – Agricultural Products*, para. 7.211. See also Panel Report, *Russia – Pigs (EU)*, para. 7.265.

[638] Panel Report, *US – Animals*, para. 7.118 (Annex C) and 7.447 (Article 5.6).

[639] Japan's response to Panel question No. 115 (citing Panel Reports *in EC – Approval and Marketing of Biotech Products*, paras. 7.3031-7.3034; *India – Agricultural Products*, paras. 7.209-7.213; and *US – Animals*, paras. 7.118 and 7.447).

[640] Japan's response to Panel question No. 115.

[641] Appellate Body Report, *EC – Bananas III*, para. 141.

[642] Panel Report, *US – Tax Incentives*, paras. 7.53-7.54. The panel found in that report that Article 1.1(a)(1)(ii) of the SCM Agreement covers the foregoing of not only of current revenue, but also of revenue that would accrue in the future.

request for establishment, but nevertheless fall within the panel's terms of reference.[643] They may raise the adoption of new or modification of existing measures as evidence that any alleged inconsistency has already been removed.[644] In those situations, evidence relating to the factual situation after the establishment of a panel may be relevant to a panel's assessment of consistency.

7.140. Due process concerns are also raised if a Panel is assessing the measure's conformity based on the factual situation after it was established. It will be difficult for a respondent to develop a defence if the evidence supporting the claims is constantly updated and changing. Likewise, it can be difficult for a complainant to address measures that are continually updated or even replaced in the course of the proceedings.[645] Moreover, a panel has to be able to organize the proceedings and its work in order to bring about a prompt resolution of the dispute.[646] If the Panel were to continually accept new evidence and then, as due process dictates, allow the other party a meaningful opportunity to comment on it[647], the proceedings might never end. Hence, the Panel does not see that Articles 3.3 and 3.4 of the DSU support Japan's position.[648]

7.141. Japan is correct that any temporal limitations on the scope of the Panel's analysis must be based on the nature of the claims. It will also require the Panel to balance various interests, including systemic interests as well as those of the parties, and both general and case-specific considerations.[649] In its request for establishment of a panel, Japan did not indicate that it believed the inconsistency of Korea's measures with Articles 2.3 and 5.6 would arise in the future. Rather in paragraphs 18(a) and (c) of its request Japan used the present tense and claimed that Korea's measures "are" inconsistent with Articles 2.3 and 5.6.[650] The Panel understands, therefore, that Japan is claiming that Korea's measures were inconsistent with those obligations at the time this Panel was established. Japan must thus provide evidence with respect to the factual situation up to and including the date of establishment of a Panel in order to meet its burden of proof that its alternative measure achieves Korea's ALOP.

7.142. This does not mean that the Panel will ignore evidence relating to the period subsequent to its establishment. As noted in section 7.1 above, it remains within the Panel's discretion whether to rely on such evidence.[651] In the Panel's view, such evidence can be used to confirm the current status of the measures.[652] For example, as Japan noted, Korea could rely on post-establishment evidence to demonstrate that any alleged discrimination has been removed or that changing conditions in radionuclide concentration levels would no longer render Japan's alternative measure capable of achieving Korea's ALOP. In that sense, such information could affect whether the Panel issues a recommendation with regard to Korea's measures.[653]

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[643] Panel Report, *Russia – Pigs (EU)*, para. 7.176. The panel in *Russia – Pigs (EU)* ruled on inconsistency of measures, which were adopted after the panel was established, as the parties agreed that the terms of reference covered both measures.

[644] Panel Report, *China – Raw Materials*, para. 7.25.

[645] Appellate Body Report, *Chile – Price Band System*, para. 144.

[646] Appellate Body Report, *Thailand – Cigarettes*, paras. 150 and 155.

[647] Appellate Body Report, *Thailand – Cigarettes*, para. 150 (citing Appellate Body Report, *Australia – Salmon*, paras. 272, 278, and Appellate Body Report, *US – Gambling*, para. 270).

[648] We note that Japan argues that if the Panel were to only look at evidence relating to the factual situation prior to the Panel's establishment its report would be immediately out-of-date and thus not assist the DSB in making recommendations. We find this argument unavailing. By its very nature, dispute settlement takes time. Once drafted, panel reports must be translated which can take a considerable amount of time; then they must be circulated to Members for 20 days before they can be considered for adoption; they may also be appealed. These procedures mean that all panel reports run the risk of addressing a factual situation that no longer exists. Indeed, some panels have even ruled on measures that had already expired by the time they issued their rulings – to provide a positive solution to the dispute. This situation alone is not sufficient for us to conclude that we would somehow be acting inconsistently with the DSU if we were to organize our proceedings in such a way as to limit the temporal scope of our analysis.

[649] Appellate Body Report, *Thailand – Cigarettes*, para. 150.

[650] Japan's request for the establishment of a panel, para. 18.

[651] See Appellate Body Report, *EC – Selected Customs Matters*, para. *188* and *EC – Bananas III (Article 21.5 – Ecuador II)*, para. 270.

[652] Panel Report, *Russia – Pigs (EU)*, para. 7.456.

[653] Panels have, in the past, made findings on expired measures, but declined to issue a recommendation for the responding party to bring the measure into conformity. See e.g. Panel Report, *US – Poultry (China)*, paras. 7.55-7.56.

7.143. The Panel notes that its conclusion is with respect to the period in time that the evidence relates to rather than when the evidence itself was generated. As noted in paragraph 7.7. above, the Panel is not excluding from our evaluation evidence such as scientific analyses or studies provided by the parties or supplied by the experts' to the Panel, even if they were developed after the establishment of the Panel. However, the data underlying the analysis or conclusion should relate to the factual situation with respect to the potential contamination of food products with radionuclides that formed the basis for the claims at the date of establishment of the Panel – i.e. 28 September 2015.

7.7.3 Technical and economic feasibility

7.144. In analysing the technical and economic feasibility of the proposed alternatives, the panel in *India – Agricultural Products* stated that a panel should assess "whether the alternative measure would constitute an option reasonably available taking into account technical and economic feasibility in the real world", including "the risk of incorrect enforcement".[654] In particular, the respondent's existing use of a proposed alternative, even if in a different context, weighs in favour of a finding of feasibility.[655] Moreover, additional administrative burden imposed by an alternative measure does not *per se* render the measure infeasible. [656]

7.145. Japan relies on the finding of the panel in *India-Agricultural Products* to posit that as Korea subjects all imports from Japan that are not subject to an import ban to caesium and iodine testing, the proposed alternative measure is reasonably available to it.[657]

7.146. Korea did not provide any argumentation on this element in its first written submission[658] or in its statements to the Panel at the first meeting.[659] The Panel asked Korea to confirm whether this meant it was conceding technical and economic feasibility if the alternative measure achieved its ALOP.[660] Korea responded that:

> The Panel question posits a hypothetical, unidentified alternative measure. Without knowing what the alternative measure is, the comparison cannot be made and thus it is not possible to say whether the alternative measure is technically and economically feasible or significantly less trade restrictive.[661]

7.147. Korea presented no further argumentation on technical and economic feasibility in its second written submission[662] or in its statements to the Panel at the second meeting.[663] Therefore, the Panel clarified and reiterated its question:

> In response to Panel question 55, Korea stated that it did not know which alternative measure the Panel was referring to and thus they could not answer the question. Given that the only alternative measure at issue is the one Japan has put forward, i.e., testing whether food contains more than 100 Bq/kg of caesium, could you please answer the Panel's previous question 55?[664]

[654] Panel Report, *India – Agricultural Products*, para. 7.540 (quoting Panel Reports, *Japan – Apples (Article 21.5 – US)*, para. 8.171; and, *Australia – Apples*, para. 7.1334).
[655] Panel Report, *India – Agricultural Products*, paras. 7.541-7.542. See also Panel Report, *Japan – Apples (Article 21.5 – US)*, para. 8.187.
[656] Panel Report, *India – Agricultural Products*, para. 7.543.
[657] Japan's first written submission, paras. 397-398.
[658] See Korea's first written submission, paras. 229-299 (containing the entirety of Korea's arguments on Article 5.6).
[659] Korea's opening statement at the first meeting of the Panel, paras. 87-111.
[660] See Panel question No. 55 ("Does Korea concede for the import bans that if the alternative measure achieved Korea's ALOP it would be technically and economically feasible and significantly less trade restrictive than the current measures?").
[661] Korea's response to Panel question No. 55.
[662] Korea's second written submission, paras. 258-305.
[663] Korea's opening statement at the second meeting of the Panel, paras. 61-108.
[664] Panel question No. 147.

7.148. Korea responded: "Korea reiterates that Japan's proposed measure does not achieve Korea's ALOP and thus does not constitute a valid alternative measure for purposes of Article 5.6."[665]

7.149. The Panel notes that Korea already undertakes caesium and iodine testing on randomly selected samples from every consignment of Japanese products that cross its border. In the absence of any refutation of Japan's *prima facie* case that Korea is perfectly capable technically and economically of conducting caesium and iodine testing on every consignment of Japanese food products, the Panel concludes that Japan has established that the proposed alternative measure is technically and economically feasible.

7.7.4 Whether Japan's proposed alternative measure is significantly less trade restrictive than Korea's measures

7.150. As to the third element of the test, the panel in *India – Agricultural Products* noted that any measure that places conditions upon importation, even if stringent, "would still be significantly less restrictive to trade than an outright prohibition".[666] Korea does not contest that Japan's alternative measure would be less trade restrictive than an import ban. However, Korea does argue that the proposed alternative is not significantly less trade restrictive than the measures currently in place with respect to the additional testing requirements.

7.151. Japan does not challenge the requirement for pre-export testing or that randomly selected samples from all consignments from Japan be tested for caesium and iodine, but rather the testing for additional radionuclides if the caesium or iodine content is more than 0.5 but below 100 Bq/kg. In Japan's view this additional testing is unnecessary from a sanitary protection point of view and is trade restrictive because of the additional time and cost associated with the testing. Indeed, Japan argues that it amounts to a *de facto* prohibition.[667]

7.152. Korea focuses on the significance of the difference in trade restrictiveness between the current regime and what Japan is proposing as an alternative. Korea notes that under Japan's alternative measure testing of all products for caesium and iodine will continue, the issue is just whether the selected samples will be referred for testing of additional radionuclides. In Korea's view this is not a significant difference from the current situation for the additional testing requirements.[668]

7.153. The degree of reduction in trade restrictiveness to achieve the level of significance required by the footnote in Article 5.6 has not been dealt with by panels or the Appellate Body in the context of SPS disputes as most challenged measures have been import bans. However, the Appellate Body has understood significance in the context of the SCM Agreement to connote something that can be characterized as "important, notable or consequential".[669] The panel in *US – Upland Cotton (Article 21.5 – Brazil)*, noted that significance may manifest itself in a number of ways and that a determination is necessarily case-by-case depending on the factual circumstances. The panel in *Korea – Commercial Vessels* noted that significance should be of "sufficient magnitude or degree, seen in the context of the particular product at issue, to be able to meaningfully affect suppliers."[670] Panels should not depend solely on a given level of numeric significance as "other considerations, including the nature of the same market and the product under consideration may also enter into such an assessment, as appropriate in a given case."[671] For example, a relatively small change in cost could be significant if profit margins in the relevant industry are quite narrow.

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[665] Korea's response to Panel question No. 147.

[666] Panel Report, *India – Agricultural Products*, paras 7.590 (quoting Panel Report, *Australia – Salmon*, para. 8.182).

[667] Japan's responses to Panel question Nos. 46, 56, 70, 137 and 159; comments on Korea's response to Panel question No. 129.

[668] Korea's comments on Japan's response to Panel question No. 147; first written submission, para. 297.

[669] Appellate Body Report, *US – Upland Cotton*, para. 426.

[670] Panel Report, *Korea – Commercial Vessels*, para. 7.571; see also Panel Report, *Indonesia-Autos*, para. 14.254.

[671] Panel Report, *US – Upland Cotton*, paras. 7.1329–7.1330.

7.154. Japan provided the Panel with evidence as to the cost of the additional testing if conducted in Korea would be roughly half the value of the average consignment of fishery products exported from Japan to Korea (8,000 USD)[672] or in Japan.[673] Japan also argues that it can take up to six weeks for the tests to be conducted. Japan analogizes that such charges could amount to an additional 50% import charge over and above the import tariffs already in place.[674] Korea, argues that Japan is incorrect about the amount of time required for the testing and the amount of product consumed.[675] However, Japan's estimate is based on a press release from Korea's Ministry of Oceans and Fisheries.[676] . Japan argues that exporters will incur increased storage costs in Korea while awaiting test results or a more likely alternative to avoid deterioration of perishable goods would be for them to opt to ship the consignment back to Japan for sale on the domestic market.[677] This is because such goods would spoil before results of the test become available.[678] Thus, Japan argues that the additional testing requirements makes it virtually impossible to market fresh food products in Korea, in which trace amounts of caesium and iodine have been detected.[679] While Korea disputes the time necessary to conduct the additional testing, it admits that such procedures would take two weeks using the equipment of the Korean Government.[680] Even assuming that the additional testing can be conducted in as little as two weeks, which is contradicted by Korea's own contemporaneous documents[681], that period of time is in all likelihood a time-period which many perishable products, such as fish, would spoil. The fact that none of the shipments referred for the additional testing actually underwent this testing and were instead returned to Japan or destroyed confirms, in our view, the highly trade-restrictive nature of the additional testing requirements.[682]

7.155. Korea maintains that any increase in time for testing is a result of the available technology and equipment for the testing rather than a function of the trade restrictiveness of the measures.[683] For its part, Japan argues that what matters is the fact that the measures are trade restrictive rather than the reasons why the tests take more time and are costly.[684] Korea seems to implicitly acknowledge the additional burden when it stated during the second meeting that for point-of-sale testing, domestic goods that are referred for additional testing are first tested only for strontium and plutonium. In making this statement, Korea explained that MFDS laboratories only have the equipment for strontium and plutonium and it would only be if those are detected in levels in excess of the Codex limits that a sample would be sent to an external laboratory for testing for the remaining radionuclides. Importers of Japanese products would use private laboratories. Japan attempted to locate private laboratories capable of conducting the additional testing for all of the radionuclides and of 25 institutes contacted only one indicated that it could

[672] Japan's opening statement at the second meeting of the Panel, para. 69. In response to Panel question No. 70, Korea provides a table of the costs for testing for particular radionuclides if the tests were conducted by the Korea Atomic Energy Research Institute (KAERI). Korea notes that MFDS, the National Agricultural Products Quality Management Service, the Korea Institute of Nuclear Safety (KINS), and the Korea Research Institute of Standards and Science (KRISS) are also capable of performing the tests for the all seventeen "other radionuclides". In particular, plutonium testing costs 2,250,000 Korean Won while a test for strontium-90 would cost 670,000 Korean Won.

[673] Japan's response to Panel question No. 70. Japan's estimate includes the cost of testing for strontium and plutonium, storage costs, and the cost of shipment of the sample back to Japan. Japan also includes an estimate for shipping the entire consignment back to Japan.

[674] Japan's opening statement at the second meeting of the Panel, para. 69.

[675] Korea's second written submission, paras. 302-305.

[676] Korea's Ministry of Oceans and Fisheries, Press Release "Regarding media reports, Fishery Products Traceability System is useless for imported products", "[t]esting for other radionuclides takes more than 6 weeks." (28 January 2014), (Exhibit JPN-149.b), p. 7.

[677] Japan's response to Panel question No. 70; opening statement at the second meeting of the Panel, para. 69 (citing Exhibit JPN-160.b and Exhibit JPN-149.b).

[678] Japan's first written submission, paras. 455-456.

[679] Japan's first written submission, paras. 455-456.

[680] Korea's response to Panel question No. 17.

[681] Korea's Ministry of Oceans and Fisheries, Press Release "Regarding media reports, Fishery Products Traceability System is useless for imported products", "[t]esting for other radionuclides takes more than 6 weeks. Due to increased storage costs and deterioration of merchantability, the item is generally shipped back". (28 January 2014), (Exhibit JPN-149.b), p. 7.

[682] Japan's comments on Korea's response to Panel question No. 122.

[683] Korea's second written submission, para. 304.

[684] See e.g. Japan's second written submission, paras. 294-300.

conduct such additional testing, but it was unclear whether such testing could be done on a commercial scale and within a time-frame required for importation of perishable product.[685]

7.156. The Panel finds, in the absence of any refutation of Japan's *prima facie* case as to the additional cost and time required for the additional testing that the proposed alternative measure is significantly less trade restrictive than the additional testing requirements.

7.7.5 Korea's ALOP

7.157. The Appellate Body has explained that there is an implicit obligation for Members to determine their appropriate level of protection.[686] As recently elaborated by the panel in *India – Agricultural Products*, while a Member's ALOP need not be determined in quantitative terms, it must express a "certain threshold that denotes the position of the relevant Member in relation to the intensity, extent, or relative amount of protection or risk that the Member deems to be tolerable or suitable."[687]

7.158. Relatedly, the level of protection cannot be determined "with such vagueness or equivocation that the application of the relevant provisions of the *SPS Agreement* ... becomes impossible".[688] In particular, in the context of Article 5.5, the panel in *Australia – Apples* noted that, if a Member were permitted to hide behind a generically stated ALOP, its obligations under Article 5.5 would be diminished.[689] In addition, also with respect to Article 5.5, the panel in *US – Poultry (China)* concluded that:

> [E]ven in a case where a Member has expressed a particular ALOP, a panel should nevertheless examine the measure in question to determine whether that ALOP is the one actually being applied via that measure.[690]

7.159. Indeed, the Appellate Body has noted that if a Member fails to determine its appropriate level of protection, or does so with insufficient precision, then "the appropriate level of protection may be established by [the panel] on the basis of the level of protection reflected in the SPS measure actually applied".[691] However, panels must remember that the "appropriate level of protection determines the SPS measure to be introduced or maintained, rather than the appropriate level of protection being determined by the SPS measure."[692] For this reason, the Appellate Body, in *India – Agricultural Products*, cautioned that it is undesirable to discern the ALOP solely from the challenged measure itself.[693]

7.160. In assessing what a Member's ALOP is, a panel should perform the assessment on the basis of the totality of the arguments and evidence on the record, including both the complainant's allegations and the respondent's own articulation, instead of merely verifying whether the complainant's allegations are substantiated.[694] Because the understanding of what the ALOP is cannot be completely isolated from the measures applied, prior panels have recognized that "any sanitary measure applied to a given situation inherently reflects and achieves a certain level of protection".[695]

7.161. Japan avers that Korea's ALOP is 1 mSv/year. Japan derives its conclusion from a document (issued by Korea in 2013) and explanatory material (issued by MFDS in 2014 and

[685] Japan's and Korea's responses to Panel question No. 31. In its response Korea indicates that several government agencies are capable of conducting the additional testing, but did not confirm that they would conduct testing on imported products.
[686] Appellate Body Report, *Australia – Salmon*, para. 206.
[687] Panel Report, *India – Agricultural Products*, para. 7.562.
[688] Appellate Body Report, *Australia – Salmon*, para. 206.
[689] Panel Report, *Australia – Apples*, para. 7.970.
[690] Panel Report, *US – Poultry (China)*, para. 7.244.
[691] Appellate Body Report, *Australia – Salmon*, para. 207.
[692] Appellate Body Report, *US/Canada – Continued Suspension*, referring to Appellate Body Report, *Australia – Salmon*, para. 206.
[693] Appellate Body Report, *India – Agricultural Products*, para. 5.226.
[694] Appellate Body Report, *India – Agricultural Products*, paras. 5.219-5.224.
[695] Panel Report, *Australia – Salmon*, para. 8.107; see also Panel Report, *EC – Hormones (US)*, para. 8.168 and Panel Report, *EC – Hormones (Canada)*, para. 8.171; Panel Report, *Australia – Apples*, para. 7.975.

2015), all of which described 1 mSv/year as the dose limit for the general public.[696] Korea also informed Japan by letter on 15 September 2014 that "its ALOP for exposure to radiation from the ingestion of food contaminated with radionuclides is based on the Codex Standards."[697]

7.162. Korea describes its ALOP as to maintain radioactivity levels in food consumed by Koreans "at levels that exist in the ordinary environment – that is, in the absence of radiation from a major nuclear accident – and thus maintain levels of radioactive contamination in food that are "'as low as reasonably achievable' (ALARA)".[698]

7.163. Korea maintains that its ALOP "is not a fixed quantitative threshold but instead aims to achieve a high to very high level of protection below the 1 mSv/year dose limit".[699] According to Korea, the ALARA principle is used to determine the quantitative level that can be applied and "can be used to demonstrate that an exposure consistent with the pre-existent situation can be maintained, is reasonable and achievable".[700] Thus, according to Korea, the 1 mSv/year dose limit is not its ALOP, but rather the upper bound of the "tolerable" level of risk while its ALOP is a level below that limit that is reflected by the ALARA principle.[701]

7.164. When the Panel specifically asked if it had set maximum levels (MLs) for radionuclides in food, Korea responded that:

> Based on dietary surveys conducted, as well as available technology, the MLs for general foods have been set at 100 Bq/kg of Cs-134 + 137 and 300 Bq/kg for I-131. The MLs for baby foods are set at 50 Bq/kg Cs-134 + 137 and 100 Bq/kg of I-131. The ML for beverage and potable water is 10 Bq/kg of Cs-134 + 137. The MLs for the other radionuclides are applied according to the guideline levels specified in Codex Stan 193-1995.[702]

7.165. The Panel recalls that the overall limit for all radionuclides set by CODEX STAN 193-1995 is 1 mSv/year. Korea acknowledges that it has adopted the Codex benchmark of 1 mSv/year radiation exposure limit, in order to quantify the highest radiation exposure it is willing to accept, keeping in mind the two objectives of not exceeding the levels in the ordinary environment and abiding by the ALARA principle.[703]

7.166. Korea refers to ICRP Publication 103, which states that "optimisation of protection is the process by which 'the likelihood of incurring exposures, the number of people exposed, as well as the magnitude of their individual doses should be kept As Low As Reasonably Achievable taking into account economic and societal factors'".[704] Korea cites to the European ALARA Network for the objective of implementing ALARA which is:

> to reach an "acceptable" level of risk, below the dose limit which is the upper bound of the "tolerable" level of risk. ALARA is an obligation of means, and not an obligation of results, in the sense that the result of ALARA depends on processes, procedures, and judgments and is not a given value of exposure. The acceptable level of exposure depends on the exposure situation as well as the societal and economic considerations.[705]

7.167. Ms Brown explained that the ALARA principle can be used when deciding what activity concentration in food to accept.[706] Professor Anspaugh noted that ALARA is a process with no

[696] Japan's first written submission, para. 338.
[697] Japan's first written submission, para. 339.
[698] Korea's first written submission, para. 234.
[699] Korea's opening statement at the second meeting of the Panel, para. 53.
[700] Korea's opening statement at the second meeting of the Panel, para. 53.
[701] Korea's opening statement at the second meeting of the Panel, para. 53.
[702] Korea's response to Panel question No. 140.
[703] Korea's first written submission, para. 234.
[704] Korea's response to Panel question No. 57(b).
[705] Korea's response to Panel question No. 57(b) (citing European ALARA Network, Newsletter 31: Development and dissemination of ALARA culture, (Exhibit KOR-140)).
[706] Ms Brown's response to Panel question No. 10(a) to the experts; see also Expert Meeting Transcript, para. 2.1.

easily discernible end point and that it cannot itself be used as an international standard for food acceptance.[707]

7.168. Professor Michel noted that the ICRP has not given a lower limit for optimization, but declared the long-term goal in existing exposure situations to keep the exposure below 1 mSv/year. The ICRP applies this goal to the most exposed individuals in a population (95th percentile of the dose distribution) so that the majority of the population will remain well below the 1 mSv/year and receive an optimized protection.[708] Ms Brown noted that the level used by both Japan and Korea of 100 Bq/kg of Cs-137, "is a factor of 10 lower than the Codex guideline level of 1000 Bq/kg, so already they're adopting, through their conservative approach, a value that is already 10 times lower than the internationally agreed Codex value which has been set using the general ALARA principles."[709]

7.169. With respect to levels that exist in the ordinary environment Korea maintains that this means in the absence of radiation from a major nuclear accident. The Panel asked Korea how it determined the level of radiation in the ordinary environment absent radiation from a major nuclear accident. Korea replied that "[t]he ordinary environment means the situation in the absence of additional radiation from a major nuclear accident."[710] Korea argued that radioactive contamination from other major nuclear releases (e.g. weapons use and test fallout) was accounted for in the "ordinary environment".[711]

7.170. The experts were not familiar with Korea's definition of the "ordinary environment" being the levels of radiation absent a major nuclear accident. However, the experts did recognize that radiological protection in food is based on the principle that the additional dose from contaminating radionuclides in foods should not add significantly to the dose already received in the ordinary environment or as they referred to it the "background dose".[712] The background dose varies from country to country (and even places within countries), but a global average is 3 mSv/year.[713] Dr Skuterud explained that an effective dose of 1 mSv/year is approximately the dose humans receive, on average, from external gamma radiation in the environment and is within the large variation in total doses received by humans worldwide, including from other sources of background radiation, such as radon. 1 mSv/year is "considered to be a minor addition to already experienced doses – or at the same level as that existing in the ordinary environment".[714] The experts also explained, that if someone so desired they could distinguish the levels of radiation from nuclear accidents from those in background radiation by knowing the isotopes released during the accident and comparing the historical measurements before the accident to those after the accident.[715]

7.171. The Panel accepts that Korea has determined its ALOP for itself and that for Korea these concepts are important and inform how it formulates its SPS measures.[716] Korea notes that 12%

[707] Expert Meeting Transcript, para. 1.7.

[708] Professor Michel's response to Panel question No. 10(a) to the experts.

[709] Expert Meeting Transcript, para. 2.1. Ms Brown also noted "there will always be political or social pressure in a country to keep reducing doses. I think what is important here is for trade between countries there has to be some numerical value set in order to establish the movement of food and how much radionuclides they contain. This is why we have the Codex guideline levels for international trade." See Expert Meeting Transcript, para. 2.4.

[710] Korea's response to Panel question No. 58 (ii).

[711] Korea's response to Panel question No. 58 (iii); second written submission, paras. 260-264. The Panel notes in this regard, that Korea makes no reference to the Chernobyl nuclear accident or how this is accounted for in its ALOP.

[712] Dr Skuterud's response to Panel question No. 11 to the experts.

[713] Ms Brown's response to Panel question No. 11 to the experts.

[714] Dr Skuterud's response to Panel question No. 11 to the experts.

[715] See Ms Brown and Professor Michel's responses to Panel question No. 11 to the experts. The Panel notes that Korea does not claim to have determined the additional contribution to background levels from the Fukushima Dai-ichi accident.

[716] The Panel makes this conclusion in light of the prerogative for Members to determine their own ALOP. However, the Panel notes that although Korea referred the Panel to the Korea Food Code where Korea expresses its adherence generally to the ALARA principle, Korea has not provided the Panel with any evidence that this ALOP, as articulated, pre-existed the onset of this proceeding. The Panel has received no documentation of how Korea developed its ALOP or where this ALOP is set forth in its internal legislation or regulations. *cf* Panel Report, *Australia-Apples,* para. 7.963 referencing Australia's Import Risk Analysis Handbook Australia's ALOP for imported food products; Panel Report, *US – Poultry (China),* paras. 7.242-7.243 referencing the Poultry Products Inspection Act 21 USC 466 for the United States' ALOP for Poultry; Panel Report, *US – Animals*, para. 7.378 referring to 7 USC 8303(a) for the United States' ALOP for animal diseases;

of its background radiation (or 0.35 mSv/year) is attributable to food products, and therefore it aims to keep exposure from additional external sources "as low as possible below 1 mSv/year".[717] We appreciate Korea's adherence to the ALARA principle. We note that both the ICRP and Codex applied the ALARA principle when arriving at the dose limit for all radionuclides (1 mSv/year) and the guideline levels for the individual radionuclides. Korea, for its part, maintains that its ALOP is not a fixed quantitative threshold. Although the SPS Agreement does not oblige Members to put forth a quantitative ALOP, their ALOPs must also not be so vague or equivocal as to evade their obligations.

7.172. Prior panels have referred to the SPS measures applied to confirm the ALOP that is inherently reflected therein. In our view, if a Member is applying a particular measure with an express quantitative limit for contaminants, that is an indicator that products containing levels of contaminants below that limit will satisfy its ALOP. We observe that not only for the challenged measures, but for food products in general, Korea has established maximum levels for radionuclides with a maximum upper limit of 1 mSv/year for total consumption of man-made radionuclides from all sources Therefore, in the Panel's view, it must determine whether Japan's alternative measure achieves the level of protection stated as:

> [T]o maintain radioactivity levels in food consumed by Korean consumers at levels that exist in the ordinary environment – in the absence of radiation from a major nuclear accident – and thus maintain levels of radioactive contamination in food that are "as low as reasonably achievable" (ALARA), below the 1 mSv/year radiation dose limit.[718]

7.173. Thus, if Japan can demonstrate that its proposed alternative measure can achieve an ALOP that is below 1 mSv/year it will have met its burden under the second element of Article 5.6.

7.7.6 Japan's proposed alternative measure

7.174. The Panel will examine whether the alternative measure proposed by Japan achieves Korea's ALOP in the light of the level of risk posed by the concerned products based on relevant scientific evidence on the record.[719] The Panel's task is to determine whether Japan has adduced sufficient evidence to prove that an alternative measure exists which achieves Korea's ALOP. The Appellate Body has stated in *Australia – Apples* that, in doing so, the Panel must make its own objective assessment of whether the alternative measure achieves Korea's ALOP and that it should not feel constrained by a fear of doing a *de novo* review. In explaining its reasoning the Appellate Body emphasized the different legal questions between Articles 5.1 and Article 5.6. In particular, the Appellate Body noted that the question under Article 5.6 "is not whether the authorities of the importing Member have, in conducting the risk assessment, acted in accordance with the obligations of the SPS Agreement," but rather whether the importing Member could have adopted a less trade-restrictive measure.[720]

7.175. Having clarified the standard of review under Article 5.6, the Panel must also consider the analytic approach that it will take to analysing the evidence and what evidence it will consider. We note that in assessing whether Japan's alternative measure achieves Korea's ALOP under Article 5.6, the Panel is not called upon to conduct a risk assessment under Articles 5.1, 5.2 and Annex A(4).[721] However, Articles 5.1, 5.2 and Annex A(4) can provide guidance as to how the Panel should approach this question. In particular Annex A(4) defines a risk assessment in this context as the evaluation of the potential for adverse effects on human health to arise from the presence of contaminants (e.g. radionuclides) in food. Article 5.1 also notes that the risk assessment techniques of the relevant international organizations should be taken into account. Article 5.2

Panel Report, *Russia – Pigs (EU)*, para. 7.741 referring to Customs Union Decision 317 for Russia's ALOP for African swine fever.

[717] Korea's opening statement at the second meeting of the Panel, para. 67.

[718] Korea's opening statement at the second meeting of the Panel, para. 66.

[719] Panel Report, *US – Animals*, paras. 7.442 and 7.443. See also Appellate Body Report, *Australia – Apples*, paras. 356, 364-365.

[720] Appellate Body Report, *Australia – Apples*, para. 356. This is consistent with the conclusion of the Appellate Body in *Australia – Salmon*, that the test under Article 5.6 requires the panel or the Appellate Body to examine whether any of the possible alternative SPS measures identified would achieve the importing Member's appropriate level of protection. (see Appellate Body Report, *Australia – Salmon*, para. 208.)

[721] Indeed, it is not a panel's role under any circumstance to conduct a risk assessment.

requires Members to take into account (as relevant) available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment. The Panel also bears in mind that the Appellate Body has stated that the scope and method of an assessment may be informed by the level of protection of the importing Member.[722]

7.176. In light of the fact that the alternative measure is being assessed for achieving the importing Member's ALOP, the panel in *US – Animals* chose to analyse the same factors that the respondent Member normally uses to perform its own risk assessments as well as to refer to the relevant international standard.[723] To that end, the Panel asked Korea the criteria or factors that it normally considers when conducting risk assessments.[724] Korea explained that for risk assessment it considers:

> [T]he toxicity of contaminants, levels of contaminants in foods as determined by food contamination surveys, extent of dietary exposure as determined by market basket and other dietary surveys, and recent risk assessments conducted by the international science community shall be considered when MFDS develops maximum levels of contaminants in foods.[725]

7.177. The Panel also finds relevance in the four steps for risk analysis developed by Codex, which are a risk assessment technique developed by a relevant international organization, as a recognized and accepted approach for analysing food safety risk[726] that the Panel will take into account. In particular, the four steps are: (i) Hazard identification [727] ; (ii) Hazard characterization[728]; (iii) Exposure assessment[729]; and (iv) Risk characterization.[730] The Panel finds these steps are an appropriate and logical way to structure its analysis of the factors Korea provided.

7.178. Therefore, in determining whether Japan's proposed alternative measure achieves Korea's ALOP, the Panel will examine (i) the identification and characterization of the contaminants at issue; (ii) the levels of contaminants in Japanese food products; (iii) the extent to which Korean consumers will be exposed to radionuclides through their diet if Japan's alternative measure is adopted; and (iv) risk characterization. Finally, based on this analysis, the Panel will determine the level of protection achieved by Japan's alternative measure. In the Panel's review, it will also make reference, when appropriate, to assessments conducted by the international science community, such as ICRP, Codex, IAEA, and UNSCEAR. The Panel will then determine whether taken as a whole, Japan has established that testing for caesium alone at a level of 100 Bq/kg would be

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[722] Appellate Body Report, *US/Canada – Continued Suspension*, para. 534.

[723] Panel Report, *US – Animals*, paras. 7.450-7.452. It should be noted that the US factors were published on the Animal and Plant Health Inspection Service website.

[724] Panel question Nos. 141 and 150.

[725] Korea's response to Panel question No. 141 (citing "Principles of Development and Application of Standards in Foods" MFDS Administrative Manual). http://www.mfds.go.kr/index.do?x=21&searchkey=title:contents&mid=695&searchword=기준&cd=&y=14&pageNo=1&seq=22897&cmd=v. This question specifically addressed elements that Korea considered when reviewing and regulating contaminants. However, Korea also provided information on its risk management approach.

[726] The Panel notes that the Codex 4 steps have been discussed as relevant to the concept of risk assessment by the panel in *EC – Hormones.* See Panel Report, *EC – Hormones,* para. 8.106.

[727] FAO/Codex Training Package Module 4:1 defines hazard identification as: The identification of biological, chemical and physical agents capable of causing adverse health effects and which may be present in a particular food or group of foods. http://www.fao.org/3/a-w8088e.pdf

[728] FAO/Codex Training Package Module 4:1 defines hazard characterization as: The qualitative and/or quantitative evaluation of the nature of the adverse health effects associated with biological, chemical, and physical agents which may be present in food. For chemical agents, a dose-response assessment should be performed. For biological and physical agents, a dose-response assessment should be performed if the data are available. http://www.fao.org/3/a-w8088e.pdf

[729] FAO/Codex Training Package Module 4:1 defines exposure assessment as: The qualitative and/or quantitative evaluation of the likely intake of biological, chemical, and physical agents via food as well as exposures from other sources if relevant. http://www.fao.org/3/a-w8088e.pdf

[730] FAO/Codex Training Package Module 4:1 defines risk characterization as: The qualitative and/or quantitative estimation, including attendant uncertainties, of the probability of occurrence and severity of known or potential adverse health effects in a given population based on hazard identification, hazard characterization and exposure assessment. http://www.fao.org/3/a-w8088e.pdf

sufficient to ensure that Korean consumers will be exposed to less than 1 mSv/year of radionuclides in food products from all sources.

7.179. In this regard, the Panel sought the experts' advice in understanding and clarifying the arguments and evidence presented. The Panel did not require or expect the experts to fill in any gaps in Japan's evidence or to make the case for either Japan or Korea.

7.180. The Panel recalls, that it must determine whether Japan's proposed alternative measure would achieve Korea's ALOP at both the time of adoption and for the maintenance of the 2011 additional testing requirements, the product-specific import bans, the blanket import ban, and the 2013 additional testing requirements. The Panel also recalls that with respect to the maintenance of the measure Japan must establish the inconsistency existed at the date of establishment of the Panel. The Panel's evaluation of the data is done bearing that in mind. To that end, the Panel notes that the experts confirmed that their opinions would not change if the data provided by Japan had ended on 28 September 2015.[731]

7.181. The Panel wants to make clear that in conducting this analysis it is not substituting its own scientific judgment for that of Korea. Korea has not expressed its scientific judgment in the form of a risk assessment that has evaluated the scientific evidence and reached scientific conclusions, therefore there is nothing to be substituted.[732] The Panel is not conducting a risk assessment for Korea. Indeed, the Panel has already noted that a panel is not called upon to conduct a risk assessment in addressing claims under any provision of the SPS Agreement. Second, a finding that an alternative measure which meets Korea's ALOP exists does not oblige Korea to adopt that particular measure if it is required to bring its measures into conformity with Article 5.6 of the SPS Agreement. If Korea is required to change its measures, it still has the flexibility to adopt another measure so long as it is not more trade restrictive than required to achieve its ALOP.

7.7.6.1 Contaminants at issue

7.182. In the context of contaminants, Korea refers to examining the "toxicity" of contaminants. Therefore, the Panel will begin by identifying the relevant contaminants and their potential adverse health effects.

7.183. The amount of radionuclides released, also called the "source term", comprises radionuclides released from the cores and confining structures into the environment during and after the accident at the FDNPP. These releases are documented in UNSCEAR data as well as in the Technical Volume 1 of the 2015 IAEA Director-General's Report. From this information, the Panel can conclude that the main radionuclides released during the accident were Cs-134, Cs-137 and I-131.[733] Strontium and plutonium were also released.[734] As noted in paragraph 7.65. above, the Panel has determined that Korea's measures at issue only definitively regulate Cs-134; Cs-137; I-131; Sr-90; and Pu-239 and 240.

7.184. Approximately 17.5 Pbq of Cs-134 and 15 Pbq of Cs-137 were released into the atmosphere. Caesium was the radionuclide released in the greatest absolute numbers as well as in the largest proportion to other radionuclides.[735] In the initial accident 150-160 PBq of I-131 is estimated to have been released. We recall that I-131 has a half-life of 8 days. Therefore, after

[731] Experts' response to Panel question No. 99(c).

[732] In response to Panel question No. 118, Korea provided a list of over 70 exhibits that it says reflect Korea's scientific judgment. However, in its answer Korea did not explain how those documents were considered by the Korean authorities or how they served as a basis for the imposition of the measure. Many of the exhibits contain the text of various measures Korea has adopted (including ones Japan does not challenge), but do not have any underlying reasoning or scientific evidence as to why those actions were taken. Other exhibits relate to bilateral communications between Japan and Korea that may seek or even transmit data on the situation in Japan, but they do not contain any evaluation or judgment by Korean government authorities.

[733] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), pp. 148-149.

[734] A full discussion of the accident as it occurred as well as the releases catalogued since then can be found in 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7).

[735] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 149.

80 days, only 0.1% of the original I-131 activity would remain.[736] I-131 was not released in significant amounts after the reactor was shut down.

Table 12: Estimates of radionuclides released from the FDNPP

Codex radionuclide	*Estimated core inventory in Fukushima reactors 1 -3 (PBq) NE=Not Estimated*	*Estimated release into the atmosphere (PBq) NE=Not Estimated*	*Detected in environment after Fukushima? (Yes, No, Trace, Not Measured [NM])*	*Detected in fish / other food in Japan since Fukushima event? (Yes, No, Not Measured [NM])*
H-3	5.6	0.5	Y	NM
C-14	0.0007	NE	Trace	NM
S-35	NE	NE	Trace	NM
Co-60	0.009	NE	Trace	N
Sr-89	593	2.0	Y	N
Sr-90	522	0.14	Y	N
Tc-99	10,000	2.0	Y	NM
Ru-103	9860	3.2	NM	NM
Ru-106	2610	0.86	N	N
I-129	0.0002	0.000002	Trace	N
I-131	6,000	159	NM	NM
Cs-134	719	17.5	Y	Y
Cs-137	700	15.3	Y	Y
Ce-144	5,920	0.011	Trace	N
Ir-192	NE	NE	NM	NM
U-235	0.014	NE	N	N
Pu-238	14.7	0.0000055	Trace	N
Pu-239	2.6	0.0000068	Trace	Y
Pu-240	3.3	0.0000068	Trace	Y
Am-241	1.5	NE	Trace	N

Source: Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world (Exhibit JPN-11), Table 7.[737]

7.185. Korea is correct that there are elements of uncertainty with respect to the direct release of caesium into the ocean. The IAEA provides a chart compiling all the various estimates as well as their variability, depending on the use of a normal or log-normal distribution. While there is considerable variability, the IAEA estimates that using the preferable log-normal distribution[738] and a conservative approach of taking the uncertainty range from the smallest value to the largest one, one could accept a mean value of 3.9 PBq within a range of 2.7-5.7 PBq of direct deposition of Cs-137 to the ocean.[739]

7.186. The release of strontium was estimated to be three to four orders of magnitude less than the release of caesium.[740] Strontium activity in the ocean was found to be much lower than Cs-137 activity. For Sr-90 the activity ratios were 0.02–0.24.[741]

7.187. With respect to plutonium the IAEA confirms that:

[736] Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11), pp. 12-13.
[737] Data in Columns 2 and 3 of Table 7 are from computer simulation data from Nishihara et al (2012), ENEA (2014), Povinec et al (2013), and Schwantes et al (2012). Environmental detection data (Column 4) from the Fukushima event from Kakiuchi et al 2012, Matsumoto et al 2013 [H-3]; Park et al 2013 [C-14], Priyadarsi et al 2011 [S-35]; Doi et al 2013 [Tc-99]; Zheng et al 2012, Yamamoto et al 2014 [Pu-239, 240; JAEA 2014 [Pu-238]; Yamamoto et al 2014 [Am-241]; Suzuki et al 2013, Muramatsu et al 2014 [I-129]; Kojima et al 2012 [Co-60, Ce-144]. Fish / other food detection data (Column 6) are from FAJ 2015a (fish), MAFF 2015a and NRA 2015 (other foods).
[738] This method is less sensitive to the assumptions about the relative accuracy of the original results.
[739] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 157.
[740] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 149.
[741] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 154.

> [O]nly a few samples collected after the Fukushima Daiichi accident showed the isotopic signature of reactor plutonium, in excess of the concentration ratios associated with historical nuclear weapon tests [97-99]. The concentration of plutonium isotopes found at the Fukushima Daiichi site (239Pu and 240Pu ~0.1 Bq/kg together [98, 99]) corresponded to the background level, indicating that the releases of plutonium from the Fukushima Daiichi units during the accident were limited.[742]

7.188. While acknowledging that there is possibility of locations with larger deposition, the IAEA concludes that "the data indicate that plutonium release due to the core melts in the Fukushima Daiichi NPP did not notably increase the environmental distribution of plutonium".[743] Korea provides the Panel with data from 2016 and 2017, which indicate that the retained water in the PCVs in units 2 and 3 still contain significant amounts of plutonium.[744] Japan argues that this confirms their conclusion that there was not a significant release of Pu-239 and 240 during the accident.[745]

7.189. With respect to plutonium in the ocean, Japan also refers to the fact that the ratios of plutonium radioisotopes in the North Pacific did not change after the FDNPP accident. Japan argues that scientific studies show that only 0.000015 PBq of plutonium were released as opposed to 10s of Pbq of caesium (1 million times less plutonium than caesium).[746] Japan also notes that there were already 3.6 Pbq of plutonium in the North Pacific from nuclear weapons tests, both from global fallout and specifically additional US testing in the Marshall Islands.[747] According to Japan this means that the existing plutonium in the North Pacific prior to the FDNPP accident was 240,000 times greater than what was released. Japan also notes that no plutonium bearing the "fingerprint" from FDNPP has been detected in the ocean.[748]

7.190. The Panel also understands that plutonium from the FDNPP has been detected on land and that it is reasonable to conclude that some plutonium would also have been deposited in the ocean during the accident. Dr Thompson explained that the way plutonium binds to soil and sediment explains why it did not transfer from the land to the ocean.[749]

7.191. Korea argues that continuous leaks since the accident as well as the potential for future leaks must also be assessed. Because the situation at the FDNPP is dynamic and ever changing, Korea implies that the risk in food products cannot be assessed with sufficient certainty to conclude that Japan's alternative measure achieves Korea's ALOP.

7.192. The experts explained that examination of the source term to understand what radionuclides were released is important in determining what measures to apply for radiological protection purposes, such as developing a monitoring strategy[750] or production and distribution restrictions. The experts concurred that after the initial release, the source term becomes less

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[742] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 149.

[743] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p. 149.

[744] International Research Institute for Nuclear Decommissioning and Japan Atomic Energy Agency, Analysis Results of the Retained Water Inside the Primary Containment Vessel (PCV) in Units 2 and 3 (24 November 2016), (Exhibit KOR-272), pp. 1-3.

[745] 2015 IAEA DG Report, Technical Volume 1, (Exhibit JPN-7), p.154.

[746] Expert Meeting Transcript, para. 1.12; see also Steinhauser G. Fukushima's forgotten radionuclides: a review of the understudied radioactive emissions. Environ Sci Technol. 2014;48:4649-63, (Exhibit JPN-11.1(99)), p. 9.

[747] Expert Meeting Transcript, para. 1.12.

[748] According to Japan, scientists can identify the source of a particular plutonium contamination on the basis of its "fingerprint" (most commonly by using the ratio of Pu-240/Pu-239 in the measurement). Plutonium originating from the Fukushima Dai-ichi reactors has a higher Pu-240/Pu-239 ratio than the plutonium that is widespread in the environment as a result of the nuclear weapons testing of the 1960s. Japan argues, and Professor Michel confirms that plutonium from the FDNPP has not been detected in the marine environment.

[749] Expert Meeting Transcript, para. 1.13.

[750] The Panel notes that the terms testing, monitoring, and sampling have been used interchangeably by the parties in several instances. However, these are different, yet inter-related concepts. As Professor Michel explains:

> If you have a sample you test it for caesium-137. You can test a fish - the testing is a measurement process, while monitoring means, I monitor the radioactivity in the area from the source, I have a plan, and using different tests I compile the different tests which is the whole picture given by the monitoring.
> Expert Meeting Transcript, para. 3.34.

important as you have the ability to produce actual measurements in food.[751] All the experts agreed that knowing the remaining radionuclides contained in the reactor or the specific amount of leaks was not relevant to assessing the potential for specific products to be contaminated with radionuclides.[752]

7.193. Rigorous environmental and seawater monitoring is in place in addition to the food monitoring programme in Japan. Data from monitoring points in the harbour is available on an hourly basis and publicly available.[753] In addition to Japan's measures both UNSCEAR and IAEA are reviewing the data and updating their publications regularly. If a new release were to happen that significantly changed the make-up of radionuclides in the environment then that might be a reason for modifying the testing or monitoring to take the adjusted mix of radionuclides into account. For instance, at the meeting with the experts Korea provided a recent study estimating the remaining radionuclides in the reactor.[754] The study supports Japan's assertions with respect to the radionuclide make-up of the initial release. If a new leak or accident resulted in the release of these radionuclides that had not been released before or, if so, only in minor amounts, then that might be a reason to monitor for those radionuclides in food production and to test samples of imported products for their presence. The Panel asked the experts how long it might take between a major new release and the ability to detect evidence of it in food products. Recognizing the variables in such a situation (atmospheric vs oceanic, size of release, etc. . .) they all accepted that it would be relatively quick.[755] Dr Skuterud noted that for an atmospheric release, new contamination might be detectable in vegetables the same day.[756]

7.194. Korea also mentions several other factors which it considers affect the assessment of the potential contamination of food products with radionuclides. In Exhibit KOR-213, three experts engaged by Korea seek to rebut the arguments and analysis presented by the two experts engaged by Japan.[757] In particular, Korea raised the following issues: insufficient data on the types and amounts of radionuclides released from the FDNPP and the resulting contamination of the environment[758]; uncertainties about the melt progression of the core[759]; detection of caesium-rich microparticles, demonstrating new and previously unknown release pathways[760]; seafloor sediments as a significant source of contamination, including "hot spots", where concentration levels of caesium are higher[761]; detection within the 20km exclusion zone of highly contaminated fish that can migrate to other areas[762]; Japan uses testing equipment with insufficient detection capabilities[763]; and that the FDNPP is an active and ongoing source of contamination[764]. Japan, rejected Korea's arguments either as being unfounded or irrelevant.[765] The Panel asked the experts to comment on the relevance of each of these issues and if it affected their views of whether Japan's analysis contained in Exhibits JPN-11 and JPN-148 was scientifically valid and reasonably supported. With respect to each issue, the consensus of the experts was that they were not relevant to an analysis of the potential for contamination in Japanese food products. The experts universally stated that actual measurements in food were what are required.[766] The

[751] Experts' responses to Panel question No. 91 to the experts.
[752] Experts' responses to Panel question No. 59 to the experts.
[753] Indeed it was spikes in readings at these monitoring points that alerted authorities to the leaks that had not initially been disclosed in May and June of 2013.
[754] Japan Atomic Energy Agency / International Research Institute for Nuclear Decommissioning, Analysis Results of Waste Samples (23 February 2017), (Exhibit KOR-302).
[755] Experts' responses to Panel question No. 16 to the experts.
[756] Dr Skuterud's response to Panel question No. 16 to the experts.
[757] Professor Timothy Mousseau, Dr. JinHo Song and Professor Yongsung Joo Joint Statement (23 August 2016), ("Statement of Korea's experts"), (Exhibit KOR-213).
[758] Korea's second written submission, paras. 52-53.
[759] Statement of Korea's experts (Exhibit KOR-213), p. 15.
[760] Statement of Korea's experts (Exhibit KOR-213), p. 16.
[761] Korea's first written submission, paras. 142-150; second written submission, paras. 54-59.
[762] Comments on experts' responses to Panel question No. 73.
[763] Korea's second written submission, paras. 86-89.
[764] Korea's second written submission, paras. 68-80.
[765] Japan's second written submission, paras. 253-279, 295-297; responses to Panel question Nos. 51, 61, 108; comments on Korea's responses to Panel question Nos. 147, 149, 150; comments on Korea's comments on the expert responses, paras. 45-51, 136-157; comments on the expert responses to Panel question Nos. 4, 5, 17, and 29 to the experts.
[766] Professor Anspaugh expressed the consensus view of the experts when he stated that you should not take data like this and try to model what will be in fish. "The basic line is if you're concerned about what's in the fish, you need to go and ask the fish." Expert Meeting Transcript, para. 3.33.

experts also noted that none of these issues affected their views on whether the analysis in Exhibits JPN-11 and JPN-148 is scientifically valid and reasonably supported.[767]

7.195. In particular, with respect to each of the issues raised by Korea the experts clarified that:

a. While some uncertainties remain regarding the amounts of radionuclides released from the FDNPP, the experts confirm an overall consensus about the scope of the initial releases. The experts consider such uncertainties of little relevance from the perspective of protection against radiation exposure from food in view of the available food contamination data.[768]

b. The experts state that the status of the damaged core, in particular its melt progression, is of little relevance from the perspective of protection against radiation exposure arising from contaminated food products.[769]

c. Professor Anspaugh notes that caesium-rich microparticles were also discovered after the Chernobyl accident.[770] According to all of the experts, detection of these particles is of little relevance for purposes of protection against radiation exposure from contaminated food products.[771]

d. Likewise, the experts agree that contamination of sediments and existence of "hot spots" is of little relevance from the perspective of protecting against radiation exposure from contaminated food products.[772]

e. As regards the instances of highly contaminated fish caught within the 20 km exclusion zone around the FDNPP, the experts note that such fish would not be relevant to the assessment of contamination of Japanese food products, as commercial fishing in that area is prohibited.[773].As regards the possibility of highly contaminated migratory fish that may have spent time within the 20 km exclusion zone being caught outside it and eaten by consumers, the experts note that such migratory fish are unlikely to be highly contaminated as they will not have lingered within the 20 km exclusion zone.[774]

f. With regard to the alleged use of imprecise caesium detection equipment by Japanese inspection authorities, the experts note that while more accurate measurements can be determined by the germanium semiconductor detector recommended by Korea, the sodium iodide detector is satisfactory because the level of detection is still well below the intervention level of 100 Bq/kg.[775]

g. Regarding the argument alleging that FDNPP remains an active and ongoing source of contamination, the experts note that a possibility of future leaks is of little relevance for determination of food contamination, unless a significant release goes undetected, which is unlikely in view of Japan's water monitoring programme.[776]

7.196. With respect to the characterization of the hazard arising from the potential presence of these contaminants in food products, the Panel recalls its explanation in section 2.2 above, that

[767] Experts' responses to Panel question Nos. 4, 12, 13, 17, 25, 31, 37, 39, 46, 53, 73, 104, 105, 106, and 109 to the experts.
[768] Experts' responses to Panel question No. 12 to the experts.
[769] Experts' responses to Panel question No. 13 to the experts.
[770] Professor Anspaugh's response to Panel question No. 17 to the experts.
[771] Experts' responses to Panel question No. 17 to the experts. In particular, Professor Michel states that due to insolubility of caesium-rich microparticles "they would survive the passage through the human gut and contribute less to the intake compared to the usual soluble Caesium." Professor Michel's response to Panel question No. 4 to the experts.
[772] Experts' responses to Panel questions No. 39, 46, 104, 105, and 106 to the experts.
[773] Expert Meeting Transcript, paras. 4.16, 4.89, and 4.97.
[774] Expert Meeting Transcript, para. 4.6, where Dr Thompson indicated that such a risk was "negligible". Dr Skuterud explained with reference to the example of mackerel, which is a migratory fish species, that "[t]he 20 km zone is a small area for migratory mackerel so the likelihood of them staying there long enough to obtain significant concentrations is, for biological reasons, very low." Expert Meeting Transcript, para. 3.150.
[775] Experts' responses to Panel question No. 61 to the experts.
[776] Experts' responses to Panel questions No. 15, 55, and 59 to the experts.

each of the radionuclides has the potential to cause stochastic effects in humans – namely cancers. The effects of specific radionuclides depend on the properties of the isotope, absorption and excretion rates, and biological half-lives. Caesium reacts in the body in the same way as potassium being absorbed in tissue and the blood stream, whereas strontium mimics calcium attaching to and remaining in the bones. Plutonium is absorbed in body fluids, deposited in the liver and bones, and then travels to other organs through body fluids. Caesium has a biological half-life of 110 days, meaning one-eighth of the amount of caesium will remain in the body within one year of ingestion. Strontium has a biological half-life of 35 years. While plutonium's is 200 years.[777] These properties affect not only the contamination concentrations in food products, but also the rate at which the contamination moves up the food chain to higher order animals and eventually to humans, the so-called transfer factor. For example, as strontium collect in bones strontium in a fish would not necessarily transfer to a human consuming it if they were not eating the bones.[778] Similarly, the uptake of caesium will depend on the environment (freshwater, seawater, forest) it is deposited in.[779]

7.197. Through an understanding of the properties of these radionuclides and their transfer factors dose coefficients have been developed to determine guideline levels for human consumption. The dose coefficient was developed by the ICRP. The ICRP was guided by the principle that human exposure through ingestion of man-made radionuclides should not add significantly to doses from background exposure and other sources – such as medical treatments and air travel.[780] It is our understanding that the development of the dose coefficient takes into account the ALARA principle as well as the LNT approach.

7.198. The first version of the Codex guideline levels for radionuclides in food were developed by Codex in 1989 as a result of the Chernobyl accident in 1986. The Codex Committee on Contaminants in Food (CCCF) agreed to review the guideline levels after the FDNPP accident as is prudent when a significant new exposure takes place. Such review has not resulted in any modifications to the standards. The Codex Secretariat explained to the Panel that the CCCF "considered the revisions of the GLs for radionuclides in the CSCTFF between 2012 and 2015 and agreed to 'discontinue of work on the revision of the GLs for radionuclides in the GSCTFF including the development of guidance to facilitate the applications and implementation of the GLS' (REP13/CF, paragraphs 44-54)". The CCCF further agreed "that any possible new work should be delayed until such time as the outcome of the review of the ICRP became available, which might lead to a revision of the Codex GLs in the GSCTFF' (REP15/CF, paragraphs 128-134)".[781] Dr Skuterud explains that the review of the guidelines by CCCF was not triggered by new scientific information or views about risks. It was rather a result of a stronger need to obtain a better description of how the values in the guidelines were derived and how they apply relative to other international standards.[782] The experts all agreed that the review of the guideline levels did not impact the sufficiency of the evidence on overall dose limit, individual dose limits, or how to test for radionuclide contamination in food products.[783] The Codex also uses the ALARA principle when adopting its guidelines for substances in foods.[784] Both parties use all the Codex guideline levels

[777] See Table 1 above.

[778] Korea argues that the boiling of shells and bones in the making of soups and stews could release strontium in a way that would make it bioavailable to human consumers. The experts stated that studies could be done to test this hypothesis, but Korea did not present any. Based on general knowledge, the experts explained that this means of transfer of strontium was unlikely because of the known properties of calcium when cooking. See experts' responses to Panel question No. 41 to the experts.

[779] Expert's responses to Panel question No. 2 to the experts. See also Dr Skuterud's response to Panel question No. 60 to the experts.

[780] See ICRP Publication 103: 2007 Recommendations, (Exhibit KOR-1), (Exhibit ICRP-3). Dr Thompson's response to Panel question No. 6 to the experts.

[781] Codex Secretariat's response to Panel questions.

[782] Dr Skuterud's response to Panel question No. 9 to the experts.

[783] Experts' responses to Panel question No. 9 to the experts.

[784] At the meeting with the experts Korea had as part of its delegation Dr A Randell who had served as the Secretary of the Codex until 2003. Dr Randell explained how Codex uses ALARA in setting guideline levels. However, Dr Randell referred to the processes for deriving limits for other contaminants (arsenic, acrylamide in food and other alfatoxins) and not specifically the radionuclide guideline levels. Expert Meeting Transcript, para. 2.25.

for all the radionuclides except caesium.[785] Both Japan and Korea have adopted a level of 100 Bq/kg of caesium, which is 10 times lower than the Codex standard.

7.7.6.2 Levels of contaminants in Japanese food products

7.199. As the experts all noted, the most important way to determine radioactive contamination in food products is to look at actual measurements in food.[786] Japan has provided the Panel with the results of its food monitoring programmes (from MAFF and MHLW databases). Japan has also provided data collected outside the food monitoring programme, namely from the ERD, as well as other sources. While Japan's analysis in JPN-148 includes data up to and including parts of 2016, Japan has provided the Panel with the underlying data disaggregated by fiscal year. The data represent hundreds of thousands of samples from every prefecture in Japan since April 2011. The ERD data has been collected since the 1960s and thus includes information from before the accident.

7.200. In Exhibit JPN-11, Japan utilizes the food monitoring data and other data sets along with a series of assumptions to hypothesize that if a given food product has less than 100 Bq/kg of caesium in it, it will necessarily have less than 100 Bq/kg of strontium and 10 Bq/kg of plutonium (the Codex guideline levels for those radionuclides).[787] According to Japan, these deductions justify using a conservative assumption for the maximal proportion of dose exposure resulting from caesium relative to other radionuclides in general food products to be 88:12 and 50:50 in marine products.[788] In that regard, Japan has presented over four hundred matched samples tested for both caesium and strontium (paired samples). Japan's experts have calculated on the basis of that data that the predicted strontium-90 activity in a fish containing 100 Bq/kg of caesium would be less than 1 Bq/kg and the predicted plutonium activity in such fish would be less than 0.13 Bq/kg.[789] Japan then refers to testing data on fishery products as confirmation that no product containing caesium below 100 Bq/kg has been found to contain the additional radionuclides in excess of the guideline levels for those radionuclides.[790] We now turn to examine whether Japan has established that the evidence supports the various conclusions in Exhibit JPN-11.

7.201. Korea does not contest the accuracy or representativeness of the data for agricultural, livestock, and processed food products other than to argue that they make up too large of a share of the monitoring data in comparison to fishery products[791] and to note the high levels in some specific product groups – such as mushrooms and berries. With respect to fishery products, Korea maintains that not enough samples from each of the fishery products Japan is seeking market access for have been taken per year and prefecture.[792]

7.202. Korea further argues that Japan's testing data contains insufficient strontium and plutonium tests to allow valid conclusions about the content of these additional radionuclides in Japanese food containing up to 100 Bq/kg of caesium. According to Korea, Japan's monitoring programmes do not cover all the relevant fishery products.[793] In particular, Korea contends that the samples cover only 4 of the 28 fishery products for which Japan is challenging the import

[785] Although there is some variation for particular products intended for vulnerable populations, such as infant food. As explained in para. 2.28. , above, Japan maintains radionuclide specific maximum levels, but ensures that exposure from relevant radionuclides in food does not exceed 1 mSv/year by using the 100 Bq/kg limit for caesium as a proxy for the other relevant radionuclides.

[786] See e.g. Professor Anspaugh's response to Panel question No. 8 to the experts; Professor Anspaugh's response to Panel question No.12(a) to the experts; Ms Brown's response to Panel question No. 46 to the experts; Professor Michel's response to Panel question No. 8 to the experts; Professor Michel's response to Panel question No. 39 to the experts; Professor Michel's response to Panel question No. 12(b) to the experts; Dr Skuterud's response to Panel question No. 91 to the experts; Dr Thompson's response to Panel question No. 13 to the experts.

[787] Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11), pp. 36-49.

[788] Japan's second written submission, para. 239. See also Japan'scomments on Korea's comments on the experts' responses, paras. 98-105; response to Panel question No. 123.

[789] Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11), pp. 46-47.

[790] Japan's first written submission, para. 267.

[791] Korea's second written submission, para. 90.

[792] Korea's second written submission, paras. 90-92.

[793] Korea's second written submission, paras. 93-95.

bans.[794] Korea further states that certain samples used by Japan's experts in the analysis constitute in fact averages of many fish and it is not clear whether the same fish was used when the strontium and caesium test results were paired.[795] Japan explains that its monitoring strategy is risk-based and focuses on sampling items with a higher likelihood of contamination. Japan also notes that there is less concern and therefore fewer samples for the seven migratory species.[796] With respect to the "paired" strontium and caesium tests, Japan confirms in response to a question from the Panel that "all data points are generated through measurements of the different radionuclides from the same samples."[797] Japan describes how the samples are divided and part is sent for testing of gamma emitting radionuclides (caesium) and other parts of the same sample are sent for testing of beta emitting (strontium) and alpha emitting (plutonium) radionuclides. Japan does this for each of the data sets utilized by its experts.[798]

7.203. The Panel asked Korea how many samples would be sufficient. Korea argues that "orders of magnitude more samples – likely amounting to approximately thousands more samples of strontium and other radionuclides – are required."[799] The Panel asked the experts the relevance of the number of samples on the reliability of Japan's data. Dr Thompson explained that given the type of fish and the ecological niche, testing of one species could serve as representative for other similarly situated species.[800] Professor Michel and Dr Skuterud agreed that sample size was adequate to draw statistically valid conclusions about the levels of caesium in Japanese fish products, including the 28 fishery products.[801] The experts agreed that sampling plans would with time, generally, focus on where one would expect to detect contamination and food products that could pose the most risk to consumers.[802] Professor Anspaugh was of the view that every species should be tested.[803] The Panel notes that in Korea's own Guidelines on Food Safety Management it requires the development of a sampling plan that focuses on priority foods based on consumption, location (near a nuclear power plant), and recent positive test results and sets a sampling target at a total of 9400 samples to be tested for caesium and iodine.[804]

7.204. The Panel is of the view that the number of samples required should be determined based on a sound monitoring strategy bearing in mind relevant public health questions such as which species are most likely to be contaminated, are located in contaminated areas, or are the most consumed by the population. There is no single answer to the question how many samples are considered enough; it will depend on the circumstances. However, the Panel is not of the view that the number of samples needed to reach statistically valid results upon which public health decisions can be based varies depending on whether there has been an accident. A properly designed sampling plan will provide reliable data on whether radionuclides are present in food. More samples do not necessarily result in better predictive ability on contamination levels. The requirement is not to test every single fish, if we did, as Dr Skuterud notes, there would be no fish left to eat.[805] Where releases of a particular radionuclide are not significant, finding non-detectable levels would not warrant the collection of more samples, but rather confirm low concentration of that radionuclide in food products.[806]

[794] Statement of Korea's experts, (Exhibit KOR-213), pp. 4-5.
[795] Statement of Korea's experts, (Exhibit KOR-213), p. 7.
[796] Expert Meeting Transcript, para. 4.27; Japan's response to Panel question No. 7.
[797] Japan's response to Panel question No. 13.
[798] Japan's response to Panel question No. 13.
[799] Korea's response to Panel question No. 149.
[800] Dr Thompson's response to Panel question No. 63 to the experts.
[801] Professor Michel's and Dr Skuterud's responses to Panel question No. 63 to the experts.
[802] Expert Meeting Transcript, paras. 3.88-3.89, 3.91, and 4.17.
[803] Professor Anspaugh's response to Panel question No. 47 to the experts. We note that during the meeting with the experts, Professor Anspaugh nuanced his answer, by saying that "it wasn't based so much on science" and that he believes "it's an issue, whether or not all the species have been measured or not." Expert Meeting Transcript, para. 1.204.
[804] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281), p. 7.
[805] Expert Meeting Transcript, para. 1.195.
[806] Professor Michel explains that:

Regarding the number of samples, what is the purpose of radiological protection, we need a good estimate of the average and of the variability (mathematically, the variance), and these 2 quantities can be well defined. It is not the task to look for tiny percentiles, or extreme pieces of the distribution, because they don't count for the radiation exposure. If we speak of the coverage of the Codex nuclides, all the gamma-emitting Codex nuclides are surveyed by the gamma spectrometry and not found, so one could follow the

7.205. The Panel notes in that regard the consensus among the experts that various test results produced by Japan provide a statistically valid support for the contention that agricultural and fishery products containing less than 100 Bq/kg of caesium would contain the additional Codex radionuclides below or far below their tolerance levels.[807] With regard to the number of caesium testing samples specifically, Professor Michel notes that "[t]he sampling frequency and the relative coverage of the different food products exceeds by far what is foreseen in Europe for the case of surveillance 5 years after a nuclear accident."[808]

7.206. The number of samples that were tested for both caesium and strontium (paired samples) is much smaller than those that were tested for caesium or strontium alone. The Panel asked Japan how it derived these pairings and Japan explained that either measurements of different radionuclides are generated from the same sample (labelled "paired samples"[809]), or samples from the ERD database are matched by using 11 pairing criteria to identify the strontium and caesium test results that can be attributed to the same sample (labelled "matched samples").[810] It is true that the paired and matched samples together do not cover all of the 28 fishery products, for which Japan is challenging the import bans. However, those paired and matched samples cover species representative for shellfish (abalone, pacific oyster), cephalopods (common octopus), demersal fish (pacific cod), and pelagic fish (southern mackerel, Japanese amberjack, cherry salmon); which are product groups representative for all the 28 fishery products covered by Japan's claims against Korea's import bans. Further species have been tested for both caesium and

argument and make a tremendous list of smaller detection limits. That would produce quite a lot of paper, but it would not add any information.

[807] Experts' responses to Panel question No. 44 to the experts. In response to Panel question No. 44 to the experts, Professor Anspaugh states that "[t]he test results do provide statistically valid support"; Ms Brown states that the data provide statistically valid support "when the data are looked at all together. There is strong evidence, when all the data on levels in food and the environment and the releases are considered, that if Cs levels are below 100 Bq/kg, concentrations of other radionuclides will also be below the CODEX thresholds and indeed will be much lower. The measurements in Japanese diets via the market basket and duplicate diet surveys show that the doses from food consumed in Japan are very low and in the few cases that Sr was detected, concentrations in food were very small"; Professor Michel notes that "according to my judgement and according to the requirements stipulated in Europe the surveillance data provided by Japan for Cs-137 activity concentrations in different food categories, in market basket surveys and duplicate diet surveys fulfil the requirements for the aftercare after a nuclear emergency"; Dr Skuterud states that "Japan's various test results provide valid support for the proposition about the levels of the various radionuclides at Japanese food products. However, it is important to add that this conclusions is – and must be – supported by a comprehensive scientific understanding of the releases, environmental contamination levels and environmental behaviour of the radionuclides"; Dr Thompson concludes: "[i]n summary, taken together the data in the exhibits discussed above provide a strong weight of evidence that when Cs concentrations are below 100 Bq/kg, the other radionuclides are present at concentrations that are far below their respective thresholds, when they are detectable at all".

[808] Professor Michel's response to Panel question No. 45 to the experts. Other experts give similar responses.

[809] Japan's response to Panel question No. 123, listing (i) Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Market Basket Survey: Raw Data (multiple prefectures)"(2011-2015), (Exhibit JPN-133 revised); (ii) Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective dose from Nationwide Market Basket Survey and Duplicate Meal Survey: Overview of Data"(2011-2015), (Exhibit JPN-132); (iii) Fukushima Duplicate Diet Survey, (Exhibit JPN-135); (iv) Japan's Ministry of Agriculture, Forestry and Fisheries, "Inspection Results for Radioactive Strontium in Fishery Products"(April 2011-December 2016) (This is an updated version of Exhibit JPN-127) Japanese original available at: http://www.jfa.maff.go.jp/j/housyanou/pdf/strontium_7.pdf'', (Exhibit JPN-238); (v) Japan's Ministry of Agriculture, Forestry and Fisheries, "Fish and shellfish monitoring data from 'Aquatic Monitoring''' published by Japan's Ministry of the Environment"(April 2011-June 2016), (Exhibit JPN-128); (vi) Tokyo Electric Power Company, "Testing results of fish products (sampled within 20km radius of F1NPS) in which strontium was detected by TEPCO" (April 2012-December 2016), (Exhibit JPN-252); (vii) Japan's Ministry of Agriculture, Forestry and Fisheries, "Comparison between Japan and Korea's radionuclide testing results on fish" (15 December 2014 – 15 January 2015), available at: http://www.jfa.maff.go.jp/j/kakou/export/pdf/comparison_between_japan_and_koreas_radionuclide_testing_results_on_fish.pdf, (Exhibit JPN-63). See also Overview of Japan's food monitoring data submitted to the Panel, (Exhibit JPN-272).

[810] Japan's response to Panel question No. 13. The Panel notes that Professor Michel, Dr Skuterud and Dr Thompson all agree that the sample-matching method used by Japan and explained in response to Panel question No. 13 is valid. In particular, Dr Thompson states that, based on her experience, the matching criteria used by Japan are reasonable and the whole method robust, which, according to Dr Thompson is confirmed by the fact that Japan confidently matched 1,532 samples out of a total of 148,017 test results. See experts' responses to Panel question No. 110 to the experts.

strontium, some of which showed non-detectable levels of either or both of the radionuclides.[811] Dr Thompson notes in that regard that:

> The data available in the various exhibits on levels of Sr-90 and Cs-137+134 are for species occupying different ecological niches, for example crustaceans, molluscs, demersal and pelagic fish. These are relevant to the assessment of doses to people consuming fishery products from Japan.[812]

7.207. Other experts agree that the strontium test results provided by Japan are sufficient to assess the risks related to strontium contamination of Japanese food products.[813] The experts also reject Korea's proposition that if proper sampling had taken place, some test results will exceed the tolerance level for strontium-90.[814] Therefore, as a general matter, the Panel considers Japan's data serve as a sufficient basis for drawing conclusions on levels of caesium and the other radionuclides in Japanese food products. The Panel makes this conclusion in light of our earlier findings regarding the limited releases of strontium, plutonium and other additional Codex radionuclides from the FDNPP. As Dr Skuterud puts it:

> When there are generally low contamination levels in the environment, there is no reason to suspect any high levels and there's not concern for public health, then there is no need in the end for measurements for each and every sample species. If we analyse every fish for Sr, we would not have any fish left to eat.[815]

7.208. The experts explain that given the low absolute level of strontium released during the accident and its low proportion of all the radionuclides released it is not unexpected that a monitoring programme would not focus on strontium and the limited number of samples was not detrimental to Japan's arguments. The experts stated that normally radionuclides that make up less than 10% of an initial release would not be closely monitored.[816] Professor Anspaugh did suggest that a certain percentage of all food products should be tested for strontium.[817] He indicated that this was for public reassurance rather than out of a specific scientific need.[818] Professor Michel agrees with the need to monitor food for strontium, but finds that from a radiation protection point of view, the seawater strontium monitoring in the FDNPP port is sufficient.[819]

7.209. As regards plutonium, the Panel has already noted that minimal quantities were released from the FDNPP to the environment. The Panel has reviewed the results of tests of some 655 samples for plutonium 239 and 240[820] provided by Japan and found that none of the tested samples has been found to contain plutonium anywhere near the 10 Bq/kg tolerance level.[821] Dr Thompson confirms that the data shows that the measurements of plutonium in Japanese food were "either not detectable or concentration were near the limits of detection."[822] Professor Michel notes that based on the analysis of the terrestrial environment one can conclude that there has also been plutonium released into the sea. Professor Michel explains that a wealth of publications shows that the pre-existing isotopic ratios were not changed significantly by what potentially came

[811] This relates to, for example, samples of scallops, common sea squirt (protochordata), giant pacific octopus, Japanese flying squid, Alaska pollock, anchovy, Japanese sardine, round herring, pacific saury, chub mackerel, Japanese jack mackerel, shortfin mako shark, chum salmon. Again, while not all of these species are subject to Japan's claims, they occupy the same ecological niches as ones that are.

[812] Dr Thompson's response to Panel question No. 64 to the experts.

[813] Experts' responses to Panel question No. 62 to the experts.

[814] Experts' responses to Panel question No. 57 to the experts.

[815] Expert Meeting Transcript, para. 1.195.

[816] Dr Thompson response to Panel questions No. 3 and 35 to the experts. Professor Michel confirms that such a principle is frequently applied by German regulatory authorities. Expert Meeting Transcript, para. 1.95.

[817] Expert Meeting Transcript, para. 1.7.

[818] Expert Meeting Transcript, paras. 1.204 and 3.184.

[819] Expert Meeting Transcript, para. 3.187.

[820] The Panel notes that the data also included approximately 210 samples tested for plutonium 238.

[821] MAFF FY 2014 data on Radioactive Substances in Agricultural, Forestry and Fishery Products, (Exhibit-JPN-100); MAFF strontium inspection results (April 2011-June 2016), (Exhibit-JPN-127); ERD Fisheries Data, (Exhibit JPN-130 (revised)); ERD Agricultural Products Data, (Exhibit JPN-131.1.). ERD Agricultural Products Data (milk), (Exhibit JPN-131.2) and ERD Agricultural data (other foods), (Exhibit JPN-131.3) do not contain plutonium tests results.

[822] Dr Thompson's response to Panel question No. 44 to the experts.

from the Fukushima accident. According to Professor Michel "we cannot recognize a distinction" between what was there before and after the accident.[823] Therefore, the amounts that were detected in food cannot necessarily be attributed to an increase in plutonium levels in Japanese food products as a result of the FDNPP accident. Dr Thompson explains that the amounts of plutonium that could have been released from the FDNPP did not migrate as much as other radionuclides to the sea, because plutonium "is very tightly bound to the soils or sediment and not very mobile" and this might explain why so little plutonium is detected in the marine environment.[824]

7.210. We now turn to Korea's argument that the samples used by Japan's experts to support their conclusions on the proportion of caesium to strontium in food were in fact averages of many individual fish. Dr Thompson explained that analysis of pooled samples is quite common in situations where concentrations of contaminants are expected to be low (as the data in the exhibits indicates is the case here) and that, in her view, the method used for matching Sr-90 and Cs-137 results was appropriate.[825] Dr Skuterud indicated that Japan's explanation of how it paired the samples "gives sufficient reliability to the data" and he "did not see any significant risk of bias in ratios estimated in JPN-11 and -148."[826] The other experts concurred.[827] Therefore, the Panel does not see that Japan's method of pairing samples undermine the reasonableness or validity of its conclusions regarding the proportion of caesium to strontium content in these products.

7.211. Korea also argues that Japan "cherry-picks" the data by not challenging the bans on specific species that have continually high levels of caesium and by focusing on the period after 2 October 2013.[828] Japan responds that it has provided to the Panel the data available for all agricultural, livestock, and fishery products and not only for the 28 fishery products, for which Japan is challenging Korea's import bans.[829] Japan further states that in selecting species that are of commercial importance to its industry, it has exercised its judgment regarding the effectiveness of its claims, pursuant to Article 3.7 of the DSU.[830] Regarding the geographical scope of the testing, Japan states that it has excluded from its claims fish harvested in the 20 km exclusion zone around the FDNPP, because commercial fishing in that area is prohibited and, as a result, no fish originating there would be exported.[831]

7.212. With respect to the "cherry-picking", the Panel notes that Korea's argument relates to the 28 fishery products, for which Japan is challenging Korea's import bans. The Panel understands Korea's concern about not accepting products that are likely to exceed its tolerance levels. No Member is required to accept products that do not achieve its ALOP. Japan seems to understand this concern as well, when it limits its claims to those species that it believes contain radionuclides below the tolerance levels. Therefore, if the Panel were to find that a less-trade restrictive alternative to the import bans exists and that it also achieves Korea's ALOP, that finding will be limited to the 28 fishery products from the 8 prefectures, covered by Japan's claims. We note in that regard that Korea does not argue that the species Japan is not challenging are somehow representative of the ones Japan is seeking market access for – in the sense that they are the same type (pelagic, demersal, benthic); occupy the same place in the food chain (predator vs prey); are the same species, genus or classification (crustacean, mollusc, etc.); or occupy the same ecological niche. Moreover, some of the higher strontium concentrations relative to caesium levels identified in the data provided by Japan (although still well below the tolerance levels for these radionuclides) have been found in species that Japan is challenging the import bans for, such as abalone.[832] Finally, the Panel recalls that when assessing Japan's claims related to the additional testing requirements, the Panel will examine evidence pertinent to all products.

[823] Expert Meeting Transcript, para. 1.6.
[824] Expert Meeting Transcript, para. 1.13.
[825] Dr Thompson's response to Panel question No. 110 to the experts.
[826] Dr Skuterud's response to Panel question No. 110 to the experts.
[827] Professor Michel noted that the method was "adequate and valid" and that he did not see any bias. Professor Michel's response to Panel question No. 110 to the experts. See also Professor Anspaugh's response to Panel question No. 110.
[828] Korea's response to Panel question No. 47; second written submission, paras. 107-109.
[829] Japan's second written submission, paras. 137-138.
[830] Japan's second written submission, paras. 140-141.
[831] Japan's second written submission, para. 140.
[832] Data consolidated from the MAFF Strontium Inspection Results; (ii) MOE Fish and Shellfish Data; (iii) TEPCO Within 20 km FDNPP Data; and (iv) the Comparison between Japan's and Korea's radionuclide testing results on fish, (Exhibit JPN-253).

Therefore, the Panel does not see Japan's limiting its claim regarding import bans to 28 of the banned fishery products as being relevant to our analysis of whether its alternative measure would achieve Korea's ALOP for those products.

7.213. Korea also argues that Japan's methodology is flawed because it assumes a constant ratio between caesium and strontium and rests upon an incorrect application of the scaling factor methodology contrary to the IAEA's guidance for the use of that methodology. In its first written submission Korea argues that the analytical approach adopted by Stefan Merz, Katsumi Shozugawa and Georg Steinhauser in their paper "Analysis of Japanese Radionuclide Monitoring Data of Food Before and After the Fukushima Nuclear Accident" is more appropriate.[833] Japan responds that its methodology does not assume that a constant ratio between caesium and strontium exists in the environment or in food products. In its dietary exposure assessment Japan does assume that caesium and other radionuclides would contribute to overall annual exposure in a ratio of 88:12 for general food products and 50:50 for marine products and that 50% of all products contain caesium at the guideline level (100 Bq/kg).[834] In light of the actual results of Japanese testing of food products as part of its food and environmental monitoring as well as knowledge about the absolute release levels, this assumption is conservative and is likely to overestimate the concentration of radionuclides in most food products.[835]

7.214. Japan also provided calculations, which evaluate the data using the Merz approach to demonstrate the very low likelihood of finding strontium in excess of Codex guideline levels if caesium is less than 100 Bq/kg. The graph below shows a Merz plot for different types of fishery products. The Merz plot analyses the values of caesium and strontium test results from samples (or meals), as shown by the scatter of samples. The Merz plot shows that, were an individual to consume any one of the sampled fishery products for a year, the cumulative total dose exposure would remain below the 1 mSv/year diagonal line shown on the plot. Japan has provided similar Merz plots for agricultural products and for the ERD data going back all the way to the 1960s.[836]

[833] Korea's first written submission, paras. 178-179 (citing S. Merz, K. Shozugawa and G. Steinhauser, "Analysis of Japanese Radionuclide Monitoring Data of Food Before and After the Fukushima Nuclear Accident", ENVIRONMENTAL SCIENCE & TECHNOLOGY, Vol. 49, No. 5 (2015), (Exhibit KOR-2) ("Merz et al.")).

[834] Japan's second written submission, para. 239. See also Japan's comments on Korea's comments on the experts' responses, paras. 98-105; response to Panel question No. 123.

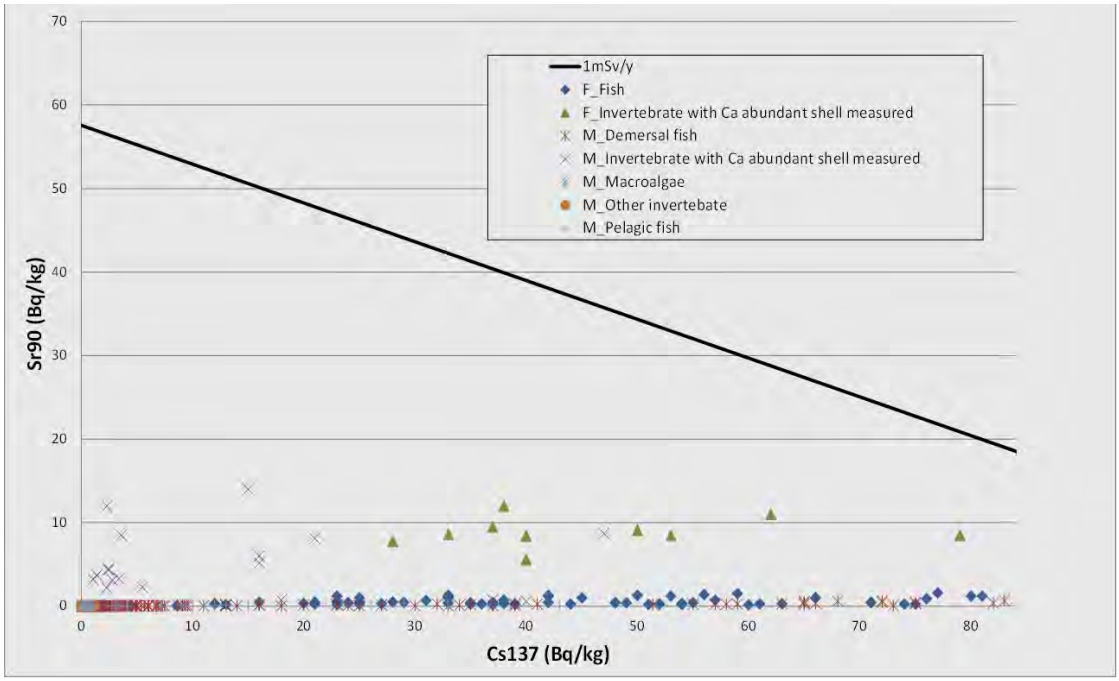
[835] Experts' responses to Panel question No. 44 to the experts. For instance, in her response to Ms Brown noted that:

> there is strong evidence, when all the data on levels in food and the environment and the releases are considered, that if Cs levels are below 100 Bq/kg, concentrations of other radionuclides will also be below the CODEX thresholds and indeed will be much lower. The measurements in Japanese diets via the market basket and duplicate diet surveys show that the doses from food consumed in Japan are very low and in the few cases that Sr was detected, concentrations in food were very small";

See also experts' responses to Panel question No. 77 to the experts.

[836] See Merz plot and calculations based on data in Exhibit JPN-253, (Exhibit JPN-256); Merz plot and calculations based on "Market Basket Survey: Raw Data" [CONFIDENTIAL], (Exhibit JPN-258); Merz plot and calculations based on "Fukushima Duplicate Diet Survey: Raw Data Multiple Prefectures" and "Fukushima Duplicate Diet Survey: Raw Data" [CONFIDENTIAL], (Exhibit JPN-259); Merz plot and calculations based on "Full data underlying Examination and Analysis of Radioactive Substances in Agricultural, Forestry and Fishery Products for FY 2014", (Exhibit JPN-260); Merz plot and calculations based on ERD Data for Agricultural Products, (Exhibit JPN-261); and Merz plot calculations based on ERD milk data, (Exhibit JPN-261.2).

Figure 6: Merz Plot for Fishery Products (all data publicly available before 28 Sept 2015)



Source: Japan's slides presented at the Expert Meeting, (Exhibit JPN-245), p. 2.

7.215. The Panel asked the experts about the relevance of Korea's arguments with respect to the ratio and the scaling factor methodology and whether they called into question the reliability of the analysis in JPN-11 and JPN-148. The experts all concurred that Japan's methodology appropriately accounts for strontium releases and likely overestimates strontium's contribution to any given food product. As Dr Skuterud puts it:

> Japan's way of including the other radionuclides in deriving the permissible level for caesium adds conservatism to their approach, it is more conservative than the approaches in Europe after Chernobyl where they set the limits for caesium based on 1 mSv/y and this totally disregarded the contribution from strontium for instance.[837]

7.216. Professor Anspaugh finds the method "simple and elegant" and notes that "[i]t does not have to be called by another name or justified by some textbook."[838] Dr Skuterud explains that he does not consider that Japan really applied the scaling factor methodology. In his view:

> Rather Japan have chosen some conservative ratios for potential contamination levels by the other radionuclides relative to caesium, based on information on composition of releases and on known environmental behaviour of the nuclides – and checked/validated against available monitoring data … This is in principle something else than the Scaling approach. This ratio approach is appropriate, not for estimating radionuclides levels in foods, but for ensuring that the chosen intervention level is conservative enough.[839]

7.217. Ms Brown also finds the method to be appropriate.[840] Meanwhile, Professor Michel notes that:

> If the Scaling Factor methodology is combined with estimating the potential exposure due to consumption of Sr-90 using the absolute activity concentrations of Sr-90 in the foodstuffs it is adequate. The latter demonstrate that there is only a very small contribution by Sr-90. Therefore, the Scaling Factor methodology is applicable even if

[837] Expert Meeting Transcript, para. 3.14.
[838] Professor Anspaugh's response to Panel question No. 82 to the experts.
[839] Dr Skuterud's response to Panel question No. 82 to the experts. See also Expert Meeting Transcript, para. 4.59.
[840] Ms Brown's responses to Panel question Nos. 82 and 83 to the experts.

there is a strong scatter in the Sr-90/Cs-137 ratios and the correlation used is weak.[841]

7.218. The Panel asked the IAEA whether it had specific rules for the application of the scaling factor methodology. The IAEA replied that requirements for use of the scaling factor methodology are not addressed in the IAEA safety standards.[842]

7.219. We further note that the data provided by Japan varies depending on the time-period and products covered. For example, Japan's food monitoring programme contains caesium test results starting in April 2012, although Japan is challenging consistency of the 2011 additional testing requirements imposed on agricultural products, processed foods and food additives. Some caesium test results are available for 2011 from the ERD database. However, the ERD database largely differs from the food monitoring programme in that it has not been specifically designed to address contamination of food products following the FDNPP accident. Moreover, it also does not contain test results for processed foods and food additives and the data on strontium and plutonium is even more limited. As a result, the Panel is of the view that at the time of adoption of the 2011 additional testing requirements, there was insufficient data available to support Japan's assumption with respect to the content of caesium and additional Codex radionuclides in Japanese products. The Panel further notes that more data became available with time, in particular after April 2012, when test results for other than fishery products were included in Japan's monitoring programme. In this regard, the Panel also recalls its findings in section 7.6 above that there was sufficient scientific information to conduct a risk assessment for the product specific import bans imposed in 2012 and for both the blanket import bans and the additional testing requirements imposed in 2013.[843] Therefore, the Panel can reasonably conclude that for Alaska pollock and Pacific cod from the relevant prefectures from 2012 and for the rest of Japanese food products from 2013 there is sufficient reliable data upon which to base conclusions about the levels of radionuclides in Japanese food products. All the more, the same conclusion can be drawn with regard to information available as of establishment of the Panel with regard to maintenance of all measures.

7.220. Now that the Panel has determined that the data provided by Japan can serve as a reasonable basis for conclusions, the Panel turns to what the data actually shows. The Panel has examined the caesium testing data available for all Japanese food products, including the 28 fishery products from the relevant prefectures. For the product-specific bans the following tables show the ratio of the number of samples exceeding the threshold level (100 Bq/kg of caesium) to the number of total samples (excess ratio) in 2012 – the year the measures were adopted, and in each subsequent year (2013, 2014, and 2015) – for each species and relevant prefecture. The Panel notes that this data refers to samples where the levels of radionuclides exceeded the benchmark level. A "0" entry should not be construed as meaning that no radionuclides were detected at all, only that the levels were below the benchmark level. The "total" row reports the total number of samples, the total number of samples in excess of 100 Bq/kg, and the weighted averages of the excess ratio percentages, respectively.

[841] Professor Michel's response to Panel question No. 82 to the experts. Ms Brown agrees with Professor Michel and states that the methodology used by Japan to derive the maximal level of caesium and other radionuclides is appropriate. Expert Meeting Transcript, para. 4.58.

[842] IAEA's responses to Panel question Nos. 1 and 2.

[843] See para. 7.108. above.

Table 13: Excess ratios for Alaska pollock and Pacific cod subject to product-specific import bans (2012)

Legend: # - number of samples; > - number of samples in excess of 100 bg/kg; % - excess ratio percentage.

	Fukushima			Miyagi			Ibaraki			Iwate			Aomori		
Fishery Products	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**
Pacific cod (Gadus macrocephalus)	201	40	19.9	319	5	1.56	128	7	5.46	305	0	0	291	2	0.68
Alaska pollock (Theragra chalcogramma)	60	1	1.66												
Total	**261**	**41**	**15.7**	**319**	**5**	**1.56**	**128**	**7**	**5.46**	**305**	**0**	**0**	**291**	**2**	**0.68**

Source: FAJ Caesium Monitoring Data of fisheries products (Exhibit JPN-72).

7.221. With respect to the blanket import ban, imposed in late 2013, the Panel has reviewed the data for all 28 fishery products (including Alaska pollock and Pacific cod) from each of the relevant prefectures to see how many samples tested were in excess of the benchmark level for caesium.

Table 14: Excess ratios for 28 banned fishery products (2013)

Legend: # - number of samples; > - number of samples in excess of 100 bg/kg; % - excess ratio percentage.

	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
Fishery products	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%
Abalone (Haliotis spp.)	67	0	0	11	0	0	13	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Alaska pollock (Theragra chalcogramma)	79	0	0	21	0	0	3	0	0	68	0	0	0	0	0	11	0	0	0	0	0	0	0	0
Albacore (Thunnus alalunga)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0
Alfonsino (Beryx splendens)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0
Anchovy (Engraulis japonicus)	32	0	0	0	0	0	16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	69	0	0
Bigeye tuna (Thunnus obesus)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0
Blue shark (Prionace glauca)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bluefin tuna (Thunnus orientalis)	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Chestnut octopus (Octopus conispadiceus)	205	0	0	3	0	0	18	0	0	7	0	0	0	0	0	3	0	0	0	0	0	1	0	0
Chub mackerel (Scomber japonicus)	40	0	0	1	0	0	0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	34	0	0
Chum salmon (Oncorhynchus keta)	62	0	0	5	0	0	8	0	0	110	0	0	0	0	0	27	0	0	0	0	0	0	0	0
Common octopus (Octopus vulgaris)	52	0	0	3	0	0	16	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Common sea squirt (Halocynthia roretzi)	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Giant Pacific octopus (Paroctopus dofleini)	131	0	0	10	0	0	0	0	0	67	0	0	0	0	0	15	0	0	0	0	0	0	0	0
Japanese amberjack (Seriola quinqueradiata)	41	0	0	0	0	0	16	0	0	76	0	0	0	0	0	2	0	0	0	0	0	25	0	0
Japanese flying squid (Todarodes pacificus)	115	0	0	6	0	0	2	0	0	69	0	0	0	0	0	22	0	0	0	0	0	5	0	0
Japanese jack mackerel (Trachurus japonicus)	98	0	0	1	0	0	13	0	0	5	0	0	0	0	0	0	0	0	0	0	0	41	0	0
Japanese sardine (Sardinops melanostictus)	36	0	0	1	0	0	10	0	0	5	0	0	0	0	0	5	0	0	0	0	0	47	0	0
Pacific cod (Gadus macrocephalus)	258	6	2.32	140	0	0	329	2	0.6	448	0	0	0	0	0	740	0	0	0	0	0	0	0	0
Pacific oyster (Crassostrea gigas)	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific saury (Cololabis saira)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmon shark (Lamna ditropis)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scallop (Mizuhopecten yessoensis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skipjack tuna (Katsuwonus pelamis)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	0
Southern mackerel (Scomber australasicus)	49	0	0	2	0	0	8	0	0	64	0	0	0	0	0	7	0	0	0	0	0	11	0	0
Striped marlin (Kajikia audax)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
Swordfish (Xiphias gladius)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellowfin tuna (Thunnus albacares).	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Total	**1272**	**6**	**0.47**	**219**	**0**	**0**	**456**	**2**	**0.43**	**932**	**0**	**0**	**0**	**0**	**0**	**834**	**0**	**0**	**0**	**0**	**0**	**363**	**0**	**0**

Source: FAJ Caesium Monitoring Data of fisheries products, (Exhibit JPN-72).

Table 15: Excess ratios for 28 banned fishery products (2014)

Legend: # - number of samples; > - number of samples in excess of 100 bg/kg; % - excess ratio percentage.

	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
Fishery products	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**	**#**	**>**	**%**
Abalone (Haliotis spp.)	98	0	0	33	0	0	10	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0
Alaska pollock (Theragra chalcogramma)	88	0	0	38	0	0	2	0	0	61	0	0	0	0	0	14	0	0	0	0	0	0	0	0
Albacore (Thunnus alalunga)	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alfonsino (Beryx splendens)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0
Anchovy (Engraulis japonicus)	21	0	0	5	0	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	29	0	0
Bigeye tuna (Thunnus obesus)	0	0	0	6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blue shark (Prionace glauca)	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bluefin tuna (Thunnus orientalis)	0	0	0	0	0	0	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Chestnut octopus (Octopus conispadiceus)	205	0	0	5	0	0	32	0	0	6	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Chub mackerel (Scomber japonicus)	52	0	0	17	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	3	0	0
Chum salmon (Oncorhynchus keta)	50	0	0	31	0	0	9	0	0	104	0	0	0	0	0	32	0	0	0	0	0	0	0	0
Common octopus (Octopus vulgaris)	57	0	0	0	0	0	13	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Common sea squirt (Halocynthia roretzi)	1	0	0	53	0	0	0	0	0	71	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Giant Pacific octopus (Paroctopus dofleini)	107	0	0	5	0	0	3	0	0	49	0	0	0	0	0	5	0	0	0	0	0	0	0	0
Japanese amberjack (Seriola quinqueradiata)	39	0	0	6	0	0	11	0	0	68	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Japanese flying squid (Todarodes pacificus)	88	0	0	19	0	0	3	0	0	82	0	0	0	0	0	30	0	0	0	0	0	3	0	0
Japanese jack mackerel (Trachurus japonicus)	124	0	0	18	0	0	14	0	0	4	0	0	0	0	0	0	0	0	0	0	0	8	0	0
Japanese sardine (Sardinops melanostictus)	14	0	0	3	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0
Pacific cod (Gadus macrocephalus)	262	0	0	142	0	0	301	0	0	179	0	0	0	0	0	619	0	0	0	0	0	0	0	0
Pacific oyster (Crassostrea gigas)	2	0	0	329	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific saury (Cololabis saira)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Fishery products	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%
Salmon shark (Lamna ditropis)	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scallop (Mizuhopecten yessoensis)	0	0	0	68	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	0	0	0
Skipjack tuna (Katsuwonus pelamis)	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
Southern mackerel (Scomber australasicus)	58	0	0	7	0	0	2	0	0	72	0	0	0	0	0	7	0	0	0	0	0	6	0	0
Striped marlin (Kajikia audax)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swordfish (Xiphias gladius)	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellowfin tuna (Thunnus albacares).	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**1267**	**0**	**0**	**805**	**0**	**0**	**414**	**0**	**0**	**707**	**0**	**0**	**0**	**0**	**0**	**758**	**0**	**0**	**0**	**0**	**0**	**102**	**0**	**0**

Source: FAJ Caesium Monitoring Data of fisheries products (Exhibit JPN-72).

Table 16: Excess ratios for 28 banned fishery products (2015)

Legend: # - number of samples; > - number of samples in excess of 100 bg/kg; % - excess ratio percentage.

Fishery products	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%
Abalone (Haliotis spp.)	73	0	0	43	0	0	7	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	0	0
Alaska pollock (Theragra chalcogramma)	75	0	0	34	0	0	8	0	0	57	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Albacore (Thunnus alalunga)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alfonsino (Beryx splendens)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0
Anchovy (Engraulis japonicus)	33	0	0	3	0	0	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Bigeye tuna (Thunnus obesus)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blue shark (Prionace glauca)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bluefin tuna (Thunnus orientalis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Chestnut octopus (Octopus conispadiceus)	172	0	0	15	0	0	51	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chub mackerel (Scomber japonicus)	56	0	0	8	0	0	4	0	0	17	0	0	0	0	0	1	0	0	0	0	0	8	0	0
Chum salmon (Oncorhynchus keta)	57	0	0	13	0	0	10	0	0	108	0	0	0	0	0	6	0	0	0	0	0	1	0	0
Common octopus (Octopus vulgaris)	162	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Common sea squirt (Halocynthia roretzi)	6	0	0	10	0	0	0	0	0	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Giant Pacific octopus (Paroctopus dofleini)	119	0	0	7	0	0	1	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japanese amberjack (Seriola quinqueradiata)	22	0	0	9	0	0	16	0	0	77	0	0	0	0	0	1	0	0	0	0	0	4	0	0

Fishery products	Fukushima			Miyagi			Ibaraki			Iwate			Gunma			Aomori			Tochigi			Chiba		
	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%	#	>	%
Japanese flying squid (Todarodes pacificus)	80	0	0	43	0	0	10	0	0	69	0	0	0	0	0	13	0	0	0	0	0	1	0	0
Japanese jack mackerel (Trachurus japonicus)	126	0	0	26	0	0	12	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Japanese sardine (Sardinops melanostictus)	13	0	0	7	0	0	2	0	0	11	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Pacific cod (Gadus macrocephalus)	300	0	0	129	0	0	57	0	0	116	0	0	0	0	0	499	0	0	0	0	0	0	0	0
Pacific oyster (Crassostrea gigas)	4	0	0	296	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific saury (Cololabis saira)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Salmon shark (Lamna ditropis)	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scallop (Mizuhopecten yessoensis)	0	0	0	88	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0
Skipjack tuna (Katsuwonus pelamis)	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Southern mackerel (Scomber australasicus)	62	0	0	3	0	0	2	0	0	83	0	0	0	0	0	1	0	0	0	0	0	9	0	0
Striped marlin (Kajikia audax)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swordfish (Xiphias gladius)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellowfin tuna (Thunnus albacares).	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Total	**1360**	**0**	**0**	**741**	**0**	**0**	**206**	**0**	**0**	**773**	**0**	**0**	**0**	**0**	**0**	**575**	**0**	**0**	**0**	**0**	**0**	**74**	**0**	**0**

Source: FAJ Caesium Monitoring Data of fisheries products (Exhibit JPN-72).

7.222. The data for 2013 show that few samples of the relevant fishery products have been found to contain caesium in excess of the 100 Bq/kg tolerance level. The data also show a steady decline of caesium concentration levels over the time the measures were in place as evidenced in the tables for 2014 and 2015, the two years after the blanket import ban was imposed prior to the Panel's establishment.

7.223. Korea is correct that for some of the 28 fishery products in certain prefectures there are no samples. Japan has argued that samples from representative species can be used to assess the potential radionuclide contamination in those products. As discussed above, the experts generally agree. Dr Thompson explains that following "a detailed review of the data" she "found data for most of the 28 species" and that "[f]or the species not specifically analysed, JPN-43 contains representative data (e.g. similar ecological niches; migratory or not)."[844] Dr Skuterud, and Professor Michel concurred.[845] Professor Anspaugh was of the view that all species should be tested.[846] The Panel has also reviewed the test results for strontium and plutonium for the relevant time-period. All test results provided to the Panel, including for the 28 fishery products from the 8 prefectures, were well below the tolerance levels for both radionuclides, if detected at all.[847]

7.224. As regards all food product categories, for which Japan is challenging the additional testing requirements, the Panel notes that the levels of caesium in products have been continuously declining. In fiscal year 2012 the percentage was 0.86%, in fiscal year 2013 0.32%, and in fiscal year 2014 0.18%.[848] The reviewed data support Japan's contention that for all but two food categories (game meat and wild plants and wild edible fungi[849]), the proportion of samples exceeding the 100 Bq/kg tolerance level was less than 1%, including with regard to the Fukushima prefecture.[850] The Panel also finds the data to support Japan's contention that in the two quarters immediately preceding establishment of the Panel, the majority of Japanese food products contained between 0 and 25 Bq/kg of caesium.[851]

Table 17: Food monitoring result (annual transition of rate of exceeding standard limits) (FY2012 and FY 2013)

All Prefectures	2012.04~2013.3			2013.04~2014.3		
	Number of samples	No. of samples more than limit	Excess ratio	Number of samples	No. of samples more than limit	Excess ratio
Grains	18,998	123	0.65%	12,962	87	0.67%
Vegetables	19,004	7	0.04%	20,676	0	0.00%
Fruit	5,635	15	0.27%	5,331	0	0.00%
Edible Fungi (cultivated)	4,394	328	7.46%	3,956	9	0.23%
Fishery Products (other than freshwater)	18,658	831	4.45%	20,261	192	0.95%
Fishery products (freshwater)	3,343	242	7.24%	3,394	109	3.21%
Cattle meat	187,176	6	0.00%	231,072	0	0.00%
Livestock products (other than cattle meat)	2,148	2	0.09%	2,265	0	0.00%

[844] Dr Thompson's response to Panel question No. 63 to the experts.
[845] Dr Skuterud's and Professor Michel's responses to Panel question No. 63 to the experts.
[846] Professor Anspaugh's response to Panel question No. 63 to the experts. Expert Meeting Transcript, para. 1.204. During the meeting with the experts, Professor Anspaugh clarified his answer, by saying that "it wasn't based so much on science" and that he believes "it's an issue, whether or not all the species have been measured or not". Expert Meeting Transcript, para. 1.204.
[847] See MAFF strontium inspection results (April 2011-June 2016), (Exhibit-JPN-127); Japan's Ministry of Agriculture, Forestry and Fisheries, "Fish and shellfish monitoring data from 'Aquatic Monitoring' published by Japan's Ministry of the Environment", ("MOE Fish and Shellfish Data") (April 2011-June 2016), (Exhibit JPN-128); Tokyo Electric Power Company, "Testing results of fish products (sampled within 20km radius of F1NPS) in which strontium was detected by TEPCO" (April 2012–March 2016) (This is an updated version of Exhibit JPN-97), (Exhibit JPN-129).
[848] MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155).
[849] MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155).
[850] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).
[851] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).

All Prefectures	2012.04~2013.3			2013.04~2014.3		
	Number of samples	No. of samples more than limit	Excess ratio	Number of samples	No. of samples more than limit	Excess ratio
Game meat	1,255	493	39.28%	1,411	417	29.55%
Wild plants and wild edible fungi	2,474	274	11.08%	3,657	186	5.09%
Milk ・Infants use	5,215	0	0.00%	4,973	0	0.00%
Tea and Drinking water	1,675	13	0.78%	1,142	0	0.00%
Processed foods	8,505	69	0.81%	9,917	25	0.25%
Unclassified	0	0		0	0	
Total	278,480	2,403	0.86%	321,017	1,025	0.32%

Source: MAFF overview of food monitoring results (April 2012–March 2016), (Exhibit JPN-155).

Table 18: Food monitoring result (annual transition of rate of exceeding standard limits) (FY2014 and FY 2015)

All Prefectures	2014.04~2015.3			2015.04~2016.3		
	Number of samples	No. of samples more than limit	Excess ratio	Number of samples	No. of samples more than limit	Excess ratio
Grains	6,094	2	0.03%	5,135	5	0.10%
Vegetables	17,520	0	0.00%	12,184	0	0.00%
Fruit	4,147	0	0.00%	3,374	0	0.00%
Edible Fungi (cultivated)	4,440	8	0.18%	4,428	3	0.07%
Fishery Products (other than freshwater)	21,328	50	0.23%	18,939	0	0.00%
Fishery products (freshwater)	3,251	50	1.54%	2,385	14	0.59%
Cattle meat	235,583	0	0.00%	274,071	0	0.00%
Livestock products (other than cattle meat)	1,834	0	0.00%	1,544	0	0.00%
Game meat	1,403	349	24.88%	764	167	21.86%
Wild plants and wild edible fungi	4,133	98	2.37%	4,029	87	2.16%
Milk (Infants use)	4,461	0	0.00%	3,666	0	0.00%
Tea and Drinking water	804	0	0.00%	636	0	0.00%
Processed foods	9,220	8	0.09%	8526	15	0.18%
Unclassified	0	0		0	0	
Total	314,218	565	0.18%	340,311	291	0.09%

Source: MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155).

7.225. There is a consensus among the experts that the various test results produced by Japan provide a statistically valid support for the conclusion that agricultural and fishery products containing less than 100 Bq/kg of caesium would contain the additional Codex radionuclides below or far below their tolerance levels.[852] The Panel recalls that none of the test results provided to the panel showed strontium or plutonium content in excess of the tolerance levels.[853] Dr Skuterud explains that in light of the data combined with the knowledge of the relatively low releases of strontium and the low food chain transfer of the radionuclide, "it is difficult to imagine strontium levels exceeding the Codex [guideline levels] in areas where agricultural production and fisheries are not restricted".[854] Professor Michel explains in a similar vein that "the absolute activity

[852] Experts' responses to Panel question No. 44 to the experts.

[853] MAFF, MOE, TEPCO data on paired caesium and strontium testing, (Exhibit JPN-240). Although Exhibit JPN-240 covers samples tested both before and after the establishment of the Panel, the Panel relied on the data available for the period up until its establishment, using the post-establishment test results only for confirmation purposes. The value of 14 Bq/kg is thus overall the highest measured concentration of strontium in the whole dataset. See paras. 7.205. through 7.209. above.

[854] Dr Skuterud's response to Panel question No. 57 to the experts.

concentrations of Sr-90 are on the average about two orders of magnitude lower than the Cs-137 and that Sr-90 is of much lower relevance for the radiation exposure than Cs-137".[855] Professor Michel further states that "(independent of the exact number attributed to the Sr-90/Cs-137 ratio) … complying with the 100 Bq/kg limit for Cs-137 will certainly guarantee that the limits for the other radionuclides will also comply with the regulations".[856] Ms Brown also notes that "[i]t is not likely, based on the information available on the releases from the accident and the available monitoring data in food and the environment, that there are food samples that would exceed 100 Bq/kg Sr-90".[857]

7.226. The Panel recalls that its assessment is not limited to the testing data, but encompasses the totality of the evidence, including the knowledge about releases of radionuclides from the FDNPP, as well as the uptake of radionuclides by the relevant species. Based on that evidence, including the knowledge of strontium and plutonium releases from the FDNPP and their uptake pathways and transfer factors, the Panel concludes that Japan has established that if a food product contains less than 100 Bq/kg of caesium (both Cs-134 and CS-137) it will necessarily contain amounts of strontium, plutonium and other radionuclides in amounts lower than the Codex guideline levels. The data from the time period subsequent to the establishment of the Panel confirm the Panel's assessment that the pre-establishment data demonstrate a declining trend in the presence of radionuclides in food. The Panel further notes that Japan currently restricts distribution of certain products from certain areas due to high potential for containing radionuclides.[858] Existence of such restrictions is an indication to the Panel that, in Japan's own assessment, these specific products are likely to be contaminated in excess of the established tolerance levels. However, the existence of such restrictions is not sufficient to disprove Japan's assumption that products containing less than 100 Bq/kg of caesium would also contain the other radionuclides below Korea's tolerance limits. Likewise, the absence of such restrictions, in and of itself, is not dispositive of whether Japan's proposed alternative measure achieves Korea's ALOP. The Panel recalls that Japan does not challenge many product-specific bans that Korea currently has in place. However, the Panel recognises that this situation is fluid and will change. Because of this, and because Japan has not limited its claim on the additional testing requirements to any specific products, the Panel's conclusions with respect to these measures are based on the general contamination levels of all food products, which may contribute to the exposure dose.[859]

7.227. The next step in determining whether testing for 100 Bq/kg of caesium alone would achieve Korea's ALOP, is to assess the potential dietary exposure to Korean consumers to radionuclides in food products and the contribution of Japanese products to their overall exposure on an annual basis.

7.7.6.3 Extent of dietary exposure

7.228. Japan calculated potential dietary exposure to Korean consumers by applying the following assumptions that it relied on to derive its own 100 Bq/kg of caesium tolerance level for food consumed in Japan: that 50% of all food consumed is contaminated at the maximum guideline levels, that the ratio of dose exposure was 88:12 caesium to other radionuclides in general food products and 50:50 in marine products. The conservative nature of the assumption was confirmed by a duplicate diet survey conducted in Fukushima.[860] Under the duplicate diet survey for Fukushima, duplicate meals were gathered in different households in Fukushima and sampled for

[855] Professor Michel's response to Panel question No. 37 to the experts.
[856] Professor Michel's response to Panel question No. 44 to the experts.
[857] Ms Brown's response to Panel question No. 57 to the experts. According to Ms Brown:
[I]t is not possible to say that there is a zero probability that a food sample will not be found with a Sr-90 concentration >100 Bq/kg. However, in this case, it is highly likely that it would also have a concentration of Cs > 100 Bq/kg based on the evidence of a high Cs:Sr-90 ratio that has been observed in the initial release, the environment and in food.
[858] Japan does not challenge a variety of product specific bans. See paras. 2.104. to 2.106.
[859] Nevertheless, the Panel expects that products subject to Japanese internal restrictions are not currently being exported to Korea. See Japan's response to Panel question No. 22, paras. 112-115.
[860] Japan's first written submission, para. 357, where Japan refers to Report of the Committee on Radionuclides in Foods (Exhibit JPN-40.b), pp. 6, 8, 16, 30-31. Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148), pp. 19-21; A Framework for considering radiation levels in Japanese food, Graphics, (Exhibit JPN-152), pp. 1-3. See also Japan's comments on Korea's comments on the experts' responses, paras. 98-105; response to Panel question No. 123.

caesium, strontium and plutonium.[861] This data showed that even assuming a diet exclusively based on meals typically eaten in Fukushima the contamination levels would remain below the 1 mSv/year committed dose limit. Japan demonstrated the same for a diet completely comprised of Japanese marine products.[862]

7.229. Korea argues that Japan's methodology does not take into account the particularities of the Korean diet.[863] Japan avers that the two diets are sufficiently similar.[864] In particular, Japan argues that Korean and Japanese consumers use the same basic ingredients and cooking practices and that both diets include the consumption and utilization of the whole fish, including the bones. Japan elaborates that similarities in both diets are further revealed by a comparison of statistical information on average daily food consumption in Korea and Japan, where the proportion of different food items in both countries' diets is very similar, as both include significant amounts of rice and fisheries products.[865] The Panel asked Korea to explain the specific differences between the Fukushima diet utilized by Japan and the typical Korean diet that would be relevant to an assessment of exposure to radionuclide contamination. The Panel also asked Korea how it accounted for these dietary differences in the formulation of its measures. Korea indicates that Koreans enjoy having fermented roe or fish entrails and stews boiled over a long period of time with fish bone, head, or skin. Korea further explains that Koreans also enjoy boiling or cooking the outer shells of seafood with meat in soups and stews.[866] The Panel notes that although Korea explained the particularities of the Korean diet, it failed to specifically address how this was different than the duplicate diet used by Japan or how the differences impacted a dietary exposure assessment.[867]

7.230. With respect to Korea's arguments about the effects of boiling on making certain radionuclides more bioavailable or increasing exposure from the eating of bones, the Panel asked the experts whether these elements would have an effect on Japan's analysis. Based on the understanding that strontium acts like calcium, they explained that boiling would not result in a release of strontium into broth or make it more bioavailable.[868] They did note that if consumers ate the shell or bones they would be exposed to more strontium than those who do not.[869] In particular, Dr Thompson explained that:

> [A]lthough few studies have measured the proportion of Sr-90 transferred from fish bones to broth during boiling (e.g. Grauby and Luykx, 1990), studies have been done to determine the leaching of calcium from bones during cooking (broth). These studies have shown that very little calcium is transferred to broth during cooking. Since strontium is a calcium analogue, the conclusion that little Sr-90 is lost from bones or shells during cooking is reasonable.[870]

[861] Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148), pp. 17-21; Fukushima Duplicate Diet Survey, (Exhibit JPN-135); Explanation of how Duplicate Diet Survey: Raw Data (Fukushima prefecture) was compiled, (Exhibit JPN-144); Overview of Japan's food monitoring data submitted to the Panel, (Exhibit JPN-272), (item 3-3).

[862] Japan's scientific response to Korea's arguments in its first written submission, (Exhibit JPN-148), pp. 17-21.

[863] Korea's first written submission, para. 171; response to Panel question No. 41; second written submission, paras. 295-297.

[864] Japan's response to Panel question No. 61.

[865] Japan's second written submission, para. 285. Japan refers to T. C. Bestor; V. L. Bestor; "Cuisine and identity in contemporary Japan. Education about Asia" (2011); 16(3): 13-18, available at: https://dash.harvard.edu/bitstream/handle/1/11639566/Bestor%20%26%20Bestor%202011%20--%20Cuisine%20and%20Identity_0.pdf?sequence=1 (last viewed 1 August 2016), (Exhibit JPN-199); S. Fallon; M. G. Enig, "Inside Japan: Surprising Facts About Japanese Foodways", available at http://www.westonaprice.org/health-topics/inside-japan-surprising-facts-about-japanese-foodways/ (last viewed 1 August 2016), (Exhibit JPN-200); NHK World Radio, "Let's Cook Japanese" (18 May 2012), available at http://www3.nhk.or.jp/nhkworld/en/radio/cooking/20120518.html (last viewed 1 August 2016), (Exhibit JPN-201)

[866] Korea's response to Panel question No. 41.

[867] Korea's response to Panel question No. 64; second written submission, paras. 295-297.

[868] Experts' responses to Panel question No. 41 to the experts.

[869] For example, see Dr Skuterud's response to Panel question No. 37 to the experts.

[870] Dr Thompson's response to Panel question No. 41 to the experts; See also Expert Meeting Transcript, para. 1.243.

7.231. Although it is true that those who eat shells or bones will be exposed to more radionuclides, than those who do not, that exposure is still limited to the total amount contained in the product. The experts noted that measurements for radionuclides in fish are done on the whole fish, by grinding it up into ash. Therefore, any measurements necessarily include the amount of strontium in the bones and that these measurements in Japanese products were consistently below the Codex levels.[871]

7.232. Korea tells the Panel that when it conducts assessments of contaminants in food it refers to a basket of goods made up of the 150 most consumed products in Korea. Korea's 2015 Guidelines for Food Safety Management explains that this is weighted 100 domestic products to 50 imported products. In 2016, this was revised to 80 domestic products and 70 imported products via the 2016 Guidelines for Food Safety Management.[872] The products in these guidelines span over the following categories: agricultural products, fishery products, livestock products, and processed products. In the 2015 Guidelines for Food Safety Management, the products are as follows[873]:

a. Domestic: glutinous rice, barley, corn, potato, sweet potato, soybean, apple, tangerine, watermelon, grape, persimmon, oriental melon, onion, pepper, tomato, cucumber, green onion, soybean sprout, zucchini, cabbage, radish (leaves), carrot, perilla leaf, garlic; shiitake mushroom, lettuce, spinach, bracken fiddlehead, squid, anchovy, gizzard, mackerel, croacker, tuna, shrimp, eel, flounder, oyster, pacific saury, laver, manila clam, long armed octopus, crab, filefish, mudfish, anglerfish, skate, rockfish, bonito, octopus, sea bream, mussel, scallop, abalone, mackerel, blow fish, Atka mackerel, seaweed, kelp, green laver, cod, hairtail, flounder, Japanese Spanish mackerel, blue shark, bonito shark, beef, pork, chicken, duck meat, edible egg, raw milk, extract of edible meat (bone stock), bread, rice cake, ramen, noodle, flour, cracker, dumpling, sugar, syrup/starch syrup, tofu, soybean oil, sesame oil, cola, cider, coffee, ham (processed pork), sausage, milk product, yogurt, ice cream, sherbet, processed fishery meat product, salted seafood, coffee cream; green tea, fruit and vegetable drink.

b. Imported: rice, corn, rice, orange, carrot, coffee, soybean, pepper, brocoli, garlic, barley, sesame; bracken fiddlehead, neungi mushroom, black mushroom, chaga mushroom, blueberry, long armed octopus, manila clam, hairtail, anglerfish, webfoot octopus, crab, pollack/frozen pollack, salmon, mackerel, croaker, squid, mudfish; pacific saury, cod, sea bream, pork, chicken, beef by-product, pork by-product, mutton, beef, glass noodle, cabbage kimchi, roasted coffee, fruit and vegetable drink, olive oil, processed fishery meat product, refined rice wine, table salt, processed meat product, cracker, flour, processed pollack product, beer, leached tea

7.233. It is impossible to do a direct comparison between the duplicate diets used by Japan and the 150 most consumed products in Korea. However, Japan has provided the Panel with a comparison of consumption rates of various groups of products in Korea and Japan. The data in Table 19 below show that the composition of the Korean and Japanese diet in terms of the percentage of food categories consumed is broadly similar. These similarities support a conclusion that it is reasonable to use the Japanese dietary surveys to estimate the potential dietary exposure from radionuclides to Korean consumers.

[871] Experts' responses to Panel question No. 42 to the experts.

[872] 2015 Guidelines for Food Safety Management, (Exhibit KOR-281), pp. 5-6, 9, 11-12. The 100 domestic products comprise of 29 agricultural, 38 fishery, 7 livestock products, and 26 processed foods. The 50 imported products comprise 15 agricultural, 15 fishery, 6 livestock products, and 14 processed foods; Safety Management of Radioactivity in Food", 2016 Guidelines for Food Safety Management, (Exhibit KOR-159), p. 6. According to the 2016 Guidelines for Food Safety Management, (Exhibit KOR-159), the 80 domestic products include 23 agricultural, 31 fishery, 12 livestock products, and 14 processed foods, the imported foods comprise of 20 agricultural, 20 fishery, 11 livestock products, and 19 processed foods.

[873] The 2016 Guidelines contain a similar list of products.

Table 19: Comparison of food consumption statistics of Korea and Japan (2012)

Category in Korean statistics	Korea[1]		Japan[2]		Category in Japanese statistics
Cereals	300.8	21.0%	439.7	21.8 %	Cereals
Potatoes & starches	32.2	2.2%	54.3	2.7%	Potatoes
Sugars	10.1	0.7%	6.5	0.3%	Sugar and preserves
Legumes	36.8	2.6%	57.9	2.9%	Pulses
Seeds	4.6	0.3%	2.1	0.1%	Nuts and seeds
Vegetables	293.0	20.4%	274.6	13.6 %	Vegetables
Mushrooms	4.7	0.3%	16.1	0.8%	Mushrooms
Fruits	174.3	12.1%	107.0	5.3%	Fruits
Seaweeds	4.9	0.3%	9.9	0.5%	Seaweeds
Beverage	126.9	8.8%	603.9	29.9 %	Beverages[3]
Alcoholic beverage	109.7	7.6%		0.0%	
Seasonings	34.4	2.4%	90.6	4.5%	Seasonings and spices
Meats	110.1	7.7%	88.9	4.4%	Meat
Eggs	24.8	1.7%	33.9	1.7%	Hen eggs
Fishes & Shellfishes	49.2	3.4%	70.0	3.5%	Fishes and shellfishes
Milks	107.9	7.5%	125.8	6.2%	Dairy products
Oils	8.0	0.6%	10.4	0.5%	Fats and oils
		0.0%	26.7	1.3%	confectionary
Others	3.0	0.2%		0.0%	
Total	1,435.5		2,018		

[1] source: Korean Statistical Information Service; http://kosis.kr/eng/statisticsList/statisticsList_01List.jsp?vwcd=MT_ETITLE&parentId=D#SubCont. See Health – National Health & Nutrition Survey – Nutrition – Food intakes per capita per day - choose 2012
[2] Source: Report of Survey on Health and Nutrition of National Public, Health Service Bureau, Ministry of Health, Labor and Welfare; http://www.maff.go.jp/e/tokei/kikaku/nenji_e/89nenji/index.html. See XV Food Consumption - 3 National Nutrition - (2) Intake Per Person Per Day by Food Group (National, in 2012).
[3] Beverages include alcoholic beverage
Source: Comparison of food consumption statistics of Korea and Japan (2012), (Exhibit JPN-202).

7.234. The Panel recalls that the effective dose to human beings from the consumption of food containing radionuclides is expressed as a formula that links, for each radionuclide, the effective dose exposure (expressed in mSv/year) to the activity level of that radionuclide in food (measured in Bq/kg), the amount of food consumed per year and the radionuclide-specific dose coefficient (expressed in Sv/Bq).[874] Japan used that relationship to calculate a caesium tolerance level based on assumptions about food consumption, the share of food contaminated in Japan and average dose contributions from caesium and other relevant radionuclides.[875] The experts all agreed that Japan adopted a conservative approach that, while designed to ensure a dose exposure below 1 mSv/year, would actually overestimate dietary exposure.[876] Professor Michel explained that this conservatism is "revealed by comparing the exposures assumed in the Japanese deviation of the limits for radioactivity in food and the measured intakes of Cs-137 as revealed by whole body

[874] See paras. 2.8. , 2.25. -2.26. .
[875] See paras. 7.200. , 7.214. and 7.228. .
[876] For instance, in response to Panel question No. 77 to the experts, Dr Skuterud advised that "[t]he expected total dose using these [Japan's] assumptions would be maximum 0,0037 mSv/year." He further observed that even "if someone consumes 100 kg/year of products from Fukushima containing 100 Bq/kg their ingestion dose would be about 0.19 mSv/year from Cs". He considers that his analysis confirms "the conservatism and prudence in Japan's intervention level". Similarly, in response to Panel question No. 81 to the experts, Ms Brown noted that "in deriving the 100 Bq/kg DIL, Japan has made the conservative assumption that 50% of the whole diet is contaminated at the DIL for the whole year and on the contribution of SR-90 to the dose from marine fishery products. Peer reviewed estimates of the proportion of the dose from marine fishery products attributed to Sr are much lower (ranging from <1% to about 8%) than the 50% assumed in the derivation of the 100 Bq/kg DIL". See also Expert Meeting Transcript, para. 1.7 (Professor Anspaugh).

measurements." He also noted that "the assumed contributions of the other radionuclides are very conservative allowing for relatively high contributions by Sr-90 and Pu isotopes which are not seen based on the food data."[877]

7.235. Instead of addressing the overall methodology[878], the general concentration levels, or the average consumption doses[879], Korea points to specific instances of individual samples exceeding the 100 Bq/kg level for caesium. Korea also argues that on 2 October 2013 a Pacific cod from the Ibaraki prefecture tested for 130 Bq/kg of caesium. The Panel is not of the view that a few samples testing higher than 100 Bq/kg of caesium is sufficient to rebut Japan's analysis with respect to the alternative measure. The Panel notes that Japan's alternative includes testing all consignments for 100 Bq/kg of caesium. The Panel's understanding of Korea's measures set forth in section 7.5 above is that a pre-export certificate for caesium and iodine is required for all shipments from 16 prefectures, including the 8 subject to the ban, and that Japan does not challenge this. Moreover, if such products were shipped to Korea they would be subject to the testing of each consignment for caesium and iodine at-the-border. If they somehow made it on to the Korean market they would also be subject to the random point-of-sale testing.

7.236. More importantly, the Panel recalls that the 1 mSv/year level is based on annual averages. As the experts explained, consumption of one outlier fish – a so-called "Frankenfish" – with high levels of strontium that exceed its caesium levels would not affect an overall conclusion about exposure of consumers. Dr Skuterud states that doses higher than Japan's estimated dose level would only be possible if customers deliberately consume the most contaminated products in very large quantities.[880] Japan presented calculations to show that the chance of being able to find and consume even one such fish each week for a year would be less than one in a googol.[881] According to Dr Thompson, given the low levels of contamination measured in marine fish and shellfish, consuming sufficient food in a year to ingest such levels of activity would not be possible, even if 100% of food consumed was from Japan. She further notes "that it is also not possible to ingest enough contaminated marine products to get a dose close to 0.5 mSv/year from Cs-137".[882] The Panel thus finds that the evidence supports a conclusion that testing for food with less than 100 Bq/kg of caesium would result in an effective dose below 1 mSv/year, and likely significantly lower, even if 100% of food consumed was of Japanese origin.

7.237. Furthermore, the impact of Japanese products on Korean dietary exposure to radionuclides has to be assessed in light of how much Japanese food a Korean consumer would be eating. Japan

[877] Professor Michel's response to Panel question No. 77.

[878] See e.g. Panel question Nos. 33, and 63, in which Korea was given the opportunity to provide its own methodology and calculations of its Bq/kg thresholds.

[879] See footnote 836. Japan provided (i) calculations of average concentration levels of cesium and strontium, and (ii) Merz plots and calculations of average effective dose from the consumption of Japanese food, for a number of datasets: (i) strontium and cesium test results for fisheries products caught near the Fukushima Dai-ichi site (Merz plot and calculations based on data in Exhibit JPN-253, (Exhibit JPN-256)); (ii) cesium test results for fisheries products under Japan's monitoring program (Calculations based on Exhibit JPN-254, (Exhibit JPN-257)); (iii) Japan's market basket survey (Merz plot and calculations based on "Market Basket Survey: Raw Data" (2011-2015) , based on Exhibit JPN-133 revised [CONFIDENTIAL], (Exhibit JPN-258)); (iv) Japan's nationwide and Fukushima prefecture duplicate diet survey (Merz plot and calculations based on Japan's Ministry of Agriculture, Forestry and Fisheries, "Effective Dose from Duplicate Diet Survey: Raw Data (multiple prefectures)"(2011-2015), (Exhibit JPN-134) and based on Fukushima Duplicate Diet Survey, (Exhibit JPN-135), (Exhibit JPN-259)); (v) a fiscal year 2014 study by MAFF, assessing contamination levels for various food products in prefectures close to the Fukushima Dai-ichi site (Calculations based on "Full data underlying Examination and Analysis of Radioactive Substances in Agricultural, Forestry and Fishery Products for FY 2014", (Exhibit JPN-100), (Exhibit JPN-260)); (vi) nationwide cesium and strontium test results for agricultural products from Japan's Environmental Radioactivity Database (Merz plot and calculations based on ERD Agricultural Products Data (1963-2016) (Exhibit JPN-131), (Exhibit JPN-261); Calculations based on unmatched agricultural products data (JPN-131.1), (Exhibit JPN-261.1); Merz plot calculations based on matched milk data (1963-2016) (Exhibit JPN-131.2), (Exhibit JPN-261.2); Calculations based on unmatched milk data (1963-2016) (Exhibit JPN-131.2), (Exhibit JPN-261.3)); (vii) Japan's cesium monitoring results for food products, as maintained by Japan's MHLW (Calculations based on "Data underlying Overview of food monitoring results" (April 2012-November 2016)" (Exhibit JPN-156), (Exhibit JPN-262)).

[880] Dr Skuterud's response to Panel question No. 77 to the experts.

[881] Googol = 10^{100}. See Japan's slides presented at the Expert Meeting, (Exhibit JPN-245).

[882] Dr Thompson's response to Panel question No. 77 to the experts. According to Dr Thompson, an annual ingestion of 38, 462 Bq of Cs-137 would be needed to give a dose of 0.5 mSv/year and an ingestion of either 17, 857 Bq of Sr-90, or 2, 000 Bq of plutonium isotopes, or 2500 Bq of Am-241 for an additional dose of 0.5 mSv/year from additional radionuclides.

has provided information to the Panel that the total share of Japanese food products in the Korean market prior to the accident was 0.37%.[883] The Panel asked the experts whether, using Japan's assumptions, if imports returned to pre-accident levels, it would result in Korean consumers' exposure exceeding 1 mSv/year. The experts explained that, if the market share of Japanese products were to return to 0.37% of the Korean food market, the data supports a conclusion that this would still result in a dietary exposure of less than 1 mSv/year.[884] Specifically, Ms Brown stated that "[t]he increase to 2010 import levels should have no impact on the dose limit in Korea" and that even if Japanese imports to Korea increase, such that all fishery products come from Japan, the dose from consumption of these products will still be very low.[885]

7.7.6.4 Risk characterization

7.238. Outside deliberate exposure at high doses (acute radiation exposure), it is extremely difficult to trace the onset of any particular adverse effects (e.g. cancers) to radiation exposure from one particular source – i.e., ingestion, medical treatment,[886] or other background exposure. It is also difficult to conclude that certain cancers can be said to arise from such exposure. The ICRP recommended dose limit is the basis for food safety standards adopted by many national authorities. Dr Thompson explains in that regard that:

> The dose limit for the public represents the ICRP's judgement of the borderline of what would constitute unacceptability. The average annual fatal risk associated with the 1 mSv/year dose limit is about 3 in 100,000 per year (using ICRP risk factors), and the life time fatal cancer risk at this exposure is 0.4% which represents an increase of about 2% of the baseline probability of dying of cancer (OECD 2011).[887]

7.239. Professor Anspaugh explained that for an individual that risk is a chance of 0.00000057 cancer-inducing detriment/year.[888] The ICRP used the LNT model in calculating the 1 mSv/year dose limit. The LNT model assumes that there is no threshold below which adverse effects can be guaranteed not to occur. Professor Michel explained that the LNT model extrapolates the risk of radiation-induced biological effects observed epidemiologically at higher doses down to the low dose region.[889] Dr Thompson stated that the LNT model conservatively assumes that there is no safe level of exposure, that is, it assumes that even the smallest exposure carries some probability of causing cancer.[890] However, Dr Thompson, while acknowledging the role of the LNT model, also cautions that "uncertainty still exists at low (10-100 mSv) and very low (<10 mSv) doses. Consequently, many scientific bodies (e.g. UNSCEAR, ICRP) and professional organizations do not use the risks inferred from studies of populations exposed to moderate (100 mSv to 1 Sv) and high (> 1 Sv) doses to project absolute numbers of radiation-induced cancers following exposure to low and very low doses."[891]

7.240. As noted above, the upper boundary of Korea's tolerance is 1 mSv/year. Thus Korea seems to adopt as its own the risk characterization carried out by the ICRP and utilized by the Codex in developing its maximum guideline levels. In particular, Korea's adoption of the 1 mSv/year dose limit and the Codex guideline levels for the 20 radionuclides (except caesium)

[883] Japan's first written submission, para. 358; Japan's Ministry of Agriculture, Forestry and Fisheries, "Share of Japanese food in Korea by category" (Exhibit JPN-108).

[884] Experts' responses to Panel question No. 112 to the experts. See also Ms Brown's response to Panel question No. 33 to the experts; Dr Skuterud's response to Panel question No. 77 to the experts.

[885] Ms Brown's response to Panel question No. 112 to the experts; experts' responses to Panel question No. 112 to the experts.

[886] Korea has presented some studies related to exposures from medical treatment that might indicate a traceable link from treatment received (CT scans) and observable cancers. See M. Pearce, J. Salotti, M. Litle, K. McHugh, C. Lee, K. Kim, N. Howe, C. Ronckers, P. Rajaraman, A. Craft, L. Parker, A. Berrington de Gonzalez, "Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study", The Lancet, Volume 380, 499-505 (June 7, 2012)., (Exhibit KOR-253). However, this data does not relate to exposure through food ingestion. Moreover, Professor Michel note that the epidemiological data on CT scans is relatively weak. Expert Meeting Transcript, paras. 1.64-1.81.

[887] Expert Meeting Transcript, para. 2.188.

[888] Expert Meeting Transcript, para. 1.7. Professor Anspaugh explained that "[e]ven if you multiply that by 10 years, or 100 years, it is still a very small risk and basically I think people have to make their decision on whether or not that is an acceptable detriment to come from the consumption of food."

[889] Expert Meeting Transcript, para. 1.22.

[890] See e.g. Dr Thompson's response to Panel question No. 6 to the experts.

[891] Dr Thompson's response to Panel question No.1 to the experts.

when developing its own limits, reflects an understanding that below these levels food should be considered as safe for human consumption.[892]

7.7.6.5 The level of protection achieved by Japan's proposed alternative measure

7.241. As noted above, the proposed alternative measure must achieve Korea's ALOP. Japan argues that testing for 100 Bq/kg of caesium is sufficient to also determine that the levels of the other radionuclides are within the tolerance limit set without requiring a specific additional test for that radionuclide. Japan's alternative recognizes that Korea will continue to (i) require pre-export caesium and iodine testing for randomly selected samples from every consignment of food products from 13 prefectures and fishery products from 16 (the 8 previously banned, plus the 8 currently allowed to ship), (ii) require origin certificates for all products, (iii) test every consignment coming from Japan for caesium and iodine; and (iv) reject from the market any consignment where a sample tested for more than 100 Bq/kg of caesium.[893]

7.242. With regard to the adoption of the 2011 additional testing requirements, the Panel refers to its findings in para. 7.84. above that insufficient data were available to reach conclusions on the levels of radionuclides in Japanese products. At the time of adoption of the measure, the data were not sufficient to support the conclusion that levels of strontium and plutonium would normally have been lower than levels of caesium in products and that testing for 100 Bq/kg of caesium would have ensured that the levels of the other radionuclides were below their Codex guideline levels. Therefore, the Panel cannot conclude that at the time the 2011 additional testing requirements were adopted Japan's alternative measure would have ensured human exposure below the 1 mSv/year dose limit. Likewise, the Panel recalls its finding in para. 7.96. that the evidence was sufficient to justify imposition of the product-specific bans in 2012. Indeed, Japan conducted its own risk assessment and determined that the products were not safe for distribution. In 2012, Japan itself did not have confidence with respect to the levels of radionuclides in Alaska pollock and Pacific cod from the five relevant prefectures. Therefore, the evidence does not support a conclusion that Japan's alternative measure would achieve 1 mSv/year in 2012 for Alaska pollock and Pacific cod from the five relevant prefectures.

7.243. However, on the basis of the preceding analysis, the Panel recognizes that testing for 100 Bq/kg of caesium should be sufficient to identify and prevent the entry onto market of any goods that exceed the maximum levels established. The Panel also recognizes that since it is impossible to test every fish a measure such as Japan proposes can be considered as reasonable once there is sufficient confidence that the monitoring data shows that levels are consistently low such that testing of samples from every consignments will be sufficient to detect any shipments containing products in excess of the limits or that the number of products in excess will be so low as to have no significant impact on the exposure dose.[894] In contrast to the period up to when the 2012 measures were adopted, , at least since 2013, the data is sufficient to confirm that caesium levels are consistently below 100 Bq/kg and that strontium and plutonium have not been detected in levels even nearing their respective Codex guideline levels.[895] Japan's conclusion that if there is less than 100 Bq/kg of caesium in a given product it would not contain other radionuclides, particularly strontium and plutonium, in excess of the Codex guideline levels is supported by the understanding of the volumes of the initial releases, how they were dispersed, and how they affected plants and animals in the food chain. Japan relied upon a variety of studies and academic literature to develop its model. The experts confirmed that these were qualified and respected scientific sources.[896] Moreover, the data of actual measurements of levels of radionuclides in foods confirm that caesium is consistently present in greater quantities than strontium and that

[892] CODEX STAN 193-1995, (Exhibit JPN-32), p. 51.
[893] See sections 2.7.1 and 2.7.2 above. Japan's response to Panel question No. 145.
[894] For Japan's description of its monitoring strategy see para. 2.70. .
[895] Dr Thompson's response to Panel question No. 56 to the experts.
[896] The Panel asked the experts to review the studies Japan relied upon in Exhibits JPN-11 and JPN-148 to see if they were from qualified and respected sources. Moreover, the experts in answering the Panel's questions examined Japan's underlying monitoring data that it used as the basis for its conclusions. Korea notes that the analysis of Drs Buesseler and Brenner is not peer reviewed. While peer review is an important indicator of the quality of scientific work, the absence of peer review does not *ipso facto* disqualify a scientific analysis from being reliable. The Panel notes that it would be highly unlikely for a risk assessment conducted by a government authority to be subjected to a formal peer review process and yet such assessments are relied upon every day as the basis for sound decisions for sanitary and phytosanitary protection.

plutonium is extremely low and unable to be distinguished from pre-existing background levels in the Pacific from weapons testing.

7.244. Combining this information with the expected dietary exposure to Korean consumers from Japanese products, the evidence supports a conclusion that utilizing Japan's alternative measure would result in a dose below 1 mSv/year even if 100% of food consumed was of Japanese origin. Given that Japanese food products represent a small share of the Korean market, their expected contribution to Korean consumers' dose would be significantly lower.[897]

7.245. Therefore, the Panel finds that Japan's alternative measure ensures that the total dose is below 1 mSv/year and likely significantly lower.

7.7.7 Comparison of the level of protection achieved by Japan's alternative measure and Korea's ALOP

7.246. The Panel has found that Japan's alternative measure would achieve an exposure dose for Korean consumers below 1 mSv/year and likely significantly lower.

7.247. As noted above, the Panel has concluded that Korea's ALOP is not quantified at 1 mSv per year, but is rather a qualitative ALOP that reflects Korea's adherence to the ALARA principle and its desire not to increase radiation exposure beyond what is in the ordinary environment. However, the qualitative ALOP is reflected and inherent in the measures Korea applies to food products – which seek to limit overall consumption to below 1 mSv/year.

7.248. Korea informed the Panel that it maintains specific levels for each radionuclide and thus Japan's measure would not achieve its ALOP because it does not specifically test for the other radionuclides. The Panel notes, that while Korea does maintain specific maximum levels for each radionuclide it does not generally apply border measures to imports other than Japanese products that specifically test for radionuclides other than caesium and iodine. There is a possibility that once goods have already been placed on the market Korea will do random testing for caesium and iodine, which could result in additional testing for strontium and plutonium.

7.249. The Panel notes that Korea's tolerance level for caesium is 100 Bq/kg. It is not "trace amounts" or 0.5 Bq/kg. Therefore, testing for 100 Bq/kg of caesium is an appropriate measure for ensuring that Korea's tolerance level for that radionuclide is not exceeded. The Panel also notes its conclusion above, that Japan has demonstrated that so long as products from Japan contain less than 100 Bq/kg of caesium they would also contain less than Korea's specific maximum levels for strontium, plutonium, and the other Codex radionuclides.

7.250. As noted above, the Panel has found that there is insufficient data to demonstrate that testing for caesium alone would have been sufficient to achieve a dose below 1 mSv/year in 2011 when the first additional testing requirements were adopted. Similarly, the Panel found that the evidence also did not support a conclusion as regards the adoption of the 2012 product-specific import bans that testing only for caesium would achieve a 1 mSv/year level of protection with respect to Alaska pollock and Pacific cod from the five relevant prefectures. Therefore, the Panel finds that Japan has failed to establish that its proposed alternative measure would have achieved Korea's ALOP at the time those two measures were adopted.

7.251. The evidence supports a conclusion that since 2013 Japan's alternative measure would achieve a maximum level of exposure below 1 mSv/year and likely significantly lower with respect to the products subject to the additional testing requirements (both those adopted in 2011 and in 2013) as well as for all the fishery products subject to the product-specific bans and the blanket import ban, with one exception. The Panel notes that throughout 2013 Japan maintained distribution restrictions on Pacific cod from Fukushima and Ibaraki, because Japan considered it to be unsafe for distribution. As a result, the Panel finds that Japan has established that the suggested alternative measure achieves Korea's ALOP with regard to the adoption of the 2013

[897] See experts' responses to Panel question Nos. 77 and 88 to the experts. See also Professor Anspaugh's opening statement at the Expert Meeting, Expert Meeting Transcript, para. 1.7. Japan presents a "worst case scenario" where the maximum level of exposure that could be reached using its alternative measure would be 0.94 mSv/year. Japan's first written submission, para. 341.

additional testing requirements and import bans on the 28 fishery products, with the exception of Pacific cod from Fukushima and Ibaraki.

7.252. In view of even smaller concentration levels measured in all Japanese food products in 2015, the Panel finds for similar reasons that Japan has also established that its alternative measure would result in an exposure level below 1 mSv/year or significantly lower and achieve Korea's ALOP with regard to the maintenance of all the measures.[898]

7.7.8 Conclusion

7.253. In sum, Japan has proposed another measure that is technically available and economically feasible and is significantly less trade restrictive than the measures Korea currently applies. With respect to whether Japan's alternative measure achieves Korea's level of protection, the Panel finds that it would not have met Korea's level of protection at the time the 2011 additional testing requirements and the product-specific bans were adopted. Similarly, the Panel finds that it would not have achieved Korea's ALOP for Pacific cod from Fukushima and Ibaraki at the time the 2013 blanket import ban was adopted. With respect to the 2013 additional testing requirements and the other fishery products and prefectures subject to the blanket import ban, the Panel finds that Japan's alternative measure would have achieved Korea's ALOP at the time the measures were adopted. The Panel finds that for all the measures, Japan's alternative measure would have achieved Korea's ALOP at the time of the establishment of the Panel and continue to do so to this date.

7.254. Therefore, the Panel finds that Korea's 2011 additional testing requirements and 2012 product-specific import bans were not more trade-restrictive than required when adopted. However, at the time of the establishment of the Panel, they were maintained inconsistently with Article 5.6 of the SPS Agreement because they are more trade-restrictive than required.

7.255. The Panel finds that the 2013 additional testing requirements were adopted and maintained inconsistently with Article 5.6 of the SPS Agreement because they were and are more trade-restrictive than required.

7.256. The Panel finds that the blanket import ban (with the exception of the bans on Pacific cod originating from Fukushima and Ibaraki) was adopted in a manner inconsistent with Article 5.6 of the SPS Agreement because it was more trade-restrictive than required. The Panel finds that the maintenance of the blanket import ban, with respect to all 28 fishery products from all 8 prefectures, is inconsistent with Article 5.6 of the SPS Agreement because it is more trade-restrictive than required.

7.8 Non-discrimination

7.257. Article 2.3 is listed among the SPS Agreement's "Basic Rights and Obligations" and provides as follows:

> Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade.

7.258. Japan claims that Korea's import bans and additional testing requirements are inconsistent with Article 2.3 of the SPS Agreement, because they arbitrarily or unjustifiably discriminate against Japanese products and they constitute a disguised restriction on international trade. Japan maintains in that regard that the conditions of food products imported from Japan and of other origins are similar, because they pose similar SPS risks regulated by Korea's measures.[899] Japan does not argue that the relevant conditions of products from Japan and other origins are identical. Korea contests that the additional testing requirements and the import bans are inconsistent with Article 2.3. According to Korea, the relevant conditions are not similar between Japan and other

[898] The post-establishment data confirm that this declining trend in concentration levels continues.
[899] Japan's first written submission, paras. 291 and 419.

Members and any distinction drawn by the measures is rationally connected to the differences in the conditions prevailing in the territories of the Members concerned.[900]

7.259. Previous panels have found that addressing a claim under Article 2.3, first sentence, involves a cumulative analysis of three elements of the provision, namely whether the measures discriminate, whether discrimination is arbitrary or unjustifiable and whether identical or similar conditions prevail.[901] The Appellate Body has endorsed this cumulative approach, finding that "the three elements identified in the first sentence of Article 2.3 inform each other, such that the analysis of each element cannot be undertaken in strict isolation from the analysis of the other two elements."[902] However, the Appellate Body observed that while Article 2.3 does not mandate any particular order of analysis, "logically, identifying the relevant conditions, and assessing whether they are identical or similar, will often provide a good starting point".[903] It also noted that "the analytical approach adopted by a panel may vary as a function of, *inter alia*, the measure at issue, the nature of the alleged discrimination, and the particular circumstances of a case."[904]

7.260. As regards the second sentence of Article 2.3, previous panels followed the Appellate Body's findings made in the context of Article XX of the GATT 1994 that "'disguised restriction', whatever else it covers, may properly be read as embracing restrictions amounting to arbitrary or unjustifiable discrimination."[905] Thus, prior panels considered their findings of arbitrary or unjustifiable discrimination as a factor indicating that the challenged measures also constituted a disguised restriction on international trade.[906] The Panel will, therefore, start its assessment by addressing each of the three elements of Japan's claim under Article 2.3, first sentence, with regard to adoption and maintenance of the challenged measures. The Panel will then turn to Japan's claim that Korea's measures constitute a disguised restriction on international trade.

7.8.1 Whether identical or similar conditions prevail

7.8.1.1 Interpretation

7.261. As regards the meaning of the term "similar" in Article 2.3, previous panels understood it to mean "of the same substance or structure throughout – homogenous; having a resemblance or likeness; of the same nature or kind".[907] The parties do not question this interpretation, but they offer divergent views on the type of conditions that can be subject of a comparison under Article 2.3.

7.262. According to Japan, the relevant conditions should be determined with reference to the overall regulatory framework from which the alleged discriminatory treatment emerges.[908] In that regard, Japan maintains that the challenged Korean measures regulate SPS risks arising in products.[909] In addition, Japan points out that the SPS Agreement, which applies to Korean measures, forms part of Annex 1A of the WTO Agreement, regulating trade in goods.[910] On that basis, Japan concludes that in order to determine whether conditions are identical or similar, the Panel has to analyse the situation of a "basket of products from different origins that present the same or similar SPS risks".[911]

7.263. Japan finds context for its interpretation of Article 2.3 in Article 5.5 of the SPS Agreement. According to Japan, both provisions address arbitrary or unjustifiable discrimination and it is well-

[900] Korea's second written submission, paras. 236-253.
[901] Panel Reports, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.111; *India – Agricultural Products*, para. 7.389; *US – Animals*, para. 7.571; and *Russia – Pigs (EU)*, para. 7.1297.
[902] Appellate Body Report, *India – Agricultural Products*, para. 5.261.
[903] Appellate Body Report, *India – Agricultural Products*, para. 5.261.
[904] Appellate Body Report, *India – Agricultural Products*, para. 5.261.
[905] Panel Reports, *India – Agricultural Products*, para. 7.476; *US – Animals*, para. 7.575; and *Russia – Pigs (EU)*, para. 7.1389. See also Appellate Body Report, *US – Gasoline*, p. 25.
[906] Panel Reports, *India – Agricultural Products*, para. 7.477; *US – Animals*, para. 7.575; *Russia – Pigs (EU)*, para. 7.1386.
[907] Panel Reports, *US – Animals*, para. 7.572 and *Russia – Pigs (EU)*, para. 7.1302.
[908] Japan's first written submission, paras. 228 and 407; second written submission, para. 83.
[909] Japan's second written submission, para. 84.
[910] Japan's second written submission, para. 84.
[911] Japan's second written submission, para. 86.

established that a violation of Article 5.5 entails a violation of Article 2.3.[912] Japan refers the Panel to the *Guidelines to Further the Practical Implementation of Article 5.5*,[913] which in the case of "food-borne risks" call for a comparison between "situations involving the same type of substance or pathogen".[914] Japan also cites to previous panels that have undertaken comparisons between regulatory treatment of products (or baskets of products) in their analysis of measures under Article 5.5.[915]

7.264. Korea maintains that Japan's emphasis on product comparison is misguided.[916] According to Korea, the appropriate basis of comparison is the conditions prevailing in the territory of Japan and other countries, rather than whether products imported from Japan and other countries pose similar risks.[917] Korea argues that the plain language of Article 2.3 calls for a comparison of conditions in the territory of a particular Member with those in another Member.[918] Korea refers in that regard to past panels' summary of the discrimination test under Article 2.3, which used the word "territories".[919] According to Korea, the "comparable product" test advocated by Japan is thus difficult to reconcile with the plain language of the provision.[920] Korea argues that the context of Article 5.2, which lists among factors to be considered in a risk assessment process "relevant ecological and environmental conditions", support its view that the conditions referred to in Article 2.3 are territorial.[921]

7.265. As regards the relevance of Article 5.5 for interpretation of Article 2.3, Korea states that these are distinct provisions containing different requirements. Korea argues that whereas Article 2.3 expressly refers to the conditions prevailing in the territories of the Members concerned, Article 5.5 refers to the avoidance of arbitrary or unjustifiable distinctions in the levels of protection that a Member considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. In its interpretation of Article 2.3, Korea argues that the Panel should give effect to the differences in the language between the two provisions.[922] In Korea's view, Japan's reliance on the Guidelines to Article 5.5 is misplaced, as, according to Korea, the Guidelines do not provide interpretation of any provision of the SPS Agreement and, more specifically, do not address Article 2.3.[923] Moreover, Korea submits that a product-focused legal test under Article 2.3 would impermissibly enable exporting Members to impose an obligation of equivalence, thereby circumventing Article 4.1 of the SPS Agreement.[924] Korea concludes that the continued release of radionuclides and possibility of future leaks into the environment, as well as non-enforcement risks, are all directly relevant to a determination of whether conditions prevailing in Japan are "identical or similar" to those in other Members under Article 2.3.[925]

7.266. Previous panels have understood the term "conditions" to mean "a way of living or existing"; "the state of something"; "the physical state of something"; and "the physical or mental state of a person or thing".[926] Past panels have found that the *chapeau* of Article XX of the GATT 1994 provides useful context for the interpretation of the terms of Article 2.3, because both provisions refer to arbitrary or unjustifiable discrimination where identical or similar conditions prevail.[927] When interpreting the *chapeau* of Article XX of the GATT 1994, the Appellate Body has found that "only 'conditions' that are relevant for the purpose of establishing arbitrary or

[912] Japan's second written submission, para. 88 (citing Appellate Body Report, *Australia – Salmon*, para. 252; and Panel Reports, *Australia – Salmon*, para. 252; and *US – Poultry* (China), para. 7.318).
[913] Committee on Sanitary and Phytosanitary Measures, *Guidelines to Further the Practical Implementation of Article 5.5*, 18 July 2000 (G/SPS/15).
[914] Japan's second written submission, para. 89.
[915] Japan's response to Panel question No. 49 (citing Panel Reports, *US – Poultry* (China), para. 7.236; *Australia – Salmon (Article 21.5 – Canada)*, para. 7.89; and *EC – Hormones*, paras. 8.186-8.187).
[916] Korea's first written submission, para. 106.
[917] Korea's first written submission, paras. 107-110.
[918] Korea's second written submission, para. 143; response to Panel question No. 133.
[919] Korea's second written submission, paras. 148-49 (quoting the Appellate Body Report, *India – Agricultural Products*, para. 5.256 and Panel Report, *India – Agricultural Products*, para. 7.460).
[920] Korea's responses to Panel questions No. 133 and 134.
[921] Korea's second written submission, para. 144.
[922] Korea's second written submission, paras. 164-165.
[923] Korea's second written submission, paras. 166-167.
[924] Korea's first written submission, para. 110; response to Panel question No. 37.
[925] Korea's first written submission, paras. 137-141.
[926] Panel Reports, *US – Animals*, para. 7.572; *Russia – Pigs (EU)*, para. 7.1302.
[927] Panel Reports, *India – Agricultural Products*, para. 7.400; and *US – Animals*, para. 7.570.

unjustifiable discrimination in the light of the specific character of the measure at issue and the circumstances of a particular case" should be considered.[928] The Appellate Body has found the regulatory objectives pursued by the measure and expressed in the provisions relied on as justification for the measure to be relevant to the determination of the conditions to be compared.[929] Prior panels have adopted a similar reasoning with respect to Article 2.3 of the SPS Agreement, finding that the relevant conditions could be determined by the risk being addressed as described in the objective of the challenged measure.[930] We agree that the regulatory objective of a measure should inform the Panel's determination of the relevant conditions.

7.267. In describing the legal test under Article 2.3, previous panels further explained that to make a *prima facie* case of a violation, a complainant must demonstrate that "identical or similar conditions prevail in the territories of the Members compared.[931] Korea focuses on the inclusion of the word "territories" in the text of the provision and relies on statements by previous panels as the bases for its interpretation that the conditions to be compared are limited to ecological and environmental conditions in Members, as opposed to conditions manifested in products.[932] We disagree. The language of Article 2.3 prohibits arbitrary or unjustifiable discrimination "between Members where identical or similar conditions prevail, including between their own territory and that of other Members." The word "including" is used in this sentence "to indicate that the specified person or thing is part of the whole group or category being considered".[933] As such, it qualifies the subsequent part of the sentence. By employing this language, Article 2.3 identifies "territory" as an example of conditions that could be compared, but it does not preclude that other conditions could be compared as well.[934] In a similar manner, as pointed out by Korea, the use of the term "including" signifies that national treatment is one of the obligations embedded in first sentence of Article 2.3.[935]

7.268. The Panel must read the text of Article 2.3 in its context and in light of its object and purpose. Article 2.3 is one of the SPS Agreement's basic rights and obligations relating to non-discrimination, which applies to all types of SPS measures. An interpretation of this provision which would remove whole categories of SPS measures from its scope would be contrary to the principles of effective treaty interpretation. The Panel asked Korea to explain the implications of its interpretation for the established relationship between Articles 2.3 and 5.5 as well as for measures that address risks not related to the environment or agricultural conditions, such as the presence of additives.[936] Instead of addressing the Panel's question, Korea informed the Panel that there was no claim under Article 5.5 in this proceeding and that the determination of conditions will always be case specific and that this dispute relates to contaminants rather than additives.[937] After the second meeting Korea sought to expand on its explanation of the implications of its interpretation, when it stated that Article 2.3 could apply to measures addressing risks from additives that are linked to climatic conditions or regional practices.[938] The Panel acknowledges that determining the conditions in a particular dispute will be case specific. However, Korea is

[928] Appellate Body Report, *EC – Seal Products*, para. 5.299.
[929] Appellate Body Report, *EC – Seal Products*, para. 5.300-5.301.
[930] Panel Reports, *India – Agricultural Products*, para. 7.469; and *US – Animals*, para. 7.580.
[931] Panel Reports, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.111. See also Panel Reports, *India – Agricultural Products*, para. 7.389; *US – Animals*, para. 7.571; and *Russia – Pigs (EU)*, para. 7.1311.
[932] Korea's second written submission, para. 144.
[933] Oxford English Dictionary, "including", http://www.oed.com/view/Entry/46973633?rskey=EdtCeP&result=3&isAdvanced=false#eid, last accessed on 19 August 2017.
[934] In support of its argument, during the second meeting of the Panel, Korea also explained that the Spanish version of the Article 2.3 text does not use the word "including", and thus "including" is not intended to expand the scope of what is compared, which remains the conditions that prevail in Members' territories. The Panel does not find this argument persuasive. The English and French versions of the text of the SPS Agreement expressly convey that the list is illustrative by the use of "including" and "y compris". Pursuant to Article 33(4) of the VCLT we must interpret the Spanish version in a manner that would enable all three versions to be consistent. The only way to do so is to conclude that the Spanish reference to conditions prevailing in the territories is also illustrative. In that vein, we note that the Spanish version does not contain any text that would contradict such a conclusion.
[935] During the second meeting of the Panel Korea argued that the word "including" is used to incorporate both the national treatment and MFN obligations into the SPS Agreement.
[936] Panel question Nos. 49 and 50.
[937] Korea's responses to Panel question Nos. 49 and 50.
[938] Korea's response to Panel question No. 134. (emphasis added)

asking the Panel to adopt an interpretation that could have a far-reaching effect. In the Panel's view, such a distinction in the application of Article 2.3 is inappropriate, because it would lead to limiting the scope of Article 2.3 to SPS measures addressing risks linked to the environment. The Panel finds such an interpretation contrary to the object and purpose of this provision and, as discussed below, finds no support for such distinctions in the scope of application of Article 2.3 in the context of that provision or the SPS Agreement.

7.269. It is important to recall that the Appellate Body has confirmed that Article 2.3 "takes up obligations similar to those arising under Article I:1 and Article III:4 of the GATT 1994 and incorporates part of the *chapeau* to Article XX of the GATT 1994."[939] The Panel also notes that GATT 1994 provisions on quantitative restrictions, such as Article XI, apply to import bans on goods and claims under this provision have been made against SPS measures.[940] The Panel recalls in this respect that the SPS Agreement constitutes further elaboration of rules established under the GATT 1994 and in particular Article XX (b) thereof.[941] The textual and conceptual similarities between Article 2.3 of the SPS Agreement and various provisions of the GATT 1994 inform us that the focus of the obligations in the SPS Agreement is the same as those in the GATT 1994, namely on trade in goods.

7.270. Korea is correct that Article 2.3 refers to conditions in the territory of Members. As noted above, this reference is not exclusive of other relevant conditions. Moreover, this reference has to be read in the context of the SPS agreement itself. SPS measures regulate products and the risks that they can transfer from one territory to another. It is true that ecological or environmental conditions in an exporting Member can be relevant depending on the circumstances of the case and, in particular, the type of risk addressed by the challenged measures. Disputes over measures adopted to prevent the spread of pests or diseases are likely to focus on whether a particular pest or disease is present in the territory of the exporting or importing member. This was the situation in *Russia – Pigs (EU)* (African swine fever), *US – Animals* (foot-and-mouth disease), *India-Agricultural Products* (low pathogenicity avian influenza), *Australia – Apples (*fire blight, European canker and leafcurling midge*), Japan-Apples (*fire blight), and *Australia – Salmon (*various disease agents). In such cases, territorial aspects are likely to be more prominent compared to disputes over measures targeting "risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs", covered by Annex A(1)(b). However, even in those cases the discussions of territorial conditions were still ultimately linked to a determination on whether to accept the importation of a particular product and under what conditions. Thus, even when examining territorial conditions – such as the presence of pests or environmental contamination – it is done in light of the ultimate purpose of addressing risks of products in international trade.[942]

7.271. In light of the above, the Panel finds Korea's reliance on the panel and Appellate Body reports in *India – Agricultural Products* unavailing.[943] Although both the panel and the Appellate Body accepted that the relevant condition was the distinction adopted in the challenged measures – the presence or not of notifiable avian influenza in the territory of the exporting member[944] – even in that case, the issue was whether imported poultry products could be a means of transmitting avian influenza to domestic poultry. Contrary to what Korea suggests, neither the panel nor the Appellate Body ruled in that case that relevant conditions may only be determined based on ecological or environmental conditions prevailing in a Member's territory. The Appellate Body repeated the panel's finding that a presence of a relevant disease in one country but not another *may be an indication* that identical or similar conditions do not exist.[945] The Panel understands this statement to express the possibility that presence of a disease in a country could

[939] Appellate Body Report, *Australia – Salmon*, para. 251.

[940] See e.g. *Australia – Salmon*, *US – Poultry (China)*, *India – Agricultural Products*, *US – Animals*, and *Russia – Pigs (EU)*.

[941] SPS Agreement, Preamble, eighth recital.

[942] The panel in *US – Animals* held that "[t]he ultimate effect of any procedure to designate a particular region with a "disease status is to determine what SPS measures should be applied to the products originating from that region." Panel Report, *US – Animals*, para. 7.69.

[943] Korea's second written submission, para. 149 (quoting Appellate Body Report, *India – Agricultural Products*, para. 5.256.)

[944] Panel Report, *India – Agricultural Products*, para. 7.463.

[945] Paragraphs 5.250, 5.256 and 5.261 of the Appellate Body report merely restate the panel's findings instead of reflecting Appellate Body's own findings. Appellate Body Report, *India – Agricultural Products*, para. 5.256 (citing Panel Report, *India – Agricultural Products*, para. 7.460). (emphasis added)

be considered by a panel as a relevant factor in the assessment whether identical or similar conditions prevail. However, the Panel sees nothing in that particular statement, or in the panel's or the Appellate Body's reports more generally, that would limit the relevant conditions under Article 2.3 in all cases to comparing the ecological and environmental conditions in the territories of different Members.

7.272. The Panel finds further contextual support for this interpretation in the relationship between Articles 2.3 and 5.5. Article 5.5 refers to a need to avoid arbitrary or unjustifiable distinctions in the application of the ALOP to different situations, if such distinctions were to result in discrimination or a disguised restriction on international trade. It is well established that Article 5.5 is a more specific delineation of the obligations set forth in Article 2.3 in the sense that it marks out and elaborates a particular route leading to the same destination set out in Article 2.3.[946] Although it is true that one can establish an independent violation of Article 2.3 without claiming a violation of Article 5.5, it is also accepted that a violation of Article 5.5 results in a consequential finding of inconsistency with Article 2.3.[947] Previous panels have ruled in the context of Article 5.5 that the relevant point of comparison as to whether two situations would require the application of the same ALOP is whether they are addressing the same product or the same risk.[948] Although, the Panel recognizes that Article 2.3 can have a broader scope than Article 5.5, in that certain types of conditions to be compared under Article 2.3 will not constitute different situations under Article 5.5, the opposite is not the case. A situation that is comparable within the meaning of Article 5.5 must fall within the scope of Article 2.3. Therefore, a condition of a product that serves as the basis for a comparable situation under Article 5.5 also serves as a basis for a similar condition under Article 2.3. For example, the panel in *US – Poultry (China)* found measures taken for the purpose of protecting consumers from the presence of disease-causing organisms, such as salmonella, e-coli, listeria and campylobacter in poultry products to be inconsistent with Article 2.3 as a consequence of a violation of Article 5.5.[949] This would not have been possible under Korea's approach, which, by focusing solely on territorial conditions, would have excluded from the scope of Article 2.3 measures such as those in *US – Poultry (China).* In sum, the relationship between Articles 5.5 and 2.3 and the consistent interpretation of Article 5.5 leads us to believe that the relevant conditions cannot be limited to those in the territory of the exporting or importing Member.

7.273. The Panel agrees with Korea that the term conditions should be read in the context of Article 5.2, which requires Members to take into account "relevant ecological and environmental conditions" in their risk assessment processes. However, Korea omits the other factors, which Article 5.2 instructs risk assessors to take into account. The entire provision reads:

> In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.

7.274. Using the entirety of Article 5.2 as context, the references to processes and production methods, inspection, sampling and testing methods as well as quarantine or other treatment that relate to conditions relevant for products tends to support a conclusion that the conditions referred to in Article 2.3 are to be broadly construed and include those found in products and not just the territory of an exporting or importing Member. The Panel also finds relevant context in the definition in Annex A(4) for the type of risk assessment to be conducted for a measure adopted pursuant to Annex A(1)(b).[950] Annex A(4) states that a risk assessment is "the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs." Thus, it is appropriate for a risk assessment analysis with regard to an Annex A(1)(b) measure to focus on the presence of a health hazard in certain products and not on an analysis of territories.

[946] Appellate Body Reports, *Australia – Salmon*, para. 252; and *EC – Hormones*, para. 212.
[947] Appellate Body Report, *Australia – Salmon*, para. 252.
[948] Panel Report, *US – Poultry (China)*, paras. 7.227-7.228.
[949] Panel Report, *US – Poultry (China)*, paras. 7.318-7.319.
[950] The Panel notes that Annex A(4) contains another definition of risk assessment which does refer to assessing the risk of the entry, establishment or spread of a pest or disease within the territory of the importing Member. The one cited above is that typically associated with risk assessments for measures adopted pursuant to the purpose in Annex A(1)(b) such as Korea's measures at issue in this dispute.

7.275. Finally, contrary to Korea's contention, the Panel finds that determining the relevant conditions on the basis of the potential of product contamination would not lead to circumvention of Article 4.1 of the SPS Agreement. Article 4.1 requires in essence an importing Member to accept as equivalent the SPS measures applied internally by another Member to the same product, if the exporting Member objectively demonstrates that such measures achieve the importing Member's ALOP. As pointed out by Japan, the legal issues addressed by Article 4.1 and Article 2.3 are different.[951] Unlike Article 4.1, which deals with the question what SPS measures Members should apply, Article 2.3 is focused on the manner in which measures are applied.[952] A Member is not precluded from adopting stricter SPS measures than other Members, even if conditions between them are identical or similar, provided that these measures are applied in a non-discriminatory manner and are consistent with other relevant obligations in the SPS Agreement. In the current dispute, Japan is not seeking to have Korea recognize its internal measures as equivalent but rather that Korea apply its own measures in a non-discriminatory manner. If anything, Article 4.1 provides further contextual support for the Panel's interpretation that product-related risks are pertinent for the determination of the relevant conditions. This is because a request for equivalence pursuant to Article 4.1 is only possible if "the same product" is subject to the importing and exporting Members' SPS measures.

7.276. In light of the foregoing, the Panel concludes that its determination of the relevant conditions should be informed by the regulatory objective of the challenged measures and the justification relied upon by the Member in light of the character of the measures and specific circumstances of the case. In that regard, the Panel sees nothing in the language of Article 2.3, first sentence, read in its context and in the light of its object and purpose that would preclude it from considering the risk present in products in international trade as the relevant condition.

7.8.1.2 What are the relevant conditions

7.277. With regard to the determination of the relevant conditions in this dispute, Japan initially frames the relevant conditions in light of the operation of the measures as the potential for contamination of food with caesium and, for food containing caesium up to Korea's tolerance level of 100 Bq/kg, the potential for containing certain other radionuclides.[953] Further into the proceedings, Japan phrases the question more generally as "the relevant conditions under Article 2.3 are whether food products from Japan and food products of other origins contain cesium and the additional radionuclides."[954] Finally, referring to the evidence produced in support of its claims under Article 2.3, Japan concludes that:

> [F]ood from Japan and from non-Japanese sources present similar conditions for purposes of a discrimination comparison under Article 2.3. Specifically, products from Japan and from other origins have similar absolute contamination levels; and, they have similar contamination levels that fall well within Korea's chosen tolerance limits.[955]

7.278. The Panel thus understands Japan to be arguing that the relevant similar condition in the case at hand is the potential for contamination of food products with caesium and the additional Codex radionuclides within Korea's tolerance levels (e.g, 100 Bq/kg of caesium, 100 Bq/kg of strontium, 10 Bq/kg of plutonium and an overall dose limit of 1 mSv/year for all Codex radionuclides).

7.279. Korea reiterates its argument that a product-oriented test would be an inappropriate basis for assessing whether the relevant conditions are similar and that the Panel should instead focus on the specific conditions in the environment in Japan.[956] Korea lists a number of concerns and uncertainties about the initial releases at the time of the accident, subsequent releases and potential future releases, which, according to Korea, are relevant to determination of the relevant

[951] Japan's second written submission, para. 106.

[952] See with regard to the *chapeau* of Article XX of the GATT 1994, Appellate Body Report, *EC – Seal Products*, para. 5.302. In our view, the Appellate Body's finding applies equally to Article 2.3 of the SPS Agreement, which closely follows the language of Article XX of the GATT 1994.

[953] Japan's first written submission, para. 238 (import bans) and para. 410 (additional testing requirements).

[954] Japan's second written submission, para. 109. (footnotes omitted)

[955] Japan's second written submission, para. 125.

[956] Korea's second written submission, paras. 148-151.

conditions. Korea also argues that the marine environment off the coast of Fukushima is distinctive.[957]

7.280. The Panel recalls that the starting point of an analysis of the relevant conditions is the objective of the measure and the risk being addressed. In that regard, Korea states that both the import bans and the additional testing requirements pursue the regulatory objective in Annex A(1)(b) to protect human health from potential adverse effects arising from the presence of radionuclides in food and beverages.[958] Likewise, the documents announcing Korea's measures focus on protection against radioactive contamination in food imported from Japan. For instance, a press release announcing temporary import bans on food from certain Japanese regions links introduction of further bans to detection of radionuclides in excess of the tolerance limits:

> In the future, items that are found to be additionally contaminated by exceeding the standard level or items that newly suspended for distribution by Japan are expected to be subject to temporary import ban immediately.[959]

7.281. In a similar vein, a KFDA press release states that further measures would be considered "in case concerns are raised regarding severe radioactive contamination in Japan-originated foods."[960] As for Korea's testing requirements, KFDA announced that the 13 prefectures subject to the measure, 5 of which are also subject of product-specific import bans, were determined based on detection of radionuclides in food products.[961] As regards the blanket import ban and the extension of the additional testing requirements to all food products in 2013, the Panel notes that these measures were taken following the disclosure of leakages of contaminated water from the FDNPP and the "growing public concern", as well as "uncertainties pertaining to how the situation in Japan will evolve."[962] The extended measures remained focused on the safety of food products ensuring, among other things, that the "same level of radioactivity safety [be] applied to both local foods and Japanese foods."[963]

7.282. As noted earlier in this report[964], Korea also adopted additional measures which Japan does not challenge – such as the testing of randomly selected samples from every consignment for caesium and iodine, the requirement of origin certificates and pre-export caesium and iodine testing certificates, as well as internal measures for additional testing. Moreover, the Panel notes that Korea also stepped up enforcement of origin labelling in markets.[965]

7.283. In view of the close link between Korea's measures, their complementarity and their single regulatory objective, the Panel views Korea's import bans and the additional testing requirements as part of an overall regime pursuing a single objective of protecting Korea's population from potential adverse effects from consumption of food contaminated with radionuclides. Therefore, the relevant conditions to be compared between Members for the purpose of determining whether conditions are similar within the meaning of Article 2.3 is whether products from Japan and the rest of the world have a similar potential to be contaminated with the 20 Codex radionuclides, in particular with caesium, iodine, strontium and plutonium, and whether the levels of contamination would be below Korea's tolerance levels.

7.8.1.3 Whether conditions are similar in food from Japan and of other origins

7.284. Japan argues that food from all over the world contains some amounts of caesium and other Codex radionuclides due to past releases of radioactive material to the atmosphere.[966] Japan

[957] Korea's first written submission, paras. 142-150.
[958] Korea's response to Panel question No. 29.
[959] Korea Prime Minister's Office, Press Release, "Temporary Import Ban on food from regions contaminated by radioactivity in Japan" (25 March 2011), (Exhibit KOR-36), p. 1.
[960] KFDA 24 March 2011 Press Release, (Exhibit JPN-69.b), p. 2. (emphasis omitted)
[961] The document reads that "[t]he 13 ken are where the Japanese government has detected radioactive materials in spinach, etc." KFDA 14 April 2011 Press Release, (Exhibit JPN-55.b (revised)), (Exhibit KOR-72 (revised)) p. 2. (emphasis omitted)
[962] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1.
[963] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1.
[964] See sections 2.7.1 and 2.7.2 above.
[965] The Panel's findings with regard to the operation of Korea's testing requirements can be found in section 7.5 above.
[966] Japan's first written submission, para. 225; second written submission, para. 123.

maintains that, as a result, Japanese and non-Japanese food poses similar potential of containing caesium. In support of this contention, Japan argues that "since April 2012, for all food categories combined, the percentage of food samples exceeding the 100 Bq/kg level in Japan has been very low".[967] Japan further argues that in the fiscal year 2015, more than 99% of results of all tests conducted across all Japanese product groups showed caesium concentration levels below 25 Bq/kg.[968] Japan compares these test results with the ones conducted by Korea and Japan on non-Japanese food to show that products of different origins can contain caesium, including in excess of Korea's 100 Bq/kg tolerance level.[969] Japan concludes that because Japanese and non-Japanese products can contain caesium, and because caesium, when released, is accompanied by other Codex radionuclides, both Japanese and non-Japanese products can also contain other Codex radionuclides.[970]

7.285. Korea disputes that Japan has demonstrated that the relevant conditions are similar in food from Japan and from other origins. Korea argues that there is currently insufficient relevant scientific evidence concerning radionuclide contamination in Japan stemming from the FDNPP.[971] With respect to the specific food products, Korea alleges insufficiencies of Japan's food monitoring programme and a limited sampling of commercially important fishery species.[972] In particular, Korea reiterates its argument relating to the insufficient number of strontium and plutonium test results presented by Japan in its various data sets.[973] Finally, Korea maintains that Japan stated that the insufficiency of evidence is a relevant factor and that "Article 2.3 may allow a Member to justify discrimination because of insufficiencies in the scientific evidence."[974]

7.286. Korea further maintains that the elevated levels of caesium detected in the Japanese environment and in certain Japanese products, demonstrate a higher potential of containing caesium and the additional radionuclides.[975] Korea refers to several instances of plants and animals tested between 2012 and 2015, in which 100 Bq/kg or more of caesium was detected. In particular, Korea cites to one Pacific cod that tested for 130 Bq/kg of caesium on 2 October 2013.[976] Korea also cites to tests in several fish species that are not the subject of Japan's claims, namely black porgy, sea bass, stone flounder, and masou salmon.[977] Korea further refers to two incidents in May 2016 in Tochigi where a food stand had accepted mislabelled wild edible plants that had actually been sourced from a restricted area that exceeded the reference level (100 Bq/kg) by up to 2100 becquerels and bamboo shoots served for lunch at a local elementary school were found to contain 234 Bq/kg of caesium. The mislabelling was discovered through a purchase survey by MHLW.[978] Korea adds that Japan itself maintains restrictions on distribution of certain species due to the contamination potential.[979]

7.287. Moreover, Korea argues that Japan fails to demonstrate that food products from all origins contain caesium.[980] According to Korea, results of tests conducted by Korea and Japan on third-country products show levels of caesium exceeding the 100 Bq/kg level for products known

[967] Japan's second written submission, para. 114.
[968] Japan's second written submission, para. 113.
[969] Japan's second written submission, paras. 119-122; response to Panel question No. 136.
[970] Japan's second written submission, paras. 123-124.
[971] Korea's second written submission, paras. 172-176.
[972] Korea's second written submission, paras. 90-92; Exhibit KOR-273.
[973] See e.g. Korea's second written submission, paras. 90-101.
[974] Korea's second written submission, paras. 174-176.
[975] Korea's second written submission, paras. 40-50.
[976] Korea's second written submission, para. 47.
[977] Korea's opening statement at the first meeting of the Panel, para. 73 (citing FAJ Caesium Monitoring Data of fisheries products, (Exhibit JPN-72)). Korea refers to test results for black porgy from Fukushima with Cs-510 Bq/kg (May 14, 2014) and sea bass from Miyagi with Cs-190 Bq/kg (August 13, 2014). Korea also refers to samples of the black porgy taken in 2012 contained 3,300 Bq/kg of caesium, samples of stone flounder taken from 2014 contained 240 Bq/kg of caesium, and samples of masou salmon in late 2015 contained 180 Bq/kg of caesium. Korea refers to these species to argue that Japan is "cherry-picking" the data to present a more positive picture than real life. However, we note that Japan is not challenging the bans on these species. As regards the fishery species subject to Japan's claims against Korea's import bans, Korea returns to its argument that Japan has engaged in "cherry picking" with lower measured radionuclide levels. For more detail on Korea's argumentation in that respect, the Panel refers to paras. 7.210. through 7.212. above.
[978] Korea's opening statement at the first meeting of the Panel, para. 73; second written submission, paras. 47-49 and 104-105; response to Panel question No. 42.
[979] Korea's second written submission, para. 204.
[980] Korea's comments on Japan's response to Panel question No. 136.

to accumulate radioactive isotopes more easily, such as blueberries and mushrooms.[981] Korea adds that the said test results, at least those conducted by Korean authorities, focused on products from specific origins, such as Ukraine and its neighbouring countries and China, which have been affected by past releases of radioactive material.[982] Accordingly, Korea argues that the evidence put forward by Japan does not support Japan's contention that food products of all origins contain caesium.[983]

7.288. Korea further argues that because the import bans and the additional testing requirements were adopted as provisional measures within the meaning of Article 5.7 of the SPS Agreement, Japan has to show that scientific information was sufficient to reach the conclusion that the conditions were similar or identical.[984] Korea alleges that, in particular with regard to strontium and plutonium, there is insufficient scientific information to allow valid conclusions about concentration levels of these radionuclides in Japanese food.[985] In a similar vein, Korea contends that the number and type of food samples tested is insufficient to support conclusions about the relevant conditions in Japanese food and the sample-design omits instances of highly contaminated items.[986] Korea adds that leakages and the risk of further releases of contaminated water from the FDNPP to the marine environment renders the relevant conditions dissimilar.[987] Korea also alleges that Japan's argumentation is flawed in that it disregards contamination of the environment, in particular the seabed, and the amount of hazardous radioactive material remaining at the FDNPP site.[988]

7.289. In the Panel's view, assessing whether the potential for contamination with caesium and the additional radionuclides is similar in food products from Japan and of other origins requires the Panel to take a holistic approach that would consider all the relevant factors affecting such a risk. The Panel will thus assess the totality of the evidence provided to the Panel, without any single element being dispositive for our conclusion. In its analysis under Article 5.6, the Panel examined the level of the release of the radionuclides from the FDNPP and the levels of radionuclides in food products from Japan. An analysis of the same factors with respect to food from other origins is relevant to whether the relevant conditions posed by Japanese and non-Japanese products are similar.

7.290. Starting with the source of radioactive contamination, the record evidence demonstrates that caesium, iodine, strontium and plutonium were the main radionuclides released from the FDNPP following the reactor meltdowns and are the radionuclides definitely addressed by Korea's measures.[989] As noted earlier, any iodine released to the environment quickly decayed due to its very short physical half-life (eight days). With respect to strontium and plutonium, the amounts released into the environment were orders of magnitude lower than the caesium releases and absolute levels were small.[990] The other radionuclides were released in even smaller quantities. The Panel also notes that americium, ruthenium, cerium, and iridium are gamma-ray emitters and are thus detected using the same spectrometers as those used in caesium testing.[991] In other words, testing for caesium would reveal any detectable levels of these other radionuclides in the results. Therefore, in light of the nature and volumes of the radionuclides released from the FDNPP, the Panel considers it sufficient to focus its analysis on the potential contamination by caesium, strontium, and plutonium isotopes.

7.291. Prior to the FDNPP accident, there were major releases of man-made radionuclides, which contaminated the global environment. As indicated in Table 20 below, the fallout from nuclear

[981] Korea's comments on Japan's response to Panel question No. 136.
[982] Korea's comments on Japan's response to Panel question No. 136.
[983] Korea's comments on Japan's response to Panel question No. 136.
[984] Korea's opening statement at the first meeting of the Panel, para. 53.
[985] Korea's second written submission, paras. 93-101 and 216-220.
[986] Korea's second written submission, paras. 203-215.
[987] Korea's second written submission, para. 221; response to Panel question No. 40.
[988] Korea's second written submission, paras. 172-202.
[989] See section 2.5.1.1 above.
[990] See para. 2.49. above, and UNSCEAR 2013 Report Annex A, (Exhibit JPN-210), p. 41; Ms Brown's response to Panel question No. 28 to the experts; Professor Michel's response to Panel question No. 91 to the experts.
[991] Expert Meeting Transcript, para. 3.15.

weapons testing is responsible for the most radioactive material distributed globally.[992] The accident in the Chernobyl nuclear power plant in 1986 was another major source of global radioactive contamination, although it had a particularly strong impact on Europe.[993] Releases from other nuclear facilities had more localized effects.[994] The radioactive material, mainly caesium, released to the atmosphere from the FDNPP also contributed to global contamination levels, although the fallout has affected the East and North of Japan the most.[995] Caesium and, to a much lesser extent, strontium and plutonium discharged to the ocean from the FDNPP were largely dispersed by sea currents and added to existing concentration levels in the Northern Pacific. Given their properties, it is expected that some amounts of these radionuclides were bound to particles, sunk and settled in sediments off the Fukushima coast.[996] This would also be true for areas close to the other primary sources of contamination.[997] In sum, although radionuclides can be more concentrated close to the source of contamination, the radioactive material originating from all of these events has been dispersed across the world depending on the atmospheric transport, precipitation, sea currents, as well as physical and chemical characteristics of specific isotopes.[998]

Table 20: Estimated total releases of radioactive caesium, strontium and plutonium from the major pre-2011 events and the FDNPP accident.

Isotope	Nuclear weapons testing (PBq)	Chernobyl accident (PBq)	Irish Sea releases (PBq)	FDNPP accident (PBq)
Cs-137	950	85	41.2	7-26
Sr-90	620	10	6.2	0.04-1
Pu-239, -240	11	0.031	0.6	0.00001-0.000024

Source: Analysis of caesium and additional radionuclides in food products from Japan and the rest of the world, (Exhibit JPN-11) pp. 17-22 and 36. For the FDNPP data see section 2.5.1 above.

7.292. The Panel recognises the unprecedented nature of the FDNPP accident, as the largest release of radionuclides from a nuclear accident into the marine environment.[999] However, the Panel cannot ignore the fact that prior to the FDNPP accident major releases of radionuclides took place in marine areas, resulting in their contamination.[1000] Examples include discharges of radioactive waste into the Irish Sea and North Atlantic, as well as nuclear weapons tests conducted in the Pacific, including underwater.[1001]

7.293. Due to their physical half-life, some of the caesium and strontium released during pre-2011 events have already decayed. However, as confirmed by the experts, both the historical releases and the FDNPP accident continue to have global effects.[1002] Likewise, the predominant source of plutonium in the Pacific is still long-lived isotopes of plutonium released during the nuclear weapons testing.[1003] The Panel finds on that basis that the caesium, strontium and plutonium that were released to the environment in significant quantities prior to the FDNPP accident still have the potential to be present in food from across the world.

[992] Experts' responses to Panel question Nos. 19 and 22 to the experts. According to the 2000 UNSCEAR Report, "[n]uclear weapons tests were conducted at various locations on and above the earth's surface …." Depending on the location of the explosion (altitude and latitude) the radioactive debris entered the local, regional or global environment." 2000 UNSCEAR Report, Sources and Effects of Ionizing Radiation, (Exhibit JPN-11.1(111)), p. 160.

[993] Experts' responses to Panel question Nos. 19 and 22 to the experts. See also Professor Michel's response to Panel question No. 42 to the experts.

[994] Experts' responses to Panel question Nos. 19 and 22 to the experts.

[995] See section 2.5.1.3 above. While iodine was also released to the atmosphere in significant quantities, it quickly decayed due to its very short physical half-life.

[996] Oceanus 1 May 2013, (Exhibit KOR-7), p. 4; Fukushima Daiichi–Derived Radionuclides in the Ocean: Transport, Fate, and Impacts (2017), (Exhibit JPN-264), pp. 10-15.

[997] Professor Michel's response to Panel question No. 42 to the experts.

[998] Experts' responses to Panel question Nos. 2, 19 and 22 to the experts.

[999] Korea's second written submission, para. 22.

[1000] Professor Michel's response to Panel question No. 71 to the experts; Japan's slides presented at the Expert Meeting, (Exhibit JPN-245), p. 13.

[1001] Professor Michel's response to Panel question No. 71 to the experts; Japan's slides presented at the Expert Meeting, (Exhibit JPN-245), p. 13.

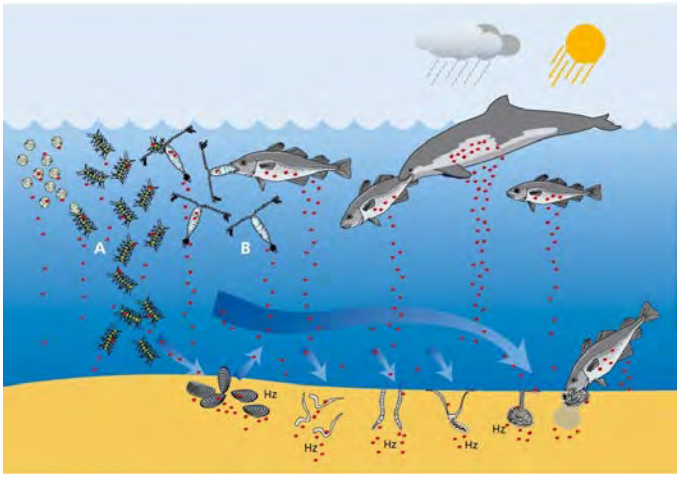
[1002] Experts' response to Panel question No. 19 to the experts.

[1003] See para. 2.56. above.

7.294. Man-made radionuclides released to the environment can contaminate agricultural and livestock products through direct deposition from the atmosphere. Plants and fungi can absorb radionuclides from the soil via root uptake.[1004] As regards livestock, if not directly exposed to radiation, it can ingest and retain radionuclides through consumption of plants, fungi or fodder, potentially leading to contamination of meat and milk.[1005] Fish and other marine species can absorb radionuclides directly from water, from dietary sources, such as plankton, forage fish and, to a lesser extent, sediments in case of demersal species.[1006]

7.295. The absorption rate of radioactive material by plants, animals and fungi varies depending on the physical, biological and chemical processes involved, as well as their geographical niche.[1007] Various pathways of radionuclide uptake have been studied and they allow estimating transfer factors between plants, animals, and fungi up the food chain and ultimately to food products for humans.[1008] Figure 7 below demonstrates how radionuclides may be cycled through the marine food web, bearing in mind that the transfer factor from one species to the other is not necessarily un-diluted and depends on a number of variables.

Figure 7: Transport of hazardous substances and transformation products through the food web in the marine environment.

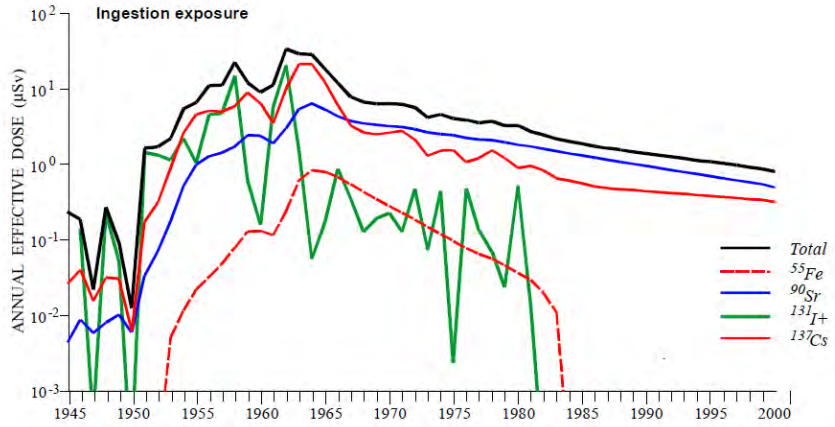


Source: I. Dahllof, J. H. Andersen (eds.), Hazardous and Radioactive Substances in Danish MarineWaters, (National Environmental Research Institute, 200), (Exhibit KOR-264), p. 13.

7.296. Figure 8 below indicates the worldwide average ingestion doses from isotopes of caesium-137 and strontium-90 released during nuclear weapons testing.

[1004] Experts' responses to Panel question No. 2 to the experts.
[1005] Experts' responses to Panel question No. 2 to the experts.
[1006] Experts' responses to Panel question Nos. 2, 18 and 39 to the experts.
[1007] Experts' responses to Panel question No. 2 to the experts.
[1008] Experts' responses to Panel question No. 2 to the experts.

Figure 8: Worldwide average doses from radionuclides produced in atmospheric testing of nuclear weapons through ingestion exposure.



Source: 2000 UNSCEAR Report, (Exhibit JPN-11.(111)).

7.297. Based on the data in Figure 8 and knowledge of the half-lives of caesium and strontium, the Panel can reasonably conclude that radioactive isotopes of caesium and strontium from nuclear weapons testing continue to this day to constitute a potential for contamination of food products across the world. The Panel notes that this graph does not take into account the additional releases from the Chernobyl accident or other release events from nuclear facilities. These events added to the global contamination levels and thus increase the potential for contamination of food above what is depicted in the graph.

7.298. In light of all of the foregoing, the Panel concludes that past releases of radionuclides to the environment continue to affect food products and mean that food from anywhere in the world has the potential to be contaminated with radionuclides. The Panel now turns to the levels of radionuclides in food. In that regard, Japan has provided the Panel with data with respect to the levels of radionuclides in food products in Japan and from other origins.

7.299. With respect to the levels of caesium in food products in Japan, Japan provides the Panel with data from three different government agencies (NRA, MHLW and MAFF) with different sampling criteria. Japan primarily relies on the MHLW's dataset for 2012-2016 (however, for fisheries the data goes back to 2011).[1009] In its arguments Japan points the Panel to different subsets of the data, either by time-period or product.[1010]

7.300. The Panel recalls its finding above that Korea's measures all serve the same purpose and form part of an overall regulatory regime dealing with radioactive contamination in food.[1011] At the same time, the Panel is also aware that the measures were imposed progressively over time and that each measure has a different product scope. The 2011 additional testing requirements apply to agricultural products, processed foods and food additives; the product specific import bans adopted in 2012 apply to Alaska pollock from Fukushima and Pacific cod from Aomori, Fukushima, Ibaraki, Iwate and Miyagi; the 2013 additional testing requirements extend the 2011 measures to livestock and fishery products; while Japan challenges the 2013 blanket import ban on fishery products from 8 prefectures with respect to Alaska pollock, Pacific cod, and 26 other fishery products.[1012] The Panel also recalls that Japan is challenging the adoption as well as the

[1009] As discussed in section 7.7.2 , Japan must establish that a violation existed on the date of establishment of the Panel. In that sense, Japan must provide data that demonstrates that the similarity of conditions existed at the time of establishment of the Panel. The Panel only refers to post-establishment data to confirm the continuation of the conditions.

[1010] For example, Japan argues that in every year since April 2012 less than 1% of all categories of tested Japanese food products were found to contain 100 Bq/kg or more of caesium. Japan further argues that no sample tested after 3 October 2013 of the 28 fishery products subject to Korea's import bans that Japan is challenging has exceeded that level of caesium. Japan then refers again to all products covered by the ERD database, stating that no result "in recent years" has shown caesium levels in excess of the 100 Bq/kg level. Japan's second written submission, paras. 113-115.

[1011] See para. 7.283. above.

[1012] Abalone, Albacore, Alfonsino, Anchovy, Bigeye tuna, Blue shark, Bluefin tuna, Chestnut octopus, Chub mackerel, Chum salmon, Common octopus, Common sea squirt, Giant Pacific octopus, Japanese

maintenance of the measures. Thus, the Panel must first determine whether the conditions were similar in 2011, 2012, and 2013 with respect to the groups of products covered by each measure. Secondly, the Panel will determine whether the conditions were similar when the Panel was established on 28 September 2015 and whether they continued to be so.

7.301. Korea adopted the 2011 additional testing requirements for agricultural products, processed foods and food additives in the months immediately following the FDNPP accident. Japan admits that during that period caesium levels in food from the most affected areas of Japan "increased considerably."[1013] Japan does not refer in its arguments to data on the levels of radionuclides found in these product categories in 2011 that would support Japan's argument that conditions were similar at that point in time. Indeed, the food monitoring data Japan provided for non-fishery products only begins in April 2012.[1014] Although the ERD data does cover the period before and after the accident, it only provides an overview of test results for agricultural products and, except for milk, not for processed foods or additives.[1015] In the absence of sufficient data directly addressing the conditions of the Japanese products subject to the challenged measure, the Panel finds that Japan has failed to meet its burden of proof with respect to the existence of similar conditions in Japanese and non-Japanese products at the time of adoption of the 2011 additional testing requirements.

7.302. With respect to the adoption of the product-specific import bans on Pacific cod and Alaska pollock from five Japanese prefectures in 2012, the Panel notes that they followed Japan's introduction of its own internal restrictions on distribution of these two fishery products from the same prefectures.[1016] The Panel understands that Japan imposed these internal restrictions, because caesium levels detected in samples were in excess of the tolerance level of 100 Bq/kg.[1017] These restrictions are an indication that Japan itself concluded that there was a high potential for contamination in these fishery products in these areas in 2012. Moreover, in its argumentation with respect to these bans, Japan does not focus on the time of adoption, but rather argues that since October 2013 the levels in samples of these products have not exceeded 100 Bq/kg of caesium.[1018] Therefore, the Panel finds that Japan has not met the burden of proof to establish its factual assertion that the potential for radionuclide contamination in Pacific cod and Alaska pollock from the relevant prefectures in 2012 were below Korea's tolerance levels.

7.303. With regard to the adoption by Korea of the blanket import ban in 2013, the Panel has reviewed the sampling data provided from MAFF and MHLW for the 28 fishery products for each of the affected prefectures. According to the data, the caesium content measured in all fishery products covered by Japan's claim, except Pacific cod, was at that time consistently below the tolerance level of 100 Bq/kg.[1019] As regards Pacific cod specifically, 4 samples from Fukushima and 2 from Ibaraki tested in the three quarters preceding adoption of the blanket import ban exceeded Korea's tolerance level.[1020] At the same time, Japan maintained its own restrictions on Pacific cod from those two prefectures.[1021] Therefore, the Panel finds that for 27 of the fishery products from all 8 prefectures and Pacific cod from Aomori, Chiba, Gunma, Iwate, Miyagi and Tochigi the data supports a conclusion that the potential caesium contamination in these products was below the 100 Bq/kg tolerance level. However, Japan has not met its burden of proof to establish the same factual assertion with regard to Pacific cod from Fukushima and Ibaraki in 2013.

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amberjack, Japanese flying squid, Japanese jack mackerel, Japanese sardine, Pacific oyster, Pacific saury, Salmon shark, Scallop, Skipjack tuna, Southern mackerel, Striped marlin, Swordfish, Yellowfin tuna.

[1013] Japan's second written submission, para. 110.

[1014] MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155).

[1015] ERD Agricultural Products Data (agricultural products), (Exhibit JPN-131.1); ERD Agricultural Products Data (milk), (Exhibit JPN-131.2); ERD Agricultural Products Data (other food), (Exhibit JPN-131.3).

[1016] See para. 2.104. above.

[1017] Japan's 22 June 2012 Ban, Alaska Pollock and Pacific Cod - Fukushima, (Exhibit JPN-119.b), p. 1; Japan's 27 August 2012 Ban, Pacific Cod - Aomori, (Exhibit JPN-121.b), p. 1; Japan's 2 May 2012 Ban, Pacific Cod - Iwate and Miyagi, (Exhibit JPN-117.b), p. 1; Japan's 9 November 2012 Ban, Pacific Cod - Ibaraki, (Exhibit JPN-123.b), p. 1. See also MHLW Concepts of Inspection Planning and Items and Areas to which Restrictions of Distribution and/or Consumption of foods applies, (Exhibit JPN-42.b), p.8-9.

[1018] Japan's first written submission, para. 252.

[1019] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).

[1020] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).

[1021] The last distribution restrictions on Pacific cod were lifted in January 2013 in the Miyagi prefecture, in November 2014 in the Ibaraki prefecture and in February 2015 in the Fukushima prefecture. See section 2.7.6 above.

7.304. With respect to the extension of the additional testing requirements in September 2013, the Panel notes that the measure applies to essentially all food – fishery, livestock, and agricultural products; processed food; and food additives. During that time period, Japan continued to maintain distribution restrictions on a number of food products, such as cereals, grains and fishery products, especially from the Fukushima prefecture.[1022] However, unlike the product specific and blanket import bans, Japan is not seeking the removal of the measures only with respect to certain products. Instead, Japan is seeking to invalidate Korea's additional testing requirements completely with respect to all the food products that they cover. If Korea's import bans were removed, then the additional testing requirements would apply to the relevant products. Therefore, the Panel will not exclude any test results from specific fish species or food products from our analysis of the similarity of conditions with regard to the additional testing requirements.

7.305. As the 2013 additional testing requirements address all products from anywhere in Japan in terms of their contribution towards an average annual exposure level, our analysis will examine all products from anywhere in Japan from the same perspective. Having examined the relevant data, the Panel notes that at the time the measure was adopted, in general, less than 1% of samples were found to exceed the caesium tolerance level of 100 Bq/kg for all product categories from all Japanese prefectures.[1023] Even if the Panel were to disaggregate the data based on the different classes of food the measures apply to, the Panel notes that in fiscal year 2013, less than 1% exceeded the caesium level of 100 Bq/kg with regard to most products, the main exception being game meat.[1024]

7.306. Therefore, with respect to the adoption of the 2013 additional testing requirements, the Panel finds that Japan has established its factual assertion that, in general, the levels of caesium contamination in all Japanese food products were below 100 Bq/kg.

7.307. With respect to the maintenance of the import bans, the MHLW and MAFF data shows that since 3 October 2013, none of the tests of the 28 fishery products covered by Japan's claim from any Japanese prefecture detected caesium in excess of the 100 Bq/kg level.[1025] The Panel notes that a single sample of Pacific cod was measured to contain 100 Bq/kg in March 2014, but the vast majority of samples of the 28 fishery products tested since October 2013 contained between 0 and 25 Bq/kg of caesium.[1026] The Panel recognises that on certain occasions, the radionuclide content measured in samples of Japanese fish was higher than Korea's tolerance levels.[1027] However, several of these fishery products (black porgy, sea bass, stone flounder, and masou salmon) are not subject to Japan's claim and will remain banned regardless of the outcome of this dispute.[1028]

7.308. For the maintenance of the additional testing requirements, both 2011 and 2013, the Panel recalls that, in general, levels of caesium in products have been continuously declining. In fiscal year 2012 the percentage was 0.86%, in fiscal year 2013 0.32%, and in fiscal year 2014 0.18%.[1029] The reviewed data support Japan's contention that for all but two food categories, the proportion of samples exceeding the 100 Bq/kg tolerance level was less than 1%, including with regard to the Fukushima prefecture.[1030] The Panel also finds the data to support Japan's

[1022] Japan MHLW Internal Distribution Restrictions on Food, (Exhibit JPN-48), pp. 1-10.
[1023] MAFF food monitoring results (April 2012– March 2016), (Exhibit JPN-155), p. 1.
[1024] According to the results of tests conducted as part of the national food monitoring programme, 29.55% of samples of game meat and 5.09% wild plants and wild edible fungi exceeded the 100 Bq/kg caesium tolerance level. However, these products are known to contain higher levels of radionuclides regardless of origin. This is borne out by the import testing data from both Japan and Korea, which show high levels of caesium in such products from Europe, China, and the United States. MAFF Overview of Korea's Test Results, (Exhibit JPN-158) and MAFF Import inspection results in Japan, (Exhibit JPN-159). This proportion was much smaller for and for fishery products (both marine and freshwater – 1.5%). See MAFF food monitoring results (April 2012– March 2016), (Exhibit JPN-155), p. 1; FAJ Monitoring Report, (Exhibit JPN-43), p. 28.
[1025] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157); ERD Fisheries Data, (Exhibit JPN-130 (revised)).
[1026] Approximately 0.3% of samples of the 28 species tested from October 2013 until the establishment of the Panel contained more than 25 Bq/kg of caesium. MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157). The ERD database shows even lower levels.
[1027] Korea's opening statement at the first meeting of the Panel, para. 73; second written submission, paras. 47-49.
[1028] See MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155). Nevertheless, these samples are included in the general food contamination level the Panel has examined.
[1029] MAFF overview of food monitoring results (April 2012– March 2016), (Exhibit JPN-155).
[1030] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).

contention that in the two quarters immediately preceding establishment of the Panel, the majority of Japanese food products contained between 0 and 25 Bq/kg of caesium.[1031] The notable exceptions were wild plants, wild edible fungi, and game meat, which are foods known to absorb increased amounts of caesium regardless of origin.[1032]

7.309. The experts confirm that the data provided by Japan reasonably supports a conclusion that by 2015 the levels of caesium concentration in Japanese food, generally, returned to levels below 100 Bq/kg.[1033] Korea admits in that regard that none of over 188,000 consignments of Japanese food imported into Korea contained caesium in excess of 100 Bq/kg.[1034]

7.310. Korea is correct that the data reflect that some samples out of the hundreds of thousands of samples tested through late 2015 had caesium levels in excess of 100 Bq/kg. Ms Brown explains that there are some very small percentages of food samples with activity concentrations greater than 100Bq/kg in some internally banned products.[1035] Likewise, Dr Skuterud notes that the return to low levels can be attributed not only to reduction in contamination levels in the contaminated areas, but also Japan's strict management strategies and restrictions on food production in the most affected areas.[1036] Based on the way Japan has formulated its claims against the additional testing requirements, the Panel concludes that, unlike its challenges to the import bans, Japan is not limiting its claims relating to the additional testing to a particular subset of products. Therefore, the Panel takes account of these small amounts of products that exceed tolerance levels in its analysis, because if Korea were to lift bans on these products, these products would be subject to the additional testing requirements. However, even including these samples does not change our overall conclusion that the potential for Japanese food products to contain caesium in excess of 100 Bq/kg is low.

7.311. Professor Michel explains that "one will always (not only as a consequence of the Fuskushima accident) find food items exceeding the 100 Bq/kg." While surveillance measurements should continue to try to detect these outliers, Professor Michel also notes that as the annual exposure due to caesium depends on the general caesium activity concentration in the food, "even some not detected food items exceeding 100 Bq/kg would not endanger the conformity of the food with the 1 mSv/year dose limit."[1037] In other words, consuming a single fish or food product exceeding the radionuclide tolerance level would not automatically result in an increased risk for the consumer. This is because the tolerance levels are set based on average consumption values.[1038] Therefore, achieving Korea's regulatory objective of protecting against radiation exposure does not require each and every consumed product to contain radionuclides below the tolerance level.[1039] According to Dr Skuterud, isolated cases of food items containing radionuclides above the tolerance level do not constitute a food safety concern, which focuses on annualized production and subsequent consumption, rather than on each individual item.[1040] Therefore, with respect to the maintenance of the import bans and the additional testing requirements the Panel finds that Japan has met its burden to establish that the potential for contamination with caesium in excess of 100 Bq/kg is low.

7.312. The next step of the Panel's analysis is to compare the potential for contamination with caesium in Japanese products, where Japan has met the burden of proof to establish it, with those of other origins. In that regard, Japan refers to import testing data from Korea and Japan, as well as knowledge about contamination resulting from pre-2011 releases of radionuclides. The Panel has not been given comprehensive testing data of non-Japanese products over all food categories.

[1031] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157).
[1032] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157); see also experts' responses to Panel question No. 51 to the experts.
[1033] Experts' responses to Panel question No. 43 to the experts.
[1034] Data for the period between March 2011 and December 2015. While part of the data post-dates the establishment of the Panel, the pre-establishment data are sufficient to conclude that caesium was not detected in excess of 100 Bq/kg in any consignment of Japanese food entering Korea. The post-establishment data confirm that this trend continues. Korea's response to Panel question No. 120(c).
[1035] Ms Brown's response to Panel question No. 43 to the experts.
[1036] Dr Skuterud's response to Panel question No. 43 to the experts.
[1037] Professor Michel's response to Panel question No. 43 to the experts.
[1038] Expert Meeting Transcript, para. 1.194; Japan's opening statement at the second meeting of the Panel, Annex A, slides 27-32 and Annex B, slides 27-32.
[1039] Experts' responses to Panel question No. 81 to the experts.
[1040] Expert Meeting Transcript, paras. 4.12 and 4.16.

Recognising that direct measurements are the preferred method of determining actual levels of contamination, the Panel finds the data provided can serve as a basis for a conclusion on general contamination in conjunction with the information available on contamination due to past releases throughout the world and general knowledge on the uptake of radionuclides in food products. Dr Skuterud notes in this respect that:

> [B]ecause of few ongoing monitoring programmes and reviews of current contamination levels (reflecting the generally low contamination levels and risks), it is not straightforward to get good estimates of current levels of caesium in food products worldwide. Together with the general knowledge of global contamination levels, and the scientific understanding of the environmental behaviour of the radionuclides, the datasets from import in Korea and Japan form a reliable basis for conclusions.[1041]

In that sense, the specific data is used to confirm logical deductions from the more general knowledge. The Panel notes that at this stage it is looking at potential for contamination and not actual levels of contamination.

7.313. Ms Brown explains that there is sufficient data to conclude that caesium is present in food from all over the world in trace amounts, mainly from nuclear weapons testing fallout, but also from Chernobyl. She states that these levels are in general, very low and significantly lower than 100 Bq/kg of caesium. Ms Brown also agrees that concentrations of caesium in Japanese foods are likely to be higher than in non-Japanese foods, but these would also be very low and significantly lower than 100 Bq/kg.[1042]

7.314. The test results available for non-Japanese food products show particularly high levels of caesium in the food categories expected to have high concentration of radionuclides, such as mushrooms, berries and their derivatives.[1043] With regard to fishery products, caesium concentration levels were within a range of 0.23 and 16 Bq/kg.[1044] Having compared these test results to those of Japanese products and taking into account the Panel's findings about past releases of caesium, their global reach and potential to transfer to food products, the Panel concludes that the majority of both Japanese and non-Japanese products have potential to contain caesium in amounts below the 100 Bq/kg tolerance level. Dr Skuterud explained that all raw food products around the world contain caesium within Korea's tolerance levels. Recognizing that the risk of higher absolute contamination levels is of course larger in a really contaminated area "the data available shows that the probability of finding such levels in traded Japanese food is not higher than in non-Japanese food (due to Japan's restrictions on production/fishing)."[1045] The Panel also finds that certain product categories, especially wild animals and plants, have the potential to contain caesium in excess of 100 Bq/kg, whether they originate from Japan or other Members.

7.315. Turning to strontium and plutonium, the data made available to the Panel show concentrations levels in Japanese food to have been well below Korea's tolerance levels at least since 2013.[1046] For instance, the highest strontium level measured in 587 paired caesium and strontium test results was 14 Bq/kg.[1047] Other datasets show even lower concentration of strontium detected in tested Japanese food.[1048] As regards plutonium, the Panel has already found that contribution of the amounts of that radionuclide released from the FDNPP to the levels

[1041] Dr Skuterud's response to Panel question No. 50 to the experts.
[1042] Ms Brown's response to Panel question No. 49 to the experts.
[1043] Overview of Korea's and Japan's test results for food from non-Japanese origins, (Exhibit JPN-279).
[1044] Overview of Korea's and Japan's test results for food from non-Japanese origins, (Exhibit JPN-279).
[1045] Dr Skuterud's response to Panel question No. 49 to the experts.
[1046] See also section 7.7.6 above. Regarding the sufficiency of scientific information, see section 7.6.2 above.
[1047] MAFF, MOE, TEPCO data on paired caesium and strontium testing, (Exhibit JPN-240). Although Exhibit JPN-240 covers samples tested both before and after the establishment of the Panel, the Panel relies on the data available for the period up until its establishment, using the post-establishment test results for confirmation purposes. The value of 14 Bq/kg is thus overall the highest measured concentration of strontium in the whole dataset.
[1048] The highest strontium level measured as part of the ERD monitoring of agricultural, livestock and fishery products, was 1.3 Bq/kg. ERD Fisheries Data, (Exhibit JPN-130 (revised)). ERD Agricultural Products Data (agricultural products), (Exhibits JPN-131.1); ERD Agricultural Products Data (milk), (Exhibit JPN-131.2); and ERD Agricultural Products Data (other food), (Exhibit JPN-131.3).

existing in the environment was minimal.[1049] The food testing data made available to the Panel confirm that plutonium has been found in Japanese products, if at all, in very low quantities and well below Korea's tolerance level of 10 Bq/kg.[1050] Dr Thompson explains that the data shows that the measurements of strontium-90 in Japanese food "have been either below detection limits or generally low" and of isotopes of plutonium "either not detectable or concentration were near the limits of detection."[1051]

7.316. Korea does not contest that strontium and plutonium have not been found in Japanese food products subject to testing above the respective tolerance levels respective for these two radionuclides, nor does it question the accuracy of the experts' statements.[1052] Instead, Korea reiterates that the number and type of samples tested is insufficient, both with regard to samples of Japanese and non-Japanese products, in order to draw valid conclusions on the similarity of conditions.[1053] In that regard, the Panel refers to its finding in section 7.7.6.2 above that data provided by Japan allows valid conclusions on the levels of caesium, strontium and plutonium in Japanese food products.[1054]

7.317. With regard to measured concentration levels of strontium and plutonium in non-Japanese food, the Panel notes that it has not been provided with comprehensive measurement data on products throughout the world. This is not unexpected, due to the complexity and time needed to prepare for and perform strontium and plutonium analysis.[1055] Indeed, Korea does not test for strontium or plutonium at the border. Its internal monitoring for strontium and plutonium is conducted on a risk management basis and not done at the same frequency or volume as caesium testing. The Panel notes that, with the exception of Japanese products, Korea does not test for strontium and plutonium at the border. Rather it either rejects products if they exceed 100 Bq/kg of caesium or it may conduct additional testing internally if the products are found to contain more than 0.5 Bq/kg of caesium. It is from this internal testing, that the Panel has available data on some 251 samples of food from more than a dozen countries tested by Korea at the point-of-sale.[1056] The majority of samples show non-detectable levels of radioisotopes of strontium and plutonium, although several of them contained up to 10 Bq/kg of strontium-90 and up to 0.05 Bq/kg of plutonium-239 and -240.[1057] Even those samples with detectable amounts of strontium and plutonium were below their respective tolerance levels. The Panel recognises that this is a relatively limited number of direct measurements. However, Dr Skuterud explains:

> [O]f course we need some measurements, but also from the knowledge and general knowledge of uptake all these elements in biological organisms, we can also assess the potential for these elements, these nuclides, reaching the permissible or guideline levels. When releases are low then environmental contamination levels are low and there is low uptake in organisms and there is nothing that indicates that their concentrations could touch the guideline levels and the need for documentation for guideline levels is also low. Then there is no public health concern. It is not just about the number of fish being measured.[1058]

7.318. With respect to the comparison of strontium and plutonium levels between Japanese food products and those from the rest of the world Professor Michel explains that:

[1049] See section 2.5.1 above.
[1050] See para. 7.209. above.
[1051] Dr Thompson's response to Panel question No. 44 to the experts.
[1052] Korea's comments on experts' responses to Panel question No. 44 to the experts.
[1053] Korea's second written submission, paras. 93-101; comments on Japan's response to Panel question No. 136.
[1054] See section 7.7.6.2 above.
[1055] Professor Michel notes that a much lower number of strontium analysis compared to gamma spectrometry is "a well-known fact" due a significant amount of time needed to conduct the analysis and the measurements. Expert Meeting Transcript, para. 3.43. See also experts' responses to Panel question No. 87 to the experts.
[1056] Approximately 147 of these samples were tested during the period preceding the Panel's establishment. Results of Further Analysis at Point-of-Sale, (Exhibit KOR-283), pp. 1-8.
[1057] Results of Further Analysis at Point-of-Sale, (Exhibit KOR-283), pp. 1-8. While the Panel has examined all data in the exhibit, the referenced maximum values relate to the period before the Panel's establishment. The post-establishment data shows even higher levels of strontium and plutonium detected in non-Japanese products.
[1058] Expert Meeting Transcript, para. 1.151.

> The risk to find food with strontium-90 exceeding 100 Bq/kg is similarly negligible in Japan and the rest of the world. Exceptions can be expected in hypothetical food from the exclusion zone around Chernobyl and from the banks of the Techa River.[1059]

7.319. In light of the above, and taking into account generally low levels of strontium and plutonium released globally and from the FDNPP, the Panel finds that food products from Japan and from other origins have similar potential for containing strontium and plutonium below their respective tolerance levels.

7.320. With respect to Korea's arguments about potential future increases in contamination because of potential future releases from the FDNPP, the Panel finds that they are not relevant to its analysis of whether the conditions in food products were similar when Korea adopted the measures and as of the establishment of the Panel.[1060] Moreover, there is no evidence on the record of additional significant releases since the establishment of the Panel. If conditions do change, Korea is entitled to adjust its measures to those conditions, so long as its measures are consistent with the provisions of the SPS Agreement.

7.321. Taking all of the above into account, the Panel finds that Japan has met its burden of proof in establishing that similar conditions existed in Japan and in other Members with regard to adoption of the 2013 additional testing requirements. Japan has also established with respect to adoption of the blanket import ban that similar conditions existed in Japan and in other Members for the 27 fishery products covered by Japan's claim and for Pacific cod originating from Aomori, Chiba, Gunma, Iwate, Miyagi, and Tochigi prefectures. As regards maintenance of Korea's measures, Japan has met its burden of proof that similar conditions existed in Japan and in other Members for all food products, including the 28 fishery products, upon establishment of the Panel.

7.322. In conclusion, the Panel has found similar conditions with respect to the adoption of the 2013 additional testing requirements and the blanket import ban with respect to the 27 fishery products covered by Japan's claim and for Pacific cod originating from Aomori, Chiba, Gunma, Iwate, Miyagi, and Tochigi prefectures and that similar conditions existed with regard to the maintenance of Korea's import bans and the additional testing requirements. Therefore the Panel will continue its analysis with respect to whether the measures arbitrarily or unjustifiably discriminate with respect to the adoption of the 2013 additional testing requirements and blanket import ban (for 27 fishery products from 8 prefectures and Pacific cod from 6 prefectures) and the maintenance of all the measures. The Panel will not continue with its analysis with respect to the adoption of the 2011 additional testing requirements or the product specific import bans, because Japan has failed to establish that similar conditions existed in that regard.

7.8.2 Whether Korea's measures discriminate between Japanese products and those of other Members

7.323. In light of the approach of interpreting discrimination in Article 2.3 consistently with the meaning of the same term in the *chapeau* to Article XX of the GATT 1994[1061], the panel in *US – Animals* concluded that "[t]he focus of a discrimination analysis is whether the measure at issue alters the conditions of competition to the detriment of products originating in the territories of Members other than the Member imposing the measure or between the territory of the Member imposing the measure and that of another Members."[1062] The Panel notes that "discrimination may arise not only from 'the detailed operating provisions' of a measure, but also from the application of a measure 'otherwise fair and just on its face'."[1063] With these considerations in mind, the Panel will examine in turn whether Korea's import bans and additional testing requirements amount to a discriminatory treatment of Japanese products.

[1059] Expert Meeting Transcript, para. 3.86. Ms Brown agrees that strontium concentration levels measured in fishery products are very low. Expert Meeting Transcript, para. 3.205.
[1060] See para. 7.195. above; See also experts' responses to Panel question No. 91 to the experts.
[1061] Panel Reports, *India – Agricultural Products*, para. 7.400; *US – Animals*, para. 7.570; and *Russia – Pigs (EU)*, para. 7.1316. See also Appellate Body Report, *Australia – Salmon*, para. 251.
[1062] Panel Report, *US – Animals*, para. 7.573.
[1063] Panel Report, *Russia – Pigs (EU)*, para. 7.1318.

7.8.2.1 Import bans

7.324. It is undisputed between the parties that only Japanese products are subject to product-specific and blanket import bans.[1064] Because Korea's import bans prevent Japanese products from being imported and marketed in Korea, they are as trade restrictive as measures can be.[1065] As a result, Japanese products have no possibility of competing with products of other origins and, as such, they are afforded discriminatory treatment.

7.325. Therefore, the Panel finds that the adoption of the 2013 blanket import ban afforded discriminatory treatment to 27 fishery products from 8 prefectures and Pacific cod from 6 prefectures when it was adopted. The Panel also finds that the maintenance of the product-specific bans on Pacific cod and Alaska pollock, as well as the 2013 blanket import ban for all 28 fishery products from all 8 prefectures, afford discriminatory treatment to Japanese products.

7.8.2.2 Additional testing requirements

7.326. Japan submits that Korea applies pre-market additional testing solely to Japanese products. Products not originating in Japan are, by contrast, allowed onto the Korean market without further testing at the border to check whether and to what degree they contain the additional radionuclides. Japan contends that high costs and time delays associated with the additional testing effectively prevent importation of fresh food from Japan, which contains even trace amounts of caesium, significantly limiting market access and competitive opportunities for Japanese products.[1066] This, according to Japan, constitutes a *de jure* discrimination against Japanese products. Korea contests the discriminatory nature of its measures and submits that it also conducts compulsory additional testing on third-country imports and on Korean products if at least 1 Bq/kg of caesium or iodine is detected.[1067] Korea submits that the additional testing is performed pursuant to the Korea Food Code (as amended in 2012)[1068] and as implemented in the 2014 Guidelines for Food Safety Management.[1069] Korea notes that it has also provided statistical information on the testing undertaken for caesium and additional radionuclides on food from third countries and domestic food.[1070] Thus, Korea argues that even on the assumption that Japan had established that conditions are identical or similar Japan has failed to establish that there is differential treatment with respect to the additional testing.[1071]

7.327. The Panel has already found that Korea requires that every consignment of Japanese products, in which more than 0.5 Bq/kg of caesium or iodine have been detected, be tested for at least strontium and plutonium.[1072] The Panel has also noted that high costs and time delays associated with the additional testing *de facto* prevent consignments of some of the tested Japanese products from entering Korean market.[1073] As regards third-country products, the Panel has determined that Korea does not subject them to pre-market additional testing if caesium or iodine has been detected at the border.[1074] These products are allowed to enter the Korean market if they contain less than 100 Bq/kg.[1075] As a result, it is more difficult for Japanese food products containing between 0.5 Bq/kg and 100 Bq/kg of caesium or iodine to enter the Korean market, than for food originating from third countries.

7.328. Korea argues, however, that domestic and third-country products, in which 1 Bq/kg or more of caesium or iodine have been detected, must undergo the additional testing at the point-of-sale.[1076] Likewise, Korea asserts that domestic products are subject to additional testing at the

[1064] See section 2.7.6 above.
[1065] See Appellate Body Report, Brazil - *Retreaded Tyres*, para. 150.
[1066] Japan's first written submission, para. 424.
[1067] Korea's response to Panel question No 109. For a more detailed discussion on the operation of Korea's additional testing requirements and Korea's arguments in that regard, see section 7.5 above.
[1068] See Article 1, "General Provisions", of the Korea Food Code (Exhibit KOR-123).
[1069] 2014 Guidelines for Food Safety Management, (Exhibit KOR-158).
[1070] See Korea's response to Panel question No. 95.
[1071] Korea's second written submission, paras. 233-235.
[1072] See section 7.5.3 above.
[1073] See section 7.7.4 above.
[1074] See para. 7.45. above.
[1075] See para. 7.45. above.
[1076] Korea's second written submission, paras. 234-235.

production stage.[1077] These testing procedures are, according to Korea, equivalent to the additional testing conducted on Japanese products at the border and, as such, demonstrate that Korea does not discriminate against Japanese products, but simply applies similar measures at different points in time.[1078] Japan calls into question Korea's explanations, asserting that Korea has failed to provide evidence showing that Korea conducted testing for radionuclides on Korean products at the production stage.[1079]

7.329. As regards the point-of-sale testing, Japan argues that it differs from tests performed at-the-border in four important aspects: (i) all products from Japan are subject to both at-the-border and point-of-sale additional testing, while products from other origins are never tested for the additional radionuclides before entering the market; (ii) while point-of-sale testing is conducted only for strontium and plutonium, Japanese products have to be tested "for 17 other radionuclides"; (iii) point-of-sale testing applies to 150 food products, whereas the at-the-border additional testing applies to all Japanese food; and (iv) Japanese products have to be sent back to Japan to undergo the additional testing, while products of other origins can be tested in Korea.[1080]

7.330. With respect to the second point, the Panel has already found that it has not been demonstrated that the measures uniformly require testing for all 17 additional radionuclides either at the border or at the point-of-sale.[1081] With respect to Japan's fourth point, the Panel has also found that the measures do not require that the products be sent back to Japan.[1082] With respect to the other points, the Panel agrees that applying the additional testing at the point-of-sale only to the 150 most frequently consumed products, but subjecting every consignment of Japanese food, in which more than 0.5 Bq/kg of caesium or iodine has been detected, to undergo the additional testing regardless of the type of food involved is discriminatory. In addition, the Panel agrees that the possibility of testing both at the border and at the point of sale doubles the burden on Japanese imports as compared to Korean and third-country products that could potentially be tested for the additional radionuclides only once. Such a doubling of potential burden is discriminatory.

7.331. As regards Korea's argument that pre-market testing on domestic products is equivalent to the pre-market testing on Japanese products conducted at the border, the Panel refers to our findings that Korea has not demonstrated that the additional testing is conducted on domestic products at the production stage.[1083] In addition, the Panel notes that like the point-of-sale testing, testing at the production stage applies to the most frequently consumed food products and not all food products, as it is the case for Japanese imports.[1084]

7.332. In light of the above, the Panel finds that Korea has failed to show that the point-of-sale testing and pre-market testing on domestic products can be considered equivalent to the additional testing administered on Japanese products at the Korean border. Thus, Korea has not rebutted Japan's *prima facie* case of discrimination. Therefore, the Panel finds Korea's adoption of the 2013 pre-market additional testing requirements and the maintenance of both the 2011 and 2013 pre-market additional testing requirements solely on Japanese products to be discriminatory.

7.8.3 Whether the discrimination is arbitrary or unjustifiable

7.333. Japan submits that both the import bans and the additional testing requirements discriminate against Japanese products in an arbitrary and unjustifiable manner as there is no rational connection between the regulatory objective pursued by Korea's measures and the distinction drawn between Japanese products and food from other sources.[1085] Japan argues that while a substantial difference in contamination levels could justify discrimination, these are similar for Japanese products and products from other sources both in absolute terms and taking into

[1077] Korea's response to Panel question No. 109.
[1078] Korea's second written submission, para. 234.
[1079] Japan's comments on Korea's responses to Panel question Nos. 109(a) and 109(b).
[1080] Japan's second written submission, paras. 47-51.
[1081] See section 7.5.4 above.
[1082] See section 7.5.5 above.
[1083] See section 7.5.1 above.
[1084] 2014 Guidelines for Food Safety Management (Exhibit KOR-158), pp. 9-13; 2015 Guidelines for Food Safety Management, (Exhibit KOR-281), pp. 11-12.
[1085] Japan's first written submission, paras. 298 and 423-425.

account Korea's tolerance levels.[1086] According to Japan, a low caesium content also limits the risk of presence of additional radionuclides making products from Japan and other origins equally apt to meet Korea's tolerance levels and, as such, present similar SPS risks.[1087]

7.334. Japan also presents hypothetical scenarios to show that a fish caught in the same area and having the same contamination level would be subject to different regulatory treatment depending on whether it was caught by a Japanese vessel and packaged and processed in one of the eight prefectures. For instance, the additional testing would apply to fish caught on the high seas by a Japanese vessel, while this would not be the case for the same type of fish caught in the same area by a Korean or a third-country vessel.[1088] In addition, if that fish is then packaged or processed in one of the eight Japanese prefectures, it will be subject to Korea's blanket import ban.[1089] In a similar vein, Japan refers to certain statements by Korean officials and authorities in order to show that the additional testing requirements and import bans are detached from their purported justification.[1090] Japan concludes on that basis that "the discriminatory treatment afforded Japanese food products by Korea's import bans and pre-market additional testing requirements is arbitrary and unjustifiable."[1091]

7.335. Korea, for its part, maintains that there is indeed a rational connection between its measures and their regulatory objective. Korea argues that any distinction entailed by the import bans and the additional testing requirements is rationally connected to conditions prevailing in Japan and in other Members.[1092] In support of its position, Korea returns to its arguments purporting to show that conditions in Japan are different compared to the rest of the world, given the allegedly higher potential for contamination resulting from the FDNPP accident. In particular, Korea cites to the Appellate Body report in *EC – Hormones* for the premise that dealing with the risks of ambient or background exposure or presence of certain contaminants is different than dealing with additional exposures that are not naturally occurring.[1093] Korea argues on that basis that it would be improper to conduct the discrimination analysis based on a comparison of the risks of radioactive contamination in Japanese products against the risks of pre-existing or background contamination affecting all products regardless of origin.[1094] Korea also disputes that Japanese products have similar levels of radioactive contamination as products from the rest of the world.[1095] Korea reiterates its position that the evidence provided by Japan to support its assertion with regard to contamination levels in Japanese products is flawed and constitutes an inappropriate basis for a finding of arbitrary or unjustifiable discrimination.[1096]

7.336. Korea further denies that the official statements referenced by Japan could demonstrate any other objective of the measures than protection of the Korean population from risks associated with the contamination caused by the FDNPP accident.[1097] Moreover, Korea argues that using the nationality of the fishing vessel or the location of the processing or packaging plant is the only feasible way of determining the origin of products, due to administrative difficulties related to that process.[1098] Korea also seeks to justify this practice by pointing to instances of forgery of official Japanese certificates of origin.[1099] Additionally, Korea disputes Japan's characterization of the additional testing requirements as a ban, because Japanese products that have the proper testing certificates are admitted onto the Korean market.[1100]

7.337. Similarly to the other elements of Article 2.3, the Panel looks to the interpretation of arbitrary and unjustifiable discrimination under the *chapeau* to Article XX of the GATT 1994 for

[1086] Japan's responses to Panel question Nos. 45 and 52; second written submission, para. 158.
[1087] Japan's second written submission, paras. 161-162.
[1088] Japan's first written submission, paras. 432-437.
[1089] Japan's first written submission, paras. 306-308.
[1090] Japan's second written submission, paras. 168-173.
[1091] Japan's second written submission, para. 174.
[1092] Korea's second written submission, para. 239.
[1093] Korea's first written submission, para. 190 (citing Appellate Body Report, *EC – Hormones*, para. 221).
[1094] Korea's first written submission, paras. 188-190.
[1095] Korea's second written submission, para. 216.
[1096] Korea's first written submission, para. 191.
[1097] Korea's second written submission, para. 242.
[1098] Korea's second written submission, paras. 244-247.
[1099] Korea's second written submission, paras. 244-247.
[1100] Korea's first written submission, para. 217.

guidance.[1101] Accordingly, prior panels found that the assessment of whether discrimination is arbitrary or unjustifiable involves an inquiry into the rational connection between the discrimination and the stated objectives of the measure.[1102] Therefore, in making its determination, the Panel will focus "on the cause of the discrimination, or the rationale put forward to explain its existence."[1103] The Panel will examine not only "the detailed operating provisions of the measure" but also the manner in which the measure "is actually applied".[1104]

7.338. In the context of Article 5.5, the panel and the Appellate Body in *Australia-Salmon* identified three warning signals for evaluating when discrimination is present. These are: (i) the arbitrary or unjustifiable character of the differences in levels of protection;[1105] (ii) rather substantial difference in levels of protection;[1106] and (iii) the inconsistency of the challenged measure with Articles 5.1 and 2.2 of the SPS Agreement.[1107] The panel in *US – Animals* applied the same warning signals to its analysis under Article 2.3.[1108] The Panel notes that Article 5.6 is seen as a specific application of the basic obligation in the first requirement of Article 2.2.[1109] Therefore, in the Panel's view, like inconsistency with Articles 5.1 and 2.2, the inconsistency of the challenged measures with Article 5.6 also serves as a strong indication or a warning signal of arbitrary or unjustifiable discrimination. Likewise, the Panel is of the view that claiming to have adopted a measure provisionally pursuant to Article 5.7 and then not reviewing the measure within a reasonable period of time can also be an indication that the measure is not rationally connected to their stated purpose.

7.339. As regards Korea's reliance on the report in *EC – Hormones* and the distinction drawn by the Appellate Body between exposures that are not naturally occurring and risks resulting from ambient or background exposure, the Panel notes that the facts of this dispute differ significantly from that before the panels and the Appellate Body in *EC – Hormones*. More specifically, the Panel's assessment, including the comparison of the levels of contamination in Japanese and non-Japanese food is focused on radiation resulting from man-made radionuclides contaminating food. The Codex standard CODEX STAN 193-1995, which Korea incorporates in its regulatory framework, relates exclusively to man-made radionuclides. The radionuclides that naturally occur in the environment are not the concern in this case.[1110] This is not a situation of the comparison of a man-made phenomenon to a naturally occurring one (e.g. synthetic hormones to natural ones), but rather to the same man-made radionuclides released at different times from different events (such as nuclear weapons use and testing and releases from nuclear facilities). The Panel also notes Korea's statement that through its measures, it seeks to keep exposure from all man-made radionuclides from any source as low as reasonably achievable below 1 mSv/year.[1111] Therefore, the Panel is of the view that the distinction drawn in the *Hormones* dispute, is not applicable in this case.

7.340. Recalling that the three elements identified in the first sentence of Article 2.3 inform each other and cannot be analysed in strict isolation, the Panel concludes that the level of risks posed by Japanese products and the degree of discrimination resulting from the measures will be particularly relevant in assessing whether the discrimination is rationally related to the stated regulatory objective of the measures.[1112] With these considerations in mind, the Panel will examine in turn whether Korea's import bans and additional testing requirements discriminate against Japanese products in an arbitrary or unjustifiable manner.

[1101] Panel Report, *India – Agricultural Products*, para. 7.427.
[1102] Panel Reports, *US – Poultry (China)*, para. 7.261; and *US – Animals*, para. 7.574.
[1103] Panel Report, *US – Animals*, para. 7.574 (citing the Appellate Body Report, *Brazil – Retreaded Tyres*, para. 226).
[1104] Appellate Body Report, *US – Shrimp*, para. 160.
[1105] Appellate Body Report, *Australia – Salmon*, para. 161.
[1106] Appellate Body Report, *Australia – Salmon*, para. 163.
[1107] Appellate Body Report, *Australia – Salmon*, para. 165.
[1108] Panel Report, *US – Animals*, para. 7.585.
[1109] Panel Reports, *EC – Hormones (Canada)*, para. 8.99; and *EC – Hormones (US)*, para. 8.96.
[1110] CODEX STAN 193-1995, (Exhibit JPN-32), p. 52.
[1111] Korea's opening statement at the second meeting of the Panel, para. 67.
[1112] Appellate Body Report, *India – Agricultural Products*, para. 5.261.

7.8.3.1 Import bans

7.341. The Panel recalls that for Pacific cod and Alaska pollock, Japan has not established that similar conditions existed when Korea adopted the product-specific import bans on these products in 2012. However, the Panel also recalls that Korea relied on Japan's assessment of the risk posed from consumption of Alaska pollock and Pacific cod from the five Japanese prefectures in adopting import bans on these products. Between October 2012 and February 2015, Japan lifted its restrictions on both species pursuant to its internal guidelines.[1113] Nevertheless, as already noted, Korea continues to maintain its own bans and has not reviewed them as of the date of establishment of the Panel.[1114] Indeed, instead of reviewing the product-specific bans with an eye to removing them, in September 2013, Korea expanded its import bans to cover all fishery products from eight Japanese prefectures.[1115] Korea acknowledges that it has not completed a risk assessment with respect to that measure.[1116]Korea argues it was reviewing the measure, but the Panel notes that such review has not been concluded.[1117] The Panel has already found that there was sufficient scientific evidence at the time to conduct a risk assessment of the measures and that there were similar conditions with respect to all 28 fishery products covered by Japan's claims, except for Pacific cod from Fukushima and Ibaraki.[1118] Moreover, the Panel has found that Korea did not review the measures within a reasonable period of time as required by Article 5.7. This fact, coupled with the lack of a risk assessment, constitutes a strong indication that the measure is a trade-restrictive measure taken in the guise of an SPS measure.[1119]

7.342. Korea argues that the discriminatory treatment is justified. However, Korea's arguments focus, once again, on the environmental conditions in Japan and an array of hypothetical fears about future contamination. The Panel recalls that it has concluded that the potential contamination of Japanese products is similar to that of products from the rest of the world in that the caesium content is below 100 Bq/kg. Indeed, in 2013 when the blanket import ban was adopted, all samples of the 28 fishery products from the 8 prefectures subject of Japan's claim, except for 6 samples of Pacific cod from Fukushima and Ibaraki, were found to contain well below 100 Bq/kg of caesium.[1120] The same conclusion can be drawn for all of these 28 fishery products, including Pacific cod, with respect to the maintenance of the blanket and the product-specific import bans. The Panel also recalls its finding that most of samples of the 28 fishery products tested since October 2013 contained between 0 and 25 Bq/kg.[1121] As regards strontium and plutonium, the Panel recalls its findings that their contribution to the risk of radiation exposure from consumed food was minimal.

7.343. In light of very low levels of caesium and additional Codex radionuclides detected in Japanese food, the Panel fails to see a rational connection between an absolute import ban on these products and the measure's stated purpose of protecting Korean consumers against the risk posed by radionuclides in food in excess of Korea's tolerance levels. In the Panel's view, Korea's import bans constitute the type of "rigid and unbending requirement", which applies regardless of the risk profile of imported products.[1122] In particular, the measures do not provide for any mechanism, which would allow demonstrating low risk level in the banned products thus permitting their importation to Korea. In addition, the Panel notes that Korea does not apply similar bans to non-Japanese products expected to be highly contaminated, including in excess of

[1113] See section 2.6 above.
[1114] See section 2.7.6 above.
[1115] Korea's first written submission, para. 56.
[1116] Korea's first written submission, para. 56.
[1117] Korea's first written submission, para. 56; response to Panel question No. 151.
[1118] See section 7.6 above.
[1119] Appellate Body Report, *Australia – Salmon*, para. 166. The Panel is mindful that in *Australia – Salmon*, the Appellate Body found that a violation of Article 5.1 of the SPS Agreement was a "warning signal" that could be taken into account in the assessment of consistency of measures with Articles 5.5 and 2.3. Although Japan does not make a claim under Article 5.1, the Panel considers the fact that Korea has not reviewed the measure within a reasonable period with an aim to conducting a risk assessment following the imposition of import bans on the 28 fishery products a circumstance that the Panel should take into account in its analysis whether Korea's measures constituted arbitrary or unjustifiable discrimination or a disguised restriction in international trade.
[1120] MHLW Caesium Monitoring Data of Food Products (April 2012– July 2016), (Exhibit JPN-157); ERD Fisheries Data, (Exhibit JPN-130 (revised)).
[1121] See section 7.8.1.3 above.
[1122] Appellate Body Report, *US – Shrimp*, para. 163. See also Panel Report, *India – Agricultural Products*, para. 7.435.

Korea's tolerance levels.[1123] Instead, for those products, Korea applies a caesium tolerance level of 100 Bq/kg. This, in the Panel's view, is a strong indication that the distinction drawn by the measure is not rationally related to the stated regulatory objective. Importantly, the Panel recalls its finding that another measure exists which is technically and economically feasible, significantly less trade restrictive, and achieves Korea's ALOP. The inconsistency of the import bans (product specific and blanket) with Article 5.6 is a strong indication that any distinction in treatment is not rationally related to the stated regulatory objective, but rather a further warning signal that the discrimination resulting from Korea's import bans is arbitrary or unjustifiable.

7.344. The Panel also notes that Korea applies its import bans to Japanese products depending on the prefecture of origin. This prefecture is determined based on either the prefecture of catch, of the food processing, or packaging plant.[1124] If more than one prefecture is involved in production, then the prefecture subject to the most restrictive measure is used for origin. For example, a fish caught in Tokyo, but processed in Gunma would be subject to the ban, even though Tokyo is not listed as one of the prefectures covered by the ban. In this respect, the experts agree that the location of a food processing or packaging plant alone does not affect the levels of contamination of processed or packaged products.[1125] As a result, the Panel finds such a manner of applying the import bans not to be exclusively related to addressing the potential contamination of the products.

7.345. In addition, Japan points out that a fish caught on the high seas by a Japanese vessel, which is processed or packaged in one of the eight prefectures, will be subject to Korea's import bans. However, the same type of fish caught in the same area by a Korean or a third-country vessel will be able to freely access the Korean market, even if it is processed or packaged in Japan.[1126] Korea argues that it follows the "flag state doctrine" and attributes origin of a product to the nationality of a vessel because of "technical and economical limitations."[1127] Additionally, Korea states that it cannot rely on Japanese origin certificates due to instances of forgery and inability of the Japanese government to properly track the origin of products.[1128] Korea's import bans are predicated on the theory that it is addressing the risk associated with particular fishery species from particular locations. However, it would allow products from the same area and presumably posing the same potential for contamination free entry into its market if they were caught by a vessel flying a non-Japanese flag. Determining origin of fish caught on the high seas here may pose some practical difficulties, but leaving such large room for differential regulatory treatment on this basis indicates, in the Panel's view, that the measures are not tailored to the stated regulatory objective. Additionally, the Panel fails to see how alleged instances of forgery of origin certificates for prefectures within Japan can justify differential treatment of products based on whether a ship is flying a Korean or a Japanese flag when it catches a fish.

7.346. The risk of non-compliance with SPS measures, such as forging an origin certificate, is relevant to an assessment of risk and also whether particular distinctions in treatment are justified. However, Korea has not demonstrated a systemic failure in Japanese monitoring and certification of food products. Rather, Korea alleges 22 cases of forged certificates of origin in 2013 and 2014 out of 38,033 and 38,682 consignments of food products, which Korea imported from Japan in these years respectively.[1129] The Panel understands that each consignment would have had to be accompanied by at least one certificate of origin. Seen in that context, the 22 cases of forgery do not seem to us a factor that could undermine the overall credibility of Japan's origin tracking. In addition, none of these consignments, presumably including the 22 cases referred to by Korea, contained caesium or other radionuclides in excess of Korea's tolerance levels.[1130] Last but not least, the Panel notes that Korea continues to use Japanese certificates of origin in order to determine whether a product is subject to an import ban or whether the pre-export caesium testing requirement applies.[1131] Therefore, the Panel does not see how occasional criminal activity

[1123] Korea does not ban imports of products known to absorb radionuclides in high concentrations, such as forestry products, fungi, and game meat from areas affected by nuclear releases.
[1124] Korea's response to Panel question No. 47.
[1125] Experts' responses to Panel question No. 67 to the experts.
[1126] Korea's response to Panel question No. 47.
[1127] Korea's response to Panel question No. 47.
[1128] Korea's response to Panel question No. 20; second written submission, paras. 245-246.
[1129] Korea's response to Panel question No. 120(c).
[1130] Korea's response to Panel question No. 120(c).
[1131] See section 2.7.1 above.

in origin certification provides a rational basis for justifying a total import ban on 28 fishery products from 8 prefectures.

7.347. Japan also cites several statements contained in various press releases announcing the measures as evidence that Korea's intent was to prevent Japanese trade rather than protect Korean consumers from contaminated food. In the Panel's view while such statements could be relevant to the Panel's assessment of whether discrimination is arbitrary or unjustifiable,[1132] they have to be approached with caution and read in their proper context.[1133] For instance, a press release issued by Korea's Prime Minister's Office, stating that "distribution of fishery products from [the 8 Japanese prefectures] will be completely banned in Korea regardless of their radioactive contamination" simply refers to the restrictive nature of the import ban, which has been duly taken into account by the Panel.[1134] As regards the Letter from Korea's Ministry of Oceans and Fisheries, stating that "Korean fishermen are in a dismal condition suffering from huge losses", the Panel notes that the quotation provided by Japan omits the reason for such a situation of Korean fishermen, namely low consumption of marine products caused by the fear of contamination. The entire sentence reads that:

> Along with this, please note the fact that consumption of fish and fishery products in Korea has dropped sharply due to concerns over radioactive contamination and Korean fishermen are in a dismal condition suffering from huge losses.[1135]

7.348. If anything, this statement reflects a desire of the Korean government to reintroduce trust among Korean consumers in the country's handling of potentially contaminated items and help improve consumption of fishery products in Korea. We also fail to see how quotes from research papers prepared by Korea's National Assembly Research Services can reflect decisions by the Korean Government.[1136] Therefore, the Panel does not agree with Japan that these statements should be given significant weight in the Panel's assessment of whether the discrimination is arbitrary or unjustifiable.

7.349. Overall, however, the Panel finds that Korea's import bans are not rationally connected to the objective of protecting Korea's population against the risk arising from consumption of contaminated food products. The Panel's conclusion is based on a cumulative assessment of the following factors: (i) high degree of trade-restrictiveness of the measures, (ii) levels of caesium and additional Codex radionuclides measured in the relevant Japanese fishery species well below Korea's tolerance levels (iii) lack of review of the measures within a reasonable period of time with a view to conducting a risk assessment, (iv) the Panel's findings that the import bans are inconsistent with Article 5.6 and (v) disregarding the origin and contamination levels of a product harvested by a Japanese ship and packaged or processed in one of the eight prefectures.

7.350. As a result, the Panel concludes that Korea's maintenance of product-specific bans on Alaska pollock from Fukushima and Pacific cod from Aomori, Fukushima, Ibaraki, Iwate and Miyagi, as well as of the blanket import ban on 28 fishery products from 8 Japanese prefectures amounts to arbitrary or unjustifiable discrimination. Likewise, the Panel finds the discrimination resulting from the adoption of the blanket import ban on 27 fishery products from the 8 prefectures, and on Pacific cod from 6 prefectures (i.e. excluding Pacific cod from Fukushima and Ibaraki), to constitute arbitrary or unjustifiable discrimination.

7.8.3.2 Additional testing requirements

7.351. The Panel recalls that Korea's testing requirements have the same regulatory purpose as the import bans, namely to protect the Korean population against radiation exposure from food contaminated by caesium and the additional Codex radionuclides.[1137] The Panel has already found

[1132] Panel Report, *Mexico – Taxes on Soft Drinks*, para. 8.91 (citing Appellate Body Report, *Canada – Periodicals*, pp. 30-32).
[1133] See in that connection, Panel Report, *EC – Large Civil Aircraft*, paras. 7.1919-7.1920.
[1134] PMO Blanket Import Ban and Additional Testing Requirements Press Release (Exhibit JPN-3.b), p. 1. (emphasis omitted)
[1135] 2013 Letter from Korea's Ministry of Oceans and Fisheries to the Fisheries Agency of Japan, (Exhibit JPN-5.b), p. 2.
[1136] September 2013 NARS Research Paper, (Exhibit JPN-67.b), p. 1; June 2015 NARS Research Paper, (Exhibit JPN-104.b), p. 45.
[1137] Korea's first written submission, para. 38.

that the additional testing requirements are highly restrictive measures, effectively preventing imports of fresh Japanese food products, in which more than 0.5 Bq/kg of caesium or iodine has been detected.[1138] Korea maintains these measures despite a similar potential for containing caesium and additional radionuclides in excess of Korea's tolerance levels in Japanese and non-Japanese products. Even with similar conditions within the context of the risk of exceeding Korea's tolerance levels, the Panel cannot thus exclude that certain differences in absolute concentration levels of caesium between Japanese and non-Japanese food products might justify some level of discrimination in applying a caesium testing regime. For example, Japan does not contest Korea's application of caesium testing to randomly selected samples from all Japanese consignments when such tests are simply random for products of other origins.

7.352. The Panel recalls that the additional testing is triggered for Japanese products, even if slightly more than 0.5 Bq/kg of caesium or iodine is detected. Meanwhile, products of other origins containing up to 100 Bq/kg of caesium, and presumably some additional radioisotopes, are allowed onto the Korean market without additional testing. This low threshold for triggering additional testing is belied by Korea's own stated tolerance levels and admissions from MFDS officials that "[a] trace amount of radioactive materials has no relation to food safety." [1139] The application of additional testing seems even less connected to the purpose of the measure when one recalls that Korea does not conduct at-the-border testing for the additional radionuclides even with regard to countries and products, in which higher concentration of radionuclides have been detected than in Japanese products.[1140] Furthermore, the Panel recalls our finding under Article 5.6 that testing for 100 Bq/kg of caesium alone would be sufficient to ensure that levels of additional radionuclides would be less than Korea's tolerance levels.

7.353. The Panel further refers to its findings regarding Korea's practice of administering import bans on Japanese products strictly on the basis of the nationality of the fishing vessel or location of the processing or packaging plant, regardless of the products' origin and contamination levels, which apply *mutatis mutandis* to the additional testing requirements.[1141] In particular, the Panel notes that, for example, a fish caught on the high seas by a Japanese vessel would have to undergo the additional testing upon importation to Korea, if more than 0.5 Bq/kg of caesium or iodine has been detected in the product. However, the same type of fish caught in the same area by a Korean or a third-country vessel, can be imported to Korean market without being subject to the additional testing requirements, even if it's processed or packaged in Japan.[1142] As noted in the Panel's findings regarding the import bans, such a manner of applying the additional testing requirements is not rationally related to the potential risk arising from importing contaminated products. Therefore, the Panel considers the additional testing requirements not to be exclusively related to addressing the potential contamination of the products.

7.354. Finally, regarding Korea's argument alleging insufficient knowledge about the levels of contamination in Japanese food products, the Panel refers to its findings under Article 5.7, where the Panel held that such information was available at the time of adoption of the 2013 additional testing requirements and remained available as of the establishment of the Panel.[1143] Despite sufficient information being available, Korea has not completed a risk assessment of the 2013 additional testing requirements, which, as already noted, is a warning signal that the measure is not exclusively concerned with its regulatory objective.

7.355. Based on all of the foregoing, the Panel finds that there is no rational connection between the discrimination resulting from applying the additional testing requirements to Japanese food products and the stated regulatory objective of the measure. Therefore, the Panel considers the discriminatory treatment afforded by the additional testing requirements when they were adopted in 2013 as well as the maintenance of both the 2011 and the 2013 additional testing requirements to constitute arbitrary or unjustifiable discrimination.

[1138] See para. 7.154. in section 7.7.4 above.

[1139] News Min, "Cesium detected in domestic green tea" (19 March 2014) (English Translation), (Exhibit JPN-106.b), p. 2 quoting an MFDS officer.

[1140] For instance, the results of Korea's point-of-sale testing show that the concentration level of strontium in a fungus from a third country was higher than any strontium level measured among all tested Japanese products, including shellfish. Results of Further Analysis at Point-of-Sale, (Exhibit KOR-283), p. 7.

[1141] Korea's response to Panel question No. 47.

[1142] Korea's response to Panel question No. 47.

[1143] See section 7.6 above.

7.8.3.3 Whether Korea's import bans and the additional testing requirements constitute a disguised restriction on international trade

7.356. As regards the obligation established by the second clause of Article 2.3, namely that SPS measures do not constitute disguised restrictions on international trade, previous panels have followed the reasoning of the Appellate Body in *US – Gasoline* concerning the relationship between "arbitrary or unjustifiable discrimination" and "disguised restriction on international trade" as they appear in Article XX of the GATT 1994.[1144] Pursuant to this reasoning, "arbitrary or unjustifiable discrimination" is a form of the broader category of "disguised restriction on international trade", so that the latter encompasses the former. As a consequence, a finding that the application of an SPS measure results in arbitrary or unjustifiable discrimination automatically leads to a finding that this SPS measure also constitutes a disguised restriction on international trade.[1145]

7.357. Japan submits that a Panel's finding of arbitrary or unjustifiable discrimination would necessarily lead to a conclusion that the measures are a disguised restriction on international trade.[1146] Japan also provides further grounds for a finding under the second sentence of Article 2.3 that are unrelated to the finding under the first sentence.[1147] In particular, Japan relies upon various statements from Korean government officials to the effect that the measures would keep out Japanese products as evidence that Korea's intent was to exclude Japanese products from its market.[1148] Moreover, Japan offers two arguments relating to the additional testing requirements in particular: (i) that the measure is a *de facto* import ban on fresh food with trace amounts of caesium, even if those traces are below – often far below – Korea's tolerance limit; and that (ii) Korea has, at least once, rejected the importation of a Japanese product even though additional testing was performed in Korea and proof of compliance with the relevant threshold was submitted.[1149] This, according to Japan, shows that health concerns are not the real motive behind Korea's measures.[1150]

7.358. Korea refers back to its arguments regarding the arbitrary or unjustifiable nature of discrimination, which should be also considered under Article 2.3, second sentence.[1151] In particular, Korea maintains that the statements by Korean officials should not be given weight by the Panel and that Korean measures were adopted to address the contamination risk resulting from the FDNPP accident.[1152] Korea also contests the "prohibitive" nature of the additional testing requirements, as the measure merely mandates providing a non-contamination certificate.[1153] Finally, Korea contests Japan's allegations that a consignment, for which the additional testing had been successfully completed, was refused entry to Korea.[1154]

7.359. As the Panel has already found inconsistency of Korea's measures with the first sentence of Article 2.3, the Panel finds that the import bans and additional testing requirements constitute equally a disguised restriction on international trade. As a result, the Panel finds it unnecessary to consider other grounds put forward by Japan to support its claim under Article 2.3 second clause and exercises judicial economy with respect to them.

7.8.4 Conclusion

7.360. In light of the foregoing, the Panel finds that the 2013 additional testing requirements and the blanket import ban with respect to the 27 fishery products subject to Japan's claim from the 8 prefectures and Pacific cod from 6 prefectures, i.e. excluding Pacific cod from Fukushima and Ibaraki, were inconsistent with Article 2.3, first sentence of the SPS Agreement when Korea adopted them and, as a consequence, also with Article 2.3, second sentence. Moreover, by maintaining the product-specific and blanket import bans on the 28 fishery products from the 8 prefectures and the 2011 and 2013 additional testing requirements on Japanese products, Korea

[1144] Appellate Body Report, *US – Gasoline*, p. 25.
[1145] Panel Report, *US – Animals*, para. 7.575; Panel Report, *India – Agricultural Products*, para. 7.476.
[1146] Japan's second written submission, paras. 311 and 443.
[1147] Japan's first written submission, paras. 312 and 446; second written submission, para. 212.
[1148] Japan's first written submission, paras. 312 and 446; second written submission, para. 212.
[1149] Japan's first written submission, paras. 444-445.
[1150] Japan's first written submission, para. 445.
[1151] Korea's first written submission, para. 221.
[1152] Korea's first written submission, paras. 223 and 227.
[1153] Korea's first written submission, para. 224.
[1154] Korea's first written submission, para. 226.

acted inconsistently with Article 2.3, first sentence of the SPS Agreement and, as a consequence, with Article 2.3, second sentence. The Panel exercises judicial economy on Japan's alternative reasons for inconsistency of the measures with second sentence of Article 2.3.

7.9 Control, inspection and approval procedures

7.361. Article 8 of the SPS Agreement states as follows:

> Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures, including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs, and otherwise ensure that their procedures are not inconsistent with the provisions of this Agreement.

7.362. Japan makes claims under Annex C(1)(a), Annex C(1)(c), Annex C(1)(e) and Annex C(1)(g). These provisions state:

> Members shall ensure, with respect to any procedure to check and ensure the fulfilment of sanitary or phytosanitary measures, that:
>
> (a) … are undertaken … in no less favourable manner for imported products than for like domestic products;
>
> (c) information requirements are limited to what is necessary for appropriate control, inspection and approval procedures, including for approval of the use of additives or for the establishment of tolerances for contaminants in food, beverages or feedstuffs;
>
> (e) any requirements for control, inspection and approval of individual specimens of a product are limited to what is reasonable and necessary;
>
> (g) the same criteria should be used in the siting of facilities used in the procedures and the selection of samples of imported products as for domestic products so as to minimize the inconvenience to applicants, importers, exporters or their agents[.]

7.363. Japan alleges that elements of Korea's additional testing requirements are inconsistent with subparagraphs (a), (c), (e) and (g) of Annex C(1) and as a consequence they are also inconsistent with Article 8. It is well established that Annex C to the SPS Agreement gives meaning and substance to Article 8, and, by the terms of that Article, an inconsistency with the obligations in Annex C will also entail an inconsistency with Article 8.[1155] Therefore, if the Panel finds that the additional testing requirements are inconsistent with any of the subparagraphs of Annex C(1) raised by Japan, the Panel would necessarily also find an inconsistency with Article 8.

7.364. The Panel recalls that Korea's additional testing requirements consist of two measures, the first adopted in 2011 with respect to non-fishery products (except livestock products) and the second one in 2013, extending the scope of the additional testing requirements to all fishery and livestock products. Both of these measures operate in the same manner, although they apply to different groups of products. Where Japan's claims relate to the operation of the measures and not their product coverage, the Panel will assess them together and the Panel's findings will be equally applicable to both measures.

7.9.1 Whether Korea's additional testing requirements fall within the scope of Article 8 and Annex C

7.365. Article 8 and Annex C apply to a specific subset of SPS measures, namely procedures that check and ensure the fulfilment of SPS measures. The Panel will thus begin by addressing whether Korea's 2011 and 2013 additional testing requirements fall within the scope of Article 8 and Annex C(1).

[1155] Appellate Body Report, *Australia – Apples*, para. 434. See also Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.1569; *US – Poultry (China)*, paras. 7.393–7.395; *US – Animals*, para. 7.62 and *Russia – Pigs (EU)* para. 7.504.

7.9.1.1 Any procedure

7.366. Previous panels have found that the provisions of Annex C(1) "cover a broad array of procedures, as the drafters of the SPS Agreement did not limit the scope of those 'procedures' to any specific type of 'approval procedures'."[1156] A procedure, therefore, is covered by the provisions of Annex C(1) "so long as that 'procedure' is aimed at 'checking and ensuring the fulfilment of sanitary or phytosanitary measures'".[1157] The Appellate Body confirmed Annex C(1)'s broad scope of application in *Australia – Apples* holding that Annex C(1) does not preclude, *a priori*, any measures from being an appropriate target of a claim of inconsistency with the Annex C(1).[1158] For example, the panel in *US – Animals* considered the determination of a disease status in a region to be a procedure within the meaning of Annex C(1).[1159]

7.367. Japan relies on these prior interpretations to contend that the phrase "any procedure" in the *chapeau* of Annex C should be interpreted broadly, making the provisions of Annex C applicable to a wide range of measures.[1160] According to Japan, such a reading of the term "any procedure" is warranted by the use of the words "including" and "include" in Article 8 and footnote 7 to Annex C, respectively.[1161] Japan further points out that nothing in the language of Article 8 or Annex C suggests that any of these provisions requires procedures to meet a minimum level of specificity or formality.[1162] Korea, for its part, focuses its argumentation not on the word "any", but rather on the definition of procedure. Korea argues that the panel report in *US – Animals* has clarified that a procedure must be a measure that "prescribe[s] a specific course of action" or "a step-by-step process of application, provision of scientific information, evaluation of that information, on-site verifications, and public participation."[1163]

7.368. The Panel notes that both Article 8 and Annex C are entitled "Control, Inspection and Approval Procedures." The panel in *US – Animals* found that "the title, while illustrative, does not confine the scope of the measures covered" by Annex C.[1164] In other words, the types of procedures governed by Annex C are not limited to "control, inspection and approval procedures" described in the title. The *chapeau* of Annex C(1) refers to <u>any procedure</u>. The dictionary defines a procedure as "[t]he fact or manner of proceeding with any action, or in any circumstance or situation; the performance of particular actions" and "the established or prescribed way of doing something." The term "any" has been understood to "modify the word 'procedure'" in that "Annex C(1) does not specify, nor exclude, any type of 'procedures' from its application".[1165] Our understanding of Annex C(1) is not limited to the title or the *chapeau*, but also includes footnote 7 to Annex C, which enumerate examples of procedures while using the phrase "include *inter alia*".[1166]

7.369. All these elements suggest a broad range of measures are covered by Article 8 and Annex C. Indeed, as indicated above, the Appellate Body in *Australia – Apples* did not exclude that other types of procedures than control, inspection and approval procedures could infringe the provisions of Annex C(1). Nevertheless, even if the Panel were to be led by a narrower approach, the Panel agrees with Japan that testing and certification requirements are explicitly listed in footnote 7 as examples of the types of procedures subject to the obligations in Annex C.[1167]

7.370. The Panel further notes that for procedures to be subject to Annex C they must check and ensure the fulfilment of a broad range of Member's SPS measures, covered by Annex A(1).[1168] The

[1156] Panel Reports, *US – Poultry (China)*, para. 7.372; *Russia – Pigs (EU)*, para. 7.514 and *US – Animals*, para. 7.68.
[1157] Panel Report, *US – Poultry (China)*, para. 7.363.
[1158] Appellate Body Report, *Australia – Apples*, para. 438.
[1159] Panel Report, *US – Animals*, paras. 7.70-7.71.
[1160] Japan's second written submission, para. 393.
[1161] Japan's second written submission, para. 393.
[1162] Japan's second written submission, para. 394.
[1163] Korea's first written submission, para. 305; second written submission, para. 368 (citing Panel Report, *US – Animals*, para. 7.63).
[1164] Panel Report, *US – Animals*, para. 7.66.
[1165] Panel Reports, *US – Animals*, para. 7.67.
[1166] Panel Reports, *US – Animals*, para. 7.68; and *Russia – Pigs (EU)*, para. 7.514.
[1167] Japan's second written submission, para. 402.
[1168] We note that the main paragraph of Annex A(1) states that SPS measures include all relevant laws, decrees, regulations, requirements <u>and procedures</u>. The paragraph provides examples of SPS measures such as end product criteria; processes and production methods; <u>testing, inspection, certification and approval</u>

types of procedures required to check and ensure the fulfilment of a particular SPS measure may vary from one measure to another. In one instance testing for a contaminant within a tolerance level may be sufficient, while in others a physical examination of an animal may be required, while still others may require proof that certain mitigating protocols such as freezing, heating, or maturation had been undertaken. If the Panel were to define procedures so narrowly as to prevent certain measures used to implement substantive SPS requirements from being subject to Annex C, it would frustrate the purpose of the SPS Agreement.

7.371. None of the elements of interpretation supports Korea's position that procedures within the meaning of Article 8 and Annex C have to prescribe a "specific" course of action. Both the language and the context of these provisions instructs a broader understanding of the term "procedure" as performance of an action or a course of actions, which do not have to be specific or dictate a particular result. Such a broad understanding of these provisions is further reflected in their object and purpose, which is to ensure that Members, operate their control, inspection and approval procedures in a manner consistent with the basic obligations of the SPS Agreement. Moreover, and contrary to Korea's contention, the panel in *US – Animals* did not rule that for any measure to be considered a procedure within the meaning of Article 8 and Annex C, it must prescribe a specific course of action. It simply concluded that the measures at issue in that dispute did so.[1169] Thus, the Panel finds Korea's reliance on the panel report in *US – Animals* to be inapposite. The Panel agrees with Japan that the scope of Annex C is broad and that the additional testing requirements are not *a priori* excluded from the obligations therein.

7.9.1.2 To check and ensure the fulfilment of sanitary or phytosanitary measures

7.372. Korea makes an additional challenge to the applicability of Article 8 and Annex C to its measures. Namely, Korea argues that the additional testing requirements "are SPS measures in their own right" and "they do not specify procedures that ensure fulfilment of SPS measures".[1170]

7.373. In that regard, Japan contends that the additional testing requirements were adopted with the "ostensible goal of checking fulfilment of SPS measures setting out [Korea's] tolerance limit for the presence of radionuclides in food."[1171] Korea relies on prior panel and Appellate Body reports to argue that control, inspection and approval procedures have to be distinct from the SPS measures that they seek to implement.[1172] Korea argues that the Appellate Body's finding in *Australia – Apples* that SPS measures must "exist *prior* to the operation, undertaking, or completion of the relevant procedures, as the latter seek and ensure fulfilment with the former"[1173], supports a conclusion that Japan is required to identify the distinct SPS requirements that the additional testing requirements would implement.

7.374. The Appellate Body held in *Australia – Apples* that Annex C(1) requires a link between the relevant "procedures" and "sanitary or phytosanitary measures".[1174] Previous panels understood this requirement to mean that to fall within the scope of Article 8 and Annex C, a procedure must be designed to make certain that a measure applied to achieve one of the objectives in Annex A(1) is fully implemented.[1175]

7.375. While the Panel agrees with prior panels and the Appellate Body that a link between the relevant procedure and an SPS measure must exist, the Panel does not find support for Korea's contention that a procedure has to check and ensure the fulfilment of a separate and distinct substantive SPS measure either in the wording of Annex C or the context of that provision. Korea attempts to insert the word "other" into the Appellate Body's reasoning when it is not there.

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procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

[1169] Panel Report, *US – Animals*, para. 7.63.

[1170] Korea's first written submission, paras. 310-314; response to Panel question No. 92(b).

[1171] Japan's second written submission, para. 401.

[1172] Korea's second written submission, para. 369. (quoting Appellate Body Report, *Australia – Apples*, para. 436; and Panel Report, *Russia – Pigs (EU)*, para. 7.519).

[1173] Korea's second written submission, para. 369 (quoting Appellate Body Report, *Australia – Apples*, para. 436). (emphasis original)

[1174] Appellate Body Report, *Australia – Apples*, para. 435.

[1175] Panel Reports, *US – Animals*, para. 7.73; and *Russia – Pigs (EU)*, para. 7.519.

Korea's argument implies a temporal requirement that first an SPS measure is adopted and then subsequently a separate and distinct procedure is put in place to check and ensure its fulfilment. Indeed, Korea's interpretation could pose practical difficulties in assessing measures which, as is the case at hand, combine both substantive and procedural requirements in a single instrument.

7.376. The Panel sees nothing in prior panel and Appellate Body reports that would preclude combining substantive SPS requirements or objectives and procedures in a single measure. In particular, such a requirement for an "other" SPS measure should not be read into the Appellate Body's finding that SPS "measures exist prior to operation, undertaking, or completion of the relevant procedures".[1176] The use of the terms "undertaken and completed" under Annex C(1)(a) seems to us to refer to the application of a particular procedure to a particular situation (e.g. testing a particular consignment, reviewing a particular application to place a category of products on the market[1177], a request for designation of a region as pest-or-disease free[1178]). At the same time, the Panel notes that Article 8 refers generally to the operation of procedures "including national systems for approving the use of additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs …". From this language and the Appellate Body's broad reading of Article 8 and Annex C the Panel understands that Members may challenge the application of a procedure in a particular situation as well as a regulatory regime that sets forth that certain procedures are required. Korea's argument seeks to blur the line between the two situations and imply that only the former is covered.

7.377. An SPS measure (such as a tolerance level) is certainly necessary before a Member can undertake and complete a procedure to check and ensure its fulfilment. However, when the measure being challenged is one that sets forth the manner in which control, inspection and approval procedures should be conducted, the Panel does not see why those rules would have to be elaborated in distinct measures. To adopt such an interpretation would allow Members to easily evade review of their procedural requirements under Article 8 and Annex C simply by stipulating control, inspection and approval procedures together with substantive SPS requirements in the same instrument.

7.378. The Panel concludes that for a procedure to fall within the scope of Article 8 and Annex C, there has to be a link between the procedure and an SPS measure that the Member seeks to check and ensure the fulfilment of. The Panel finds that a measure adopting a substantive SPS requirement does not necessarily have to be distinct and separate from the one adopting the procedures. Therefore, the Panel will not dismiss Japan's claim under Article 8 and Annex C on the basis that Japan has allegedly failed to indicate such distinct substantive SPS requirements.

7.9.1.3 Whether Korea's additional testing requirements are procedures to check and ensure the fulfilment of SPS measures within the meaning of Article 8 and Annex C

7.379. The Panel notes that both the 2011 and the 2013 additional testing requirements set forth a number of steps for importing food products from Japan to Korea. In particular, an import declaration has to be accompanied by an analytical report containing the results of caesium and iodine testing.[1179] The measures stipulate that if trace amounts of caesium or iodine have been detected, "a relevant importer will be required to submit additional test certificates on other radionuclides", such as isotopes of strontium, plutonium and the other additional radionuclides.[1180] The 2011 measure specifies that the analytical report should include "the information on analyzed products, name of laboratory, analysis date, analyzed items, detection level, methods of analysis, and signature and stamp of approver."[1181] While a similar list of items to be provided together with a test certificate is missing from the documents announcing the 2013 measure, the Panel notes that the Korean authorities in fact require such information from importers.[1182]

[1176] Appellate Body Report, *Australia – Apples*, para. 436.
[1177] Panel Reports, *EC – Approval and Marketing of Biotech Products*, paras. 7.423-7.429.
[1178] Panel Report, *US – Animals*, paras. 7.69-7.71.
[1179] Korea's second written submission, para. 84.
[1180] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b), p.1. Similar language can be found in the KFDA 2011 Instruction on new certification requirements for Japanese food (Exhibit KOR-40.b), pp. 1 and 6.
[1181] KFDA 2011 Instruction on new certification requirements for Japanese food (Exhibit KOR-40.b), p. 6.
[1182] The two individual requests received by importers of Japanese fishery products state that a test certificate should contain information, among others, about the tested product and its quantity, date of the

7.380. Further, these measures do not function in a vacuum, but rather operate in conjunction with certain specific rules regarding testing and sampling contained in a number of Korean domestic legal instruments.[1183] In particular, Korea clarifies that "[t]he 'selection of samples' in Korea is governed by Article 8 of the Korea Food Code."[1184] Likewise, the KFDA 2011 Instruction on new certification requirements for Japanese food explains with regard to the application of the 2011 additional testing requirements that "[i]n the event where the importer requests for a specimen needed in laboratory analysis, inspectors from KFDA will collect the specimen using collection methods prescribed under the Food Code."[1185] Because such procedures form part of the additional testing, the Panel finds it appropriate to consider all these requirements together for the purposes of our assessment under Article 8 and Annex C.[1186] Although Japan is not specifically challenging any of these instruments, its complaint relates to the additional testing as part of Korea's overall regime for addressing radioactive contamination in food.

7.381. In the Panel's view, the additional testing requirements, read together with Article 8 of the Korea Food Code, prescribe a way or manner, in which Korea requires testing of Japanese products for the presence of certain specific radionuclides and to check whether they exceed Korea's tolerance levels. In particular, they prescribe the manner in which analytical reports should be completed, how samples and specimens should be collected and treated, the radionuclides to be tested for, and the tolerance levels. As such, they fit squarely within the type of procedures mentioned in footnote 7 to Annex C. We therefore consider that the 2011 and 2013 additional testing requirements constitute procedures within the meaning of Article 8 and Annex C.

7.382. With regard to the question of whether the additional testing requirements check and ensure the fulfilment of Korea's SPS measures, the Panel recalls that Korea "imposed [these] measures shortly after the FDNPP accident in order to protect its citizens from radionuclide contamination in imported Japanese food products".[1187] The Panel thus understands the aim of Korea's measures as ensuring that the concentration levels of radionuclides in food imported from Japan do not exceed Korea's tolerance levels and, as a result, to ensure that the exposure of Korean consumers to radionuclides in food products as low as reasonably achievable below 1 mSv/year for all man-made radionuclide.[1188] To ensure that food imports from Japan are compliant with these limits, an importer has to submit together with an import declaration an analytical report stating, among other things, the measured radionuclide content, the name of the issuing agency, information on the tested products, date of testing and methods of analysis.[1189] As explained by Korea, shipments exceeding the Codex standard for the additional radionuclides are refused entry to Korea.[1190]

7.383. In the Panel's view, submitting test results together with information relating to different aspects of the tests allows the authorities to check whether a product falls within the radionuclide concentration levels that Korea has set. These concentration levels constitute Korea's substantive SPS measures fulfilling the objective set forth in Annex A(1)(b).[1191] Therefore, the additional testing requirements check and ensure the fulfilment of Korea's sanitary measure.

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test, the employed testing method, as well as the organization conducting the test. Korea's Ministry of Food and Drug Safety, "Notification on complementary information in response to the detection of radioactivity in imported food, dried bonito", (Exhibit JPN-87.b), p. 1; and Korea's Ministry of Food and Drug Safety, "Notification on complementary information in response to the detection of radioactivity in imported food, mako shark", (Exhibit JPN-86.b), p. 1. In addition, we note that Korea's SPS Enquiry Point referred to the "current way of certification", in its response to Japan's request dated 24 June 2014. Response by Korea's SPS Enquiry Point, (Exhibit JPN-30).

[1183] Korea's second written submission, para. 84.

[1184] Korea's response to Panel question No. 102.

[1185] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p. 7. (emphasis omitted)

[1186] Panel Report, *Japan – Apples*, para. 8.17.

[1187] Korea's first written submission, para. 38.

[1188] Korea's second written submission, para. 331; KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p. 6; MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b), p. 1.

[1189] Korea's response to Panel question No. 21. KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p.5.

[1190] Korea's response to Panel question No. 18(f).

[1191] See section 7.4 above.

7.384. In light of the above, the Panel concludes that both the 2011 and the 2013 additional testing requirements constitute procedures to check and ensure the fulfilment of Korea's SPS measures within the meaning of Article 8 and Annex C. Therefore, the Panel proceeds to address Japan's substantive claims under the various subparagraphs of Annex C.

7.9.2 Undertaken and completed in no less favourable manner

7.385. The second clause of Annex C(1)(a) requires that control, inspection and approval procedures are undertaken and completed in a no less favourable manner for imported products than for like domestic products. The panel in *Russia – Pigs (EU)* considered the assessment under Annex C(1)(a) to entail a two-step analysis: (i) whether domestic and imported products are "like"; and (ii) whether the latter are treated in a less favourable manner in the undertaking and completion of the challenged procedures.[1192] Japan and Korea agree that the Panel should proceed with its assessment of Japan's claims on the basis of the above-mentioned two-step test.[1193]

7.386. Thus, the Panel will start its assessment by examining whether imported Japanese products and domestic Korean products are like. Should this be the case, the Panel will move on to analyse whether the additional testing requirements are undertaken and completed in a less favourable manner for Japanese products than for Korean products.

7.387. While the parties agree on the general framework that should guide the Panel's assessment, they largely differ in their interpretation of each of the two elements of the test. The Panel will address these arguments in the following sections on the analysis of "likeness" and discriminatory treatment.

7.9.2.1 Likeness analysis

7.388. Japan argues that the assessment of likeness under Annex C(1)(a) has to reflect the specific context of the SPS Agreement and, in particular, Article 2.3.[1194] Japan attempts to assimilate the concept of likeness with that of identical or similar conditions in Article 2.3. In Japan's view, all products giving rise to SPS risks addressed by the challenged measure should be considered like for the purposes of Annex C(1)(a), which shares a "parallel function" with the likeness test under Article III of the GATT 1994.[1195]

7.389. Korea argues the Panel should apply the traditional four criteria likeness analysis typically done under Article III of the GATT 1994. In doing so, Korea argues that the Panel should consider the level of risk posed by the products in making its determination.[1196] Korea relies in that regard on the report in *EC – Asbestos*, in which the Appellate Body considered the carcinogenic properties of asbestos to be relevant for the purposes of the likeness analysis.[1197] Korea further supports its argument with a statement by the Appellate Body in the context of the TBT Agreement that "regulatory concerns and considerations may play a role in applying certain of the 'likeness' criteria (that is, physical characteristics and consumer preferences) and, thus, in the determination of likeness under Article III:4 of the GATT 1994."[1198] Korea concludes on that basis that "health risks are relevant to the determination of the competitive relationship between products".[1199]

7.390. The Appellate Body has explained that in interpreting the term "like products", panels should start with the text of the provision in light of the context provided by the provision itself,

[1192] Panel Report, *Russia – Pigs (EU)*, para. 7.539, relying on the panel in *EC – Approval and Marketing of Biotech Products* finding that due to the similarities between Article III:4 and Annex C(1)(a) that it is appropriate to rely on the Appellate Body's interpretation of the phrase "treatment no less favourable" as it appears in Article III:4 in the context of Annex C(1)(a). Panel Reports, *EC – Approval and Marketing of Biotech Products*, paras. 7.2401-7.2407.

[1193] Japan's second written submission, paras. 411 and 416; Korea's second written submission, para. 375.

[1194] Japan's second written submission, para. 414.

[1195] Japan's second written submission, paras. 414-416.

[1196] Korea's first written submission, paras. 327-330.

[1197] Korea's first written submission, para. 327 (quoting Appellate Body Report, *EC – Asbestos*, para. 145).

[1198] Korea's first written submission, para. 328 (quoting Appellate Body Report, *US – Clove Cigarettes*, para. 117).

[1199] Korea's first written submission, para. 329; second written submission, para. 385.

the other provisions of that agreement, and by the agreement as a whole.[1200] The Panel notes that the language used in Annex C(1)(a) is akin to that used in Article III:4 of the GATT 1994. In particular, Annex C(1)(a) and Article III:4 of the GATT 1994 require a comparison of treatment afforded to "imported products" on the one hand and either "like domestic products" or "like products of national origin" on the other hand. The Panel also notes that both provisions also refer to the concept of imported products being treated in a "less favourable" manner than domestic ones under measures adopted by an importing Member. The Appellate Body has explained that this concept informs the determination of likeness by suggesting that likeness is about the nature and extent of a competitive relationship between and among products.[1201]

7.391. Three other provisions in Annex C – subparagraphs (d), (f), and (g) – also mention less favourable treatment or a requirement for equal treatment of imported and domestic products. All three focus on elements that would be relevant for a competitive relationship. First, subparagraph (d) mentions the protection of the confidential information of importers to protect "legitimate commercial interests". Subparagraph (f) refers to fees imposed on procedures, which can have an effect on the ultimate sale price, being equitable between imported and domestic products. Finally, subparagraph (g) refers to the same criteria for the selection of samples and siting of facilities being applied to domestic and imported products "so as to minimize inconvenience". The Panel notes that the Preamble to the SPS Agreement strikes a balance between Members' rights to adopt or enforce measures necessary to protect human, animal or plant life or health with the requirement that the measures not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. The obligation of non-discrimination is also contained in the basic obligation in Article 2.3. This balance is similar to that expressed by the national treatment rule in Article III:4 as qualified by the exceptions in Article XX of the GATT 1994.

7.392. The Panel is not persuaded by Japan's argument that Article 2.3 should inform the likeness test under Annex C(1)(a). Although Article 2.3 provides context for interpretation of Annex C(1)(a)[1202], similar conditions is a broad concept that can encompass specific products, specific risks, or specific territorial differences (such as the presence of a pest or disease). Moreover, Japan asks this Panel to do under the SPS Agreement, what the Appellate Body concluded in the context of the TBT Agreement was inappropriate – namely determine likeness based on the objective of the challenged measures rather than on the competitive relationship between the products.[1203] Because of the textual and conceptual similarities between Article 2.1 of the TBT Agreement and Annex C(1)(a) of the SPS Agreement, which both address discrimination arising from application of regulatory measures, the Panel finds the Appellate Body's guidance relevant. Although a measure's objective might be more easily discerned for an SPS measure (with reference to the subparagraphs of Annex A(1)) than for a technical regulation, the admonition still holds. This guidance might even be more important in a situation where a measure could address the same sanitary or phytosanitary risk in products that would never be in a competitive relationship. For example, a mushroom and a fish could both be contaminated by the same substance, and hence pose a similar or identical health risk. However, the Panel is not convinced that this would be sufficient to conclude that mushrooms and fish are like products.

7.393. Consistent with the Appellate Body's reasoning in *US – Clove Cigarettes* and in light of our evaluation of Annex C, the Panel finds nothing in the context or object and purpose of Annex C or the SPS Agreement that suggests that the concept of like products cannot be approached from a competition-oriented perspective.[1204] Therefore, the Panel concludes that the same likeness criteria under Article III:4 of the GATT 1994 are appropriate for an analysis under Annex C(1)(a). In this regard, the Panel recalls that panels and the Appellate Body have consistently resorted to four criteria to determine likeness: the physical characteristics of the products, the end-uses of the products, consumer tastes and habits, and tariff classification.[1205]

[1200] Appellate Body Report, *US – Clove Cigarettes*, para. 108.
[1201] Appellate Body Report, *US – Clove Cigarettes*, para. 111. See also Appellate Body Report, *EC – Asbestos*, para. 99.
[1202] Panel Report, *EC — Approval and Marketing of Biotech Products*, para. 7.2407.
[1203] Appellate Body Report, *US – Clove Cigarettes*, para. 112.
[1204] Appellate Body Report, *US – Clove Cigarettes,* paras. 108-109.
[1205] Panel Report, *US – Poultry (China)*, para. 7.425; Appellate Body Reports, *Japan – Alcoholic Beverages*, p. 20; *EC – Asbestos*, para. 101.

7.394. Japan argues that if the Panel were to use the Article III:4 of the GATT 1994 concept of likeness, that instead of using the four criteria, the more appropriate approach would be to presume likeness because the challenged measures distinguish between products solely based on origin.[1206] Japan notes that in a number of disputes, panels have concluded that if a measure explicitly distinguishes between products solely on the basis of origin, the relevant products can be presumed to be like.[1207] The Appellate Body has endorsed this approach in the context of Articles II:1 and XVII:1 of the GATS and indicated that it would be equally relevant for obligations related to goods.[1208] In order to rely on this presumption as a proxy for likeness a complainant must make a *prima facie* case that a measure draws a distinction based solely on origin.[1209] The Appellate Body further explained that this presumption is rebuttable.[1210] Korea does not oppose using the presumption in the context of Annex C(1)(a); however, it questions whether Japan has met its burden of proof with respect to the measures at issue in this dispute.[1211]

7.395. In light of the foregoing, in determining whether Japan has established that Japanese and Korean products are like within the meaning of Annex C(1)(a), the Panel will first analyse whether Japan has demonstrated that the presumption of likeness based solely on origin distinction applies. If Japan has not proved likeness based on the presumption, the Panel will turn to Japan's arguments with regard to the like product analysis according to the traditional four criteria.

7.9.2.1.1 Whether the measures distinguish solely based on origin

7.396. Japan contends that Japanese and Korean products should be presumed to be like because Korea's pre-market additional testing requirements "apply exclusively to Japanese products" and thus "involve *de jure* discrimination on the basis of origin."[1212] Japan points to Korea's own description of its measures provided in Annex B in response to the Panel's questions.[1213] According to Korea, Japan fails to provide sufficient argumentation and evidence to show that the pre-market additional testing requirements use origin as the sole criterion to distinguish between Japanese and Korean products.[1214] Moreover, Korea maintains that pre-market additional testing requirements apply both to domestic and imported products alike and disputes that the measures draw any distinction between Japanese and Korean products.[1215] In the alternative, Korea argues that if a distinction exists, then it is related to a different risk profile of Japanese products rather than to their origin. In Korea's view, it has, thus, successfully rebutted the presumption that Japanese and Korean products are like.[1216]

7.397. In the Panel's view, the arguments Japan advances do not support the contention that Korea's measures distinguish between products solely on the basis of origin. Japan's entire argumentation as to why domestic and imported products should be presumed to be like rests entirely on the alleged *de jure* discrimination resulting from applying pre-market additional testing only to Japanese products.[1217] Japan refers in that regard to its arguments on no less favourable treatment.[1218] The Panel notes that the challenged measures only apply to Japanese products. Therefore, origin is certainly a criterion that Korea uses to distinguish between domestic and Japanese products. A panel must not assume, however, that simply because origin is a criterion

[1206] Japan's second written submission, paras. 412-413.
[1207] Panel Report, *Indonesia – Autos*, para. 14.113; Panel Report, *Argentina – Hides and Leather*, paras. 11.168 -11.170; Panel Reports, *Canada – Autos*, para. 10.74; *India – Autos*, paras. 7.174-7.176; *China – Publications and Audiovisual Products*, paras. 7.1496-7.1498.
[1208] Appellate Body Report, *Argentina – Financial Services*, para. 6.38. In its analysis, the Appellate Body drew a parallel between the MFN and national treatment obligations under the GATS and the GATT 1994, finding that "the analysis of 'likeness' serves the same purpose in the context of both trade in goods and trade in services, namely, to determine whether the products or services and service suppliers, respectively, are in a competitive relationship with each other." Appellate Body Report, *Argentina – Financial Services*, para. 6.31.
[1209] Appellate Body Report, *Argentina – Financial Services*, para. 6.42; see also Panel Report, *China – Publications and Audiovisual Products*, paras. 7.1496 and 7.1498.
[1210] Appellate Body Report, *Argentina – Financial Services*, para. 6.45.
[1211] Korea's second written submission, paras. 383-385.
[1212] Japan's second written submission, paras. 413 and 423.
[1213] Korea's response to Panel question No. 5, Annex B.
[1214] Korea's second written submission, para. 384.
[1215] Korea's second written submission, paras. 362-363.
[1216] Korea's second written submission, para. 385.
[1217] Japan's second written submission, para. 423.
[1218] Japan's second written submission, para. 413.

for a distinction between products, the measures satisfy the test to apply the presumption.[1219] The Panel must address the parties' arguments with respect to whether the distinction is based on grounds in addition to origin.[1220]

7.398. With respect to the presumption of likeness, Japan does not address the text of the measures or other documents on the record, which refer to the Fukushima accident and health-related concerns. For instance, the Response and Management Measures Regarding the Japanese Nuclear Crisis is entitled "Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis" and reads that "[r]egarding the Japanese nuclear crisis, the Korea Food & Drug Administration ('KFDA') (Commissioner: Yeon-hong Rho) stated that it would take additional measures to step up control in light of the measures taken by other countries and the recent level-up in nuclear incident rating."[1221] With regard to the 2013 measure, PMO Blanket Import Ban and Additional Testing Requirements Press Release, refers to the risk of potential increased food contamination resulting from leaks of contaminated water from the FDNPP site as rationale for extending the additional testing requirements to further groups of products.[1222] Likewise, the MFDS notice for 2013 blanket import ban and additional testing requirements notifies the MFDS administration that the 2013 measure was adopted following a meeting and consultations held "in respect of the Fukushima nuclear accident".[1223]

7.399. Japan does not deny that concerns other than origin underpin Korea's measures. Indeed, Japan acknowledges that health concerns are a factor in Korea's adoption of the measures, when it states that "with reference to the SPS risks addressed by Korea's regulatory framework, Japanese products and non-Japanese products present similar SPS risks."[1224] Rather, Japan argues that such concerns are not based on science, given the allegedly similar risk profile of Japanese and Korean products containing less than 100 Bq/kg of caesium.[1225] However, the question of whether Korea's measure is based on science is more properly addressed under Articles such as 2.2, 5.1, 2.3 and 5.6 and not in the context of a presumption of likeness. In our view, even if, as the Panel has found, Korea's measures are applied more than to the extent necessary, the distinction of applying them only to Japan cannot be separated from the public health concern and the fact that it was Japan that experienced the FDNPP accident. The Panel recalls in that regard that the hypothetical likeness test is an analytical tool, which allows considering products to be like, without it being necessary to demonstrate likeness on the basis of the traditional likeness criteria. Inapplicability of the presumption in a particular case does not mean in itself that products are not like, because they are not in a competitive relationship. It merely indicates that the complainant has failed to establish a *prima facie* case that origin is the sole criterion for distinguishing between products or that the respondent has successfully rebutted such a presumption. As confirmed by the Appellate Body, even if the presumption of likeness does not apply, the complainant may still demonstrate that the products are like based on the traditional likeness test.[1226]

7.400. The Panel further notes that Korea's SPS regime takes into account health risks posed by contaminated products from origins other than Japan. Korea confirms that it has applied different frequencies of inspection at the border to different products from different origins.[1227] In particular, Korea closely monitors imports of food products from Ukraine, Belarus and other neighbouring countries affected by the fallout following the Chernobyl accident.[1228] Japan appears to acknowledge Korea's assertion regarding "different frequency [of caesium testing] depending on the origin of food products."[1229] Japan also provides a specific example of "six fishery species caught in the Pacific region and imported from any source, for which Korea conducts pre-market caesium tests twice a week."[1230] Therefore, in the Panel's view, Korea has a varied regime that is

[1219] Appellate Body Report, *Argentina – Financial Services*, para. 6.60.
[1220] Appellate Body Report, *Argentina – Financial Services*, para. 6.61.
[1221] Response and Management Measures Regarding the Japanese Nuclear Crisis, (Exhibits JPN-55.b (revised)), (Exhibit KOR-72 (revised)), p.1.
[1222] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p.1.
[1223] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b), p.1.
[1224] Japan's second written submission, para. 434.
[1225] Japan's second written submission, para. 434.
[1226] Appellate Body report, *Argentina – Financial Services*, para. 6.43.
[1227] Korea's comments on Japan's response to Panel question No. 135.
[1228] Korea's comments on Japan's response to Panel question No. 135.
[1229] Japan's first written submission, para. 127.
[1230] Japan's first written submission, para. 128.

not based only on origin, but takes into consideration the potential of contamination of food by radionuclides. As a result, the Panel finds that Japan has failed to demonstrate that origin is the sole basis for a distinction of Japanese products and that imported and domestic products can be presumed to be like.

7.401. Even assuming that Japan has established a *prima facie* case that the pre-market additional testing requirements distinguish between domestic and imported products exclusively on the basis of origin, Korea has, in the Panel's view, succeeded in rebutting that presumption. Korea introduces a number of arguments to support its contention that the distinction drawn by the measures is not solely based on origin. Korea explains that "the distinction between products are drawn as a result of the location of the FDNPP accident and the ongoing radioactive contamination stemming from the plant."[1231] Korea also puts forward health risks arising from importation of food products contaminated by radioactive isotopes as the rationale behind the different treatment of products from certain origins.[1232] The Panel recalls that the documents announcing the 2011 and 2013 additional testing requirements refer to health risks related to the contamination of Japanese food by radionuclides as the rationale for adopting the measures. As such, they provide contemporaneous corroboration for Korea's contention that public health concerns constituted one of the grounds for drawing a distinction between domestic and imported products.

7.402. As noted above, Japan returns to its arguments under Article 2.3 that Japanese products have similar risk profiles to food from other destinations including Korea.[1233] However, in the Panel's view, assessing whether a presumption of likeness has been established does not imply an in-depth inquiry into the nature of the distinction, as long as the reasons given by the respondent to rebut it are genuine and corroborated by evidence.[1234] Otherwise, this analytical tool would stop serving its purpose and would risk conflating the likeness analysis with the discrimination test. Therefore, the Panel accepts Korea's explanation that origin was not the sole ground considered when the distinction was drawn.[1235] Therefore, even if Japan has established a *prima facie* case that the presumption of likeness applies, the Panel finds that Korea has succeeded in rebutting the presumption of likeness of Korean and Japanese Products.

7.403. Because Japan has failed to establish that imported and domestic products can be presumed to be like, the Panel will now turn to the question whether Japan has demonstrated their likeness on the basis of the traditional four criteria elaborated by prior panels and the Appellate Body.

7.9.2.1.2 A traditional likeness analysis

7.404. Japan argues that under a traditional likeness analysis in line with the one established under Article III:4 of the GATT 1994, the Panel would need to determine on the basis of the four likeness criteria whether for every product imported from Japan and covered by the challenged measures there is a like product from other origins.[1236] We note that Japan's claim covers all food products, but with respect to the traditional likeness analysis, Japan's argument is essentially that:

> Evidently, Alaska pollock from all origins has the same physical properties and end uses; given that there are no differences between the Alaska pollock products with less than 100 Bq/kg of caesium, consumers have no rational basis to prefer Alaska pollock from one origin over another; and all Alaska pollock products are subject to the same tariff classification. Thus, there is, at a minimum, a *prima facie* case that Alaska pollock from Japan is "like" Alaska Pollock from all other origins. The same analysis applies, in the same way, with the same conclusion, in respect of all of the

[1231] Korea's second written submission, para. 384.
[1232] Korea's second written submission, para. 385.
[1233] Japan's second written submission, para. 434.
[1234] The panel in *China – Publications and Audiovisual Products* followed a similar approach, seeing "no reason to question China's explanations" regarding a distinction drawn between domestic and foreign publications on the basis of prohibited content. Panel Report, *China – Publications and Audiovisual Products*, para. 7.1496.
[1235] Our conclusion on Korea's reasons for drawing a distinction between Japanese and domestic products is separate from our findings with regard to whether Korea's measures are inconsistent with other provisions of the SPS Agreement.
[1236] Japan's second written submission, para. 426.

products subject to Japan's claims regarding the import bans (28 species of fish) and additional testing (all food).[1237]

7.405. Korea, for its part, argues that the Panel should consider the different health risks posed by Japanese products versus Korean products in conducting the likeness analysis. Korea relies on the Appellate Body's finding in *EC – Asbestos*, that "evidence relating to the health risks associated with a product may be pertinent in an examination of 'likeness'", both because two products posing different health risks can be considered to have different physical characteristics and because it "will have an influence on consumers' tastes and habits regarding that product."[1238] In other words, health risks could be taken into account in the likeness analysis to the extent they affect one of the above-mentioned four criteria.[1239]

7.406. The Panel notes in that regard that the Appellate Body confirmed in *EC – Asbestos* and *US – Clove Cigarettes* that health issues may be relevant in applying the likeness criteria of physical characteristics and consumer tastes and habits. In *US – Clove Cigarettes*, the Appellate Body explained that a panel should determine the nature and extent of the competitive relationship "in isolation from the measure at issue, to the extent that the latter informs the physical characteristics of the products and/or consumers' preferences."[1240] The Panel understands the Appellate Body to be cautioning panels not to reward the negative distortive effects of a measure on physical characteristics or consumer preferences by allowing a Member, through its measure, to render the products "unlike" and thus not subject to the disciplines of non-discrimination obligations. In the SPS context, application of certain SPS measures may actually mitigate existing risk and render the goods safe to be traded in international commerce. In the Panel's view, the likeness analysis should thus not be conducted in isolation from the mitigating effects of SPS measures.[1241]

7.407. It is well established that the burden of proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence.[1242] As Japan is asserting that domestic and imported products are like, it is for Japan to present arguments and adduce evidence supporting this assertion. Yet, other than a single paragraph in its second written submission, Japan does not elaborate why imported and domestic products should be considered to be like. Indeed, Japan refers to the likeness of its products to those of "all other origins" rather than specifically to Korean products. Japan provides a succinct conclusion on likeness with respect to Alaska pollock, noting that regardless of origin all Alaska pollock containing less than 100 Bq/kg would share the same physical characteristics and end uses, they would normally be subject of the same consumer tastes and habits and they would be listed under the same item of a tariff classification.[1243] In this example, Japan appears to overlook the fact that Alaska pollock is among the banned fishery products, hence not covered by Korea's additional testing requirements. Japan mentions that the same analysis should apply with regard to all Japanese food products. Japan does not adduce any additional evidence that would be helpful in conducting the likeness analysis, whether relating to specific products or groups of such products. For example, Japan does not explain whether Korea even produces all of the relevant products and, if it does not, whether any products it does produce are like the ones Japan seeks to export to Korea. Japan also does not refer to any trade data showing which of the products covered by its claims, or groups thereof, are in fact exported from Japan to Korea.

7.408. In the absence of further explanations from Japan, the Panel cannot assess whether imported and domestic products are like. As a result, the Panel finds that Japan has failed to demonstrate that domestic and imported products are like for the purposes of assessment under Annex C(1)(a).

[1237] Japan's second written submission, para. 426.
[1238] Appellate Body Report, *EC – Asbestos*, paras. 113 and 145.
[1239] Appellate Body Report, *EC – Asbestos*, para. 113.
[1240] Appellate Body Report, *US – Clove Cigarettes*, para. 111.
[1241] For example if imported beef would have a lower sanitary quality than domestic beef absent an SPS measure, but would have the same sanitary quality after the application of chilling and maturation the likeness comparison could be done on the basis of what the competitive relationship would be if the sanitary controls were applied.
[1242] Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.
[1243] Japan's second written submission, para. 426.

7.409. As Japan has not demonstrated that Japanese and Korean food products can be regarded as like products, it has also failed to establish that Korea acted inconsistently with Annex C(1)(a) by adopting or maintaining the 2011 and 2013 additional testing requirements.

7.9.3 Information requirements

7.410. Annex C(1)(c) stipulates that information requirements introduced by Members as part of their SPS measures "are limited to what is necessary for appropriate control, inspection and approval procedures".

7.411. Japan submits that the challenged measures involve the obligation to provide information relating to the levels of certain man-made radionuclides in food imported from Japan that are within the meaning of Annex C(1)(c). These levels are specified in an analytical report containing results of the additional testing, which importers of food from Japan have to submit together with an import declaration.[1244] According to Japan, providing information on the levels of additional radionuclides is not necessary, because a less trade-restrictive alternative measure can achieve Korea's ALOP.[1245] In support of this claim, Japan refers back to its arguments made with regard to Article 5.6.[1246] In a similar vein, Japan argues that the additional information requested with regard to Japanese products is not necessary, because third-country imports of products posing similar SPS risks are not subject to such requirements.[1247]

7.412. Korea, on the other hand, contends that Annex C(1)(c) does not apply to the additional testing requirements, as these are SPS measures in their own right rather than procedures or information requirements.[1248] According to Korea, Japan tries to artificially distinguish between the obligation to test food for the presence of additional radionuclides and an obligation to provide results of such tests, which Korea views as a single measure.[1249] Korea further argues that, in any event, Japan's argument is ill-suited to support a claim under Annex C(1)(c). This is because Japan appears to be "challenging the necessity of substantive measures for achieving Korea's ALOP, and not any 'information requirements'".[1250]

7.413. The Panel recalls that the panel in *Australia – Salmon (Article 21.5 – Canada)* found that a challenge to substantive SPS measures in their own right, as opposed to information requirements, falls outside the scope of Article C(1)(c).[1251] The Panel finds further support for that conclusion in the use of the conjunction "for", linking the necessity of information requirements with "control, approval and inspection procedures".

7.414. The Panel understands from Japan's submissions that it does not argue that knowing the levels of radionuclides in particular products would be unnecessary to check or ensure fulfilment with a substantive limit on radionuclide contamination in food products. More specifically, Japan does not explain which aspects of a test report or a certificate disclosing detection levels of radionuclides and other information ensuring the reliability of tests results are excessive for the appropriate operation, undertaking and completion of the additional testing. In the Panel's view, Japan's arguments are aimed at addressing the obligation in Article 5.6 not to apply measures that are more trade-restrictive than required to achieve the ALOP, instead of addressing the necessity of information requirements for the operation of the procedure, which is the obligation in Annex C(1)(c). As Japan's arguments do not address the obligation in subparagraph (c), they are insufficient to establish an inconsistency under that provision and are more properly brought under Article 5.6.

7.415. In the light of the above, the Panel finds that Japan has failed to substantiate its claim under Annex C(1)(c) with respect to any of the challenged measures.

[1244] Japan's second written submission, para. 441; response to Panel question No. 97.
[1245] Japan's second written submission, para. 442; response to Panel question No. 98.
[1246] Japan's second written submission, para. 442; response to Panel question No. 98.
[1247] Japan's second written submission, para. 443.
[1248] Korea's second written submission, para. 388.
[1249] Korea's second written submission, para. 389.
[1250] Korea's second written submission, para. 391.
[1251] Panel Report, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.156.

7.9.4 Requirements for control, inspection and approval of individual specimens

7.416. Annex C(1)(e) limits requirements for control, inspection and approval of individual specimens to what is reasonable and necessary. As the meaning of the terms in the provision has not yet been expressly dealt with by prior panels or the Appellate Body[1252], the Panel will begin its analysis by determining the ordinary meaning to be given to the provision in its context and in the light of its object and purpose.

7.417. The parties offer divergent views over the interpretation of Annex C(1)(e). Japan submits that the term "necessary" should be read in light of Article 5.6 and Annex C(1)(c), requiring the complainant to show that a significantly less trade-restrictive alternative measure would achieve the responding Member's ALOP.[1253] Japan refers in that regard to arguments and evidence it provides to support its claim under Article 5.6.[1254] As regards the requirement of reasonableness, Japan refers to the dictionary definition of that term, arguing that such a requirement is "not irrational, absurd or ridiculous', and that 'is appropriate or suitable to the circumstances or purpose'."[1255] Korea, on the other hand, relies on its understanding of the term "individual" to argue that subparagraph (e) does not cover procedures mandating sampling of products, such as the additional testing. According to Korea, "paragraph 1(c) refers to measures that require that each individual product – *i.e.*, 'individual specimens' – be subject to control, inspection and approval."[1256] Korea maintains that because its measures call for testing of randomly selected samples, they fall outside the ambit of Annex C(1)(e).

7.418. Looking at the language of subparagraph (e), the Panel notes that the term "specimen" is commonly understood as "[a]n example, instance, or illustration of something" and as "[a] part or piece of something taken as representative of the whole".[1257] The dictionary defines "individual" as "[o]ne in substance or essence [and] forming an indivisible entity".[1258] Although the term "requirement" as used in Annex C(1)(e) has not been previously interpreted, prior panels understood the word "requirement" in Annex A(1) to mean "something called for or demanded; a condition which must be complied with".[1259] In view of the textual similarities, the Panel finds this definition of "requirement" helpful in discerning the meaning of Annex C(1)(e).

7.419. These terms should be read in the broader context of subparagraph (e), which, being part of Annex C(1), governs procedures to check and ensure the fulfilment of SPS measures. In particular, the Panel notes that the language of subparagraph (e) refers to the same "control, inspection and approval procedures" that are mentioned in the title of Article 8 and Annex C. The Panel further notes that subparagraph (e) strikes a balance between the Members' prerogatives to verify that imported products comply with their SPS requirements and facilitating international trade in goods. Accordingly, Annex C(1)(e) aims at preventing Members from using control, inspection and approval procedures with regard to specimens of imported products in a manner that would not be "reasonable" or "necessary". One way this goal is achieved is by conducting control, inspection and approval procedures, such as testing on part of a product or a whole product that is representative of a lot or a consignment.

7.420. Therefore, the Panel sees no support in the language or the context of Annex C(1)(e), read in light of its object and purpose, for Korea's contention that measures covered by this provision are confined to those that apply to each and every individual product of a consignment. In the Panel's view, such a narrow reading of Annex C(1)(e) would deprive this provision of its meaning and effect. It is normal practice by border inspection authorities to use "individual specimens" as

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[1252] The panel in *EC – Approval and Marketing of Biotech Products* addressed a claim under Annex C(1)(e), but did not engage in interpretation of its terms, Panel Reports, *EC – Approval and Marketing of Biotech Products*, paras. 7.2494-7.2496.

[1253] Japan's second written submission, para. 452.

[1254] Japan's second written submission, para. 458.

[1255] Japan's second written submission, paras. 451-452 (quoting Japan's response to Panel questions No. 97 and 98).

[1256] Korea's first written submission, para. 340.

[1257] Oxford English Dictionary, "specimen", http://www.oed.com/view/Entry/186018?redirectedFrom=specimen#eid, last accessed on 18 August 2017.

[1258] Oxford English Dictionary, "individual", http://www.oed.com/view/Entry/94633?redirectedFrom=individual#eid, last accessed on 18 August 2017.

[1259] Panel Reports, *Australia – Apples*, para. 7.160; and *Russia – Pigs (EU)*, fn. 350.

representative of imported products to verify their conformity with laws and regulations.[1260] If Annex C(1)(e) were only to apply to measures that require testing of each individual product in a consignment, a great deal of measures could escape the scope of the provision.

7.421. That being said, the Panel also disagrees with Japan's contention that a measure can be inconsistent with Annex C(1)(e) if the requirements are not limited to what is necessary to achieve the importing Member's ALOP. Japan's argument appears to be a way to reformulate its claim under Article 5.6 and to establish an inconsistency with Annex C(1)(e) as a consequence of an inconsistency with Article 5.6 if the challenged measure is a control, inspection and approval procedure. The Panel does not see such a relationship between the two provisions. In the Panel's view, Japan's arguments cannot serve as a basis for a finding of inconsistency under Annex C(1)(e).

7.422. Japan further submits that the additional testing requirements are not reasonable, because for products tested for caesium at the Korean border, the additional testing must take place in Japan. This, according to Japan, implies higher storage, shipping, and testing costs and related shipment delays.[1261] Japan's remaining argument under subparagraph (e) relies thus entirely on a factual assertion that product specimens must be tested in Japan for the presence of the additional radionuclides.[1262] As noted in section 7.5.5 above, the Panel does not agree with Japan that the measures *per se* require that the additional testing be conducted in Japan. As such, Japan has also failed to prove its factual assertion and, as a result, that Korea's requirements for control, inspection and approval of individual specimens of products are not limited to what is reasonable.

7.423. Based on the foregoing, the Panel finds that Japan has failed to substantiate its claim under Annex C(1)(e) of the SPS Agreement with regard to the adoption and maintenance of the 2011 and the 2013 additional testing requirements.

7.9.5 Criteria for the siting of facilities and the selection of samples

7.424. Annex C(1)(g) refers to the use of the same criteria in the siting of facilities and the selection of samples for imported and domestic products alike. The Panel notes at the outset that neither prior panels, nor the Appellate Body, have addressed interpretation of this provision. The Panel will, therefore, begin its analysis by determining the ordinary meaning to be given to the provision in its context and in the light of the object and purpose.

7.425. In that regard, the Panel notes that Korea has raised the issue of whether subparagraph (g) imposes a positive obligation on Members or has merely exhortatory meaning, due to the use of the verb "should" in the provision.[1263]

7.9.5.1 Does Annex C(1)(g) impose a positive obligation?

7.426. Japan relies on prior panel and Appellate Body rulings to argue that the word "should" can have either a normative or a hortatory meaning.[1264] Japan further argues that read in the light of its context, in particular Article 8 and the *chapeau* of Annex C(1), subparagraph (g) denotes a positive obligation.[1265] Japan further supports its argument with a reference to reports by a panel and by the Appellate Body, which mention subparagraph (g) as one of the obligations listed in Annex C(1).[1266]

[1260] For example, the IPPC Methodologies for Sampling of Consignments explains that "[i]t is usually not feasible to inspect entire consignments, so phytosanitary inspection is performed mainly on samples obtained from a consignment." We note that the OIE and Codex also produce guidelines on sampling. Available at https://www.ippc.int/static/media/files/publications/en/1323947615_ISPM_31_2008_En_2011-11-29_Refor.pdf, last accessed on 10 August 2017.

[1261] Japan's second written submission, para. 459.

[1262] Japan's second written submission, para. 459.

[1263] Korea's first written submission, paras. 347-349; second written submission, paras. 398-404.

[1264] Japan's response to Panel question No. 103.

[1265] Japan's second written submission, paras. 470-471; response to Panel question No. 103.

[1266] Japan's response to Panel question No. 103 (quoting the Appellate Body report in *Australia – Apples*, para. 435, footnote 669, and the Panel Report, *US – Poultry (China)*, para. 7.357).

7.427. Korea contends that the interpretation of Annex C(1)(g) must give effect to the plain meaning of the term "should", which expresses exhortation rather than obligation.[1267] Korea also contrasts the use of should in subparagraph (g) with the use of shall as well as indicative forms "are" or "be" in other provisions of the SPS Agreement.[1268] Likewise, Korea juxtaposes the language of Annex C(1)(g) with that of Article 5.2.6 of the TBT Agreement, contending that the mandatory nature of the latter is explicit through the use of the verb "are".[1269] According to Korea, this difference in the language of various provisions ought to be given effect.[1270] Korea relies in that regard on the panel report in *US – Animals*, which found that the use of should in Article 5.4 of the SPS Agreement denotes exhortation.[1271] Korea concludes on that basis that Annex C(1)(g) is merely a "best effort provision" that encourages Members to minimize the inconvenience on importers in application of criteria for sampling and siting of facilities.[1272]

7.428. The Panel begins its interpretation of Annex C(1)(g) with reference to the relevance of the term "should". As regards its plain meaning, "should" is somewhat of a chameleon in the treaty text and the Appellate Body found in *Canada – Aircraft* that, depending on the circumstances, should can express either an exhortation or an obligation.[1273]

7.429. The panel in *US – Animals*, observed that "the use of 'should' as opposed to 'shall' in any particular provision of [the SPS] Agreement was a deliberate choice."[1274] The Panel further notes that the use of "should" in subparagraph (g) contrasts with the use of indicative forms "is" or "are" in subparagraphs (a) through (e), (h) and (i) in the same Annex. The Panel agrees with the Appellate Body that "the choice and use of different words in different places in the SPS Agreement are deliberate, and … the different words are designed to convey different meanings."[1275] Following the approach of the Appellate Body in *Canada – Aircraft* and *Mexico – Taxes on Soft Drinks* as well as the panel in *US – Animals*, a conclusion on whether "should" is used as an exhortation or to express a duty or obligation must be based on the context of the provision as a whole.[1276] Thus, it would be inappropriate for the Panel to assume that because "should" is exhortatory in Article 5.4 that it is automatically the same in Annex C(1)(g). The Panel must base our determination on the context of the provision. The Panel, therefore, now turns to the context of subparagraph (g).

7.430. First, the Panel notes that the word "should" in Annex C(1)(g) is followed by "so as", which connects the two parts of the provision. Unlike a more attenuated expression "take into account" used in Article 5.4, which requires consideration of relevant facts, "so as" denotes a result or a consequence, which subparagraph (g) aims to achieve.[1277] Given the more tenuous language of Article 5.4, as well as the different context of that provision, it would be inappropriate to apply the conclusions reached by the panel in *US – Animals* under Article 5.4 to Annex C(1)(g). The Panel understands that the use of should in Annex C(1)(g) is meant to emphasise that the purpose of the provision is to minimize the inconvenience to applicants, importers, exporters or their agents and consistency with the obligation would be determined in that light.

7.431. Likewise, the Panel is not persuaded by Korea's argument juxtaposing the language of Annex C(1)(g) and Article 5.2.6 of the TBT Agreement. The Panel notes that, unlike Annex C(1)(g), Article 5.2.6 does not require using the same criteria for siting of facilities and the selection of samples, but that these criteria "are not such as to cause unnecessary

[1267] Korea's response to Panel question No. 103.
[1268] Korea's second written submission, para. 399.
[1269] Korea's opening statement at the second meeting of the Panel, para. 143.
[1270] Korea's opening statement at the second meeting of the Panel, para. 143.
[1271] Korea's second written submission, para. 399 (citing Panel Report, *US – Animals*, para. 7.403).
[1272] Korea's second written submission, paras. 398-401.
[1273] Appellate Body Report, *Canada – Aircraft*, para. 187; Certain ambiguity carried by the meaning of "should" was already recognised by William Shakespeare, who noted in Act IV of *The Tragedy of Hamlet, Prince of Denmark* that "[T]his should is like a spendthrifts sigh | That hurts by easing."
[1274] Panel Report, *US – Animals*, para. 7.403.
[1275] Appellate Body Report, *EC – Hormones*, para. 164.
[1276] Appellate Body Report, *Canada – Aircraft*, para. 187; Appellate Body Report, *Mexico – Taxes on Soft Drinks*, para. 51; Panel Report, *US – Animals*, para. 7.399. See also Panel Report, *Guatemala – Cement II*, footnote 854 to para. 8.196; and Panel Report, *EC – Bed Linen (Article 21.5 – India)*, para. 6.267.
[1277] Oxford English Dictionary, "so.., or so..as, so as", http://www.oed.com/view/Entry/183635?rskey=7wy899&result=4#eid21894696, last accessed on 18 August 2017.

inconvenience".[1278] Annex C(1)(g) is thus at least as specific in its content as Article 5.2.6 of the TBT Agreement, which, Korea argues, is an example of a positive obligation. We cannot, therefore, agree that the differences in language between Article 5.2.6 of the TBT Agreement and Annex C(1)(g) can support an interpretation of subparagraph (g) as a hortatory provision.

7.432. The Panel further notes that Article 8 and the *chapeau* of Annex C(1) provide respectively that "Members shall observe the provisions of Annex C" and that with respect to any procedure to check and ensure the fulfilment of SPS measures, "Members shall ensure" observance of subparagraphs (a) through (i).[1279] Both provisions thus instruct Members to comply with the individual subparagraphs of Annex C(1), implying that Annex C(1)(g) connotes a positive obligation. This understanding of the nature of Annex C(1)(g) is consistent with the Appellate Body's ruling in *Australia – Apples* that the "obligations contained in Annex C(1) are: … (g) that the same criteria be used in the siting of facilities used in the procedures and the selection of samples of imported products as for domestic products".[1280]

7.433. In sum, having regard to the language of the whole of subparagraph (g) as well as the rest of Annex C and the SPS Agreement, the Panel concludes that Annex C(1)(g) imposes a positive obligation on the Members to use the same criteria in the siting of facilities used in the procedures and the selection of samples of imported as for domestic products so as to minimize the inconvenience to applicants, importers, exporters or their agents. The Panel now moves on to assess Japan's claims under that provision.

7.9.5.2 Whether Korea's additional testing requirements use the same criteria for siting of facilities

7.434. With respect to Korea's alleged failure to use the same criteria for the siting of facilities, Japan's claim relies entirely on a factual assertion that samples of Japanese products tested at the Korean border have to be returned to Japan to conduct the additional testing.[1281] The Panel has already concluded in section 7.5.5 above that Japan has failed to demonstrate that such samples must undergo the additional testing in Japan. Therefore, Japan likewise fails to demonstrate that Korea's 2011 and 2013 additional testing requirements are inconsistent with Annex C(1)(g), first clause.

7.9.5.3 Whether the additional testing requirements use the same criteria for selection of samples

7.435. To address Japan's claims under Annex C(1)(g), second clause, the Panel has to first determine the meaning and the scope of the obligation. Japan submits that the term "selection of samples" refers to "a process whereby authorities select, for testing, a sub-part of a larger group of products (e.g., a consignment) for the purpose of enabling or verifying conclusions about relevant SPS-qualities of the larger groups of products."[1282] Korea does not offer any guidance on how the Panel should interpret the phrase "selection of samples". However, in its substantive defence Korea refers to Article 8 of the Korea Food Code on the selection of samples and to the Codex General Guidelines on Sampling.[1283]

7.436. Annex C(1)(g), second clause requires that the same criteria should be used in the selection of samples for imported as for domestic products. The dictionary defines criterion as "[a] test, principle, rule, canon, or standard, by which anything is judged or estimated", while same means "identical with what is indicated in the following context."[1284] The term "selection" is in turn

[1278] Article 5.2.6 of the TBT Agreement reads as follows:
5.2 When implementing the provisions of paragraph 1, Members shall ensure that: …
5.2.6 the siting of facilities used in conformity assessment procedures and the selection of samples are not such as to cause unnecessary inconvenience to applicants or their agents[.]

[1279] Japan's second written submission, para. 470. (emphasis omitted)

[1280] Appellate Body Report, *Australia – Apples*, para. 435 and fn. 669 (emphasis added); see also Panel Report, *US – Poultry (China)*, para. 7.357.

[1281] Japan's second written submission, para. 475.

[1282] Japan's second written submission, para. 467 (citing Oxford English dictionary definitions of the terms "selection" and "sample".).

[1283] Korea's responses to Panel question Nos. 35, 100, and 102.

[1284] Oxford English Dictionary, "criterion", http://www.oed.com/view/Entry/44581?redirectedFrom=criteria#eid, last accessed on 18 August 2017.

commonly understood as "[t]he act of choosing someone or something".[1285] Finally, the dictionary defines "sample" as "[a] relatively small quantity of material, or an individual object, from which the quality of the mass, group, species, etc. which it represents may be inferred."[1286]

7.437. The Panel finds a similar definition in the Codex General Guidelines on Sampling, which refers to "sample" as a "[s]et composed of one or several items (or a portion of matter) selected by different means in a population (or in an important quantity of matter)."[1287] An analogous explanation is provided in the OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, which defines "sample" as "[m]aterial that is derived from a specimen and used for testing purposes."[1288] A similar description of sampling can also be found in Article 1.4.4 of the OIE's Aquatic Animal Health Code and the IPPC Guidelines for a Phytosanitary Import Regulatory System.[1289] In light of the relevance of the standards, guidelines and recommendations of these organizations to the operation of the SPS Agreement the Panel finds their definitions of these terms highly relevant to an understanding of the ordinary meaning of the phrase "selection of samples" in Annex C(1)(g).[1290]

7.438. With regard to the context of these terms, the Panel has already noted that that Annex C(1)(g) denotes a positive obligation imposed on Members by virtue of Article 8 and the *chapeau* of Annex C(1). Annex C(1) contains a number of obligations on how procedures have to be conducted to prevent imported products from being disadvantaged. These provisions govern practical aspects of control, inspection and approval procedures, which are distinct from the operation of substantive SPS requirements. With regard to the object and purpose of the provision, as reflected in its terms, the Panel understands that it is to ensure that in their operation, procedures on sampling selection do not hinder imports of products to the detriment of their competitive opportunities.

7.439. Therefore, the Panel understands Annex C(1)(g), second clause, seen in its context, and in light of its object and purpose, to address the rules Members use for selecting material that is representative of a consignment of products that will subsequently be tested as part of control, inspection and approval procedures.

7.440. For Japan to establish inconsistency of the challenged measures with Annex C(1)(g), it needs to demonstrate that the 2011 and 2013 additional testing requirements do not use the same criteria for the selection of samples for Japanese products as those used for Korean products. In support of its claim, Japan essentially raises two arguments.

7.441. First, Japan alleges that Korea employs different sample selection criteria by applying the pre-market additional testing requirements solely to Japanese products and not to Korean ones.[1291] According to Japan, such treatment results in Japanese products possibly being sampled twice, once at the pre-market stage and again at the point-of-sale, while Korean products could be subject to testing only at the point-of-sale.[1292] Korea denies any discrimination in the sample

[1285] Cambridge English Dictionary, "selection", http://dictionary.cambridge.org/dictionary/english/selection, last accessed on 18 August 2017.

[1286] Oxford English Dictionary, "sample", http://www.oed.com/view/Entry/170414?rskey=ExP6up&result=1&isAdvanced=false#eid, last accessed on 18 August 2017.

[1287] Codex Alimentarius Commission General Guidelines on Sampling, Document CAC/GL 50-2004, 2004.

[1288] OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Glossary of Terms, "sample" available at: http://www.oie.int/fileadmin/Home/eng/Health_standards/tahm/0.04_GLOSSARY.pdf, last accessed on 5 July 2017.

[1289] Article 1.4.4 (3) of the OIE Aquatic Animal Health Code states:

> The objective of sampling from a population is to select a subset of units from the population that is representative of the population with respect to the object of the study such as the presence or absence of disease. Sampling should be carried out in such a way as to provide the best likelihood that the sample will be representative of the population, within the practical constraints imposed by different environments and production systems.

Available at http://www.oie.int/index.php?id=171&L=0&htmfile=chapitre_aqua_ani_surveillance.htm, last accessed on 5 July 2017. Section 5.1.5.2.2 of the IPPC Guidelines for a Phytosanitary Import Regulatory System states that "[s]amples may be taken from consignments for the purposes of inspection, or for subsequent laboratory testing, or for reference purposes".

[1290] See Article 3 and Annex A(3) of the SPS Agreement.

[1291] Japan's second written submission, para. 473.

[1292] Japan's response to Panel question No. 159.

selection process at the level of the additional testing, while admitting that such a distinction is drawn with regard to the caesium and iodine testing.[1293] Korea maintains that its sample selection criteria are governed by Article 8 of the Korea Food Code, setting forth specific rules on the sampling process.[1294] Korea adds that these criteria are based on Codex General Principles on Sampling and Codex Principles on the Use of Sampling and Testing in International Food Trade.[1295]

7.442. In its second argument, Japan contends that Korea applies different sample selection criteria by requiring additional testing of food products in which at least 1 Bq/kg of caesium or iodine has been detected with regard to all consignments of all Japanese food imports.[1296] This treatment differs, according to Japan, from that of products tested at the point-of-sale, where the 1 Bq/kg testing level is applied only to products randomly sampled from a group of the 150 most consumed food products.[1297] Korea, for its part, reiterates that the only difference is that it selects samples from every Japanese consignment at the stage of caesium and iodine testing and that such testing has not been challenged by Japan.[1298] Korea also disagrees with the assertion that it does not test all domestic products in which 1 Bq/kg or more of caesium or iodine has been detected for the presence of the additional radionuclides.[1299]

7.443. The Panel notes that Japan does not object to the application of the pre-market caesium and iodine testing to randomly selected samples from all consignments of Japanese food.[1300] However, Japan's argument builds upon the application of this testing to contend that it leads to an increased frequency of testing for the additional radionuclides.[1301] In particular, Japan argues that even though it does not object to the caesium and iodine testing on randomly selected samples from all consignments, the Panel should take it into account as the result of the test is the sampling selection criterion for the application of the additional testing.[1302]

7.444. Both of Japan's arguments conflate the likelihood that products will be subjected to testing or the sequencing of multiple tests of certain samples with the overall criteria for the selection of samples. The Panel has difficulty understanding how what Japan is referring to equates to the selection of samples within the meaning of Annex C(1)(g). As noted above, subparagraph (g) governs the types of measures that set forth rules for how particular samples are chosen from a larger lot or consignment to be tested as a representative of the whole. Japan seems to accept this in the definition of a sample that it proffers. Nevertheless, Japan's arguments address what happens to the sample after it is selected – namely what contaminants it is tested for and when.[1303] Japan fails to identify in its arguments any elements of Korea's sample selection criteria that are different for Japanese products than for Korean ones. After reviewing the available evidence, the Panel concludes that such sample selection criteria are included, for example, in the Korea Food Code, which Japan does not refer to in its arguments. Instead of challenging the relevant aspects of Korea's criteria for sample selection, Japan is in essence criticising Korea's overall radiological food safety regime for potentially subjecting Japanese products to testing for different radionuclides at different times. These issues are not relevant to a claim under subparagraph (g), second clause.

7.445. Therefore, the Panel finds that Japan has failed to substantiate its claim under Annex C(1)(g), second clause.

7.446. The Panel concludes that Japan has failed to establish that Korea acted inconsistently with both first and second clause of Annex C(1)(g) with regard to adoption and maintenance of the 2011 and the 2013 additional testing requirements.

[1293] Korea's first written submission, para. 352; second written submission, paras. 407-408.
[1294] Korea's responses to Panel question Nos. 102 and 35.
[1295] Korea's response to Panel question No. 100.
[1296] Japan's responses to Panel question Nos. 102 and 159.
[1297] Japan's responses to Panel question Nos. 102 and 159.
[1298] Korea's first written submission, para. 352; second written submission, para. 408.
[1299] Korea's second written submission, para. 407.
[1300] See section 2.7.2 above.
[1301] Japan's first written submission, para. 133.
[1302] Japan's response to Panel question No. 159.
[1303] The Panel notes that Japan has not argued that a new sample must be selected when additional testing is required.

7.9.6 Conclusion under Article 8 and Annex C

7.447. In the light of the above, the Panel finds that Japan has failed to establish that Korea acted inconsistently with the provisions of Annex C(1), subparagraphs (a), (c), (e) and (g) and, as a consequence, with Article 8 of the SPS Agreement in respect of the adoption and maintenance of the 2011 and the 2013 additional testing requirements.

7.10 Transparency obligations

7.448. The SPS Agreement contains obligations to facilitate the transparency of SPS measures. These obligations are embodied in Article 7 and Annex B. In this dispute, Japan claims that Korea has acted inconsistently with Article 7 and Annex B(1), B(3)(a) and B(3)(b) of the SPS Agreement. In particular, Japan alleges that Korea failed to publish its import bans and additional testing requirements in a manner that allows interested Members to become acquainted with them, as required by Annex B(1), and that Korea's Enquiry Point did not provide relevant documents and answers to Japan's reasonable questions as required by Annex B(3)(a) and (b).

7.449. The main point of contention between the parties is whether Korea's announcements of the imposition of the import bans and additional testing requirements via press releases posted on government websites were sufficient to comply with the obligation in Annex B(1). Additionally, the parties differ as to whether Korea's Enquiry Point's responses to two requests for documents and answers from Japan (24 June 2014 and 13 November 2014) fulfilled Korea's obligations under Annex B(3).

7.450. Article 7 of the SPS Agreement provides:

> Members shall notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B.

7.451. Annex B of the *SPS Agreement*, referenced in Article 7, provides, in the relevant parts:

> Annex B
>
> Transparency of Sanitary and Phytosanitary Regulations
>
> Publication of regulations
>
> 1. Members shall ensure that all sanitary and phytosanitary regulations[5] which have been adopted are published promptly in such a manner as to enable interested Members to become acquainted with them.
>
> (…)
>
> Enquiry points
>
> 3. Each Member shall ensure that one enquiry point exists which is responsible for the provision of answers to all reasonable questions from interested Members as well as for the provision of relevant documents regarding:
>
> (a) any sanitary or phytosanitary regulations adopted or proposed within its territory;
>
> (b) any control and inspection procedures, production and quarantine treatment, pesticide tolerance and food additive approval procedures, which are operated within its territory;
>
> (c) risk assessment procedures, factors taken into consideration, as well as the determination of the appropriate level of sanitary or phytosanitary protection;

(d) the membership and participation of the Member, or of relevant bodies within its territory, in international and regional sanitary and phytosanitary organizations and systems, as well as in bilateral and multilateral agreements and arrangements within the scope of this Agreement, and the texts of such agreements and arrangements.

_____

[5] Sanitary and phytosanitary measures such as laws, decrees or ordinances which are applicable generally.

7.10.1 Whether Korea's measures are SPS regulations within the meaning of Annex B

7.452. The publication obligation in Annex B(1) only applies to adopted SPS regulations[1304], whereas Annex B(3)(a) refers to the Enquiry Point providing answers to all reasonable questions and relevant documents regarding any proposed or adopted SPS regulations applicable within its territory. Furthermore, Annex B(3)(b) extends the scope of the Enquiry Points responses to include questions and requests for documents relating to "control and inspection procedures…".

7.453. The Panel has already concluded that the additional testing requirements are control, inspection and approval procedures. Therefore, they fall within the scope of Annex B(3)(b). However, with respect to Annex B(1) and B(3)(a), as explained in paragraph 7.1. above pursuant to our obligation under Article 11 of the DSU, the Panel will first examine whether Japan has demonstrated that Korea's measures are SPS regulations.

7.454. The term SPS regulations is defined in the footnote to Annex B(1) as "[SPS] measures such as laws, decrees or ordinances which are applicable generally". The Appellate Body in *Japan – Agricultural Products II* clarified that the footnote to Annex B(1) includes an illustrative list of instruments, as indicated by the words "such as". This list is therefore not exhaustive. Prior panels and the Appellate Body have explained that SPS regulations within the meaning of Annex B(1) include instruments that are "applicable generally" and "similar in character" to laws, decrees or ordinances.[1305] Japan relies on this prior jurisprudence to maintain that Korea's measures – import bans and additional testing requirements, contained in public announcements from the Korean Prime Minister, MFDS and the MIFAFF are measures that are applicable generally and are similar in character to laws, decrees or ordinances.[1306] Korea, for its part, does not contest that its measures are SPS regulations and thus subject to the requirements in Annex B(1) and B(3)(a).[1307]

7.455. The Panel sees no reason to disagree with the parties in this respect. In particular, the Panel notes that Korea's press releases announcing the import measures use language that indicate that the measures apply to "an unidentified number of economic operators"[1308], are not addressed to "individual persons or entities"[1309]; apply to all products of a certain type upon importation and are "not limited to a single import or a single importer".[1310] In particular, the 2013 press release announcing the blanket import ban and the additional testing requirements bans all fishery products originating in eight particular prefectures of Japan or subjects all fishery and livestock products to additional testing requirements if they originate from any other Japanese prefecture.[1311] Similarly, the press releases announcing the additional testing requirements in

[1304] Panel Report, *Russia – Pigs (EU)*, para. 7.1422; Panel Report, *Japan – Agricultural Products II*, para. 8.109.

[1305] Panel Report, *India – Agricultural Products*, para. 7.738; Appellate Body Report, *Japan – Agricultural Products II*, para. 105.

[1306] Japan's first written submission, paras. 161-162 (referring to Appellate Body Report, *Japan – Agricultural Products II*, para. 105.).

[1307] Korea's first written submission, paras. 369and 371.

[1308] Panel Report, *US – Underwear*, para. 7.65.

[1309] Appellate Body Report, *US – Underwear*, p. 21.

[1310] Panel Report, *EC – IT Products*, para. 7.1034.

[1311] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1 (emphasis omitted):

…the distribution of fishery products from these regions will be completely banned in Korea regardless of their radioactive contamination, and, With regard to the Japanese fishery and/or livestock products from regions other than 8 ken near Fukushima, if even trace amounts of cesium are detected, the government will require the submission of test report regarding presence of other nuclides such as plutonium and strontium.

2011 and the product-specific bans in 2012 refer to all imports of a particular product from a particular region.[1312]

7.456. Therefore, the Panel finds that Japan has established that Korea's measures are SPS regulations and thus are subject to the requirements in Annex B(1) and B(3)(a).

7.457. Japan claims that the manner in which Korea posted the press releases announcing the blanket import ban, the product-specific bans and the additional testing requirements, was insufficient to fulfil the obligation in Annex B(1), because the press releases do not contain the actual regulations[1313], and because they were not posted in locations where Members could reasonably expect to find them.[1314]

7.458. Under Annex B(1), Members are obliged to ensure that an adopted measure is published promptly in such a manner as to enable interested Members to become acquainted with it. Japan does not dispute the promptness of Korea's actions, but rather whether the actions it did take – posting press releases on government agency or the Prime Minister's websites – are sufficient to fulfil the other elements of the obligation.

7.10.1.1 Publish in such a manner as to enable interested Members to become acquainted with them

7.459. Korea and Japan disagree on whether Annex B(1) requires Members to publish the text of the regulation itself. Japan argues that the text of the treaty provision specifies that it is the regulation itself that must be published, and not a summary, synopsis, or other description of the text.[1315] Korea argues that the publication of an SPS regulation need only contain sufficient information for interested Members to be "put on notice" regarding a new SPS measure[1316], and that the information that should be published normally consists of the "basic requirements of the measure, the government agency responsible for implementing the measure, the products subject to the measure, and the effective date of the measure". Brazil, Canada, New Zealand, Norway, and the United States all agree that the obligation in B(1), at minimum, requires publication of the text of the relevant SPS measures in all instances.[1317] Brazil, Canada, and New Zealand further argue that in some cases, information additional to the regulation itself may be required to satisfy the obligation to enable that Members can acquaint themselves with the measures.[1318] For its part, the European Union accepts that in exceptional circumstances the publication of a text falling short of the SPS regulation may be sufficient.[1319]

7.460. Although this is the first time a claim has been raised on the scope of the obligation to publish, under Article 7 of the SPS Agreement, transparency is a fundamental obligation woven throughout the WTO agreements. Prior panels and the Appellate Body have interpreted similar publication obligations in the GATT 1994, the Safeguards Agreement, the Anti-Dumping Agreement, and the SCM Agreement. The panel in *Chile – Price Band System* concluded that publication obligation requires that relevant documents be "generally made available through an appropriate medium".[1320] The panel in *EC – IT Products* clarified that a publication does not necessarily require publication in an official bulletin or gazette. That panel noted that there are two distinct obligations in Article X of the GATT 1994. While Article X:1 requires that measures be

[1312] For example, Product-Specific ban on Cod from Miyagi and Iwate , (Exhibit JPN-76.b), states that, "Cod caught in Miyagi-ken and Iwate-ken, Japan is subject to temporary import suspension."
Korea's Press Release announcing the 2011 testing requirements, entitled "Status of KFDA's Response and Management Measures Regarding the Japanese Nuclear Crisis (5)", (Exhibit JPN-55.b (revised)), (Exhibit KOR-72-(revised)), states that the "…measures will apply to foods from Japan declared for import as of May 1, 2011.

[1313] Japan's second written submission, paras. 310-321.

[1314] Japan's second written submission, para. 349.

[1315] Japan's second written submission, para. 313.

[1316] Korea's response to Panel question No. 73.

[1317] New Zealand's, Brazil's, Canada's, Norway's, and the United States' third-party responses to Panel question No. 1.

[1318] New Zealand's third-party response to Panel question No. 1; Brazil's third-party responses to Panel question Nos. 1-2; Canada's third-party response to Panel question No. 1.

[1319] European Union's third-party response to Panel question No. 1.

[1320] Panel Report, *Chile – Price Band System*, para. 7.128. Article 3.1 of the Agreement on Safeguards provides, in the relevant part: "The competent authorities shall publish a report setting forth their findings and reasoned conclusions reached on all pertinent issues of fact and law."

"published", Article X:2 refers to "officially published" measures.[1321] With respect to publication via the internet, the panel in *China – Broiler Products* found that it is "generally recognized and accepted that the manner to inform unknown interested parties in an administrative or judicial proceeding is by way of public notices, including notices published in an official gazette or on the internet." Noting that similar concepts are reflected in Article X of the GATT 1994 and Article 12 of the Anti-Dumping Agreement, the panel explained that "[t]hese provisions rely on the notion that the intended recipients will consult the relevant documents emanating from national authorities of the countries where they conduct business."[1322]

7.461. Looking to the other provisions in Annex B for context, the Panel notes that Annex B(5)(a) also refers to publication, but to a notice of a proposed SPS regulation. We agree with Japan that the use of the term "notice" in Annex B(5)(a), which refers to the publication of a notice in advance of the regulation, as opposed to the term "regulation" in Annex B(1) demonstrates that the publication requirements in the two provisions must be qualitatively different and that therefore, Annex B(1) requires publication of something more than an announcement that the regulation exists.[1323] This is further supported by Annex B(5)(c) which requires Members to provide other Members with copies of the proposed regulation. Because Korea refers to its measures as being adopted in an emergency situation[1324], the Panel also looks to Annex B(6)(b) for context. In that regard, the Panel notes that Annex B(6)(b) requires Members to provide other Members with copies of the regulation itself. Such requirements to provide copies of the (proposed) regulation itself are absent from Annex B(1). The Panel understands this difference to support a conclusion that the obligation in Annex B(1) is to publish the content of the SPS regulation, otherwise the drafters would have included a similar obligation, as those in Annex B(5)(c) and B(6)(b), to provide a copy of the (proposed) regulation itself separately. Thus, according to the text in its context and in light of Annex B(1)'s object and purpose of achieving transparency, the obligation in Annex B(1) is to publish the content of the SPS regulation – not an announcement of its existence or a brief summary. This can be achieved *inter alia* by publishing the actual regulation through a formal legal instrument, such as in an official gazette, through decision, or by reproducing the content of the regulation in a press release or on a webpage.

7.462. The Panel notes, however, that publication of the regulation itself does not necessarily ensure that the information in it is sufficient to enable Members to acquaint themselves with the measure. In this respect, the Panel notes that the dictionary defines "acquaint" as to "make [k]nown; become familiar (with); "inform".[1325] The panel in *EC – IT Products* concluded that the

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[1321] Panel Report, *EC – IT Products*, paras. 7.1081-7.1084. Article X:1 of the GATT 1994 provides, in relevant part:

> Laws, regulations, judicial decisions and administrative rulings of general application, made effective by any contracting party, pertaining to the classification or the valuation of products for customs purposes, or to rates of duty, taxes or other charges, or to requirements, restrictions or prohibitions on imports or exports or on the transfer of payments therefor, or affecting their sale, distribution, transportation, insurance, warehousing inspection, exhibition, processing, mixing or other use, shall be *published* promptly *in such a manner as to enable governments and traders to become acquainted with them*. (emphasis added)

Article X:2 of the GATT 1994 provides:

> No measure of general application taken by any contracting party effecting an advance in a rate of duty or other charge on imports under an established and uniform practice, or imposing a new or more burdensome requirement, restriction or prohibition on imports, or on the transfer of payments therefor, shall be enforced before such measure has been *officially published*. (emphasis added)

[1322] In the context of anti-dumping and countervailing duties, panels and the Appellate Body have had the opportunity to examine whether posting information on a government website is sufficient to comply with the obligation to notify interested parties of the information the authorities require from them (Article 6.1 of the Anti-dumping Agreement and Article 12.1 of the SCM Agreement). The Appellate Body in *Mexico- Rice* found that simply posting an announcement of the initiation of the investigation on the investigating authority's website along with the requested information and relevant deadlines was not sufficient to satisfy the obligation to notify all known and unknown exporters. See Appellate Body Report, *Mexico – Anti-Dumping Measures on Rice*, paras. 245-253. The panel in *China – Broiler Products* concluded that internet notifications may be the only practicable way to comply with the notification obligation for [a]n investigating authority which has no other, more direct, means of reaching certain producers/exporters. See Panel Report, *China – Broiler Products*, paras. 7.303-7.305.

[1323] Japan's second written submission, para. 314; response to Panel question No. 75; Oxford English Dictionary, OED Online, regulation, n. and adj., (Exhibit JPN-223).

[1324] Korea's first written submission, paras. 31, 33, and 57.

[1325] *The New Shorter Oxford English Dictionary*, (L. Brown, Ed.), Oxford University Press, 1993, Vol. 1, pp. 19-20.

purpose of the publication requirement is so that governments and traders know what conditions would apply to their goods when imported into another Member's territory.[1326] In a similar vein, the panel in *Thailand – Cigarettes (Philippines)* found that a publication simply listing components of a measure did not satisfy the publication obligation in Article X:1 of the GATT 1994, because this list "would not enable importers to become acquainted with the detailed rules" applicable to them.[1327] According to that panel, the fact that importers had engaged with the measure and obtained revisions "d[id] not prove … that importers were apprised of the specific principles and methods" applicable to their products.[1328]

7.463. Annex B(2) provides contextual support for an understanding that the obligation in B(1) requires the importing Member to ensure that the publication of its regulation contains sufficient elements to allow interested Members to know what conditions would apply to their goods, including the specific principles and methods applicable to the products. Annex B(2) requires Members to allow a reasonable interval between publication and entry into force of SPS regulations "in order to allow time for producers in exporting Members, and particularly in developing country Members, to adapt their products and methods of production to the requirements of the importing Member". Producers in exporting Members cannot adapt their products and methods to the requirements of the importing Member if they do not understand them in sufficient detail. We agree with Korea that the specific elements that will allow interested Members to become acquainted with an SPS regulation may vary from regulation to regulation.[1329] Some of the essential elements can be inferred from the substantive requirements for promulgating SPS regulations found in the SPS Agreement[1330], and from the context and object and purpose of Annex B(1). They may include the objective pursued by the regulation, the specific risk that the regulation addresses and the appropriate level of sanitary or phytosanitary protection adopted by the Member[1331], whether relevant international standards, guidelines, or recommendations exist, and if the measure is based on that standard, conforms to it, or seeks to achieve a higher level of protection.[1332] In light of the goal of enabling Members to know what conditions apply to their products and to give them time to adapt to the new requirements one would also expect information on: the substantive and procedural requirements that an exporter must fulfil, the date on which the regulation takes effect, the products affected by the SPS regulation, as well as, in the case of regulations affecting specific Members or regions, the Members or regions the regulation applies to. Japan specifically argues that in addition to listing the Members or regions a regulation applies to, the importing Member should also be required to specify the rules of origin that will be applied.[1333] We do not find a basis for this in the provisions of the SPS Agreement or in the guidance from the SPS Committee on publication.[1334] Members are encouraged to provide as much information in their publications as possible to assist traders – such as if there are special rules of origin – however, the Panel does not see a specific obligation to publish rules of origin. The Panel finds contextual support for this understanding in Annex B(5)(b) which requires that a notification include information on the products covered, and, the objective and rationale of a proposed regulation.[1335] Annex B(6)(a) requires the same and adds that the nature of the urgent problem(s)

[1326] Panel Report, *EC – IT Products*, para. 7.1085.
[1327] Panel Report, *Thailand – Cigarettes (Philippines)*, para. 7.789.
[1328] Panel Report, *Thailand – Cigarettes (Philippines)*, para. 7.790.
[1329] Korea's response to Panel question No. 73.
[1330] This is in line with the Appellate Body's findings in the context of Article 12.2.2 of the Anti-Dumping Agreement and Article 22.5 of the SCM Agreement, which require giving of a "public notice" of certain decisions made in the process of imposition of measures. Although the provision mandating publication provides guidance regarding the content of the public notice, the Appellate Body noted in *China – GOES* that the required content of these notices is linked to "the content of the findings needed to satisfy the substantive requirements" for the imposition of measures in the Anti-Dumping Agreement and of the SCM Agreement (Appellate Body Report, *China – GOES*, para. 257). Similarly, in *Australia – Apples*, the Appellate Body referred to the main elements of SPS measures in the context of a Member demonstrating that a proposed alternative measure achieved the importing Member's ALOP. Appellate Body Report, *Australia – Apples*, para. 364.
[1331] Appellate Body Report, *Australia – Salmon*, footnote 161 (finding that Annex B(3) and Articles 4.1, 5.4 and 5.6 of the SPS Agreement imply "a clear obligation of the importing Member to determine its appropriate level of protection").
[1332] See SPS Agreement, Article 3.3. See also Appellate Body Report, *EC – Hormones*, paras. 174-177.
[1333] Japan's second written submission, paras. 329-331, 383-384.
[1334] See G/SPS/7/Rev.3, Recommended procedures for implementing the transparency obligations of the SPS Agreement (Article 7), 1 December 2008 (Recommended Transparency Procedures), paras. 58-62.
[1335] Annex B(5)(b) of the SPS Agreement provides:
notify other Members, through the Secretariat, of the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation. Such notifications shall take place at an early stage, when amendments can still be introduced and comments taken into account.

be included as well.[1336] In the Panel's view, it would be paradoxical if Annex B(1) required less information in the publication of an adopted regulation than that required in the notification of a proposed regulation or one adopted on an emergency basis.

7.464. Reading the obligation in Annex B(1) holistically and in light of the interpretations of other publication obligations in WTO Agreements warrants a conclusion that to comply with the requirement, in Annex B(1), the publication must make the measures generally known or available through an appropriate medium *and* contain sufficient content that the importing Member will know the conditions (including specific principles and methods) that apply to its goods. Therefore, the obligation in Annex B(1) refers not just to the mere act of placing an announcement on a website, but doing so in a way that would make the measure generally known to importers with sufficient content to enable them to become acquainted with it.

7.10.2 Did Korea publish its SPS regulations in a manner that allows interested Members to become acquainted with them?

7.465. Japan argues that the manner in which Korea posted the press releases was insufficient to fulfil the obligation in Annex B(1) because the press releases did not have sufficient content to enable Members to become acquainted with their requirements, and because posting the press releases on different government ministries' websites obstructs the interested Members' abilities to locate the measures.[1337] Korea responds that Annex B(1) does not provide a list of specific details that must be included as part of the publication of an SPS regulation. In particular, Korea notes that the processing or preparation method is often not specified in SPS regulations, and the specific rules of origin and the detection limits, are not required to be published as part of the SPS regulation pursuant to Annex B(1)(3). Thus, failure of a publication to include one or more specific details does not necessarily mean that there has been a violation of Annex B(1).[1338] Korea argues that there must be a practical limit to the information that must be published, and that Annex B(1) cannot become an unlimited obligation that does not have a practical delimitation in terms of the information that must be included in the publication.[1339] Korea further contends that the posting of press releases on government websites makes them "generally available", and that considering how governments operate in the modern world, no form of publication would be more "generally available" than documents posted on the websites of official governmental agencies.[1340]

7.466. The Panel will examine whether, as Japan claims, Korea has failed to publish its regulations in such a manner as to enable interested Members to become acquainted with them, for the import bans and the additional testing requirements respectively.

7.10.2.1 Import bans

7.467. Japan argues that Korea does not provide the full text of the measures in the press releases announcing the blanket and product-specific import bans. Korea initially responded that the press releases are themselves the measures.[1341] However, when the Panel sought clarification on the legal standing of the press releases, Korea clarified that while the content of its measures was published in the form of press releases, separate and distinct decisions of the Minister do exist.[1342] For the product-specific bans Korea provided the Panel with the decisions of the Ministry on which the press releases are based.[1343] Korea did not provide any such document for the blanket import ban, however the Panel notes that the press release itself refers to a meeting of

[1336] Annex B(6)(a) of the SPS Agreement provides:

immediately notifies other Members, through the Secretariat, of the particular regulation and the products covered, with a brief indication of the objective and the rationale of the regulation, including the nature of the urgent problem(s).

[1337] Japan's second written submission, paras. 317, 349; response to Panel question No. 81.

[1338] Korea's second written submission, paras. 327-333.

[1339] Korea's second written submission, para. 333.

[1340] Korea' first written submission, para. 361; second written submission, para. 314.

[1341] Korea's second written submission, para. 324.

[1342] Korea's responses to Panel question Nos. 153 and 154.

[1343] Korea's response to Panel question No. 154. Korea refers to: Report on Temporary Import Suspension of Fishery Products from Japan (3 May 2012), (Exhibit KOR-286); Report on Temporary Import Suspension of Fishery Products from Japan (26 June 2012), (Exhibit KOR-287); Report on Temporary Import Suspension of Fishery Products from Japan (28 August 2012), (Exhibit KOR-288); Report on Temporary Import Suspension of Fishery Products from Japan (13 November 2012), (Exhibit KOR-289).

related ministers, chaired by the Prime Minister, which took place on 5 September as well as a consultation between the ruling party and the Government which took place on 6 September which was the same day the press release was posted.[1344]

7.468. With regard to whether the press releases contain the content of the regulations, Japan contends that the press releases concerning the product-specific bans fail to specify the product scope of Korea's ban and the applicable rules of origin to determine whether a product originates from the affected prefecture. Additionally, according to Japan, the press releases announcing the blanket import ban fail to specify the exact scope of the phrase "fishery products", the applicable rules of origin and the legal status of the product-specific bans after the imposition of the blanket ban on fisheries products from 8 prefectures.[1345]

7.469. According to Korea, the press releases include the requisite information to comply with Annex B(1).[1346] In support of its argument that the information provided by the press releases was sufficient to enable interested Members to become acquainted with them, Korea stresses that several of Japan's exhibits were compiled using information from Korean government websites.[1347]

7.470. The main content in the press release announcing the product specific ban on Pacific Cod in the prefectures, Miyagi and Iwate, is as follows:

> The Ministry of Food, Agriculture, Forestry and Fisheries ("MIFAFF") (Minister: Kyu-Yong Seo) announced that it took a measure of temporary import suspension on cod caught in Miyagi-ken and Iwate-ken, Japan on May 2.[1348]

7.471. The press release states the product subject to the ban, i.e. "cod", and the prefectures this product is caught in, "Miyagi" and "Iwate", as well as the date the ban was imposed. We note that all the press releases announcing the product-specific bans at issue provide at least the information quoted from the press release above.[1349]

7.472. Therefore, the Panel finds that the press releases announcing the product-specific import bans contain the content of the regulation itself. They list the goods (the specific fish species), the origin (the 8 prefectures), and the conditions applicable (a complete ban). However, as noted above, publication of the text of the regulation is in and of itself insufficient for conformity to Annex B(1); the publication must be in such a manner to enable a Member to become acquainted with the relevant measure. Although publication can be achieved in various formats, interested Members must be able to easily locate the measures and understand that measures concerning such matters will be available in a particular location.

7.473. With respect to the accessibility of the press releases announcing the product-specific bans, the Panel notes that Korea has provided a link to a web address to the Panel that currently directs to the press releases for the product-specific bans.[1350] The Panel also notes that the link Korea provided is for a website of the Ministry that is normally charged with regulating the products governed by the measures at issue.[1351]

7.474. Unfortunately, the Panel has no way of knowing whether that web address was available on the day Korea announced the measures and what the available content was on that day. Korea did not provide an archived version of the website from the appropriate time-period.[1352] Moreover, Korea did not provide any evidence to demonstrate that at the time of adoption of the measure interested Members would have known to look to that website for information on SPS measures

[1344] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1. (emphasis original).
[1345] Japan's second written submission, paras. 329-330.
[1346] Korea's response to Panel question No. 73.
[1347] Korea's first written submission, para. 372.
[1348] Product-Specific ban on Cod from Miyagi and Iwate , (Exhibit JPN-76.b).
[1349] Product-Specific ban on Cod from Miyagi and Iwate , (Exhibit JPN-76.b); Product-Specific ban on 35 Fishery Products from Fukushima, (Exhibit JPN-77.b);Product-Specific ban on Cod from Aomori, (Exhibit JPN-78.b); Product-Specific ban on Cod from Ibaraki, (Exhibit JPN-79.b).
[1350] Korea's response to Panel question No. 114.
[1351] Korea's response to Panel question No. 114.
[1352] The Panel requested Korea to provide the website of the agency where it was posted and the address of agency's website where the press release appears. See Panel question No. 114.

governing these products.[1353] Therefore, the Panel finds that Japan has made a *prima facie* case that Korea did not publish the measures in a manner so as to enable Japan to become acquainted with the challenged measures.

7.475. Korea also argues that the fact Japan referred to the SPS measures in its request to Korea's SPS Enquiry Point is proof that Japan was acquainted with them. Japan expressly acknowledges that it was aware of the measures and that the Korean Government made its SPS measures public through press releases.[1354] In the Panel's view however, this does not rebut Japan's *prima facie* case that Korea did not publish the measures in a manner so as to enable Japan to become acquainted with them. The Panel is not of the view, that just because a Member is aware of a press release announcing a measure, or the fact that a measure has been made public, is necessarily sufficient to comply with the obligation in Annex B(1). The publication must stand on its own.

7.476. In light of the above, the Panel finds that for the product-specific import bans announced in press releases dated 3 May 2012, 26 June 2012, 29 August 2012, and 13 November 2012[1355], although Korea published the content of the regulations, it did not do so in such a manner as to enable Japan to become acquainted with them. Consequently, the Panel finds that, with respect to the product-specific import bans, Korea acted inconsistently with Annex B(1) and Article 7.

7.477. With respect to the blanket import ban, Japan has provided the Panel with the press release announcing this measure[1356], along with an MFDS document[1357], that Korea has confirmed contains the administrative instructions sent to the relevant enforcement agencies after the announcement of the measure in the press release.[1358] The press release announces that:

> Through a meeting of related ministers* chaired by Prime Minister Chung Hong Won on September 5 and a consultation between the ruling party and the government which took place on September 6, the government decided on a special measure to ban the import of all fishery products from 8 ken near Fukushima.
>
> *The Ministry of Foreign Affairs, the Ministry of Safety and Public Administration, the Ministry of Oceans and Fisheries, the Ministry of Agriculture, Food, and Rural Affairs, the Ministry of Food and Drug Safety, and the Nuclear Safety and Security Commission[1359]

7.478. The press release also mentions that the eight ken are Fukushima, Ibaraki, Gunma, Miyagi, Iwate, Tochigi, Chiba and Aomori.[1360] The figure below demonstrates the change from the product-specific bans to the blanket import ban.

Figure 9: Evolution from product-specific ban to blanket import ban

	Region	Existing
1	Fukushima	49 species including sand lance, cod, trout
2	Ibaraki	10 species including croaker, cod, eel

Tightened

[1353] See Korea's response to Panel question No. 114; according to this res there is no official document indicating where these measures can be found. See also Japan's comm on Korea's response to Panel question No. 114 noting that:

> The URLs provided in the column "agency's website where the press release appears" do not in fact correspond to the relevant agency's websites. Instead, they are direct links to the press releases that correspond to the exhibits listed. Thus, it cannot be gauged from these links whether the websites on which the press releases are posted are readily navigable and/or contain filters enabling search by origin, or product, as Korea asserts is the case.

[1354] Korea's first written submission, para. 372. See also Japan's June 2014 Request to Korea's SPS Enquiry Point, (Exhibit JPN-31); Japan's SPS Enquiry Point Follow-Up Request to Korea's SPS Enquiry Point (13 November 2014), (Japan's SPS Enquiry Point follow-up request), (Exhibit JPN-54).

[1355] Product-Specific ban on Cod from Miyagi and Iwate, (Exhibit JPN-76.b);Product-Specific ban on 35 Fishery Products from Fukushima, (Exhibit JPN-77.b); Product-Specific ban on Cod from Aomori, (Exhibit JPN-78.b); Product-Specific ban on Cod from Ibaraki, (Exhibit JPN-79.b).

[1356] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

[1357] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b).

[1358] Korea's response to Panel question No. 130; response to Panel question No. 72.

[1359] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1.

[1360] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 3.

3	Gunma	2 species including trout		**All fishery products**
4	Miyagi	9 species including bass, cod		
5	Iwate	6 species including bass, cod		
6	Tochigi	3 species including dace		
7	Chiba	2 species including crucian carp, carp		
8	Aomori	1 species (cod)		

Source: PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

7.479. The press release states that "all fishery products" are subject to the blanket import ban and also states the prefectures which the fishery products originate from that are affected by the ban. It is undisputed that the press release announcing the blanket import ban contains the origin (the eight prefectures) and the conditions applicable to the products concerned (a complete import ban). However, the issue of the product scope is contested between the parties.

7.480. Japan argues that the press release fails to specify the products covered because the exact scope of the phrase "all fishery products" is vague.[1361] Korea maintains that its SPS regulations identify the products subject to the import ban and additional testing requirements, and notes that Japan acknowledged that the product scope of the requirements was fully clarified in 2013. Korea also argues that, rather than product scope, Japan's complaint appears to be about the processing and preparation method, which is often not specified in SPS regulations.[1362]

7.481. The Panel looked to the documentation surrounding the adoption of the measures to see whether the phrase "all fishery products" was based on commonly used sources for defining terms in international trade in fishery or other aquatic products and as a result was sufficient to acquaint Japan with the products that would be subject to the ban. In this regard, the Panel notes that the measures do not refer to either Chapter 3 of the Harmonized System (HS) nomenclature, which refers to "Fish and crustaceans, molluscs and other aquatic invertebrates" or to the OIE Aquatic Animal Health Code, which provides a common definition of "aquatic animals". Without any reference in the measures to the HS or other common sources of product terminology in international trade, neither Japan nor the Panel could simply assume the product coverage. Thus, the Panel focused its examination on the notification of the measure that Korea made to the WTO SPS Committee on 16 September 2013 and the addendum to that notification made on 28 October 2013. The content of the notification provides a more detailed definition of fishery products as:

> Fishery products: Aquatic animals and algae (including simply cut, heated, dried or salted aquatic animals and algae which can be recognized original form without use of additives, other materials and fermentation) being consumed as food.[1363]

7.482. The notification to the WTO provides more details on the product scope than the press release and includes products not included in Chapter 3 of the HS such as algae. Similarly, without a reference to a specific definition of "aquatic animals" such as equating it to "fishery products" in the HS or to the definition in the Aquatic Animal Health Code[1364], Japanese exporters could lack clarity on whether "aquatic animals" is limited to a more traditional understanding of fishery products or also extends to the products of such animals as whales, dolphins, porpoises, seals and sea lions.

7.483. Korea used a vague term in its measures rather than referring to common sources of definitions for the phrase "fishery products", and then included in the scope of its measures, as described in its notification to the WTO, products that would normally be considered in other categories. Therefore, the Panel is unable to conclude that the press release announcing the blanket import ban contained the product coverage of the measures. Because the press release did

[1361] Japan's first written submission, para. 166; second written submission, para. 330.
[1362] Korea' second written submission, paras. 329-330.
[1363] G/SPS/N/KOR/454/Add.1.
[1364] The OIE Aquatic Code defines aquatic animals as "all viable life stages (including eggs and gametes) of fish, molluscs, crustaceans and amphibians originating from aquaculture establishments or from the wild. World Organisation for Animal Health, Aquatic Code glossary, available at: http://www.oie.int/index.php?id=171&L=0&htmfile=glossaire.htm (accessed 4 July 2017).

not include the products that would be subject to the ban set forth in the measure, the Panel finds that Korea did not publish the full content of the regulation.

7.484. With respect to the accessibility of the press releases announcing the blanket import ban, the Panel notes that Korea has provided links to two web addresses to the Panel, one to a website run by the MFDS and one belonging to the Prime Minister's Office.[1365] When the address Korea provided for the MFDS website is entered in an internet browser, a blank page appears with a prompt in Korean.[1366]

7.485. The Prime Minister's website contains the press release announcing the blanket import ban. Unfortunately, the Panel has no way of knowing whether that web address was available on the day Korea announced the measures and what content was available on that day. Korea did not provide an archived version of the website from the date of release, nor did it explain how Japan would be aware that it to go to the Prime Minister's website to find SPS measures relating to food imports, especially given that the Prime Minister is not the authority that is directly in charge of regulating the items subject to the blanket import ban.[1367] Therefore, the Panel finds that Japan has made a *prima facie* case that Korea did not publish the measures in a manner so as to enable Japan to become acquainted with the challenged measures.

7.486. Korea also argues that the fact that Japan referred to the SPS measures in its request to Korea's Enquiry Point is proof that Japan was acquainted with them. Japan expressly acknowledges that it was aware of the measures and that the Korean Government made its SPS measures public through press releases.[1368] In the Panel's view, however, this does not rebut Japan's *prima facie* case that Korea did not publish the measures in a manner so as to enable Japan to become acquainted with them. The Panel is not of the view, that just because a Member is aware of a press release announcing a measure, or the fact that a measure has been made public, is necessarily sufficient to comply with the obligation in Annex B(1). The publication must stand on its own.

7.487. In light of the above, with respect to the blanket import ban announced in the press release dated 6 September 2013[1369], the Panel finds that although the press release contained the origin (the eight prefectures) and applicable conditions (import ban), it did not specify the products from the eight prefectures that would be subject to the ban. Thus, Korea did not publish the content of the regulation. Moreover, Korea did not publish the blanket import ban in such a manner as to enable Japan to become acquainted with the measure. Consequently, the Panel finds that, with respect to the blanket import ban, Korea acted inconsistently with Annex B(1) and Article 7.

7.10.2.2 Additional testing requirements

7.488. Japan argues that the press releases introducing Korea's additional testing requirements fail to specify the caesium limit that triggers the additional testing, the additional radionuclides for which testing is required, the applicable rules of origin, where the additional testing should take place and the methodology or conditions for the testing (e.g., the limit of detection required for each radionuclide).[1370]

7.489. In response to Japan's argument that the press releases did not indicate the location of the additional testing, Korea cites KFDA's Instruction of Changed Measure including Certificate of Food Imports Originated from Japan[1371], a document that concerns Korea's 2011 testing requirements. This document states that the testing can be conducted by any Japanese government inspection institution, or any institution authorized by the Japanese government.[1372] However, later, Korea

[1365] Korea's response to Panel question No. 114.
[1366] When entered into google translate, the prompt is translated as: "the wrong approach".
[1367] Korea's response to Panel question No. 114.
[1368] Korea's first written submission, para. 372. See also Japan's June 2014 Request to Korea's SPS Enquiry Point, (Exhibit JPN-31) and Japan's SPS Enquiry Point follow-up request, (Exhibit JPN-54).
[1369] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).
[1370] Japan's second written submission, para. 331; first written submission, paras. 171-177; opening statement at the first meeting of the Panel, para. 83.
[1371] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p. 6.
[1372] Korea's first written submission, paras. 37, 345, 381; response to Panel question No. 17.

clarified, that this document was not published and was in fact an internal administrative instruction sent to enforcement agencies after the press release for the 2011 testing requirements was announced.[1373] With regard to the rules of origin and detection limits, Korea responds that Japan has not demonstrated that such information must be published as part of the SPS regulation pursuant to Annex B(1). Korea adds that Japan was provided information about the rules of origin and detection limits through notifications or bilateral meetings.[1374]

7.490. For its part, Korea refers to the Notice of Temporary Special Measure for Safety for Food Imported from Japan, issued in 2013, which states that the measure applies to "other nuclides as specified by Codex Alimentarius Commission (Codex) regarding radiation level."[1375] In Korea's view, this is sufficient to specify the radionuclides for which additional testing is required. However, in response to a Panel question asking Korea to provide the web address for each press release, Korea clarified that this document was in fact an internal document sent to Korean Customs and concerned enforcement agencies, and was not published or otherwise publicly available.[1376]

7.491. The press release announcing the 2011 testing requirements states:

> …
>
> Existing import suspension on certain items (leafy vegetable such as spinach and leaf and stem vegetables) from 5 ken will be maintained. As for other foods from these regions and all foods from 8 neighboring ken, government certificates shall be required and the radiation inspections shall be conducted on all imported foods.
>
> The 13 ken are where the Japanese government has detected radioactive materials in spinach, etc.
>
> The government certificates must be issued after inspecting the iodine and cesium content. If iodine or cesium is detected, an inspection certificate on strontium and plutonium etc. shall be required additionally.
>
> For foods produced and manufactured in other 34 ken, the submission of certificate of origin issued by the Japanese government (including prefectural and municipal authorities) shall be required and the radiation inspection shall be conducted on all imported foods.
>
> Certificate of origin must contain details substantiating that the relevant agricultural and forest products and foods etc. were produced, manufactured, and processed in a region which is not contaminated by radioactive matter.
>
> Even if the certificate of origin is submitted, if iodine or cesium is detected during the import inspection, additional certification regarding strontium etc. shall be required...[1377]

7.492. The press release itself does not refer to any Codex radionuclides other than strontium and plutonium and does not contain any reference to the tolerance levels. Nevertheless, the administrative instructions issued to MFDS offices and Korean Customs indicates additional radionuclides as well as the Codex guideline levels for each.[1378] The more detailed administrative instructions confirm that the entire content of the measure is not included in the press release. The press release does not refer to the levels of caesium or iodine that would trigger the additional testing, which specific radionuclides will be tested, nor the maximum levels for those radionuclides that would result in products being rejected. Therefore, the Panel concludes that Japan could not know the conditions applicable to its products based on this press release. Moreover, the Panel

[1373] Korea's responses to Panel question Nos. 72 and 130.
[1374] Korea's second written submission, para. 336; first written submission, paras. 383-387.
[1375] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b).
[1376] Korea's responses to Panel question Nos. 114 and 130.
[1377] KFDA 14 April 2011 Press Release, (Exhibits JPN-55.b (revised)), (Exhibit KOR-72 (revised)), p. 2.
[1378] KFDA 2011 Instruction on new certification requirements for Japanese food, (Exhibit KOR-40.b), p. 6.

notes that Korea had to issue these additional instructions to its own offices. If the press release was not sufficient to enable Korea's own authorities to know the conditions applicable to Japan's products, it would be unreasonable for this Panel to conclude that it was sufficient for Japan. Therefore, the Panel concludes that the press release announcing the 2011 additional testing requirements does not include the entire content of the regulation.[1379]

7.493. For the 2013 additional testing requirements, the press release states:

> With regard to the Japanese fishery and/or livestock products from regions other than 8 ken near Fukushima, if even trace amounts of caesium are detected, the government will require the submission of test report regarding presence of other nuclides such as plutonium and strontium. This will effectively and fundamentally block imports of fishery products that have been contaminated with radiation, even if only slightly.[1380]

7.494. Specifically, the press release does not refer to the levels of caesium that would trigger the additional testing, which specific radionuclides will be tested, nor the maximum levels for those radionuclides that would result in products being rejected. The press release does not provide information on the procedure and location of the testing required for the additional radionuclides.

7.495. The relevant portion of the administrative instructions for the 2013 testing requirements, which Korea admits have not been published[1381], is as follows:

> …
>
> With regard to the Japanese fishery (including livestock products) from regions other than regions subject to import ban, if even trace amounts of caesium are detected, the government will require the submission of test certificate regarding presence of other nuclides such as plutonium and strontium.
>
> It will be required to submit additional test certificate on other nuclides as specified by Codex Alimentarius Commission (Codex) regarding radiation level.
>
> A relevant importer will be required to submit additional test certificate on other nuclides provided by any inspection agency of the Japanese government or any certified inspection institution acknowledged by the Japanese government.[1382]

7.496. A comparison between the press release and the internal administrative instructions confirms that the entire content of the measure is not included in the press release. The non-public internal administrative instructions are the only documents that refer to the Codex standards for other radionuclides with respect to radiation level. They are also the only document to refer to the requirement that the testing be conducted by a facility either run by or acknowledged by the Japanese Government.[1383] Moreover, the Panel notes that Korea had to issue these additional instructions to its own offices. If the press release was not sufficient to enable Korea's own authorities to know the conditions applicable to Japan's products, it would be unreasonable for this Panel to conclude that it was sufficient for Japan. Therefore, the Panel concludes that the press release announcing the 2013 additional testing requirements does not include the content of the regulation.[1384]

7.497. In addition to the missing content, Japan also alleges that the press releases were not generally known and its ability to become acquainted with the measures was inhibited by the location of the websites where the measures were posted. In particular, Japan argues that it should be able to easily find the press releases. With regard to the accessibility of the press

[1379] KFDA 14 April 2011 Press Release, (Exhibits JPN-55 (revised)), (Exhibit KOR-72 (revised)).
[1380] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b), p. 1. (emphasis supplied)
[1381] Korea's responses to Panel question Nos. 114 and 130.
[1382] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b).
[1383] MFDS notice for 2013 blanket import ban and additional testing requirements, (Exhibit JPN-75.b).
[1384] PMO Blanket Import Ban and Additional Testing Requirements Press Release, (Exhibit JPN-3.b).

release concerning the 2011 testing requirements, Korea has provided the Panel with a hyperlink to a website.[1385]

7.498. Unfortunately, the Panel has no way of knowing whether that web address was available on the day Korea announced the measures and what content was available on that day. Korea did not provide an archived version of the website from the appropriate time period, nor did it explain how Japan would know to go to that website to find SPS measures relating to food imports. Therefore, the Panel finds that Japan has made a *prima facie* case that Korea did not publish the measures in a manner so as to enable Japan to become acquainted with the challenged measures.

7.499. Korea argues that the fact that Japan acknowledged having received these press releases from the Korean enquiry point means that Japan was acquainted with the measures at issue.[1386] We disagree with Korea that receiving the press releases announcing the measures at issue is equivalent to Japan becoming acquainted with them. Moreover, the Panel does not believe that Japan's ability to provide the Panel with the relevant information several years after the fact is sufficient evidence to excuse Korea from its obligations under Annex B(1). Therefore, the Panel finds that the location of the press releases was another factor that prevented Japan from becoming acquainted with this measure.

7.500. The 2013 testing requirements were announced in the same press release as the blanket import ban. With respect to the location of this press release, the Panel refers back to its analysis in paragraph 7.473. , 7.474. and 7.475. above, and find that in addition to the content, the location of the press releases also prevented Japan from becoming acquainted with this measure.

7.501. In sum, for the 2011 press release announcing the additional testing requirements the Panel finds that it does not include content that is sufficient to enable Japan to know the conditions that would be applied to its goods. Thus, for the 2011 additional testing requirements, the Panel finds that Korea has acted inconsistently with Annex B(1) and Article 7. Moreover, based on the information on the record, the measure was not posted in a location that would enable Japan to readily access the information that it does contain.

7.502. For the 2013 press release announcing the additional testing requirements the Panel finds that it does not include content that is sufficient to enable an interested Member to know the conditions that would be applied to its goods. Therefore, the Panel finds that the 2013 additional testing requirements were not published in such a manner as to enable interested Members to become acquainted with it. Thus, for the 2013 additional testing requirements, the Panel concludes that Korea has acted inconsistently with Annex B(1) and Article 7. Moreover, the measure was not posted in a location that would enable a Member to readily access the information that it does contain.

7.10.2.3 Conclusion on Article 7 and Annex B(1)

7.503. According to the evidence on record and based on all the foregoing, the Panel concludes that Korea has acted inconsistently with Annex B(1), and as a consequence Article 7 of the SPS Agreement, with respect to the following measures: the blanket import ban, the product-specific import bans and both the 2011 and 2013 additional testing requirements.

7.10.3 Providing answers to all reasonable questions and relevant documents

7.504. Japan claims that Korea has acted inconsistently with Article 7 and paragraph 3 of Annex B to the SPS Agreement because its SPS Enquiry Point has failed to provide copies of the measures imposing the import bans and the additional testing requirements, and has failed to respond fully to a number of questions posed by Japan.[1387] For its request dated 24 June 2014, Japan contends that Korea's SPS Enquiry Point's response was substantively inadequate and incomplete, and that no response was provided to its second request dated 13 November 2014.[1388]

[1385] When the link is clicked on, the browser gives a prompt, stating that the URL "does not exist or the password does not match"; Korea's response to Panel question No. 114.
[1386] Korea's first written submission, para. 372.
[1387] Japan's first written submission, para. 193.
[1388] Japan's second written submission, para. 362.

7.505. Korea argues that as Japan acknowledges receiving a response from Korea's SPS Enquiry Point to its June 2014 request, Korea has fulfilled its obligation under Annex B (3) by responding to Japan's questions and requests for documents. According to Korea, Japan's claim under B(3) solely rests on Korea's failure to respond to its follow-up request on 13 November 2014, which Korea does not factually contest.

7.506. Korea argues that Annex B(3) is framed in a general manner referring to the establishment of the enquiry point and to the responsibilities that must be given to it.[1389] According to Korea the obligation imposed by Annex B(3) requires that an enquiry point exist.[1390] In Korea's view, the manner in which Annex B(3) is framed and the specific language used in the provision does not suggest that a WTO Member is liable and subject to potential suspension of concessions as a result of an individual instance in which that Member's enquiry point does not provide answers to all reasonable questions or does not provide relevant documents that have been requested from it.[1391] Thus, Korea contends that a single instance of no response by an enquiry point does not give rise to a violation of Annex B(3).[1392]

7.507. The Panel notes that according to the text of Annex B(3) Members must ensure the existence of one enquiry point which is responsible for providing answers to all reasonable questions and provide relevant documents. The Panel also notes that correspondence with an enquiry point is an iterative process, and an enquiry point must not be held to the standard of perfection. Therefore, the incompleteness of a single answer or failure to provide a particular document as part of a response to a request will not necessarily give rise to an inconsistency. However, failure to respond at all would result in an inconsistency with the obligation in Annex B(3). That being said, the Panel cannot agree with Korea that the obligation should be interpreted as requiring the setting up of an enquiry point to respond to enquiries that fall within the specific subparagraphs (a)-(d), but at the same time not requiring that the enquiry point answer the specific questions or supply the requested documents. Such an approach is illogical.

7.508. The Panel's understanding of the obligation is reinforced by reference to the context, and object and purpose of the provision. As noted by its relationship to Article 7 and its inclusion in Annex B, the object and purpose of Annex B(3) is to fulfil the transparency obligations in the SPS Agreement. Concluding that the drafters of the SPS Agreement would establish an obligation for Members to set up an enquiry point, endow it with responsibility, and then not require that the concomitant benefit to interested Members of receiving the answers and documents be provided is, in our view, incongruous. Annex B(4) provides additional contextual support for this interpretation. Annex B(4) requires that copies of documents requested by interested Members be supplied at the same price, apart from the cost of delivery, as they are supplied to nationals of the Member concerned. Annex B(4) in referencing the price of the documents, implies that the documents will be provided. In light of the sequence of the Annex, it is not unreasonable to conclude that they are being provided by the enquiry point.

7.509. The Panel finds further context for its interpretation in paragraph 55 of the SPS Committee's Recommended Transparency Procedures which recommend that enquiry points deliver documents "by the fastest means possible" in response to a request.[1393] Similarly to Annex B(4) the Recommended Transparency Procedures express an expectation that documents will actually be delivered. Additionally, the Recommended Transparency Procedures describe enquiry points as "an effective avenue for obtaining information regarding SPS systems and measures", and specify that an enquiry point "handles on a routine basis" enquiries and requests for documents.[1394]

7.510. Reading the terms of Annex B(3) in their context, and in light of the object and purpose to provide transparency to interested Members, the Panel concludes that compliance with Annex B(3), and thus Article 7, is achieved not only through the formality of creating an enquiry point, but also through the actual provision of information and answers to reasonable questions.

[1389] Korea's second written submission, para. 345.
[1390] Korea's second written submission, para. 341.
[1391] Korea's opening statement at the first meeting of the Panel, para. 146; second written submission, paras. 345-346.
[1392] Korea's first written submission, para. 394.
[1393] G/SPS/7/Rev.3, Recommended procedures for implementing the transparency obligations of the SPS Agreement (Article 7), 1 December 2008 (Recommended Transparency Procedures), para. 55.
[1394] Recommended Transparency Procedures, paras. 52-53.

Bearing this in mind, the Panel now turns to examine the specific requests to Korea's SPS Enquiry Point and whether it complied with the obligations set forth in Annex B(3).

7.10.3.1 Japan's 24 June 2014 request

7.511. Japan sent a request to Korea's SPS Enquiry Point on 24 June 2014.[1395] Korea's SPS Enquiry Point responded two months later with several brief answers to Japan's questions and with thousands of pages of documentation.[1396] Japan's questions and request for documents as well as Korea's SPS Enquiry Point's answers are summarized in the table below.

Table 21: Communication between Japan and Korea's SPS Enquiry Points

<table>
<tr><th>#</th><th>Questions</th><th>Response provided by Korea's SPS Enquiry Point on 26 August 2014</th></tr>
<tr><td>1.</td><td>The standard and/or threshold levels for the other Codex radionuclides.</td><td>(unit: Bq/Kg)
<table><tr><th>Radionuclides</th><th>Infant foods</th><th>Foods Other Than Infant Foods</th></tr><tr><td>^{238}Pu, ^{239}Pu, ^{240}Pu, ^{241}Am</td><td>1</td><td>10</td></tr><tr><td>^{90}Sr, ^{106}Ru, ^{129}I, ^{235}U</td><td>100</td><td>100</td></tr><tr><td>^{35}S, ^{60}Co, ^{89}Sr, ^{103}Ru, ^{144}Ce, ^{192}Ir</td><td>1,000</td><td>1,000</td></tr><tr><td>^{3}H, ^{14}C, ^{99}Tc</td><td>1,000</td><td>10,000</td></tr></table></td></tr>
<tr><td>2.</td><td>The inspection and testing requirements for the additional radionuclides</td><td>No response provided</td></tr>
<tr><td>3.</td><td>The certification requirements for the additional radionuclides</td><td>"In regard to the indication of certificate with respect to each radionuclide, Japan can state the analytical result of each radionuclide by using the current way of certification."</td></tr>
<tr><td></td><td>Documents Requested</td><td></td></tr>
<tr><td>4.</td><td>legal documents that serve as the legal basis of its import bans and additional testing requirements</td><td rowspan="3">10,000 pages in Korean provided. According to Korea, these include:

1. Food Sanitation Act (4 files)
2. Enforcement Decree of the Food Sanitation Act (6 files)
3. Enforcement Regulation of the Food Sanitation Act (5 files)
4. Agricultural and Fishery Product Quality Control Act (1 file)
5. Enforcement Decree of the Agricultural and Fishery Product Quality Control (1 file)
6. Enforcement Regulation of the Agricultural and Fishery Product Quality Control Act (1 file)
7. The Standards and Specifications for Foods (5 files)
8. Press Releases (10 files)</td></tr>
<tr><td>5.</td><td>The legal instruments that impose the import bans and the additional testing requirements</td></tr>
<tr><td>6.</td><td>Any notices, guidelines or guidance issued to Korean agencies or importers, or foreign exporters, to help with the application and implementation of its import bans and additional testing requirements</td></tr>
</table>

7.512. Japan does not dispute that the first question in this request was answered by the Korea's SPS Enquiry Point, but disagrees with Korea on whether the response of Korea's SPS Enquiry Point to Japan's first request is adequate to address the second and third questions[1397], and whether the documents provided are "relevant" to Japan's request.

7.513. With regard to Japan's second question concerning the testing method and required level of detection for additional radionuclides, Japan asserts that Korea has not responded at all, while, Korea submits that the required information is in the documents provided by its SPS Enquiry Point.

[1395] Japan's June 2014 Request to Korea's SPS Enquiry Point, (Exhibit JPN-31).
[1396] Response by Korea's SPS Enquiry Point, (Exhibit JPN-30).
[1397] These two questions concern: (1) the "current way of certification" referred to by Korea in its response and (2) the testing method and required level of detection for each additional radionuclide.

However, the Panel notes, and agrees with Japan, that Korea's SPS Enquiry Point failed to indicate to Japan that the answer was in the accompanying documentation nor did it identify which documents contained the answer.[1398]

7.514. With respect to Japan's third question regarding the manner in which certificates should be issued, Korea has stated that, for the test certifications for the additional radionuclides, Japan could use the "current way of certification".[1399] To explain its response, Korea points to a mutually agreed upon format for caesium certificates that was instituted in 2011 up until the additional testing requirements were put in place in 2013.[1400] Japan states that it was aware of the certification method for caesium, but argues that Korea's response that Japan could use the "current way of certification" was of little use in the context of certification for the additional radionuclides.[1401] Korea, for its part, asserts that it should have been natural for the Japanese government and exporters to understand "the current way of certification" as "the current way of certification for iodine and caesium."[1402] Korea notes that Japan had issued certificates to comply with the additional testing requirements in 3,937 cases during 2011 and 2012, before the 2013 temporary special measures were adopted.[1403]

7.515. As to its request for documentation, Japan does not contend that the documents provided are definitively irrelevant, but rather that it has no way of knowing whether they are because Korea has not identified which documents are responsive to Japan's requests.[1404]

7.516. The Panel recognizes that the response of Korea's SPS Enquiry Point was not complete nor was it done in a manner which would easily enable Japan to relate the documents provided to their relevance for the questions Japan had posed. At the same time, the Panel also notes that Korea's SPS Enquiry Point did provide a response to Japan's questions as well as produced voluminous documents relating to Japan's request. In light of the efforts made by Korea's SPS Enquiry Point, the Panel finds that Japan has not demonstrated that this response on its own rises to the level of an inconsistency with Annex B(3).

7.10.3.2 Japan's 13 November 2014 request

7.517. Japan made an additional request to Korea's SPS Enquiry Point on 13 November 2014. Korea's SPS Enquiry Point did not respond to this request. Korea does not dispute this but rather seeks to justify Korea's SPS Enquiry Point's failure to respond.[1405] In particular, Korea argues that the Korean Government was waiting for the conclusions of a so-called Korean/Civilian Expert Group[1406] whose activities included reviewing materials provided by Japan, conducting on-site

[1398] Japan's response to Panel question No. 18; Response by Korea's SPS Enquiry Point, (Exhibit JPN-30), p. 1.
[1399] See Response by Korea's SPS Enquiry Point, (Exhibit JPN-30).
[1400] Korea's response to Panel question No. 21, where Korea cites: Korea Food & Drug Administration, "Response to questionnaire regarding import regulation on foods produced from Japan" (28 April 2011), (Exhibit KOR-77), p. 2, and "Declaration No. JS1312KR0519 for the import into the Republic of Korea of Food from Japan," (4 June 2012), (Exhibit KOR-131).
[1401] Japan's responses to Panel question Nos. 82 and 90.
[1402] Korea's second written submission, paras. 353-354.
[1403] Korea's second written submission, paras. 353-354.
[1404] Japan's response to Panel question No. 90.
[1405] See Korea's response to Panel question No. 86(b).
[1406] In December 2014 and January 2015 Japan received, at Korea's request, on-site visits by a civilian group of Korean technical experts. Japan understood that this group was established in September 2014 to help the Korean Government review the measures in place. The group's visits to Japan included meetings with government agencies as well as visits to fisheries landing ports and wholesale markets in affected prefectures. They also visited research and testing institutions and the FDNPP. See Japan's first written submission, paras. 102-103. The group's activities also included conducting analyses of samples of fish and sea water that it collected during its visits to Japan. Korea has argued that this group should properly be called a "Civilian Expert Group" because it was an *ad hoc* group of scholars, radiation specialists, nuclear experts, medical doctors, and members of NGOs that this group did not have a legal basis for its establishment under Korean law and neither represented nor was funded by the Korean Government. The Civilian Expert Group suspended its activities in June 2015 and did not publish its final report. The records from their visits to Japan can be found in: J. Yoon, On-site Visit Report for Radiation Safety Management for Foods in Japan by Civilian Expert Group (19 December 2014), (Exhibit KOR-148); J. Lee, Second On-site visit report for Radiation Safety Management in Japan by Civilian Expert Group (17 January 2015), (Exhibit KOR- 149); J. Yoon, On-site Visit about Inhabiting Environment Report for Radiation Safety Management in Japan by Civilian Expert Group (6 February 2015), (Exhibit KOR-150).

visits to Japan, as well as conducting analyses of the samples of fish and sea water collected in Japan.[1407] Korea explains that this Korean/Civilian Expert Group suspended its work when Japan requested consultations with Korea in this dispute.[1408] It further adds that Japan's request was discussed between the two parties in a bilateral meeting in March 2015.[1409]

7.518. Firstly, the Panel is of the view that other bilateral avenues of communication cannot replace or excuse compliance with Annex B(3). Secondly, the Panel notes that Korea – in certain portions of its submissions – contests that the Korean/Civilian Expert Group is even related to the Government and that its work has no bearing on Korea's compliance with its obligations.[1410] Moreover, the Korea's SPS Enquiry Point never informed Japan that its reply would be delayed because it was awaiting the results of the Korean/Civilian Expert Group's work. Instead, Korea's SPS Enquiry Point simply ceased communicating with Japan. Thus, the Panel does not find this explanation availing. The Panel also does not agree with Korea that once consultations in this dispute had begun it no longer had an obligation to answer Japan's request. The beginning of dispute settlement procedures, particularly the consultations phase, does not require the freezing of the status quo and should not excuse non-compliance with obligations. Indeed, one way to avoid moving forward in the dispute settlement process is for a Member to comply with its WTO obligations.

7.519. Although the initial response in August 2014 was not sufficient on its own to establish an inconsistency with Annex B(3), because Korea's SPS Enquiry Point simply did not respond at all to Japan's second query, the Panel concludes that Korea's SPS Enquiry Point did not comply with the obligation in Annex B(3).

7.10.3.3 Conclusion on Article 7 and Annex B(3)

7.520. The Panel reiterates that according to Annex B(3), the SPS enquiry point is responsible to provide answers to all reasonable questions and provide relevant documents. Compliance with Annex B(3) and Article 7 is achieved not only through the formality of creating an enquiry point, but also through providing answers to reasonable questions and the provision of relevant documents. That being said, the Panel also recognizes that correspondence between an enquiry point and an interested Member is an iterative process. Hence, the incompleteness of an answer or a failure to provide a particular document within a response is not necessarily enough to establish an inconsistency with Annex B(3). For example, in the context of this dispute, if the Panel were examining Korea's SPS Enquiry Point's response to Japan's first request in isolation, there would be insufficient evidence to establish an inconsistency. However, the Panel finds that based on both Korea's SPS Enquiry Point's failure to respond at all to Japan's follow-up query and its earlier failure to relate the answers and documents provided to their relevance for the questions Japan had posed, Japan has established that Korea acted inconsistently with the obligation in Annex B(3), and as a consequence Article 7 of the SPS Agreement.

8 FINDINGS AND RECOMMENDATION(S)

8.1. The panel finds that Korea's measures – the 2011 additional testing requirements, the 2012 product-specific import bans on Alaska pollock and Pacific cod from five prefectures, the 2013 additional testing requirements, and the 2013 blanket import ban – are SPS measures within the meaning of Article 1.1 and Annex A(1)(b) of the SPS Agreement and thus, are subject to the obligations therein. Furthermore, the Panel finds that the measures do not fulfil the four requirements in Article 5.7. The Panel has made the following findings on Japan's specific requests.

8.2. With respect to the obligation not to establish or maintain SPS measures in a manner that is more trade-restrictive than required to achieve their appropriate level of protection:

a. Korea's 2011 additional testing requirements and 2012 product-specific import bans were not more trade-restrictive than required when adopted.

[1407] Korea's response to Panel question No. 11.
[1408] Korea's response to Panel question No. 11.
[1409] Korea's response to Panel question No. 86(b).
[1410] Korea's response to Panel question No. 11.

b. The Panel finds that, at the time of the establishment of the Panel, the 2011 additional testing requirements and 2012 product-specific import bans were maintained in a manner inconsistent with Article 5.6 of the SPS Agreement because they were more trade-restrictive than required.

c. The Panel finds that the 2013 additional testing requirements were adopted and maintained in a manner inconsistent with Article 5.6 of the SPS Agreement because they were and are more trade-restrictive than required.

d. The Panel finds that the blanket import ban (with the exception of the ban on Pacific cod originating from Fukushima and Ibaraki) was adopted in a manner inconsistent with Article 5.6 of the SPS Agreement because it was more trade-restrictive than required.

e. The Panel finds that the blanket import ban with respect to all 28 fishery products from all 8 prefectures is maintained in a manner inconsistent with Article 5.6 of the SPS Agreement because it is more trade-restrictive than required.

8.3. With respect to the basic obligation in Article 2.3 for Members to ensure that their SPS measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail and to not apply SPS measures in a manner which would constitute a disguised restriction on international trade:

a. The Panel finds that the 2013 additional testing requirements and the blanket import ban with respect to the 27 fishery products subject to Japan's claim from the 8 prefectures and Pacific cod from 6 prefectures, i.e. excluding Pacific cod from Fukushima and Ibaraki, were inconsistent with Article 2.3, first sentence of the SPS Agreement and, as a consequence, with Article 2.3, second sentence, when Korea adopted them.

b. The Panel finds that, by maintaining the product-specific and blanket import bans on the 28 fishery products from the 8 prefectures and the 2011 and 2013 additional testing requirements on Japanese products, Korea acted inconsistently with Article 2.3, first sentence of the SPS Agreement and, as a consequence with Article 2.3, second sentence.

c. The Panel exercises judicial economy with regard to the other grounds raised by Japan for inconsistency of Korea's measures with Article 2.3, second sentence.

8.4. With respect to the obligations in Article 8 and Annex C with respect to the operation of control, inspection and approval procedures, the Panel finds that Japan has failed to establish that Korea acted inconsistently with the provisions of Annex C(1), subparagraphs (a), (c), (e) and (g) and, as a consequence, with Article 8 of the SPS Agreement in respect of the adoption and maintenance of the 2011 and the 2013 additional testing requirements.

8.5. With respect to the transparency obligations in Article 7 and Annex B:

a. The Panel finds that Korea has acted inconsistently with Annex B(1), and as a consequence Article 7 of the SPS Agreement, with respect to the publication of all of the challenged measures.

b. The Panel finds that Korea's SPS Enquiry Point's failure to respond at all to Japan's follow-up request in conjunction with its earlier failure, is sufficient to establish that Korea acted inconsistently with the obligation in Annex B(3) and as a consequence Article 7 of the SPS Agreement.

8.6. Under Article 3.8 of the DSU, in cases where there is an infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment. The Panel finds that, to the extent that the measures at issue are inconsistent with Articles 5.6, 2.3, 7 and Annex B(1) and B(3) of the SPS Agreement, they have nullified or impaired benefits accruing to Japan under that agreement.

8.7. Pursuant to Article 19.1 of the DSU, the Panel recommends that Korea bring its measures into conformity with its obligations under the SPS Agreement.

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WORLD TRADE ORGANIZATION

WT/DS495/R/Add.1

22 February 2018

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KOREA – IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES

REPORT OF THE PANEL

Addendum

This *addendum* contains Annexes A to D to the Report of the Panel to be found in document WT/DS495/R.

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ANNEX A

WORKING PROCEDURES OF THE PANEL

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ANNEX A-1

ADOPTED WORKING PROCEDURES OF THE PANEL

24 February 2016

1. In its proceedings, the Panel shall follow the relevant provisions of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU). In addition, the following Working Procedures shall apply.

General

2. The deliberations of the Panel and the documents submitted to it shall be kept confidential. Nothing in the DSU or in these Working Procedures shall preclude a party to the dispute (hereafter "party") from disclosing statements of its own positions to the public. Members shall treat as confidential information submitted to the Panel by another Member which the submitting Member has designated as confidential. Where a party submits a confidential version of its written submissions to the Panel, it shall also, upon request of a Member, provide a non-confidential summary of the information contained in its submissions that could be disclosed to the public.

3. Upon indication from any party, at the latest on the first substantive meeting, that it shall provide information that requires protection additional to that provided for under these Working Procedures, the Panel shall, after consultation with the parties, decide whether to adopt appropriate additional procedures. Exceptions to this procedure shall be granted upon a showing of good cause.

4. Consistent with Article 13 of the DSU and Article 11.2 of the SPS Agreement, the Panel may seek expert advice from experts and from international organizations and adopt additional procedures to this end, as appropriate.

5. The Panel shall meet in closed session. The parties, and Members having notified their interest in the dispute to the Dispute Settlement Body in accordance with Article 10 of the DSU (hereafter "third parties"), shall be present at the meetings only when invited by the Panel to appear before it.

6. Each party and third party has the right to determine the composition of its own delegation when meeting with the Panel. Each party and third party shall have the responsibility for all members of its own delegation and shall ensure that each member of such delegation acts in accordance with the DSU and these Working Procedures, particularly with regard to the confidentiality of the proceedings.

Submissions

7. Before the first substantive meeting of the Panel with the parties, each party shall submit a written submission in which it presents the facts of the case and its arguments, in accordance with the timetable adopted by the Panel. Each party shall also submit to the Panel, prior to the second substantive meeting of the Panel, a written rebuttal, in accordance with the timetable adopted by the Panel.

8. A party shall submit any request for a preliminary ruling at the earliest possible opportunity and in any event no later than in its first written submission to the Panel. Based on the nature of the request the Panel will consider whether additional briefing is required and make changes to the timetable as necessary. This is without prejudice to any requests for rulings based on circumstances that arise later in the process. Requests for such rulings should be made as soon as possible after a party becomes aware of a potential issue.

9. Each party shall submit all factual evidence to the Panel no later than during the first substantive meeting, except with respect to evidence necessary for purposes of rebuttal, answers

to questions or comments on answers provided by the other party. Exceptions to this procedure shall be granted upon a showing of good cause. Where such exception has been granted, the Panel shall accord the other party a period of time for comment, as appropriate, on any new factual evidence submitted after the first substantive meeting.

10. Where the original language of exhibits is not a WTO working language, the submitting party or third party shall submit a translation into the WTO working language of the submission at the same time. Translations should include all germane portions of documents that the party seeks to rely upon. Germane portions include not only specific provisions of measures, but also relevant context. The Panel may grant reasonable extensions of time for the translation of such exhibits upon a showing of good cause. It is expected that Japan, as the complainant, will submit translations into English of the relevant measures with its first written submission. Should Korea have any objections to the translations provided by Japan, it shall identify those objections in writing no later than at the time of Korea's first written submission. Any objection as to the accuracy of a translation submitted by either party subsequent to the first written submissions should be raised promptly in writing, no later than the next filing or meeting (whichever occurs earlier) following the submission which contains the translation in question. Any objection shall be accompanied by a detailed explanation of the grounds of the objection and an alternative translation. The Panel may make an exception to these deadlines upon a showing of good cause.

11. In order to facilitate the work of the Panel, each party and third party is invited to make its submissions in accordance with the WTO Editorial Guide for Panel Submissions attached as Annex 1, to the extent that it is practical to do so.

12. To facilitate the maintenance of the record of the dispute and maximize the clarity of submissions, each party and third party shall sequentially number its exhibits throughout the course of the dispute. For example, exhibits submitted by Japan could be numbered JPN-1, JPN-2, etc. If the last exhibit in connection with the first submission was numbered JPN-5, the first exhibit of the next submission thus would be numbered JPN-6.

Questions

13. The Panel may at any time pose questions to the parties and third parties, orally or in writing, including prior or subsequent to each substantive meeting.

Substantive meetings

14. Each party shall provide to the Panel the list of members of its delegation in advance of each meeting with the Panel and no later than 5.00 p.m. Geneva time three working days prior to the Panel meeting.

15. The first substantive meeting of the Panel with the parties shall be conducted as follows:

a. The Panel shall invite Japan to make an opening statement to present its case first. Subsequently, the Panel shall invite Korea to present its point of view. Before each party takes the floor, it shall provide the Panel and other participants at the meeting with a provisional written version of its statement. In the event that interpretation is needed, each party shall provide additional copies for the interpreters through the Panel Secretary. Each party shall make available to the Panel and the other party the final version of its statement, preferably at the end of the meeting, and in any event no later than 5.00 p.m. on the first working day following the meeting.

b. After the conclusion of the statements, the Panel shall give each party the opportunity to ask each other questions or make comments, through the Panel. Each party shall have an opportunity to orally answer these questions. Each party shall send in writing, within a timeframe to be determined by the Panel, any questions to the other party to which it wishes to receive a response in writing. Each party shall be invited to respond in writing to the other party's questions within a deadline to be determined by the Panel.

c. The Panel may subsequently pose questions to the parties. Each party shall then have an opportunity to answer these questions orally. The Panel shall send in writing, within a

timeframe to be determined by it, any questions to the parties to which it wishes to receive a response in writing. Each party shall be invited to respond in writing to such questions within a deadline to be determined by the Panel.

d. Once the questioning has concluded, the Panel shall afford each party an opportunity to present a brief closing statement, with Japan presenting its statement first.

e. The Panel may, after consultation with the parties, set time limits for the opening statements; such time limits would be informed to the parties before the first substantive meeting.

16. The second substantive meeting of the Panel with the parties shall be conducted as follows:

a. The Panel shall ask Korea if it wishes to avail itself of the right to present its case first. If so, the Panel shall invite Korea to present its opening statement, followed by Japan. If Korea chooses not to avail itself of that right, the Panel shall invite Japan to present its opening statement first. Before each party takes the floor, it shall provide the Panel and other participants at the meeting with a provisional written version of its statement. In the event that interpretation is needed, each party shall provide additional copies for the interpreters through the Panel Secretary. Each party shall make available to the Panel and the other party the final version of its statement, preferably at the end of the meeting, and in any event no later than 5.00 p.m. Geneva time of the first working day following the meeting.

b. After the conclusion of the statements, the Panel shall give each party the opportunity to ask questions or make comments, through the Panel. Each party shall then have an opportunity to answer these questions orally. Each party shall send in writing, within a timeframe to be determined by the Panel, any questions to the other party to which it wishes to receive a response in writing. Each party shall be invited to respond in writing to the other party's questions within a deadline to be determined by the Panel.

c. The Panel may subsequently pose questions to the parties. Each party shall then have an opportunity to answer these questions orally. The Panel shall send in writing, within a timeframe to be determined by it, any questions to the parties to which it wishes to receive a response in writing. Each party shall be invited to respond in writing to such questions within a deadline to be determined by the Panel.

d. Once the questioning has concluded, the Panel shall afford each party an opportunity to present a brief closing statement, with the party that presented its opening statement first, presenting its closing statement first.

Third parties

17. The Panel shall invite each third party to transmit to the Panel a written submission prior to the first substantive meeting of the Panel with the parties, in accordance with the timetable adopted by the Panel.

18. Each third party shall also be invited to present its views orally during a session of this first substantive meeting, set aside for that purpose. Each third party shall provide to the Panel the list of members of its delegation and whether it will be making an oral statement in advance of this session and no later than 5.00 p.m. (Geneva time) the previous working day.

19. The third-party session shall be conducted as follows:

a. All third parties may be present during the entirety of this session.

b. The Panel shall first hear the arguments of the third parties in alphabetical order. Third parties present at the third-party session and intending to present their views orally at that session, shall provide the Panel, the parties and other third parties with provisional written versions of their statements before they take the floor. In the event that interpretation is needed, each third party shall provide additional copies for the

interpreters through the Panel Secretary. Third parties shall make available to the Panel, the parties and other third parties the final versions of their statements, preferably at the end of the session, and in any event no later than 5.00 p.m. (Geneva time) of the first working day following the session.

c. After the third parties have made their statements, the parties may be given the opportunity, through the Panel, to ask the third parties questions for clarification on any matter raised in the third parties' submissions or statements. Each party shall send in writing, within a timeframe to be determined by the Panel, any questions to a third party to which it wishes to receive a response in writing. Each third party shall be invited to respond in writing to these questions within a deadline to be determined by the Panel.

d. The Panel may subsequently pose questions to the third parties. Each third party shall then have an opportunity to answer these questions orally. The Panel shall send in writing, within a timeframe to be determined by it, any questions to the third parties to which it wishes to receive a response in writing. Each third party shall be invited to respond in writing to such questions within a deadline to be determined by the Panel.

Descriptive part

20. The description of the arguments of the parties and third parties in the descriptive part of the Panel report shall consist of the executive summaries provided by the parties and third parties, which shall be annexed as addenda to the report. The Panel will not summarize in the descriptive part of its report, or annex to its report, the facts and arguments as presented to the Panel by the parties in the course of the proceedings. These executive summaries shall not in any way serve as a substitute for the submissions of the parties and third parties in the Panel's examination of the case.

21. Each party shall submit an executive summary of the facts and arguments as presented to the Panel in its written submissions and oral statements, in accordance with the timetable adopted by the Panel. This summary may also include a summary of responses to questions. The executive summary shall not exceed 30 pages.

22. Each third party shall submit an executive summary of its arguments as presented in its written submission and statement in accordance with the timetable adopted by the Panel. This summary may also include a summary of responses to questions, where relevant. The executive summary to be provided by each third party shall not exceed 6 pages.

Interim review

23. Following issuance of the interim report, each party may submit a written request to review precise aspects of the interim report and request a further meeting with the Panel, in accordance with the timetable adopted by the Panel. The right to request such a meeting shall be exercised no later than at the time the written request for review is submitted.

24. In the event that no further meeting with the Panel is requested, each party may submit written comments on the other party's written request for review, in accordance with the timetable adopted by the Panel. Such comments shall be limited to commenting on the other party's written request for review.

25. The interim report, as well as the final report prior to its official circulation, shall be kept strictly confidential and shall not be disclosed.

Service of documents

26. The following procedures regarding service of documents shall apply:

a. Each party and third party shall submit all documents to the Panel by filing them with the DS Registry (office No. 2047).

b. Each party and third party shall file 3 paper copies of all documents it submits to the Panel. Exhibits may be filed in 3 copies on CD-ROM or DVD and 2 paper copies. The DS Registrar shall stamp the documents with the date and time of the filing. The paper version shall constitute the official version for the purposes of the record of the dispute. However, any Excel format documents contained in exhibits which are not suitable for a printed version may be filed in an electronic form only and in that event the electronic version of such documents filed to the Panel shall constitute the official version for the purposes of the record of the dispute.

c. Each party and third party shall also provide an electronic copy of all documents it submits to the Panel at the same time as the paper versions, preferably in Microsoft Word format, either on a CD-ROM, a DVD or as an e-mail attachment. If the electronic copy is provided by e-mail, it should be addressed to DSRegistry@wto.org, with a copy to ****.****@wto.org, ****.****@wto.org, ****.****@wto.org, ****.****@wto.org, and ****.****@wto.org. If a CD-ROM or DVD is provided, it shall be filed with the DS Registry.

d. Each party shall serve any document submitted to the Panel directly on the other party and third parties. Each party shall be required to serve on all third parties only those of its written submissions made in advance of the first substantive meeting with the Panel. Each third party shall serve any document submitted to the Panel directly on the parties and all other third parties. Each party and third party shall confirm, in writing, that copies have been served as required at the time it provides each document to the Panel.

e. Each party and third party shall file its documents with the DS Registry and serve copies on the other party (and third parties where appropriate) by 5.00 p.m. (Geneva time) on the due dates established by the Panel. A party or third party may submit its documents to another party or third party in electronic format only, provided that the recipient party or third party has indicated its prior consent in writing to the submitting party or third party and the Panel Secretary is so notified.

f. The Panel shall provide the parties with an electronic version of the descriptive part, the interim report and the final report, as well as of other documents as appropriate. When the Panel transmits to the parties or third parties both paper and electronic versions of a document, the paper version shall constitute the official version for the purposes of the record of the dispute.

27. The Panel reserves the right to modify these procedures as necessary, after consultation with the parties. The Panel will annex these procedures to its report.

ANNEX A-2

PANEL WORKING PROCEDURES FOR CONSULTATIONS WITH EXPERTS[1]

24 February 2016

28. In accordance with paragraph 4 of the Working Procedures, if in the course of the proceedings, the Panel shall determine that there is a need to seek expert advice[2] the procedures described below shall apply. In addressing matters concerning scientific and/or technical advice from experts, the Panel shall have regard to the provisions of the DSU and, *inter alia*, to the objective of conducting these proceedings in an efficient and timely manner and at a reasonable cost.

29. After consultation with the parties, the Panel may ask any relevant institutions, as well as the parties, for suggestions of possible experts. Parties shall not engage in direct contact with the individuals suggested (whether by the parties or the international organizations) on any matter related to this dispute.

30. The Panel shall provide the parties with a list of possible experts, their *curricula vitae* and declarations of potential conflicts of interest. In this declaration, each potential expert will be instructed to disclose information which may include the following:

a. financial interests (e.g. investments, loans, shares, interests, other debts); business interests (e.g. directorship or other contractual interests); and property interests relevant to the dispute in question;

b. professional interests (e.g. a past or present relationship with private clients or relevant industry, or any interests the person may have in domestic or international proceedings, and their implications, where these involve issues similar to those addressed in the dispute in question);

c. other active interests (e.g. active participation in public interest groups or other organisations which may have a declared agenda relevant to the dispute in question);

d. considered statements of personal opinion on issues relevant to the dispute in question (e.g. publications, public statements);

e. employment or family interests (e.g. the possibility of any indirect advantage or any likelihood of pressure which could arise from their employer, business associates or immediate family members); and

f. any other relevant information.

31. Parties shall have the opportunity to comment and to make known any compelling objections to any particular expert.

32. The Panel shall select the experts on the basis of their qualifications and the need for specialized scientific expertise, and shall not select experts whom the Panel considers to have a conflict of interest either after self-disclosure or otherwise. The Panel shall decide the number of experts in light of the number and type of issues on which advice shall be sought, as well as of the different areas on which each expert can provide expertise.

33. The Panel shall inform the parties of the experts and international organizations it has decided to consult, in accordance with the timetable adopted by the Panel. Experts shall act in

[1] These procedures are adopted in accordance with paragraph 4 of the Panel's Working Procedures adopted on 24 February 2016.

[2] For the purpose of these Working Procedures, the term "expert" may be used to refer to individuals, institutions, research bodies, or international organizations.

their personal capacities and not as representatives of any entity. However, should the Panel seek advice from an international organization, the advice received shall be deemed to be received from the international organization and not the individual staff members or representatives of the international organization. Moreover, any staff members of such international organization that attend a meeting with the Panel, shall be deemed to do so in a representative capacity, on behalf of the respective international organization.

34. The experts shall be subject to the DSB's Rules of Conduct for the Understanding on Rules and Procedures Governing the Settlement of Disputes (WT/DSB/RC/1), a copy of which shall be provided to them by the Panel.

35. The Panel shall prepare written questions for the experts. The parties will be invited to suggest a limited number of questions that the Panel could include in its questions to the experts. The experts shall be requested to provide responses in writing to the Panel's questions within a time-period specified by the Panel. The experts shall be requested to respond only to questions on which they have sufficient knowledge. The responses of experts shall be part of the Panel's record but shall not be attached to the Panel report as annexes. The Panel shall provide the parties with copies of the responses, in accordance with the adopted timetable. The parties shall have the opportunity to comment in writing on the responses from the experts. The parties shall also have the opportunity to pose written questions to the experts in advance of the meeting, to assist the experts in their preparation for the meeting. The parties are invited to pose these questions or any others at the meeting.

36. The Panel may provide the experts, on a confidential basis, with relevant parts of the parties' submissions, including exhibits, as well as with any additional information deemed necessary. The experts shall have the opportunity to request, through the Panel, additional factual information or clarifications from the parties, if it shall aid them in answering the Panel’s questions.

37. The Panel may schedule a meeting with the experts, in conjunction with the second substantive meeting with the parties. Prior to the Panel's meeting with the experts, the Panel shall ensure that:

g. the parties' comments on the experts' responses are provided to all experts;

h. each expert is provided with the other experts' responses to the Panel's questions; and

i. each expert is provided with any advance questions from the parties to the experts.

38. The Panel's meeting with the experts would be conducted as follows:

j. The Panel shall invite each expert to make an opening statement. This statement may include, but is not limited to, any clarification of their written responses to the Panel questions requested by the Panel or the parties, or information complementary to these responses. The experts that intend to make an opening statement shall provide the Panel and the parties with written versions of their statements, before they take the floor. The Panel shall make available, to the other experts, and to the parties, a final "as delivered" version of each expert's written statement, no later than 5.00 p.m. on the first working day following the meeting.

k. After the conclusion of the statements, the Panel shall give each party the opportunity to ask the experts questions or make comments through the Panel. To facilitate this, each party may send in writing in advance of the meeting, within a timeframe to be determined by the Panel, any questions to the experts to which it wishes to receive an oral response at the Panel's meeting with the experts. Each expert shall be invited to respond orally to the parties' questions, whether posed in advance or for the first time at the meeting, and to react to the parties' comments.

l. The Panel may subsequently pose questions to the experts. The expert to whom the question is addressed shall be invited to respond orally to the Panel's questions. The Panel may also give the other experts the opportunity to address any question or comment.

m. Once the questioning has concluded, the Panel shall afford each expert an opportunity to present a brief closing statement.

n. The Panel may pose additional written questions or schedule additional meetings with the experts if necessary.

39. The Secretariat shall prepare a compilation of the experts' written replies to the Panel's questions, as well as a full transcript of any meeting with the experts for inclusion in the record of the Panel proceeding. This transcript shall not be annexed to the Panel report. The experts shall be given an opportunity to verify, before the texts are finalized, the drafts of these texts to ensure that they accurately reflect the information they provided. The parties shall likewise be given an opportunity to verify that the transcript of any meeting with the experts accurately reflects the parties' own interventions.

ANNEX B

ARGUMENTS OF THE PARTIES

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ANNEX B-1

INTEGRATED EXECUTIVE SUMMARY OF THE ARGUMENTS OF JAPAN

I. INTRODUCTION

1. In March 2011, a major earthquake and tsunami resulted in an accident at the Fukushima Dai-ichi nuclear power plant ("FDNPP"). The personal, societal, physical and emotional consequences of the earthquake, tsunami and FDNPP accident have been immense for Japanese society. The loss of life and severe injury caused by the earthquake and tsunami were devastating, and the consequences to Japanese society enduring.

2. One of the consequences of the FDNPP accident was the release of radioactive nuclides ("radionuclides") into the environment, and ultimately into food for human consumption. The ingestion of food containing radionuclides may have adverse health consequences. Japan fully recognizes Members' rights to take measures to protect their people from adverse health consequences. Indeed, Japan shares the same goal. In pursuit of that goal, Japan and other countries have taken measures to limit exposure to radionuclides in food, including the adoption of maximum threshold levels for radionuclides in food.

3. At the heart of this dispute, however, is the fact that the Republic of Korea ("Korea") has adopted measures that do not respond appropriately to concerns raised by the FDNPP accident. Instead, Korea's measures discriminate arbitrarily or unjustifiably between similarly situated Members, and are more trade restrictive than necessary to achieve Korea's desired level of protection of public health, in violation of Articles 2.3 and 5.6 of the *Agreement on Sanitary and Phytosanitary Measures* ("*SPS Agreement*"). Korea has also failed to observe the transparency obligations under Annex B to the *SPS Agreement*, and further disciplines under Annex C to the *Agreement*.

4. Korea's discriminatory and unnecessary measures include import bans for certain food products from Japan, and additional testing requirements on other food products from Japan that each contain radionuclides at levels well below the thresholds adopted by Korea. Korea itself described its import bans as preventing imports of Japanese fisheries products "regardless of their radioactive contamination". Korea also described its additional testing requirements as, "in effect", "a total import ban". Moreover, explaining the reasons for its measures, Korea cited, among others, the dismal economic condition of Korean fishermen, who, it said, were suffering losses.[1]

5. To assist with questions of a scientific nature, Japan submitted expert analyses prepared by Professor Brenner and Dr. Buesseler, two eminent experts in the scientific fields at issue in these proceedings. Similarly, to assist with questions concerning the scientific evidence of record in these proceedings, the Panel appointed five independent experts, each of which overwhelmingly supported the key factual propositions underlying Japan's claims. Japan will recall the experts' views throughout this executive summary.

II. MEASURES AT ISSUE

A. Korea's import bans on Japanese food products

6. Korea maintains two sets of import bans applicable to Japanese food products: (i) product-specific bans applicable to fisheries products and agricultural products from certain Japanese prefectures; and, (ii) a blanket import ban on all fisheries products from eight Japanese prefectures.[2] The product-specific bans were introduced incrementally by Korea after the FDNPP accident. The blanket import ban was introduced in September 2013. Japan's claims concern the import bans, as they apply to 28 species of fisheries products from the eight prefectures subject to

[1] Japan's FWS, paras. 1-8. Japan's references to its submissions include references to the exhibits cited therein.

[2] Japan's SWS, para. 19. See also Japan's FWS, paras. 115-120.

the blanket import ban. In each instance, Korea asserts that the measures take the form of a press release. These press releases do not contain all relevant details regarding these measures.

B. Korea's pre-market additional testing requirements for food products from Japan

7. Korea applies different pre-market testing requirements to Japanese food and food imported from other countries. Specifically, Korean pre-export testing requirements apply solely to Japanese food products, and do not apply to food product from other countries.[3] For Japanese food products, pre-export testing for cesium is required; and, if more than 0.5 Bq/kg of cesium is detected, additional testing for 17 other radionuclides is also required. Although at-the-border testing in Korea applies to imports from all countries, the requirements differ for Japanese food products and for food products from other countries.

8. *First*, with respect to at-the-border cesium testing, Korea subjects every consignment of *Japanese* food to cesium testing.[4] At-the-border cesium testing applies to Japanese food products irrespective of whether the consignment has already undergone pre-export cesium testing. For food products imported from countries *other than Japan*, at-the-border cesium testing is conducted based on a random selection of consignments for testing.

9. *Second*, if cesium is detected in *Japanese* food imports, the consignment is subject to at-the-border additional testing for 17 other radionuclides.[5] Like pre-export additional testing, *non-Japanese* food imports are not subject to at-the-border additional testing.

10. Korea asserts that its measures take the form of press releases. The press releases announcing the introduction of Korea's *pre-export* cesium testing and additional testing requirements, which apply *solely to Japan*, and the press releases announcing the introduction of Korea's at-the-border cesium testing and additional testing requirements, do not specify all relevant detail regarding these measures.[6]

C. Korea's point-of-sale testing scheme, which is not at issue in these proceedings

11. Korea also conducts random point-of-sale testing on "the 150 most frequently-consumed food products distributed in the Korean market".[7] Point-of-sale testing, which is conducted by taking samples from shops at the retail level, applies to products of all origins. Point-of-sale testing involves cesium testing and, if cesium is detected, additional testing for certain other radionuclides. Thus, point-of-sale testing applies to randomly-selected food products that are already in free circulation in the Korean market.

12. Point-of-sale testing allows Korea to verify the assumptions on which its approach to regulating SPS risks arising from the presence of man-made radionuclides in food is based, in a manner that is neither discriminatory nor trade restrictive. Japan does not challenge Korea's point-of-sale testing in these proceedings.

III. FACTUAL BACKGROUND TO THE DISPUTE

A. Japan's approach to regulating exposure to radionuclides in food

13. Since the FDNPP accident, Japan has put in place comprehensive food safety measures covering food production, distribution and export. To secure compliance with its appropriate level of protection ("ALOP") for radionuclides in food of 1 mSv/year – a measure that represents the maximum annual dose exposure for consumers from radionuclides in food – Japan has adopted: (i) Bq/kg thresholds for cesium in food products; (ii) a regime for the monitoring of radionuclides in food products; and (iii) area-specific distribution restrictions on certain food products, where thresholds are exceeded. The effectiveness of Japan's measures is illustrated by the fact that, in

[3] Japan's SWS, para. 28.
[4] Japan's FWS, paras. 127-137; Japan's SWS, para. 30.
[5] Japan's FWS, para. 129; Japan's SWS, para. 31.
[6] Japan's FWS, paras. 165-178; Japan's SWS, paras. 32-38.
[7] Japan's SWS, para. 45.

more than 233,000 consignments of Japanese food products imported into Korea, each tested for cesium, Korea has not found a single consignment with cesium in excess of its 100 Bq/kg threshold.[8] The IAEA and FAO found "that the measures taken to monitor and respond to issues regarding radionuclide contamination of food are appropriate, and that the food supply chain is under control".[9] Similarly, the Panel-appointed experts confirmed the adequacy of Japan's regulatory approach and its sampling practices.[10]

14. Central to Japan's regulatory regime is its derivation of a cesium threshold that takes into account dose contributions from other radionuclides. Japan's adoption of a cesium threshold reflects the dominant role of cesium in releases and contamination from the FDNPP accident, both in terms of activity levels and dose contribution. Based on measurements of the relationship between cesium and the other radionuclides, Japan calculated a cesium threshold that ensures that the combined exposure from cesium *and* the additional radionuclides does not exceed 1 mSv/year, in accordance with Codex Stan 193-1995. In deriving the cesium threshold, Japan started with (i) its 1 mSv/year ALOP, and (ii) an assumption of the percentage of food that would be contaminated. Japan then took into account, (iii) for various population subgroups, (iv) the types and quantities of food consumed per year, and (v) the ingestion-dose coefficient for each radionuclide.

15. In undertaking its calculation, Japan used a formula provided by Codex, with the addition of a number of assumptions that are far more conservative than dictated by Codex. First, it assumed that *50 percent* of food contains the relevant radionuclides at the threshold level, whereas Codex assumes just 10 percent; second, compared to Codex's assumption, Japan assumed that larger amounts of foods are consumed per year; and, third, rather than regulating groups of radionuclides in isolation, Japan took into account the quantitative relationships (or ratios) between the relevant radionuclides. Japan thereby calculated a threshold for cesium that ensures that the *combined* exposure from all relevant radionuclides does not exceed 1 mSv/year. Whereas Codex's cesium threshold is 1000 Bq/kg, Japan calculated a 100 Bq/kg cesium threshold.[11] The Panel-appointed experts unequivocally confirmed the appropriateness and conservativeness of Japan's calculations.[12]

16. Contrary to Korea's assertions, Japan's calculations of its 100 Bq/kg cesium threshold take into account the contribution from cesium *and other relevant radionuclides*. The calculations estimated that cesium and these other radionuclides would contribute to the overall radiation dose in an annual *average* ratio of 88:12 (50:50, in the case of marine products). Korea characterizes the use of this ratio as involving an assumption of a "scaling factor" between cesium and the other radionuclides that is fixed and unchanging. This is wrong; the estimated relationship is simply an *average* spread over *an entire year's worth of food*, during which each meal could have a very different Cs:Sr ratio, without that variability calling into question Japan's conservative calculations.

17. This conclusion is confirmed by actual test results under Japan's monitoring schemes,[13] and was confirmed by the Panel-appointed experts.[14]

B. Japan's food monitoring program and testing schemes for radionuclides

18. Following the FDNPP accident, Japan implemented a comprehensive monitoring program for the environment and food, and has taken regulatory decisions, including food distribution

[8] Japan's FWS, para. 359; Japan's response to Panel Question 8, para. 37; Japan's comment on Korea's response to Panel Question 120, para. 162; Korea's response to Panel Question 120, para. 51.

[9] Japan's FWS, paras. 57-60.

[10] Transcript of Panel meeting with the experts, para. 3.70. See also Id., paras. 1.199, 1.201, 3.88, 3.89, 3.91, 3.138, 3.152, 3.155, 3.186, 3.219, 4.136; Japan's response to Panel Question 123, paras. 187, 188.

[11] Japan's FWS, para. 346-375; Japan's SWS, paras. 238-240; Japan's comments on experts' responses, para. 36; Japan's comments on Korea's comments on experts' responses, paras. 93-106; Japan's response to Panel Questions 123 and 148, paras. 179-183, 322-331.

[12] Transcript of Panel meeting with the experts, paras. 1.129, 1.136, 1.137, 1.147, 1.240, 3.15, 3.55, 4.1, 4.2; Compilation of experts' replies, experts' responses to Panel Questions 77, 78 and 81.

[13] Japan's FWS, paras. 376-394; Japan's SWS, paras. 241-244, 253-289; Japan's response to Panel Question 148, paras. 332-342.

[14] Transcript of Panel meeting with the experts, paras. 4.58-4.59; Compilation of experts' replies, experts' responses to Panel Questions 82 and 83.

restrictions, based on information gathered through that program. Japan's monitoring program ensures that the overall committed dose exposure of Japan's population from the ingestion of food remains below 1 mSv/year, by ensuring that levels of cesium in sampled food products do not exceed 100 Bq/kg. Between April 2012 and March 2016, more than 1.2 million samples were tested for cesium under this program.

19. Japan has designated 17 of its 47 prefectures for mandatory monitoring, and monitoring extends to food products from all categories of food.[15] Japan targets food products that are expected, based on scientific understanding and available information, to contribute the highest committed dose level from radionuclides in food. Such products are subjected to increased testing. Monitoring activities are continuously informed and refined on the basis of past results.[16] The Panel-appointed experts confirmed that Japan's approach represents a widely-accepted food safety sampling technique.[17]

20. On the basis of cesium test results under Japan's monitoring program, Japan has also imposed (and, where warranted by testing results, lifted) distribution restrictions for various food products.[18]

21. In addition to its cesium monitoring program, Japan maintains a number of testing schemes that cover cesium and additional radionuclides. These schemes include: nationwide market-basket surveys; nationwide and Fukushima prefecture duplicate diet surveys; strontium testing of fisheries products; testing of fish and shellfish by Japan's Ministry of the Environment; testing of fisheries products close to the FDNPP site by TEPCO; joint testing by Japan and Korea; test results included in the Environmental Radioactivity database, for both fisheries and non-fisheries products; and a FY 2014 study of various fisheries and non-fisheries products.[19]

22. Test results under these programs reveal that contamination levels for fisheries and non-fisheries products from Japan are, with rare exceptions, significantly below Japan's (and Korea's) cesium threshold of 100 Bq/kg, such that there is no risk that dose exposures for Japanese consumers from radionuclides in food will exceed 1 mSv/year. For the additional radionuclides, contamination levels of Japanese fisheries and non-fisheries products are also significantly below the Codex thresholds adopted by Korea. Since Japanese products represent only 0.37 percent of the Korean diet, there is no risk that consumption of Japanese food products results in dose exposure for Korean consumers in excess of 1 mSv/year.[20]

23. The Panel-appointed experts have confirmed the adequacy of Japan's test results, and in particular that there are sufficient test results to support the above conclusions.[21] With respect to the number of test results for each of the 28 species at issue, specifically, there are a sufficient number of cesium test results for each species across the prefectures at issue; with respect to strontium test results, there are test results for each of the 28 species at issue, and additional test results from representative species. In light of the low contamination levels, in particular for strontium, these test results are representative, and sufficient to support Japan's factual propositions, as the Panel-appointed experts have, once again, confirmed.

C. Korea's references to subsequent releases at the FDNPP site

24. Korea asserts that its measures are justified by the release of contaminated water from the FDNPP site subsequent to the accident. To begin, any post-accident release events that have occurred are 1000 times smaller than the initial releases, such that they have no impact on the factual propositions advanced by Japan. Moreover, monitoring around the FDNPP site continues on a daily and even hourly basis, including through a real-time radioactivity detection system for

[15] These are: grains, vegetables, fruits, cultivated edible fungi, marine products, freshwater fisheries products, cattle meat, other livestock products, game meat, wild plants and wild edible fungi, milk for infant use, tea and drinking water and processed foods

[16] Japan's FWS, paras. 63-73; Japan's response to Panel Question 7, paras. 16-27; Japan's response to Panel Question 123, paras. 166-177.

[17] Transcript of Panel meeting with the experts, paras. 3.88, 3.89, 3.91, 3.138; Compilation of experts' replies, experts' responses to Panel Questions 15 and 63.

[18] Japan's FWS, paras. 74-77; Japan's response to Panel Question 19, paras. 102-104.

[19] Japan's FWS, paras. 63-73; Japan's response to Panel Question 123, paras. 184-186.

[20] Japan's SWS, para. 243.

[21] Compilation of experts' replies, experts' responses to Panel Questions 44, 46, 57, 62, 89.

seawater at the mouth of the FDNPP port that measures levels of cesium and total beta emitters, including strontium.[22]

25. The Panel-appointed experts confirmed that any ongoing releases do not undermine Japan's factual propositions. The experts also emphasized the importance of Japan's ongoing monitoring of the seawater near the FDNPP site, and the value of real-time public access to the data recording that monitoring activity.

IV. STANDARD OF REVIEW

26. Korea contends that, in reviewing Japan's claims, the Panel must defer to the assessments made by the domestic regulator in adopting the challenged measures. Korea asserts that the Panel may not undertake a *de novo* review of those measures.

27. Korea's approach is inconsistent with the Panel's duty under Article 11 of the DSU, and Articles 2.3 and 5.6 of the *SPS Agreement*, which together shape the Panel's standard of review. Rather than accept Korea's partisan "judgment" about its measures, the Panel must make its own *objective* assessment of the matter, including by scrutinizing the scientific evidence of record.[23]

28. Non-discrimination, as embodied in Article 2.3, is a cornerstone principle of WTO law.[24] In assessing compliance with this principle under Article 2.3, or otherwise, WTO adjudicators do not simply defer to the judgment of domestic regulators.[25] Likewise, in assessing the "necessity" of a measure under Article 5.6, panels never simply defer to the judgment of the domestic regulator. To the contrary, and as expressly stated by the Appellate Body, in reviewing claims under Article 5.6, panels must make an objective assessment of the matter, and scrutinize all relevant evidence.[26]

29. Even assuming that deference were required, Korea has pointed to *no* formal process or explanation that preceded the adoption of its measures to which the Panel could defer.

V. TEMPORAL SCOPE OF EVIDENCE

30. Japan challenges the continuing inconsistency of the import bans and the additional testing requirements with continuing obligations under the *SPS Agreement*, on the basis of evidence speaking to the factual situation at the time of, and subsequent to, Panel establishment on 28 September 2015.[27]

31. Nonetheless, Korea contends that the Panel cannot consider evidence that did not exist on: (i) 6 September 2013, when Korea adopted the blanket import ban and additional testing requirements; or (ii) 28 September 2015, the date of Panel establishment.

32. In any dispute, the temporal scope of the evidence is influenced by whether a claim is made regarding the adoption or the maintenance of a measure (or both), and by the temporal scope of the obligations at issue – that is, do the obligations serving as the legal basis for the complainant's claim apply at a specific time (e.g., at the time of adoption of the measure), or do they impose continuing obligations (e.g., on the maintenance of the measure).[28]

33. Articles 2.3 and 5.6 of the *SPS Agreement* impose a continuing obligation with respect to the maintenance of a measure: similar to Article 6.1 of the *SPS Agreement*, which the Appellate Body found to impose a continuing obligation, these provisions use the present tense in conjunction with "ensure", and contain no language limiting the temporal scope.[29] Furthermore, Article 5.6 applies "when establishing or maintaining" SPS measures. The ordinary meaning of the verbs used

[22] Japan's FOS, para. 32; Japan's response to Panel Question 9, paras. 42-49; Japan's SWS, paras. 506-508; Japan's comment on Korea's response to Panel Question 117, para. 131.
[23] Japan's SOS, para. 30.
[24] Japan's SOS, para. 34.
[25] Japan's SOS, para. 34.
[26] Japan's SOS, paras. 29-43.
[27] Japan's response to Panel Question 115, paras. 46-47.
[28] Japan's response to Panel Question 115, paras. 42-43.
[29] Japan's SOS, paras. 17, 20.

indicates that these provisions impose an obligation at all times. Article 7, Annex B, Article 8 and Annex C similarly impose continuing obligations.

34. In these circumstances, the Panel is required to consider the most up-to-date evidence available to determine whether, in light of the latest available facts, Korea is engaged in a *continuing* violation of its *continuing* obligations.

35. Indeed, Article 11 of the DSU requires a panel to make an objective assessment of the matter, including an objective assessment of the evidence of record. This means that where a complainant claims that a measure is being maintained after panel establishment in a manner that is inconsistent with a continuing obligation, the panel must assess the present WTO-consistency of the measure on the basis of the most up-to-date evidence available, subject to due process considerations.[30]

36. This allows the DSB to make *timely and relevant* recommendations and rulings in accordance with Article 3.3 of the DSU, which states that the "prompt" settlement of disputes is "essential"; with Article 3.4 of the DSU, which requires the DSB's recommendations and ruling to "be aimed at achieving a satisfactory settlement of the matter"; and with Article 3.7 of the DSU, which states that the objective of dispute settlement is "to secure a positive solution to a dispute". In contrast, if a panel fails to consider the most recent evidence, resolution of the dispute may be delayed, and a "satisfactory settlement" and "prompt" and "positive" solution thwarted, because the parties may disagree whether, in view of recent evidence, the measure continues to be WTO-inconsistent.

37. The long-standing and consistent case law under a range of covered agreements – including the *SPS Agreement*, GATT 1994, *Agreement on Agriculture*, *Anti-Dumping Agreement*, *SCM Agreement*, *TBT Agreement*, and *TRIPS Agreement* – supports an assessment of continuing inconsistency with continuing obligations on the basis of up-to-date post-establishment evidence.[31] Indeed, under the *SPS Agreement* itself, the panels in *Australia – Salmon*, *Japan – Apples*, *Australia – Apples*, and *Russia – Pigs* all relied on evidence post-dating establishment.[32] Similarly, the Panel in this dispute must assess the consistency of Korea's measures on the basis of the latest available evidence, including the post-establishment evidence on which Korea itself relies.

38. In any event, were the Panel to decide, erroneously, that the consistency of Korea's measures must be assessed solely against the factual situation existing at the time of establishment, the Panel should rely on any evidence, whenever submitted or prepared, that speaks to the situation at the time of establishment. In this regard, Japan recalls that it has submitted evidence that establishes violations of the relevant SPS provisions both at the time of, and after, Panel establishment.[33]

39. Should the Panel decide that it is appropriate to limit its assessment of the consistency of Korea's measures to evidence pertaining to the situation at the time of establishment, Japan urges the Panel to make alternative findings based on all evidence before it. Such findings would enable the Appellate Body to complete the legal analysis, were it to decide that the Panel erred in failing to assess post-establishment evidence.

VI. KOREA'S ARGUMENTS UNDER ARTICLE 5.7 OF THE *SPS AGREEMENT*

40. Throughout the proceedings, Korea has argued that its measures are "provisional", within the meaning of Article 5.7 of the *SPS Agreement*, because it considers the scientific evidence concerning the situation at the FDNPP to be insufficient, and the number of strontium test results for fisheries products to be similarly insufficient.

41. While any relevant insufficiencies in the scientific evidence must be taken into account in the objective assessment by a panel of claims brought under Articles 2.3, 5.6, 7 and 8, Korea itself has acknowledged that the status of a measure as "provisional" does *not* alter the scope of

[30] Japan's response to Panel Question 115, para. 48.
[31] Japan's response to Panel Question 115, paras. 57-143.
[32] Japan's response to Panel Question 115, paras. 78-81.
[33] Japan's comments on Korea's response to Panel Question 115, paras. 91-121, and references cited therein.

application of those provisions.[34] In any event, as the Panel-appointed experts have confirmed, no relevant uncertainties or insufficiencies in the evidence exist.[35]

42. Separately, Japan has also established Korea's failure to comply with the requirements of Article 5.7, including to seek information necessary to *review* its allegedly provisional measures. Since imposition, in September 2013, of the last of the measures at issue in these proceedings, Korea has ceased trying to obtain and review additional information. The only exception concerns the activities of the government-mandated and -organized "Korean Group", which suspended its activities in May 2015 following Japan's request for consultations. Therefore, even were Article 5.7 directly applicable to claims brought under Articles 2.3, 5.6, 7 and 8, Korea has not observed the requirement, under Article 5.7, to seek continuously to obtain additional information.[36]

VII. KOREA'S IMPORT BANS AND PRE-MARKET ADDITIONAL TESTING REQUIREMENTS ARE INCONSISTENT WITH ARTICLE 2.3 OF THE *SPS AGREEMENT*

A. Interpretation of Article 2.3

1. Article 2.3, first sentence

43. A panel's assessment under the first sentence of Article 2.3 involves three cumulative steps.[37] *First*, the panel identifies the SPS risks that a respondent seeks to regulate, in order to determine the group of products that gives rise to those risks. *Second*, the panel looks to the regulatory treatment afforded to those products to determine whether products of some origins are treated less favourably – i.e., whether there is discrimination. *Third*, the panel considers whether this discrimination is arbitrary or unjustifiable.

a. Identical or similar conditions prevail

44. To ensure an apples-to-apples comparison of similar conditions, a panel must begin by identifying the *basket of products* of different origins that present the *same or similar SPS risks* that are regulated by the SPS measures at issue.

45. To undertake the appropriate apples-to-apples comparison, a panel must begin by identifying the conditions relevant to the dispute.[38] The starting point is the *respondent's own regulatory framework*.[39] The respondent's measure is important, because it reveals the SPS risks that the respondent seeks to regulate and, in turn, the products that are potentially subject to discriminatory regulatory treatment. The relevance of the measure to identifying the SPS risks at issue is confirmed by the definition of the term "SPS measure" as set out in Annex A(1) of the *SPS Agreement*, which includes measures that "protect human or animal life or health…from risks arising from additives, contaminants, toxins or disease-causing organism in foods, beverages or feedstuffs".[40] These SPS risks are a central part of the identification of the relevant conditions that ensure an apples-to-apples comparison and, ultimately, of the overall enquiry under Article 2.3.

46. To assess whether conditions are similar, a panel must begin by identifying, based on the SPS measures at issue, the *basket of products* of different origins that present the *same or similar SPS risks*.[41] To be included in the basket, a product must present the SPS risk that the *respondent itself* has chosen to regulate through the challenged measure. This process ensures an assessment that connects the SPS risk regulated by the measure at issue with the basket of products presenting that risk. The assessment is designed to review whether the respondent is distorting consumer choice in the marketplace by imposing discriminatory restrictions on products of some origins that present the regulated SPS risk, when it does not impose the same restrictions

[34] Japan's response to Panel Question 108, paras. 453-503; Japan's SWS, paras. 53-69.
[35] Compilation of experts' replies, experts' responses to Panel Questions 26, 44, 46, 57, 59, 62, 89, and 92. Transcript of the Panel meeting with the experts, paras. 4.1, 4.2, 4.133, 4.139, 4.143.
[36] Japan's FWS, paras. 102-108; Japan's SWS, paras. 65-67, 481-492; Japan's comments on Korea's responses to Panel Questions 150 and 151, paras. 293-305.
[37] Japan's FWS, paras. 200-202; Japan's SWS, para. 74.
[38] Japan's FWS, paras. 203-207; Japan's SWS, para. 83.
[39] Japan's FWS, paras. 203-204; Japan's SWS, para. 83.
[40] Japan's SWS, para. 84.
[41] Japan's SWS, para. 86.

on products of other origins that present the same or similar SPS risks. This approach has been taken by previous panels.[42]

47. Article 5.5 of the *SPS Agreement*, along with the SPS Committee's *Guidelines to Further the Practical Implementation of Article 5.5*, confirm Japan's interpretation.[43] Article 5.5 involves "different" yet comparable "situations", where distinctions in the ALOP may result in discrimination that is arbitrary and/or unjustifiable. The Guidelines confirm that discrimination comparisons must be made between situations that involve "sufficient common elements to render them comparable". The Guidelines further underscore that the comparability turns on *the types of SPS risk at stake*, with the relevant conditions differing depending on whether the SPS risks pertain to the spread of pests or diseases, or to "food-borne risks". In the case of "food-borne risks", the Guidelines confirm that "situations involving the same type of substance or pathogen" are comparable.

48. Japan's product-based interpretation of Article 2.3 is consistent with, and supported by, the origins of that provision in the GATT 1994, and with the context provided by the parallel provisions under the GATT 1994.[44] Starting with the discrimination element, Article 2.3 embodies disciplines against discrimination on both national treatment (i.e., products from the Member's "own territory and that of other Members") and most-favoured nation ("between Members") grounds.[45] Article 2.3 of the *SPS Agreement*, therefore, reflects both the national treatment and most-favoured nation disciplines also enshrined in Articles III:4 and I:1 of the GATT 1994. Specifically, Articles III:4 and I:1 discipline discrimination between ***products*** of different origins.[46] The origin of Article 2.3 in the non-discrimination provisions of Articles III:4 and I:1, therefore, confirms that Article 2.3 ultimately also concerns discrimination between ***products***.

49. In contrast, Korea argues that a panel's assessment of "similar conditions" does not allow for a product-based comparison. Instead, Korea interprets Article 2.3 to permit solely a comparison of the environmental conditions prevailing in the territories of two or more Members.[47] Along with ignoring the text and the context of Article 2.3, Korea's interpretation would erroneously exclude certain types of SPS measures, such as measures regulating additives or contaminants in products, from the scope of a provision that was expressly drafted to impose "basic … obligations" that apply to *all* SPS measures.[48]

b. Discrimination

50. Having established that products from different sources are similarly-situated based on relevant conditions, such that they are comparable, a complainant must next show that the challenged measure "discriminate[s] between Members" in respect of the regulatory treatment afforded to the comparable products. This element of the analysis is satisfied when comparable products from different Members are treated "differently", based on origin.[49]

c. Discrimination is arbitrary or unjustifiable

51. If comparable products of different origins are afforded different treatment, a panel must consider whether the difference in treatment is arbitrary or unjustifiable. This may be the case where, e.g.: (i) the reasons for the discrimination are not rationally connected to the measure's objective; (ii) a measure leaves no scope for taking into account conditions in the exporting country; or (iii) a Member restricts products from some sources in response to a particular risk, but does not verify whether products from other sources pose the same risk. Panels have held that the same facts may underlie both a finding that conditions are identical or similar, and a finding that discrimination is arbitrary or unjustifiable.[50]

[42] Japan's FWS, paras. 204-205.
[43] Japan's SWS, paras. 88-89.
[44] Japan's response to Panel Question 133, para. 232.
[45] Japan's response to Panel Question 133, para. 235.
[46] Japan's response to Panel Question 133, para. 236.
[47] Japan's SWS, para. 94.
[48] Japan's comment to Korea's response to Panel Question 134, para. 233.
[49] Japan's FWS, para. 208.
[50] Japan's FWS, para. 211.

2. Article 2.3, second sentence

52. SPS measures that arbitrarily or unjustifiably discriminate also constitute a "disguised restriction", under the second sentence of Article 2.3, although the latter may additionally extend to measures that do not arbitrarily or unjustifiably discriminate. Other factors may, therefore, also establish the existence of a disguised restriction.[51]

B. Korea's import bans and pre-market additional testing requirements are inconsistent with the first sentence of Article 2.3 of the *SPS Agreement*

1. Similar conditions prevail with respect to food products of Japanese origin and those of Korean or third country origins

53. As reflected in its regulatory framework, Korea seeks to protect its consumers from adverse health consequences arising from exposure to radionuclides in food. Thus, Korea has adopted thresholds (in Bq/kg) to ensure that dose exposure for Korean consumers from the consumption of food products does not exceed 1 mSv/year. In particular, Korea has adopted the same 100 Bq/kg cesium threshold adopted by Japan. In addition, Korea has adopted Codex thresholds for the additional radionuclides. Korea has implicitly confirmed the particular relevance it attaches to cesium as an indication of the presence of the additional radionuclides; under its regulatory regime, Korea requires testing for the additional radionuclides where cesium contamination in a food product exceeds 0.5 Bq/kg.

54. In establishing the similarity of conditions with respect to food products of Japanese and non-Japanese origin, Japan has, therefore, focused on the particular SPS risks regulated by Korea, and has identified two relevant conditions for ensuring a relevant apples-to-apples comparison between food products of Japanese and non-Japanese origin. Specifically, Korea's regulatory regime demonstrates that the two relevant conditions relate to (i) the presence of cesium and the additional radionuclides, and (ii) the risk that cesium and the additional radionuclides exceed Korea's thresholds.[52]

55. Japan has, in turn, provided evidence demonstrating two factual propositions relevant to its claims under Article 2.3: (i) that food products of all origins contain cesium and the additional radionuclides; and, (ii) that food products of all origins pose a similar – and similarly low – risk of containing cesium and the additional radionuclides in excess of Korea's thresholds. Japan has demonstrated these factual propositions based on evidence pertaining to the situation at the time of Panel establishment on 28 September 2015, as well as during the pendency of the Panel proceedings.[53]

a. Food products of all origins contain cesium and other radionuclides

56. With respect to the first factual proposition, Japan has demonstrated that food products of all origins contain cesium and the additional radionuclides.[54]

57. Beginning with cesium data for Japanese food products, Japan notes that, in the months immediately following the FDNPP accident, cesium (^{134}Cs and ^{137}Cs) levels in food products from the most affected areas of Japan increased considerably. However, the cesium dispersed rapidly in the environment, which has been reflected in reduced cesium levels in Japanese food products, as established by test results. In addition, the quantity of cesium has decreased due to physical decay. In particular, ^{134}Cs has largely decayed away since 2011, due to its half-life of two years. Since the two cesium isotopes were initially present in equal proportions, almost half of the cesium

[51] Japan's FWS, para. 221.

[52] Japan's FWS, paras. 228-239; Japan's FOS, para. 20; Japan's SWS, para. 109.

[53] Japan's FWS, paras. 240-291; Japan's response to Panel Questions 38 and 45, paras. 147-155, 183-196; Japan's SWS, paras. 109-144; Japan's comments on experts' responses, paras. 9-28; Japan's response to Panel Question 136, paras. 254-282; Japan's comments on Korea's response to Panel Question 115, paras. 98-109.

[54] Japan's FWS, paras. 240-291; Japan's responses to Panel Questions 38 and 45, paras. 147-155, 183-196; Japan's SWS, paras. 109-144; Japan's comments on experts' responses, paras. 9-28; Japan's response to Panel Question 136, paras. 254-263; Japan's comments on Korea's response to Panel Question 115, paras. 98-102.

has decayed away. Nonetheless, food products from Japan continue to contain cesium at low levels.

58. Turning to cesium data for non-Japanese food products, at-the-border testing by both Korea and Japan, as well as Korea's point-of-sale testing, show what Professor Brenner and Dr. Buesseler demonstrated based on general scientific knowledge about the impact of prior release events, such as nuclear weapons testing and Chernobyl: food of non-Japanese origin also contains cesium. While Korea does *not* test *all* non-Japanese products for cesium, between March 2011 and July 2016, it nonetheless detected cesium in excess of 1 Bq/kg but below its threshold of 100 Bq/kg in 281 samples from Korea and the rest of the world. In contrast, Korea tests *all* imports from Japan for cesium. Having tested all Japanese food imports for cesium *during the period March 2011 to July 2016*, Korea detected cesium between 1 Bq/kg and 100 Bq/kg in 333 samples, which is not many more than it detected as a result of mere *random sampling* of food from non-Japanese sources. Importantly, for both Japanese and non-Japanese food, Korea has detected cesium in samples across all food categories. Similarly, Japan's at-the-border testing identified a large number of samples of food from the rest of the world with cesium below 100 Bq/kg.

59. Moreover, test results from Japanese testing schemes covering the additional radionuclides show that Japanese food products contain the additional radionuclides. Similarly, non-Japanese food products also contain the additional radionuclides. For instance, point-of-sale test results submitted by Korea indicate that a number of Korean and non-Japanese food products for which cesium was detected also contained strontium or plutonium. This evidence is confirmed by what is known about the radionuclides released during various release events, as explained by Professor Brenner and Dr. Buesseler, and by test results for Japanese food products prior to the FDNPP accident.

60. To recall, Japan has established the factual proposition that food of Japanese and non-Japanese origin contains cesium and the additional radionuclides both as of 28 September 2015, and during the pendency of the Panel proceedings.

61. The Panel-appointed experts confirmed the accuracy of Japan's conclusions.[55]

b. Food products of all origins pose a similar – and similarly low – risk of containing cesium, strontium, and other radionuclides in excess of Korea's thresholds

62. Moreover, food of Japanese and non-Japanese origin pose similar – and similarly low – risks of containing cesium, strontium and the other radionuclides in excess of Korea's thresholds. This conclusion is confirmed by evidence compiled on a food category-by-food category basis.[56]

63. Data from Japan's food monitoring program show that, for fiscal year ("FY") 2015, *more than 99% of all cesium test results, across all food categories,* are at the lowest level (0-25 Bq/kg), and thus significantly below Korea's threshold of 100 Bq/kg. The evidence for FY 2015 demonstrates that there are only five food categories for which cesium test results in Japanese food products tested in Japan, have, on occasion, exceeded Korea's 100 Bq/kg threshold. These are: (i) wild plants and edible fungi (which includes blueberries and mushrooms); (ii) processed foods; (iii) game meat; (iv) grains; (v) freshwater fisheries products. These food categories are the same categories for which higher cesium levels are expected based on general scientific knowledge. Indeed, Korea's and Japan's at-the-border cesium testing and Korea's point-of-sale cesium testing reveal that food of non-Japanese origin in these categories also, on occasion, exceeds Korea's 100 Bq/kg cesium threshold.

64. Moreover, Japan has demonstrated, on the basis of data from Japanese testing schemes covering the additional radionuclides, that Japanese food products do *not* exceed Korea's thresholds for the additional radionuclides. Japan has also demonstrated that Japanese fisheries products with cesium below 100 Bq/kg do *not* exceed Korea's thresholds for the additional

[55] Compilation of experts' replies, responses to Panel Questions 19, 49 and 52.

[56] Japan's FWS, paras. 240-291; Japan's responses to Panel Questions 38 and 45, paras. 147-155, 183-196; Japan's SWS, paras. 109-144; Japan's comments on experts' responses, paras. 9-28; Japan's response to Panel Question 136, paras. 264-282; Japan's comments on Korea's response to Panel Question 115, paras. 103-109.

radionuclides. Similarly, non-Japanese food products do *not* exceed Korea's thresholds for the additional radionuclides. For instance, point-of-sale test results submitted by Korea indicate that a number of Korean and other non-Japanese food products for which cesium was detected contained strontium or plutonium below their respective thresholds. This evidence is confirmed by what is known about the radionuclides released during various release events, as explained by Professor Brenner and Dr. Buesseler, and by test results for Japanese food products prior to the FDNPP accident.

65. As noted, Japan has established the factual proposition that food of Japanese and non-Japanese origins pose a similar – and a similarly low – risk of containing cesium and the additional radionuclides in excess of Korea's thresholds both as of 28 September 2015, and during the pendency of the Panel proceedings.

66. The Panel-appointed experts confirmed the accuracy of Japan's conclusion.[57]

2. Korea's measures discriminate between Japanese and non-Japanese products

a. Korea's import bans discriminate between the banned Japanese products and non-Japanese products

67. Korea treats differently comparable products from countries where the same or similar conditions prevail. Specifically, the Japanese products that are the subject of Japan's claim are simply banned, regardless of the radiation level. Korea itself described its import bans as preventing imports of Japanese fisheries products "regardless of their radioactive contamination". In contrast, food products from Korea and third countries are granted market access if cesium testing of random samples demonstrate the presence of no more than 100 Bq/kg of cesium.[58]

68. As a result, Korea discriminates against Japanese food products. Specifically, the banned Japanese products are treated "differently" than food products of Korean and third country origin; the import bans alter the conditions of competition to the detriment of the banned products, by denying any opportunity to compete in the Korean market.

b. Korea's pre-market additional testing requirements discriminate between Japanese and non-Japanese products

69. Korea's pre-market additional testing requirements likewise discriminate against Japanese products. For Japanese food products, additional radionuclide testing is required if more than 1 Bq/kg of cesium is detected. In contrast, for food products from other sources, no pre-market additional testing requirements apply; rather, products from other sources are subject solely to random cesium testing.[59]

70. Korea argues that, by virtue of its point-of-sale testing scheme, *all* products, regardless of origin, are subject to additional testing for other radionuclides, if 1 Bq/kg of cesium is detected. However – and regardless whether point-of-sale testing for additional radionuclides is mandatory[60] – Korea's assertions about point-of-sale testing do not resolve the discriminatory treatment afforded Japanese food products under Korea's pre-market additional testing requirements, for at least five reasons.[61]

71. *First*, Japanese food products are subject to *both* pre-market and point-of-sale additional testing, whereas non-Japanese food products are never subject to pre-market additional testing.[62] *Second*, point-of-sale additional testing is conducted solely for strontium and plutonium, whereas pre-market additional testing is conducted for ^{90}Sr, ^{238}Pu, ^{239}Pu, ^{240}Pu and 13 other radionuclides.[63] *Third*, point-of-sale additional testing applies to 150 food products, whereas pre-market additional

[57] Compilation of experts' replies, responses to Panel Questions 43, 44 and 49.
[58] Japan's FWS, para. 292; Japan's SWS, para. 145.
[59] Japan's SWS, para. 146.
[60] Japan's response to Panel Question 136, paras. 244-253.
[61] Japan's SWS, paras. 47-51.
[62] Japan's SWS, paras. 47-51.
[63] Japan's SWS, paras. 47-51; Japan's response to Panel Question 136, para. 248.

testing applies to all Japanese food products.[64] *Fourth,* point-of-sale additional testing applies only to randomly-selected samples of food found to contain at least 1 Bq/kg of cesium, whereas pre-market additional testing applies to all consignments of Japanese food found to contain at least 1 Bq/kg of cesium.[65]

72. *Fifth*, pre-market additional testing is highly trade restrictive. To begin, compliance with pre-market additional testing is a condition precedent for Japanese imports to secure market access in Korea. That is, where an imported Japanese food item is found to contain at least 1 Bq/kg of cesium in pre-market cesium testing, market access for the entire consignment from which that item was drawn is withheld until pre-market additional testing is completed. In contrast, food randomly selected for point-of-sale testing is already circulating freely in the Korean market, and where a randomly-selected food item is found to contain at least 1 Bq/kg of cesium in point-of-sale testing, the consignment from which that food item originated remains in free circulation, unaffected by point-of-sale additional testing on the particular food item at issue.[66]

73. Moreover, the costs of pre-market additional testing are borne by the exporter, which substantially increases the costs of exporting to Korea – a fact acknowledged by Korea itself. In contrast, the costs of point-of-sale additional testing appear to be borne by Korea, which undertakes the testing.[67]

74. Accordingly, the treatment afforded to Japanese goods under Korea's pre-market additional testing requirements in no way mirrors the treatment afforded to all goods under Korea's point-of-sale testing regime. This conclusion applies, whether or not point-of-sale additional testing is mandatory. Thus, that Korea's point-of-sale testing regime is applicable to all food products does not level the playing field for Japanese food.

3. Korea's import bans and pre-market additional testing requirements discriminate arbitrarily and unjustifiably

a. Similarity of conditions shows unjustifiable discrimination

75. Korea treats differently comparable products from countries where the same or similar conditions prevail. There exists no rational SPS-related explanation for the difference in regulatory treatment Korea affords products from Japan, and products from elsewhere.[68]

76. Korea's regulatory framework seeks to ensure that Korean consumers are not exposed to radiation in excess of 1 mSv/year from the presence of radionuclides in food; to achieve this objective, Korea has adopted a cesium threshold of 100 Bq/kg. The low risk that Japanese products exceed Korea's 100 Bq/kg threshold for cesium is similar to the low risk that products from other sources exceed Korea's regulatory threshold. In particular, products of *all* origins have contamination levels that fall well *within Korea's chosen tolerance limits*.[69]

77. Thus, given that products from Japan and of non-Japanese origins have similar levels of cesium and additional radionuclides – both in absolute levels and in relation to Korea's tolerance limits – they present similar SPS risks. Accordingly, there is no SPS-related rationale to justify the discriminatory imposition of the import bans and the pre-market additional testing requirements on Japanese food products that are found to have cesium levels below 100 Bq/kg.

78. The arbitrary and unjustifiable nature of Korea's measures is further confirmed by the fact that the decision whether to subject two fish caught *in the same fishing area* to Korea's at-the-border additional testing requirements turns on the *flag flown* by the vessel that caught the fish, or the place where the fish is *processed and/or packed* – rather than by the area in which the fish was caught.[70]

[64] Japan's SWS, paras. 47-51.
[65] Japan's response to Panel Question 136, para. 250.
[66] Japan's response to Panel Question 136, para. 251.
[67] Japan's response to Panel Question 136, para. 252.
[68] Japan's SWS, para. 157.
[69] Japan's SWS, para. 160.
[70] Japan's SWS, para. 163.

79. Finally, a variety of statements made by Korea further confirm that there exists no rational SPS-related explanation for the difference in regulatory treatment Korea affords products from Japan, and products from other sources.[71] An adjudicator should consider statements made by government officials, in their official capacity, which shed light on the explanation or rationale for discrimination.[72]

b. Alleged uncertainties do not justify discriminatory treatment

80. Korea seeks to justify the discrimination of Japanese food products by alleging a number of uncertainties and insufficiencies in the evidence: (i) uncertainty about the levels of radionuclides released during and since the FDNPP accident; (ii) uncertainty regarding the continued and future release of radionuclides at the accident site; and, (iii) uncertainty regarding the relationship between cesium and other radionuclides.[73]

81. None of these alleged claims of uncertainty or insufficiency in the evidence justifies the discrimination.[74] Alleged uncertainty regarding the levels of contamination in Japanese seawater, sediment, soil and air and alleged uncertainty with respect to continuing and future releases of radionuclides are irrelevant, because the regulated SPS risks associated with Japanese *food* are not only knowable, but known, and they do not justify any discrimination. More specifically, given that (i) testing is available and reliable, (ii) the testing results are known, and (iii) the testing results indicate that more than 99 percent of products from Japan are within Korea's regulatory threshold of 100 Bq/kg, there is no basis on which any alleged uncertainties in *general environmental conditions* in Japan would justify the discrimination. This has also been confirmed by the Panel-appointed experts.[75]

82. Korea's assertion regarding lack of certainty about the relationship between cesium and other radionuclides must likewise be dismissed. As confirmed by the Panel-appointed experts,[76] and Professor Brenner and Dr. Buesseler,[77] any uncertainty that may exist regarding this relationship exists similarly for food products from all origins, and does not undermine Japan's factual propositions.

c. Radioactivity from both the FDNPP accident and other release events is part of the "ordinary environment"

83. Korea asserts that the challenged measures are designed to ensure that exposure to radiation from food consumed by Korean consumers remains at a level that exists *in the "ordinary environment".*[78] To Korea, the contribution to radionuclide contamination levels made by the Chernobyl accident and by weapons testing is part of the "ordinary environment"; in contrast, the contribution to radionuclide contamination levels made by the FDNPP accident is not.[79]

84. Japan recalls that the "ordinary environment", i.e., a world without man-made radionuclides, ceased to exist in the 1940s. Radiation release events since the 1940s have dispersed radionuclides widely. All of these man-made radionuclides are now a "given" in the environment – until such time as they undergo radioactive decay. Thus, the "ordinary environment" to which Korea refers has long ceased to exist.[80]

85. Moreover, these events have, in general terms, released the same main group of man-made radionuclides into the environment. In this respect, there exists no scientific basis to consider

[71] Japan's SWS, paras. 168-172; Japan's FWS, para. 305.
[72] Japan's SWS, para. 207.
[73] Japan's SWS, para. 178.
[74] Japan's SWS, paras. 181-182.
[75] Compilation of experts' replies, responses to Panel Questions 12, 15, 26, 44, 59, 91, 92.
[76] Compilation of experts' replies, responses to Panel Questions 44, 57, 89; Transcript of the meeting with the Parties, paras. 3.176, 3.180.
[77] Japan's SWS, para. 188.
[78] Japan's SWS, paras. 190-191.
[79] Japan's SWS, para. 192.
[80] Japan's SWS, para. 193.

radionuclides from the FDNPP accident to be any less part of the "ordinary environment" than other nuclear releases.[81]

C. Korea's import bans and pre-market additional testing requirements are inconsistent with the second sentence of Article 2.3 of the *SPS Agreement*

86. All arguments and evidence demonstrating the inconsistency of the import bans and the pre-market additional testing requirements with the first sentence of Article 2.3 also establish that Korea's import bans and pre-market additional testing requirements amount to a disguised restriction on international trade. Moreover, both measures are prohibitive and – as has been admitted by Korea – aim to exclude Japanese products from the Korean market.[82]

VIII. KOREA'S IMPORT BANS AND PRE-MARKET ADDITIONAL TESTING REQUIREMENTS ARE INCONSISTENT WITH ARTICLE 5.6 OF THE *SPS AGREEMENT*

A. Interpretation of Article 5.6 of the *SPS Agreement*

87. Article 5.6, read with footnote 3, sets out a three-pronged test. To establish that an SPS measure is more trade-restrictive than required, a complainant must demonstrate that there is an alternative measure that: (i) achieves the regulating Member's ALOP; (ii) is significantly less trade-restrictive than the challenged SPS measure; and (iii) is reasonably available, taking into account technical and economic feasibility.[83]

88. The proposed alternative must, first, achieve the regulating Member's ALOP. Demonstrating this element of Article 5.6 involves the following three conceptual steps: (i) identifying the regulating Member's ALOP; (ii) determining what level of protection would be achieved by the proposed alternative measure; and (iii) comparing the two, to verify that the alternative measure achieves the regulating Member's ALOP.[84]

B. Korea's import bans and pre-market additional testing requirements are inconsistent with Article 5.6 of the *SPS Agreement*

89. Japan has demonstrated that Korea's import bans and pre-market additional testing requirements are inconsistent with Article 5.6 because cesium testing achieves Korea's ALOP and is significantly less trade-restrictive.

1. Japan's alternative measures achieve Korea's ALOP

a. Korea's ALOP for radionuclide contamination in food is 1 mSv/year

90. Korea's ALOP aims to ensure that the dose exposure of Korean consumers from radionuclides in food remains below 1 mSv/year.[85] In September 2013, Korea provided Japan with a document that describes 1 mSv as the "[l]imit of annual radiation dose that is allowed through food for the public". In September 2014, Korea informed Japan that its ALOP for exposure to radiation from the ingestion of food contaminated with radionuclides is "based on the Codex Standards". Codex, in turn, sets out exposure guidelines for food "based on an intervention exemption level of 1 mSv in a year". In 2015 and 2016, Korea issued explanatory materials that describe the "dose limit for general public (except for medical purposes)" as 1 mSv/year. Finally, in its submissions to the Panel, Korea has clarified that "[t]he *1 mSv/year radiation exposure limit* is a Codex benchmark that *Korea has adopted*, in order to *quantify the highest radiation exposure it is willing to accept*". Korea's characterization echoes the *SPS Agreement*, which defines an ALOP as a Member's "*acceptable* level of risk".

[81] Japan's SWS, para. 194.
[82] Japan's SWS, paras. 211-212.
[83] Japan's FWS, para. 61.
[84] Japan's FWS, paras. 318-328.
[85] Japan's FWS, paras. 337-339; Japan's FOS, paras. 56-57; Japan's SWS, paras. 220-234; Japan's SOS, paras. 53-65; Japan's comments on Korea's response to Panel Questions 140 144, paras. 249-263, 271-276.

91. The Appellate Body has explained that a Member's consistent expression of its ALOP, made outside the context of dispute settlement proceedings, should be accorded significant weight. Thus, Korea's repeated statements, over several years prior to this dispute, to the effect that its ALOP is 1 mSv/year, deserve significant weight.

92. Nonetheless, Korea argues before the Panel that its ALOP is *not* 1 mSv/year, but is instead "as low as reasonably achievable" ("ALARA").

93. In response to Panel questions, the ICRP clarified that ALARA "is a *process*, rather than an endpoint", and that it refers to a "culture … a reference framework, a state of mind, and attitude". The ALARA principle, therefore, cannot be an ALOP. Annex A(5) to the *SPS Agreement* defines an ALOP as a "*level* of protection". The word "level" indicates a "position" on a "scale" in respect of an extent or amount. ALARA does not identify a particular "level" of protection, but describes a "process" for "optimization" of protection.

94. Moreover, under Article 5.6, the "level" of protection – whether expressed qualitatively or quantitatively – must be capable of serving as a *benchmark* or *point of comparison* for assessing necessity. According to the Appellate Body, an ALOP cannot be determined "with such vagueness or equivocation that the application of the relevant provisions of the SPS Agreement … becomes impossible". Thus, while Members can set their own ALOP, it cannot be so imprecise that it is unable to serve as a benchmark.

95. While ALARA cannot be an ALOP, Japan does not question that, in Korea, the ALARA principle serves its intended purpose as a process for optimizing protection. Korea's commitment to the ALARA principle does not, however, alter its maximum exposure level of 1 mSv/year, which it has explicitly identified as "*the highest radiation exposure it is willing to accept*", or its ALOP.

96. Finally, Korea also argues that its ALOP is to maintain radionuclides in food at levels that exist in the "ordinary environment". The Panel-appointed experts confirmed that the notion of "ordinary" background radiation levels is not a recognized scientific concept. Indeed, "ordinary" background radiation levels differ significantly even within a country, making the concept arbitrary, variable, and unsuited to serve as an ALOP. In any event, the experts confirmed that an annual dose limit of 1 mSv/year for exposure to man-made radiation in food does not add meaningfully to the background doses received.[86]

b. Cesium testing is a less trade-restrictive alternative

97. As a less trade-restrictive alternative ("LTRA") to both Korea's import bans for the 28 fisheries products and Korea's at-the-border additional testing for Japanese food products, Japan has proposed that Korea test for cesium to ensure that Japanese food products contain no more than 100 Bq/kg of cesium.[87]

98. Korea disputes that cesium testing alone could constitute a proper "alternative" to the at-the-border additional testing requirements; to Korea, cesium testing is not an "alternative" to, or "different" from, the measure currently applied.[88]

99. Korea errs. To understand whether an LTRA is "alternative" to, and "different" from, a challenged measure, it is necessary to identify the *features of* the challenged measure, and to compare them with the features of the LTRA. In Korea, the requirement to test for additional radionuclides is triggered where cesium levels are between 0.5 Bq/kg and 100 Bq/kg. As a result, cesium testing is an integral element of additional testing, because the requirement to undertake additional testing depends on the results of a prior cesium test. Replacing a measure that combines, in an integrated fashion, cesium testing and additional testing, with one part of that measure – cesium testing alone – is, by virtue of the omission of additional testing, an LTRA that is "alternative" to, and "different" from, the existing measure. Put simply, a measure comprising element A is different from a measure comprising elements A *and* B.

[86] Compilation of experts' replies, paras. 3.12, 3.15; Transcript of Panel meeting with the experts, paras. 2.7, 2.30, 2.33.

[87] Japan's FWS, paras. 314, 333, 450; Japan's SWS, para. 219.

[88] Korea does not dispute that cesium testing is properly an alternative measure to its import bans.

100. Korea's reliance on the Appellate Body Report in *Brazil – Tyres* is inapposite. In that dispute, the EC challenged an element of a set of measures that *each contributed independently* to the achievement of the policy objective at issue. The EC proposed eliminating some elements of the set of measures, without replacing them with other measures that made an *equivalent independent contribution to the objective*. Removing a single element of *this* set of measures necessarily reduced the overall contribution from the remaining measures to the policy objective, since each element contributed independently.

101. In contrast, and as discussed in the next section, when cesium levels in Japanese food products are below 100 Bq/kg, additional testing makes *no independent contribution* to Korea's ALOP, and is, thus, redundant; additional testing is simply not needed to protect the public health objective underlying Korea's ALOP of 1 mSv/year. Unlike in *Brazil – Tyres*, proposing to remove additional testing does not undermine the achievement of Korea's ALOP, because it removes a redundant element of the measure.

102. As a practical matter, the fact that cesium testing alone is "different" from the existing measure is evident to Japan's fishermen and farmers, because elimination of the additional testing requirements would significantly enhance competitive opportunities for their products.

103. The Panel should, therefore, reject this attempt by Korea to evade scrutiny of its measures, and find that cesium testing properly constitutes "another measure", within the meaning of Article 5.6.[89]

c. Testing to ensure that cesium levels remain below 100 Bq/kg is an alternative measure that achieves Korea's ALOP

104. As just alluded to, cesium testing alone achieves Korea's ALOP of ensuring that the dose exposure of Korean consumers from radionuclides in food remains below 1 mSv/year. Indeed, food products from Japan, with cesium levels below 100 Bq/kg, pose no risk that dose exposure of Korean consumers would exceed Korea's ALOP of 1 mSv/year.[90]

105. Japan's evidence for this factual proposition rests on two main approaches. *First*, Japan has relied on evidence from the derivation of its own 100 Bq/kg cesium threshold, which is designed to ensure, based on conservative assumptions, that exposure of Japan's population to radionuclides in food remains below 1 mSv/year. *Second*, numerous test results for cesium and other radionuclides (in particular strontium, the only other radionuclide that makes more than a negligible contribution to the overall dose) show that, where cesium is below 100 Bq/kg, Japanese food products pose no risk that dose exposure for consumers from cesium and other radionuclides in food would exceed 1 mSv/year.

106. Concerning the *first* of these approaches, Japan's calculations of its 100 Bq/kg threshold follow a standard methodology, and are scientifically sound. Japan's adoption of a cesium threshold reflects the dominant role of cesium in releases and contamination from the FDNPP accident, both in terms of activity levels and dose contribution. Based on measurements of the relationship between cesium and the other radionuclides, Japan calculated a cesium threshold designed to ensure that the combined exposure from cesium *and* the additional radionuclides would not exceed 1 mSv/year. In undertaking its calculation, Japan used a formula provided by Codex, with the addition of a number of assumptions that are far more conservative than dictated by Codex: (i) Japan assumed that *50 percent* of food contains the relevant radionuclides at the threshold level, whereas Codex assumes just 10 percent; (ii) compared to Codex's assumption, Japan assumed that larger amounts of foods are consumed per year; and, (iii) rather than regulating groups of radionuclides in isolation, Japan took into account the quantitative relationships (or ratios) between the relevant radionuclides. Japan thereby calculated a threshold for cesium that ensures that the *combined* exposure from all relevant radionuclides does not exceed 1 mSv/year. Whereas Codex's cesium threshold is 1000 Bq/kg, Japan calculated a 100 Bq/kg cesium threshold.

[89] Japan's SCS, paras. 23-27; Japan's response to Panel Question 146, paras. 295-320.

[90] Japan's FWS, paras. 340-394, 451-452; Japan's FOS, paras. 58-68; Japan's responses to Panel Questions 54, 61, paras. 244-277, 285-300; Japan's SWS, paras. 235-289; Japan's comments on experts' responses, paras. 29-65; Japan's response to Panel Question 148, paras. 321-342; Japan's comments on Korea's response to Panel Question 115, paras. 110-113.

107. The Panel-appointed experts unequivocally confirmed Japan's calculations as supporting the proposition that food products from Japan, with cesium levels below 100 Bq/kg, pose no risk that dose exposure of Korean consumers would exceed Korea's ALOP of 1 mSv/year. The experts described Japan's calculation and the conclusions drawn as "standard", "straightforward", "appropriate", "adequate", and "scientifically supported".[91]

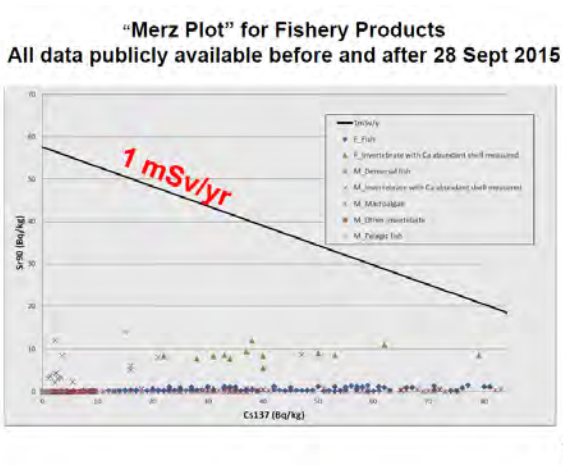
108. Although Korea disagrees, and argues that *Japan's* calculation of *Japan's* cesium threshold is flawed, Korea has steadfastly declined to provide *Korea's* calculation of *Korea's* own thresholds for cesium and other radionuclides. In any event, Japan has demonstrated that Korea is wrong in asserting that Japan erroneously relied on a fixed ratio of cesium to the additional radionuclides, and applied a so-called "scaling factor method". Instead, Japan appropriately relied on estimated relationships that reflect an *average* spread, over *an entire year's worth of food*, during which each meal could have a very different Cs:Sr ratio, without that variability calling into question Japan's conservative calculation.

109. Concerning the *second* approach identified in paragraph 105, Japan relied on data from actual measurements of radionuclide activity levels in food and resulting dose exposure to demonstrate that food products from Japan, with cesium levels below 100 Bq/kg, pose no risk that dose exposure of Korean consumers could exceed Korea's ALOP of 1 mSv/year.

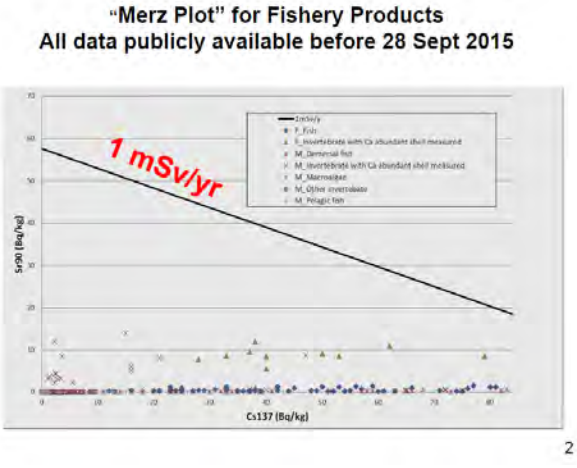
110. Japan, and its experts Professor Brenner and Dr. Buesseler, adopted an approach that considered (i) the source term (i.e., the radioactivity released from the FDNPP); (ii) contamination levels in the environment, including in seawater and sea sediment; (iii) contamination levels in food products, including fisheries products; and (iv) resulting dose exposure for humans from the consumption of Japanese food products. Japan and its experts also considered available scientific knowledge regarding the behaviour of radionuclides in the environment and in food. The Panel-appointed experts confirmed this holistic approach.[92]

111. Adopting a framework developed by Merz et al (2015), and proposed by Korea, Professor Brenner and Dr. Buesseler initially demonstrated compliance of Japanese food products with Korea's ALOP by plotting cesium levels in individual samples against a strontium-to-cesium ratio from the same sample. Following criticism from Korea, and suggestions from the Panel-appointed experts, Japan's experts then established the same conclusions, using a modified Merz plot based on *absolute* cesium and strontium levels.

112. As shown below, Professor Brenner and Dr. Buesseler analysed, on the basis of these modified Merz plots, (i) fisheries products caught largely in Fukushima prefecture, and (ii) duplicate meals collected from consumers in Fukushima prefecture. Professor Brenner and Dr. Buesseler did so based on evidence (i) pertaining to the situation at Panel establishment on 28 September 2015, and (ii) during the pendency of the Panel proceedings. At either point in time, and *even if that same fish or meal were eaten for an entire year*, the graphs show no test results where exposure levels would be anywhere close to 1 mSv/year.

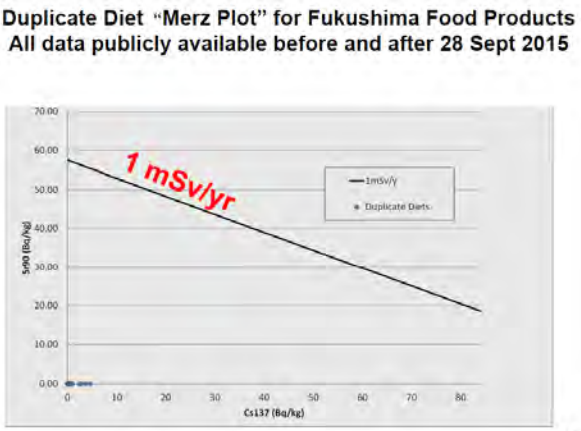


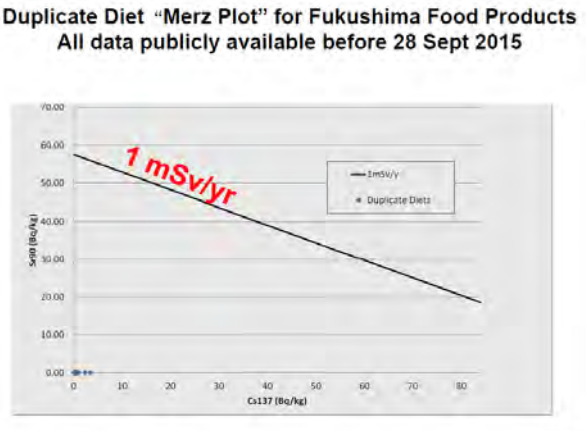
1



2

[91] Compilation of Panel experts' replies, paras. 5.27, 5.36, 5.18. 5.15, 5.21 and 5.26.
[92] Transcript of Panel meeting with experts, paras. 1.148, 1.151, 3.176, 3.177, 3.180.





113. Professor Brenner and Dr. Buesseler also performed the same analyses for every other dataset relating to Japan's cesium and strontium testing schemes, *with identical conclusions*.

114. Moreover, Japan's experts calculated total annual dose exposure, using every available data set. For example, they determined that the dose exposure from average meals consumed in Fukushima prefecture in 2015 was 0.004 mSv, significantly below 1 mSv/year. Given that only 0.37 percent of Korean food consumption is of Japanese origin, dose exposure for Korean consumers would be 1/250th of 0.004 mSv/year, and thus negligible.

115. While Korea has highlighted small differences between Japanese and Korean diets – including the consumption in Korea of whole fish, including bones and shells – these differences are not meaningful enough to affect Japan's conclusions. Indeed, with respect to fisheries products, Japan calculated dose exposure, assuming, conservatively, that *all* ^{90}Sr contained in bones and shells is consumed. Japan, thereby, overestimated dose exposure from strontium bound in bones and shells that are *not* consumed.

116. The Panel-appointed experts supported not only the holistic approach adopted by Japan and its experts, but also the adequacy of the methodologies employed and the sufficiency of the evidence, including the number of test results. Moreover, the Panel-appointed experts provided independent calculations, using the evidence submitted by Japan. Like Japan, the Panel-appointed experts concluded that food products from Japan, with cesium levels below 100 Bq/kg, pose no risk that dose exposure of Korean consumers could exceed Korea's ALOP of 1 mSv/year.[93]

2. Japan's alternative measure is significantly less trade restrictive

a. *Cesium testing is significantly less trade-restrictive than Korea's import ban*

117. The challenged measures involve bans on the import of fisheries products. The alternative measure – i.e., testing to verify that cesium levels do not exceed Korea's 100 Bq/kg threshold – is significantly less trade restrictive than an outright ban.[94]

b. *Cesium testing is significantly less trade restrictive than Korea's pre-market additional testing requirements*

118. Korea's pre-market additional testing requirements are trade restrictive because: (i) the duration of pre-market additional testing for the other Codex radionuclides means that exporting to Korea takes *additional time* beyond the time required for cesium testing; (ii) the conduct of pre-market additional testing for the additional radionuclides imposes *increased costs* on export to Korea, beyond the costs incurred for cesium testing; and, (iii) pre-market additional testing must be conducted *in Japan*. The time and cost factors are each sufficient, *on their own*, to demonstrate that cesium testing is significantly less trade restrictive than the pre-market

[93] Compilation of Panel experts' replies, responses to Panel Questions 37, 77, 90.
[94] Japan's FWS, para. 395; Japan's SWS, para. 290.

additional testing requirements.[95] It is not surprising that Korea itself describes its additional testing requirements as, "in effect", "a total import ban".

119. In contrast to Korea's pre-market additional testing requirements, cesium testing can be completed in a short period of time, is inexpensive, and *is already routinely carried out by Korea* at the border on all food imported from Japan. Thus, none of the increased time and expense associated with Korea's additional testing would arise under Japan's alternative measure.[96]

i. Time required for pre-market additional testing

120. Testing for additional radionuclides such as strontium pursuant to Korea's pre-market additional testing requirements involves a complex laboratory procedure that takes considerable time.[97] For example, cesium and strontium testing differ because cesium is a Gamma emitter, and strontium is a Beta emitter. With Gamma emitters, little or no sample preparation is required for cesium testing. In contrast, testing for Beta emitters requires a two-step process: *first*, the radionuclide must be extracted into a form that can be measured; and, *second*, the measurement must be performed.[98]

121. Korea acknowledges that "[t]esting for other radionuclides takes more than 6 weeks", and concedes that more time is required to carry out strontium testing as compared to cesium testing.[99] The Panel-appointed experts agree that strontium testing is more complex and time consuming than cesium testing.[100]

ii. Costs involved in pre-market additional testing

122. Undertaking the pre-market additional testing is also more costly than cesium testing. The costs of Korea's additional testing amount to *roughly half of the average consignment value of fisheries products* (USD 16,000) exported from Japan to Korea.[101] This is equivalent to an additional 50% tariff on Japanese food products.

iii. Shipping products back to Japan

123. In the only affirmative indication of the required location for at-the-border additional testing, Korea states that it requires additional testing to take place *in Japan*.[102] Requiring that food be shipped back to Japan for at-the-border additional testing lengthens the time for the testing, as well as the costs associated with that testing.[103]

124. Without support, Korea asserts that pre-market additional testing can be conducted in Korea by testing institutes authorized by Japan to ensure consistency with *Japanese* food safety regulations. Japan is not aware of any provision of Korean law that would permit *Japan* to authorize testing institutes to ensure consistency with *Korean* regulations on radionuclide content in food; nor is Japan aware of the process to follow under Korean law for Japan to deliver such authorizations.[104]

3. Japan's alternative measure is available and feasible

125. Korea already undertakes routine cesium testing on all Japanese imports. Thus, Japan's alternative measure is self-evidently reasonably available and technically and economically feasible.

[95] Japan's SOS, para. 71.
[96] Japan's SWS, para. 293.
[97] Japan's SOS, para. 69.
[98] Compilation of Panel experts' replies, paras. 5.85 and 5.86.
[99] Japan's SOS, para. 69.
[100] Compilation of experts' replies, response to Panel Question 87.
[101] Japan's SWS, para. 299; Japan's SOS, para. 69.
[102] Japan's SWS, para. 301.
[103] Japan's SWS, paras. 301-302.
[104] Japan's SWS, para. 303.

IX. ARTICLE 7 AND ANNEX B OF THE *SPS AGREEMENT*

A. Korea's failure to publish the import bans and the pre-market additional testing requirements, in violation of Article 7 and Annex B(1)

1. A Member must promptly publish its SPS regulations, and Korea has failed to do so

126. Annex B(1) requires the publication of SPS regulations in their entirety. To begin, Annex B(1) explicitly states that a Member must publish its SPS "*regulations*". Footnote 5 clarifies that SPS "regulations" are "sanitary and phytosanitary measures such as laws, decrees or ordinances". As such, it is the *regulation* itself that must be published, and not a summary, synopsis, or other description of the text.

127. This understanding is supported by relevant context, including the contrast between Annex B(1) and Annex B(5)(a). Whereas the former requires the publication of the SPS regulation itself, the latter merely requires the publication of a "notice" detailing a proposed SPS measure. Once the SPS measure is "adopted", and the final measure is available, Annex B(1) states that the SPS "regulation" must be published. The drafters' choice of the word "regulation" in Annex B(1), as opposed to "notice" or "summary", must be given effect.

128. Other terms in Annex B(1) provide further context for this interpretation. Annex B(1) requires that publication be sufficient to enable Members to become "acquainted" with the SPS regulation. Without publication of the SPS regulation itself, Members are unable to determine whether they are, in fact, acquainted with the regulation, since they are unable to ascertain if pertinent information from the SPS regulation has been omitted in the publication.

129. Korea has published a number of press releases announcing the introduction of its import bans and its additional testing requirements. However, the *content* of these press releases is inadequate, as they fail to provide a vast amount of important information. Since Korea's press releases do not publish the full text of the measures, Korea has acted inconsistently with Article 7 and Annex B(1).[105]

2. The publication must enable a Member to become "acquainted with" the SPS regulation, and Korea's press releases fail to do so

130. Even if Annex B(1) did not require the publication by Members of the full text of an SPS regulation, Korea's press releases do not allow interested Members to become "acquainted" with its SPS regulations. The phrase "acquainted with" means "familiar *with* a matter, state, etc., esp. to an extensive degree". As such, publication must be accomplished in a manner that allows interested Members to become "familiar" to "an *extensive* degree" with the regulatory treatment to which their goods will be subject under the SPS regulation.

131. The word "*extensive*" highlights that the required degree of familiarity is considerable. Based on the publication, an interested Member must be able to grasp: in what circumstances the regulation applies, including the product scope and trigger conditions (e.g., rules of origin or contamination thresholds governing whether the rules apply); how its goods will be treated when the rules apply; what substantive and procedural requirements its exports and exporters are required to meet; and, how its exporters may meet those requirements. The case law considering similar obligations under Article X:1 of the GATT 1994 confirms that, to become acquainted with a measure, publication must allow interested parties to gain "more or less complete" knowledge of what is required for goods to enter the relevant market.

132. The press releases announcing the challenged Korean measures fall far short of providing sufficiently detailed and comprehensive information to allow interested Members to gain "extensive" or "more or less complete" familiarity and knowledge of what is required for their goods to enter the Korean market. Specifically, the press releases introducing the measures fail to specify information about, inter alia: product scope; applicable rules of origin; applicable thresholds to trigger additional testing; the additional radionuclides for which additional testing is

[105] Japan's FWS, paras. 164-178; Japan's SWS, paras. 310-321.

required; where the additional testing should take place; and, the methodology or conditions for the testing. The press releases do not even provide the degree of information required by Annex B(5) for *proposed* SPS regulations.

133. Korea admits that the press releases do not provide sufficient information to enable interested parties to become acquainted with its regulations. Korea has said that Korean enforcement authorities are provided with additional information – not published in the press releases – so that they can understand what is required under the measures, and how they are to be applied. Regrettably, Japan and its exporters were not provided with this additional information so that they could also become acquainted with the measures.

134. Korea argues that it should be exempted from the requirement to publish sufficient details about its SPS regulations because of the emergency situation arising from the FDNPP accident. However, nothing in Annex B absolves a Member from the obligation to *publish* an emergency measure. In any event, Korea has failed, in the many years since the FDNPP accident and the adoption of its measures, to offer publication that is sufficiently detailed and comprehensive to enable Members to become acquainted with the regulation.[106]

3. An SPS regulation must be published through a medium that allows an interested Member to locate it, both on adoption, and through the life of the regulation, and Korea has failed to do so

135. Annex B(1) requires publication of an SPS measure through a medium that permits Members readily to locate and identify the measure, when first published, and over the lifetime of the measure. Members and their economic operators cannot be expected to trawl through archives of press releases, across any number of government ministry websites, in search of SPS measures.

136. Korea has published multiple press releases concerning the same measure, on multiple government websites, in varying locations on each website, and with each press release offering different, but always very limited, information about the measure. While use of the internet to publish a measure in a *specifically designated location* could encourage transparency, the mere fact of publishing *anywhere and anyhow* on the internet does not exhaust the obligation under Annex B(1). Korea's approach reduces Annex B(1) to inutility, by relieving Korea of the publication requirement under Annex B(1), and instead placing the burden on other Members and their economic operators to search for scattered information on government websites, in hopes of becoming acquainted with the measure.[107]

B. Korea's SPS Enquiry Point failed to provide Japan with copies of Korea's measures and to respond fully to the reasonable questions posed by Japan, in contravention of Article 7 and Annex B(3)

1. An SPS enquiry point is required to provide full responses to all reasonable questions, and Korea's Enquiry Point failed to do so

137. Annex B(3) requires the provision, by an SPS enquiry point, of meaningful responses to reasonable questions posed by another Member. A meaningful response is a response that is both substantively adequate, and that addresses the question in its entirety. Annex B(3) also requires a Member to provide any "relevant" documents regarding, inter alia, the SPS regulations it has adopted. The word "relevant" means "legally sufficient, adequate, or pertinent"; "connected with the matter in hand; closely relating to the subject at hand". Thus, like any documents provided, responses to reasonable questions must be adequate in light of the question posed. An interpretation that reduces Annex B(3) to a *procedural* obligation to provide *a* or *some* response, irrespective of the *substantive content* of its response, would allow Members to circumvent their obligations under Annex B(3).

[106] Japan's FWS, paras. 163-178; Japan's SWS, paras. 322-342; Japan's response to Panel Question 156, paras. 346-361.

[107] Japan's SWS, paras. 343-353; Japan's comment to Korea's response to Panel Question 114, paras. 56-62.

138. Japan posed a series of questions to Korea's SPS Enquiry Point; for all but one of its questions, Japan either received no response, or a substantively inadequate response. As such, Korea acted inconsistently with Annex B(3).

139. Korea argues that a single instance in which an SPS enquiry point fails to provide a (substantively adequate) response does not trigger a violation of Annex B(3). Korea errs. Annex B(3) requires that an SPS enquiry point provide a substantively adequate and complete response to "*all*" reasonable questions posed by interested Members. An SPS enquiry point cannot pick and choose to which questions it wishes to respond. In any event, Japan has demonstrated much more than "a single instance" of an inadequate response.[108]

2. An SPS enquiry point is required to provide relevant documents, and Korea's Enquiry Point failed to do so

140. Annex B(3) requires a Member to provide any "relevant" documents regarding, inter alia, SPS regulations it has adopted and that are the focus of questions from another Member. The word "relevant" clarifies that Annex B(3) requires a Member to provide documents that are pertinent and relate to matters raised in reasonable questions posed. While the refusal to provide relevant documents is inconsistent with Article B(3), so, too, is the provision of documents that are *not* pertinent or relating to the matters raised in those questions. Burying documents that *are* relevant to the question posed, amongst voluminous documents that are *not* relevant, is inconsistent with Annex B(3), because the receiving Member is *unable to determine* which of the documents *are* relevant to its questions, and which are *not*.

141. Japan requested a number of different categories of documents from Korea. In response, Korea's Enquiry Point provided 10,000 pages of documents in Korean language, without indicating which parts of those 10,000 pages were relevant to Japan's requests, and failed to provide certain categories of documents altogether. Japan subsequently asked Korea's Enquiry Point to indicate which parts of the 10,000 pages were relevant, and also reiterated its request for documents not provided. Korea's Enquiry Point declined to respond. Korea has, therefore, acted inconsistently with Annex B(3).[109]

X. THE ADDITIONAL TESTING REQUIREMENTS ARE INCONSISTENT WITH ARTICLE 8 AND ANNEX C OF THE *SPS AGREEMENT*

142. Japan raises a series of claims under Article 8 and Annex C, which apply to "control, inspection and approval procedures". Japan first addresses the proper scope of the phrase "control, inspection and approval procedures", before turning to its claims under paragraphs 1(a), (c), (e) and (g) of Annex C.

A. The pre-market additional testing requirements are subject to Article 8 and Annex C(1) of the *SPS Agreement*

143. Article 8 provides that "Members shall observe the provisions of Annex C in the operation of control, inspection and approval procedures". Annex C is, in turn, entitled "Control, Inspection and Approval Procedures", and the *chapeau* to Annex C(1) states that Annex C applies to "any procedure to check and ensure the fulfillment of [SPS] measures". A threshold issue under Article 8 and Annex C is, therefore, establishing that the measures at issue involve "*procedures*" that are for "*control, inspection and approval*".

144. *First*, a "procedure" is defined as "[t]he fact or manner of proceeding with *any* action, or in *any* circumstance or situation". Thus, a "procedure" refers to the way or manner in which an action or situation is processed. The *chapeau* to Annex C states that Annex C(1) applies to "*any* procedure". The breadth of the provision is confirmed by Article 8 and footnote 7 to Annex C, which both state that control, inspection and approval procedures "*includ[e]*" a variety of measures, thus confirming that the scope of the obligations is not confined to the measures specifically enumerated.

[108] Japan's FWS, paras. 183-193; Japan's SWS, paras. 355-371.
[109] Japan's SWS, paras. 372-385; Japan's response to Panel Question 18, paras. 98-101.

145. Thus, Korea errs in arguing that the scope of Article 8 and Annex C is limited to those "procedures" that "prescribe a 'specific course of action' or dictate a process" for how the procedure at issue is to be pursued. Nothing in the definition of "procedures", or the text of Article 8 and Annex C, sets out a minimum requirement of *specificity* or *formality* for a measure to qualify as a "procedure".

146. *Second*, for procedures to be covered by Article 8 and Annex C, they must be *control, inspection or approval* procedures, i.e., they must be procedures that "check and verify"; "look closely or carefully [into]", or "corroborate" or "confirm", in this case the conformity of goods with SPS measures. Footnote 7 to Annex C clarifies that this includes procedures for *sampling*, *testing* and *certification*. Annex C(1) confirms that the "control, inspection or approval procedures" covered by Article 8 and Annex C are those that "check and ensure the fulfillment of" an SPS measure.[110]

147. On the facts, Korea's additional testing requirements fall within the scope of Article 8 and Annex C. Korea's pre-market additional testing and certification requirements are explicitly covered, under footnote 7 to Annex C, as "*procedures for … testing and certification*". Moreover, the pre-market additional testing requirements are "procedures", within the ordinary meaning of the term, as they address the way or manner in which an action or situation is processed, namely the testing and certification requirement that must be met before food from Japan can access the Korean market. Finally, the pre-market additional testing requirements are procedures ostensibly taken by Korea to check fulfillment of its thresholds for radionuclide content in food and, hence, its ALOP of 1 mSv/year.[111]

B. Annex C(1) permits of "as such" challenges

148. Korea erroneously suggests that Annex C(1) admits solely of "as applied" challenges against "specific instances" in which procedures are implemented. Korea errs. Annex C(1) imposes obligations on a general "procedure to check and ensure the fulfilment of sanitary or phytosanitary measures" – i.e., on a measure "as such" – as well as on individual applications of that procedure. Nothing in Annex C(1) suggests that the obligations are limited to the application of a "procedure" in an individual instance.[112]

C. The pre-market additional testing requirements are undertaken in a less favourable manner for imported products than for like domestic products, in violation of Annex C(1)(a)

149. Annex C(1)(a) imposes a non-discrimination obligation, providing that control, inspection, and approval procedures must be undertaken "in no less favourable manner for imported products than for like domestic products". Korea's pre-market additional testing requirements fail to comply with this obligation.

1. Interpretation of Annex C(1)(a)

150. To establish an inconsistency with Annex C(1)(a), a complaining Member must establish that: (i) imported products and domestic products are "like"; and (ii) that the challenged procedures are undertaken in a "less favourable manner" for imported products than for domestic products.

151. It is well established that the "likeness" of imported and domestic products can be presumed where a measure distinguishes between products solely on the basis of origin, without the need to examine the criteria typically reviewed in a likeness assessment. To determine whether the challenged procedure is undertaken in a manner less favourable to imported products, context from Article III of GATT 1994 suggests that the relevant question is whether the procedures are

[110] Japan's SWS, paras. 388-400.
[111] Japan's SWS, paras. 401-408.
[112] Japan's response to Panel Question 157; Japan's comment on Korea's response to Panel Question 157.

undertaken in a manner that "modifies the conditions of competition" to the detriment of imported products.[113]

2. Factual arguments that Korea's pre-market additional testing requirements are inconsistent with Annex C(1)(a)

152. Korea acknowledges that the pre-market additional testing requirements apply exclusively to Japanese products. Accordingly, Japanese products subject to the pre-market additional testing requirements are presumed to be "like" domestic Korean products.

153. Moreover, the pre-market additional testing requirements significantly impair competitive opportunities for Japanese products by, inter alia, imposing increased testing, storage and transportation costs, in addition to considerably delaying market access. Korea has acknowledged that these consequences make the pre-market additional testing requirements tantamount to a ban. Although Korea contends that Japanese products are not treated less favourably than Korean products because Korean products are subject to point-of-sale additional testing, Japan has elsewhere demonstrated that Korea's point-of-sale additional testing is different from the pre-market additional testing requirements in important respects. Finally, in stating its Article 2.3 claim, Japan has established that the additional testing requirements involve arbitrary and unjustifiable discrimination.[114]

D. The pre-market additional testing requirements are information requirements not limited to what is necessary for appropriate control, inspection and approval procedures, in violation of Annex C(1)(c)

154. Korea's pre-market additional testing requirements and the associated certification requirements are information requirements not limited to what is necessary for appropriate control, inspection and approval procedures, in violation of Annex C(1)(c).

1. Interpretation of Annex C(1)(c)

155. An "information requirement", under Annex C(1)(c), is a demand for knowledge pertinent to the application of an SPS measure. Korea agrees, stating that an information requirement is "a requirement to produce information that helps ensure compliance or 'ensure the fulfillment' of an SPS measure".

156. Article 5.6 of the *SPS Agreement* offers relevant context for the interpretation of the word "necessary". A procedure is not necessary for purposes of Annex C(1)(c) if there is an alternative measure that also achieves a Member's ALOP and that is significantly less trade restrictive and economically and technically feasible.[115]

2. Factual arguments that Korea's pre-market additional testing requirements are inconsistent with Annex C(1)(c)

157. Korea's pre-market additional testing requirements require that certain facts be certified and communicated, namely the presence and levels of certain man-made radionuclides in food from Japan. This information is sought in connection with the control, inspection and approval of Japanese food for entry to the Korean market.

158. Moreover, the information requirement is not "necessary". Japan has demonstrated that testing Japanese food products to ensure that cesium activity levels are under 100 Bq/kg ensures that Korean consumers' exposure to man-made radionuclides does not exceed Korea's ALOP of 1 mSv/year. That the information requirement is not "necessary" is also confirmed by the fact that Korea requests the additional information solely for Japanese food; were the information

[113] Japan's SWS, paras. 411-422.
[114] Japan's FWS, paras. 469-470; Japan's SWS, paras. 423-436.
[115] Japan's SWS, paras. 438-440.

necessary, Korea would impose similar requirements on food of other origins, which Japan has demonstrated pose similar risks of containing radionuclides.[116]

E. The pre-market additional testing of individual specimens is not limited to what is reasonable and necessary, in violation of Annex C(1)(e)

159. Korea's pre-market additional testing of individual specimens is not limited to what is reasonable and necessary, in contravention of Annex C(1)(e).

1. Interpretation of Annex C(1)(e)

160. The word "requirements" refers to "[s]omething called for or demanded; a condition which must be complied with". An individual "specimen" is a *sample* taken from a larger consignment, such that Annex C(1)(e) covers measures imposing control, inspection and approval procedures on *samples*, rather than on an entire consignment.

161. The examination whether requirements are "necessary" requires a panel to assess whether there is an alternative measure that would also achieve the responding Member's ALOP, and that is significantly less trade restrictive and economically and technically feasible. Moreover, the word "reasonable" has been interpreted to mean "something [that] is `not irrational, absurd or ridiculous'", and that "is appropriate or suitable to the circumstances or purpose". Requirements for control, inspection and approval of individual specimens must be *both* "reasonable and necessary".[117]

2. Factual arguments that Korea's pre-market additional testing requirements are inconsistent with Annex C(1)(e)

162. Every consignment of Japanese food exported to Korea is sampled and subject to at-the-border cesium testing. Every sample in which cesium is detected is then subjected to at-the-border additional testing for the other radionuclides. As such, *all* "individual specimens" in which cesium is detected are subjected to the at-the-border additional testing requirements, ostensibly to control compliance with Korea's tolerance limits for radionuclides in food. In contrast, non-Japanese food imports are subject only to random at-the-border sampling for cesium, and no at-the-border additional testing.

163. As established above with respect to Annex C(1)(c), Korea's pre-market additional testing requirements are not "necessary" to secure compliance with Korea's 1 mSv/year ALOP. Moreover, at-the-border additional testing must be undertaken in Japan, which requires storage of the consignment at the border while a sample is shipped back to Japan to undergo additional testing. Even if testing were to take place in Korea, the delays and costs attendant to the additional testing requirements are unreasonable, particularly in the circumstance of perishable products. Accordingly, the pre-market additional testing requirements are not appropriate to the circumstances, and are, therefore, not "reasonable".[118]

F. The pre-market additional testing requirements do not use the same criteria for the siting of facilities and the selection of samples for imported products as are used for domestic products, in violation of Annex C(1)(g)

164. Korea's pre-market additional testing requirements do not apply the same criteria for the siting of test facilities and the selection of samples for imported products as they do for domestic products, in contravention of Annex C(1)(g).

1. Interpretation of Annex C(1)(g)

165. The term "siting of facilities" refers to the location of the facilities where pre-market additional testing is performed; the term "selection of samples", in turn, refers to a process whereby authorities select, for testing, a sub-part of a larger group of products (e.g., a

[116] Japan's SWS, paras. 441-448.
[117] Japan's FWS, para. 479; Japan's SWS, paras. 450-456.
[118] Japan's FWS, para. 480; Japan's SWS, paras. 452, 457-464.

consignment), for the purpose of enabling or verifying conclusions about relevant SPS-related qualities of the larger groups of products. While Members are, under Annex C(1)(g), in principle free to choose the sampling criteria and the criteria for the siting of testing facilities they consider appropriate, in so doing, they are required to use "the same criteria" for imported products as they use for domestic products.[119]

2. Japan's arguments that Korea's pre-market additional testing requirements are inconsistent with Annex C(1)(g)

166. Korea does not apply the same *sample selection criteria* for Japanese and Korean products. Indeed, Korea's pre-market additional testing requirements are applied exclusively to Japanese products, and do not apply to Korean products at all. Japan accepts that Korea applies the same sampling criteria for *point-of-sale* additional testing, regardless of origin. However, while domestic food products are potentially subject to additional testing only *once*, at point-of-sale, Japanese food products are subject to additional testing *twice* – pre-market and potentially at point-of-sale. This difference in treatment amounts to the application of different sampling criteria.

167. In any event, even were the Panel to compare sampling criteria under Korea's pre-market and point-of-sale schemes, the applicable sampling criteria remain dissimilar. The requirement that additional testing take place for food products in which cesium at or above 1 Bq/kg is found applies, under the pre-market additional testing measure, *to all consignments of all Japanese food imports*, while additional testing under the point-of-sale measure applies *only to those products that happen to be randomly sampled, from the sub-categories of products that Korea subjects to point-of-sale sampling in the first place*.

168. Moreover, under pre-market additional testing, Korea imposes more burdensome *siting requirements* on Japanese products than are imposed on Korean products, because Japanese products must be returned to Japan to conduct additional testing. To the extent that Korean food products are subject to point-of-sale additional testing, they are tested in the country of destination for sale, not in another country. Thus, Korea does not impose the "same criteria" for siting requirements on imported and domestic products, because point-of-sale additional testing can take place without shipping the product to another country.[120]

XI. CONCLUSION AND REQUEST FOR RELIEF

169. Japan respectfully requests the Panel to find that:

- with respect to the import bans and the additional testing requirements, Korea failed to comply with the transparency requirements in Article 7 and paragraphs 1 and 3 of Annex B to the *SPS Agreement*;
- Korea's import bans on the 28 fisheries products and Korea's additional testing requirements are inconsistent with Articles 2.3 and 5.6 of the *SPS Agreement*.
- Korea's additional testing requirements are inconsistent with Article 8 and paragraphs 1(a), 1(c), 1(e) and 1(g) of Annex C to the *SPS Agreement*.

170. Japan respectfully requests the Panel to recommend to the Dispute Settlement Body that Korea be required to bring its import bans and additional testing requirements into conformity with the covered agreements.

[119] Japan's SWS, paras. 466-471.

[120] Japan's FWS, paras. 485-489; Japan's SWS, paras. 472-478; Japan's comments on Korea's response to Panel Question 159.

ANNEX B-2

INTEGRATED EXECUTIVE SUMMARY OF THE ARGUMENTS OF KOREA

I. INTRODUCTION

1. Korea is justified in taking provisional measures under Article 5.7 of the SPS Agreement in response to one of the most severe environmental disasters of the century, which is continuing to cause significant contamination of the environment. As Korea's submissions in this dispute have demonstrated, Japan has failed to sustain its burden of proof with respect to all of its claims. Specifically, Japan has not shown that Korea's targeted SPS measures taken in response to the radioactive contamination stemming from the Fukushima Dai-ichi Nuclear Power Plant (FDNPP) are inconsistent with Article 2.3, Article 5.6, Article 7 / Annex B, and Article 8 / Annex C of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

2. A fundamental aspect of the SPS Agreement is to maintain the sovereign right of the regulating Member to determine its own level of protection and to conduct its own risk assessments. Moreover, the SPS Agreement allows a government to take temporary, precautionary measures when it considers that the scientific evidence is not sufficient to determine whether a product is safe, and in particular, to conduct a risk assessment. Korea notes that Japan has not challenged Korea's SPS measures under Article 5.7 of the SPS Agreement.

3. Japan has the burden of establishing each of its claims. With respect to Article 2.3 of the SPS Agreement, the Appellate Body recently clarified that "notwithstanding certain similarities between its language and that of the chapeau of Article XX of the GATT 1994, Article 2.3, first sentence, of the SPS Agreement, sets out an obligation and is not expressed in the form of an exception. Thus, a complainant raising a claim that a Member's SPS measure is inconsistent with Article 2.3, first sentence, bears the overall burden of establishing its *prima facie* case of inconsistency."[1]

4. In the case of Article 5.6 of the SPS Agreement, Japan must adduce sufficient evidence to raise a presumption that its proposed alternative measures would achieve Korea's appropriate level of protection.[2] With respect to the role of experts in the assessment under Article 5.6, the Appellate Body has held that "[e]xperts may assist a panel in assessing the level of risk associated with SPS measures and potential alternative measures, but whether or not an alternative measure's level of risk achieves a Member's appropriate level of protection is a question of legal characterization, the answer to which will determine the consistency or inconsistency of a Member's measure with its obligation under Article 5.6."[3] Thus, "[a]nswering this question is not a task that can be delegated to scientific experts".[4]

II. FACTUAL BACKGROUND

5. There is no dispute that the FDNPP accident constitutes the most significant release of radionuclides from a nuclear accident into the marine environment, and the releases continue. Scientific information about the accident and subsequent releases, as well as about the impact on the environment, remains limited.

A. The Significant Release of Radionuclides from the FDNPP Accident

6. Japan understates the extent of the release of radionuclides from the FDNPP accident. While scientific knowledge on the amount and types of radionuclides released and continuing to be released from the FDNPP remains insufficient, there is no dispute among the scientific community that vast amounts of radionuclides were released from the FDNPP accident.

[1] Appellate Body Report, *India – Agricultural Products*, para. 5.260. (footnote omitted)
[2] Appellate Body Report, *Australia – Apples*, para. 404.
[3] Appellate Body Report, *Australia – Apples*, para. 384.
[4] Appellate Body Report, *Australia – Apples*, para. 384.

7. Estimates tend to converge to between 15 and 20 PBq for the combined FDNPP inputs of Cs-137 from atmospheric fallout and direct discharge to the North Pacific. This represents an additional input of approximately 25 per cent more Cs-137 than existed in the North Pacific prior to the FDNPP event from nuclear weapons testing. Moreover, approximately 1.0-2.4 x 10^9 Bq of Pu-239, 240 was released into the environment from the FDNPP reactors. Most of the Sr-90 released from the FDNPP was directly discharged to the North Pacific, with estimates of total inventories ranging from 0.04 to 1.0 PBq. There have also been ongoing spills of liquid radioactive waste from the FDNPP into the ocean causing Sr-90 activities to exceed those of Cs-137 in the ocean near the FDNPP. However, strontium remains one of the most understudied radionuclides from the FDNPP accident.

8. In all, the FDNPP accident caused about 30,000 km^2 of Japanese territory to be contaminated with different types of radionuclides from the nuclear fallout, in addition to the contamination of sea sediments. Given the relatively long half-life of Cs-134 and Cs-137, these isotopes are still a significant source of radioactive contamination in the environment, particularly in forests that cover 75 percent of the contaminated territory.

B. Elevated Levels of Cesium Continue to be Detected

9. Japan also downplays elevated levels of cesium that are still found in the environment surrounding the FDNPP and in food products. The levels of cesium contained in soil particles on the flood plains in the downstream areas of Fukushima's rivers have been found to be significant and to potentially increase the local radiation dose.

10. Japan also disregards scientific data that continue to show elevated levels of cesium in fish samples. Fishery species caught near the FDNPP still show high levels of contamination. The cesium monitoring results of fishery products caught within the port near the FDNPP, which Japan did not provide to the Panel, show measurements up to 223,000 Bq/kg of cesium.

C. The FDNPP is an Active and Ongoing Source of Contamination

11. The FDNPP presents an active and ongoing situation with no long-term solution. Highly contaminated water continues to build up at the FDNPP site and water continues to inadvertently leak into the sea. This in and of itself distinguishes the FDNPP incident from prior events, such as the Chernobyl accident and nuclear weapons testing, and heightens the food safety risks stemming from contaminated Japanese food products.

12. Given the gravity of the situation, Tokyo Electric Power Company (TEPCO) has attempted to construct a large ice wall surrounding the FDNPP to stem the flow of groundwater into the plant. While specific information about the operation of the ice wall has been lacking, reports indicate that the ice wall effort has largely failed.

13. Moreover, Japan continues to maintain distribution bans and restrictions itself and has in this past year continued to impose new bans and restrictions on certain food products.[5] Japan cannot expect that Korea would respond any differently. Thus, Japan itself recognizes that bans, and not just cesium testing, are required.

III. INSUFFICIENCIES IN JAPAN'S FOOD MONITORING PROGRAM

14. Japan has asserted in this dispute that it has maintained a comprehensive national food monitoring program, which covers all categories of food products. Korea notes, however, that the Ministry of Health, Labour, and Welfare of Japan's (MHLW) "Cesium Monitoring Data of Food Products" (April 2012-July 2016) mainly consist of livestock products, which account for 72.4 percent (835,741) of the total number of samples (1,154,025). Agricultural products only accounted for 14.0 percent (161,798) and fishery products accounted for 7.6 percent (87,638) of the total samples. Japan's cesium monitoring data is disproportionately weighted towards livestock products that are not imported into Korea, which undermines the representativeness of the data.

[5] Please see Japan's domestic restrictions at http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html.

15. Moreover, the data sets presented by Japan in this dispute actually highlight the lack of sufficient testing for other radionuclides, as follows:

a. Ministry of Agriculture, Forestry and Fishers of Japan (MAFF) data do not present strontium measurements for 16 of the 28 types of fishery products subject to Japan's challenges. Moreover, for the 12 types of fishery products with strontium data, only a total of 50 samples were taken.

b. The Ministry of Environment of Japan (MOE) provided strontium results for only 3 of the 28 fishery products subject to Japan's claims, and only a total of 6 samples were analysed. Also, there were no strontium test results for any of the 28 fishery products at issue in the data provided by TEPCO. There are no testing results for plutonium in the data provided by MOE or TEPCO.

c. Japan's Environmental Radioactivity Database (ERD) data (Exhibit JPN-130) also provides limited strontium and plutonium measurements, especially for the most commercially important fish species from key prefectures.

16. It is inappropriate to draw conclusions regarding concentration levels or factors of non-cesium radionuclides from such small samples, which do not account for varying factors, including the size of the fish, living area and conditions, and feed. Sampling for non-cesium radionuclides has been extremely limited and haphazard at best. There has been no quality assurance and quality control (QAQC) program outlined for these other radionuclides.

17. As Korea's expert confirmed during the Second Substantive Meeting, currently the samples for non-cesium radionuclides do not nearly reflect the range or depth of samples required to characterize the movement or transfer of radionuclides through the food chain. Orders of magnitude more samples – likely amounting to approximately thousands more samples of strontium and other radionuclides – are required. This is especially true now that fishing activities are openly resuming in Fukushima coastal regions.

18. At a minimum, multiple samples of each important species should be tested from all key locations of production at several times throughout the year to assess species, geographic, and temporal sources of variability in contaminant levels. In addition, an attempt to assess detection probabilities should also be assessed at some subset of test sites. However, the effort exerted by Japan to address QAQC issues to date has been vastly insufficient.

IV. METHODOLOGICAL FLAWS IN JAPAN'S EVIDENCE

19. The Exhibit JPN-11 and JPN-148 statements by Japan's consultants unsuccessfully attempt to provide an analytical framework for Japan's incorrect premise that measuring for cesium only will ensure that the 1 mSv/year radiation dose will not be exceeded. These statements contain significant methodological flaws that undermine Japan's analytical framework and the conclusions drawn from applying that framework to specific data sets provided by Japan.

20. First, the 419 data points of Sr-90 and Cs-137 concentration activity in fishery product analysed by Japan's consultants, spanning the period 2011-2016, are insufficient.

21. Second, according to Exhibits JPN-11 and JPN-148, Japan claims that through the use of a "Scaling Factor" it can identify a statistical correlation between cesium and other radionuclides such that it can determine that fish containing less than 100 Bq/kg of cesium will not contain significant amounts of other radionuclides, making them safe for human consumption. In Exhibit KOR-213, Korea's experts have demonstrated that Japan's analysis is scientifically invalid because (i) there are no acceptable grounds for the use of a Scaling Factor and (ii) there is no evidence of any correlation between cesium and other radionuclides for the purposes of assessing food safety.

22. Moreover, Exhibit KOR-213 explains that Japan's application of the "Scaling Factor" in a case like the one before the Panel is unprecedented. To Korea's knowledge, the Scaling Factor "*has never been used for an accident of this sort*" nor has it ever been used "*for the prediction of radionuclides in the context of complex biological community analysis*." As Korea's experts

explained, the Scaling Factor method is unsuited to making predictions in a complex and evolving situation where food safety and public health are concerned.

V. STANDARD OF REVIEW

23. Japan asks the Panel to apply an incorrect standard of review. The standard of review applicable in SPS disputes is that articulated in Article 11 of the DSU, which provides that a panel must make an objective assessment of the matter, including an objective assessment of the facts.[6] The Appellate Body has held that the standard of review must respect the allocation of jurisdictional competences in the SPS Agreement.[7]

24. The Appellate Body has also held that the assessment of risk is a matter that is of exclusive competence of each Member and that panels are not authorized, under the applicable standard of review, to perform their own risk assessment.[8]

25. When a panel is established, a regulator could at most have available to it measurements undertaken until that date. In fact, in such circumstances, one cannot reasonably expect the regulator to have had the opportunity to review and validate the most recent measurements. This practical reality was recently acknowledged in *Russia – Pigs (EU)* where the panel and the Appellate Body both held that the regulating Member is entitled to a period of time to process and evaluate detailed and complex information.[9]

26. Thus, in assessing Korea's SPS measures, the Panel must consider only the information that was available to the domestic regulator. Consideration by the Panel of information that was not available to the domestic regulator means that the Panel would be substituting its own judgment for that of the domestic regulator. Moreover, the Panel cannot fault Korea's regulator for not taking into account what it could not have known. If it does so, the Panel would, in effect, be conducting a *de novo* review.[10]

27. Yet, this is precisely what Japan asks the Panel to do in this case. Exhibits JPN-11, JPN-148, JPN-238 and JPN-239 did not exist prior to this dispute. Thus, these documents could not have been available to Korea's regulator before these dates. Moreover, much of the data relied on for the analysis in these Exhibits also did not exist when the Panel was established. For instance, Exhibit JPN-148 indicates that it analysed a total of 419 data points covering the period from April 2011 to March 2016. Of these 419 data points, 66 data points correspond to measurements taken after 28 September 2015, which was when this Panel was established. Similarly, Exhibits JPN-238 and JPN-239 contain data through 5 December 2016 and 16 September 2016, respectively.

28. Given that these data did not exist prior to panel establishment, they were obviously not available to Korea's regulator, and therefore it is impossible for Korea's regulator to have taken these data into account. If the Panel were to consider this information, the Panel would essentially be engaging in its own risk assessment as it would be determining SPS risks on the basis of information Korea's regulator could not have even considered. As a result, the Panel would be substituting its own judgement for that of Korea's regulator, thereby acting inconsistently with Article 11 of the DSU.

29. Unfortunately, the Panel's experts have already expressed their views on the basis of Exhibits JPN-11, JPN-148, JPN-238 and JPN-239. Again, it is not possible to reconcile the experts' use of analyses and data not in existence at the time the dispute was initiated with the standard of review applicable in this dispute. The Panel's experts also cannot "second-guess" Korea's regulator or substitute their own *post-hoc* evaluations for that of the regulator, under the SPS Agreement and the DSU. Thus, consideration of the experts' views that take into account such analyses and data would also violate the applicable standard of review.

[6] Appellate Body Report, Australia – Apples, para. 211.
[7] Appellate Body Report, *EC – Hormones*, para. 115.
[8] Appellate Body Report, *US/Canada – Continued Suspension*, para. 590.
[9] Panel Report, *Russia – Pigs (EU)*, para. 7.705; Appellate Body Report, *Russia – Pigs (EU)*, para. 5.80.
[10] Appellate Body Report, *US – Cotton Yarn*, para. 78.

VI. TERMS OF REFERENCE

30. The breach of a relevant WTO provision must have materialized at the time the Panel was established. This conclusion holds irrespective of whether Japan's claims are on the adoption or maintenance of the measures. Pursuant to the Panel's terms of reference, the Panel must determine whether Korea's measures were inconsistent with Articles 2.3, 5.6, and 8 at the time the Panel was established. The inconsistency must have existed at this time; otherwise the claim would have been purely speculative.

31. Under Article 7 of the DSU, the Panel is responsible for examining the matter referred to the Dispute Settlement Body (DSB) by Japan in document WT/DS495/3.[11] The "matter" is, in turn, comprised of the measures challenged and the claims set out by Japan in its panel request. The measures are those in existence at the time of the panel request. The Appellate Body has said that the specific measures identified in the panel request are the measures "alleged to be causing the violation of an obligation contained in a covered agreement".[12] Thus, the violation caused by the challenged measures must already exist when the panel is established.

32. Japan's panel request does not allege that Korea's SPS measures will be in breach of the SPS Agreement at some point during the Panel proceedings. Instead, Japan's panel request describes Korea's SPS measures as being in breach of the SPS Agreement at the time of the Panel request. Thus, the Panel's terms of reference preclude it from determining the consistency of Korea's SPS measures on the basis of analyses and data that did not exist at the time the Panel was established. Consequently, consideration of Exhibits JPN-11, JPN-148, JPN-238 and JPN-239 in the Panel's assessment of Japan's claims under Articles 2.3, 5.6, and 8 would violate the Panel's terms of reference.

33. As noted during the Second Substantive Meeting, and as acknowledged by Japan, Korea's position is consistent with the view of the panel in *EC – Biotech*, which found that it had to examine "whether, on the date of establishment of this Panel, each safeguard measure was based on an assessment of risks which was appropriate to the circumstances existing at that time."[13] Korea notes that the panel in that case was referring to a claim concerning the maintenance of the measure and, even in those circumstances, the panel found that the reference point was the date of establishment.

VII. KOREA'S SPS MEASURES ARE PROVISIONAL MEASURES UNDER ARTICLE 5.7

34. As the complaining party, Japan has the burden of proof with respect to each of its claims.[14] Had Japan brought a claim against the import bans and the additional testing requirements under Article 5.7 of the SPS Agreement, the burden of proving the measures' inconsistency with this provision would have fallen on Japan.[15] In the absence of a challenge by Japan under Article 5.7, Korea is entitled to the presumption that the import bans and additional testing requirements are consistent with the requirements of Article 5.7. The Appellate Body has held, in this regard, that a respondent Member's measures must be treated "as WTO-*consistent* until proven otherwise".[16]

35. Korea notes, in any event, that there is no burden of proof to Korea that attaches with respect to the interpretation of a provision of the WTO agreements. Thus, there is no burden of proof that Korea must overcome in arguing that Article 5.7 is relevant for purposes of the interpretation of Articles 2.3, 5.6, 7 (Annex B) and 8 (Annex C) of the SPS Agreement.

VIII. KOREA'S SPS MEASURES ARE CONSISTENT WITH ARTICLE 2.3

36. Japan has failed to establish that Korea's SPS measures are inconsistent with Article 2.3 of the SPS Agreement.

[11] Appellate Body Report, *Guatemala – Cement I*, para. 72.
[12] Appellate Body Report, *EC – Selected Customs Matters*, para. 130. (underlining added)
[13] Panel Report, *EC – Biotech*, para. 7.3034. (underlining added)
[14] Appellate Body Report, *US – Wool Shirts and Blouses,* p. 14.
[15] Panel Report, *EC – Approval and Marketing of Biotech Products*, paras. 7.2976 and 7.2979.
[16] Appellate Body Report, *US – Carbon Steel*, para. 157. (original emphasis)

A. Japan Applies a Novel Product-Based Test under Article 2.3

37. Japan's claim is based on an erroneous interpretation of Article 2.3. In particular, Japan applies a novel, product-based test that is not reflected in the text of Article 2.3. The text of Article 2.3 refers to "conditions" and does not refer to "products." This is a deliberate choice of the drafters that must be given effect. The term "conditions" in Article 2.3 refers to such factors as the state of the atmosphere, the land, and the marine environment. This understanding of "conditions" fits coherently with the rest of Article 2.3 and with its context.

38. Japan's interpretation is completely divorced from the text of that provision. Indeed, Japan's interpretative exercise begins far from the SPS Agreement, in Annex 1A of the WTO Agreement. The general scope of coverage of the agreements in Annex 1A cannot mean that every provision in every agreement in Annex 1A is about differential treatment of goods. The text of Article 2.3 specifically calls for a comparison of "conditions" existing in Members' territories; products are simply not mentioned in Article 2.3.

39. The starting point of the analysis under Article 2.3 is an assessment of whether "identical or similar conditions prevail" in the territories of the Members concerned. Following Article 31(1) of the Vienna Convention on the Law of Treaties (Vienna Convention), an interpretation of Article 2.3 must begin with the ordinary meaning of the terms used in the provision. This ordinary meaning is supported by the link made in Article 2.3 between "conditions" and "territory". The latter term is referring to the area under the jurisdiction of the relevant Member. Thus, the link between "conditions" and "territory" in Article 2.3 supports Korea's view that the subjects of comparison are the environmental conditions prevailing in the relevant Members.

40. Further contextual support for this interpretation is found in Article 5.2 of the SPS Agreement, which expressly includes "the relevant ecological and environmental conditions" among the factors that must be taken into account in the assessment of risks.

41. The evidence on record demonstrates that the conditions in Japan were not similar to the conditions in the rest of the world. On 28 September 2015, there continued to be an active source of contamination on Japanese territory. The FDNPP continued to be in an unstable situation: leaks continued to be reported, contaminated groundwater continued to flow through the plant and into the ocean, and large amounts of contaminated water continued to be stored in precarious conditions at the plant. Even the limited estimates of strontium release that exist are complicated by the ongoing spills of liquid radioactive waste at the FDNPP site. In addition, insufficient scientific information regarding the amount and types of radionuclides released, as well as the lack of sampling in particular regions and for specific commercially important species also render conditions in Japan not identical or similar to conditions prevailing in Korea and the rest of the world.

42. As discussed in Korea's submissions, high levels of cesium contained in soil particles have been found on the flood plains in the downstream areas of Fukushima's rivers. These rivers, whose banks have high levels of cesium contamination, ultimately enter the sea. Studies have also found that a significant portion of mineral-bound radiocesium is discharged into marine estuaries. Thus, the river catchments will be a longer-term, ongoing source of radiocesium to estuaries and coastal areas, which can easily accumulate in marine biota. Dams, lakes and reservoirs in Fukushima-impacted watersheds also have been shown to be both sinks for radiocesium and potential sources of significant downstream cesium deposition. Forests too have been found to be deposits of significant levels of radionuclides, including Cs-137. Finally, there are risks from contamination of the seabed, as even Japan's consultant has cautioned that nearshore sediments off Japan will remain a significant long-term source of radiocesium for years to decades.

43. Indeed, Japan itself acknowledges through its own regulations the uniqueness of the conditions prevailing in its territory. Japan itself has imposed marketing bans on fishery and agricultural products, some of which were still in place up until the date of Panel establishment. Moreover, Japan has repeatedly referred to the fact that fish from the FDNPP port and from the area within a 20 km radius of the FDNPP are not marketed in Japan. This area is within Japanese territory and the decision not to allow the marketing of fish in this area is necessarily recognition of the particular nature of the conditions in Japanese territory. Thus, Japan's own marketing ban is based on environmental conditions in Japan. If the measurement of contamination levels in the

products were the only relevant criterion, as argued by Japan under Article 2.3, then Japan itself could test all fishery products marketed instead of imposing a ban over an entire area.

44. In sum, the Panel must reject Japan's erroneous claim that conditions in Japanese territory and conditions in Korea and the rest of the world are similar. Because Japan fails to establish a necessary element of its Article 2.3 claim, the Panel need not proceed further.

B. Even If the Panel Concludes That Conditions Are Similar, Japan Has Failed to Establish That Korea's SPS Measures "Arbitrarily or Unjustifiably Discriminate"

45. Even on the *arguendo* assumption that conditions were similar, Japan has failed to demonstrate that Korea's SPS measures arbitrarily or unjustifiably discriminate. Japan's argument is premised on its position that Japanese products and products from non-Japanese origins have similar levels of cesium and additional radionuclides in absolute terms. This element of Japan's claim is also premised on an incorrect interpretation of Article 2.3.

46. As Korea has explained, the focus of Article 2.3 is on the conditions prevailing in Members' territories. Even if the Panel were to conclude that conditions in Japan and the rest of the world are similar, its subsequent analysis would have to proceed on the basis of the conditions identified by the Panel. Japan's attempt to disregard consideration of the conditions in its territory must therefore be rejected by the Panel.

47. In addition, Japan has explained that its Article 2.3 claim depends on the proposition that Japanese food products and food products of other origins pose "a similar risk of containing cesium and other radionuclides in excess of Korea's respective thresholds". However, the Panel could only accept Japan's argument by conducting a risk assessment, which the Panel is not permitted to do. Indeed, Japan's approach would require the Panel to undertake not one, but two, risk assessments. The Panel would first have to assess the risks posed by Japanese products. It would then have to assess the risks posed by products from Korea and by products from the rest of the world. And, finally, it would have to compare those risks. However, under the applicable standard of review, the Panel is not authorized to conduct such risk assessments.

48. Moreover, by focusing on the risks posed by the products concerned, Japan is effectively converting the analysis of Article 2.3 into a question of whether the measures are properly based on a risk assessment. However, that is a matter to be evaluated under Article 5.1, and Japan has not brought a claim under that provision.

49. Nor has Japan brought a claim under Article 5.7. Korea's SPS measures seek to protect Korean citizens from the additive effects of the radionuclides stemming from the FDNPP. Given the relatively few measurements for radioactive strontium that have been generated to date, and the much fewer measurements for other radionuclides of potential significance, this testing is a prudential measure in response to the insufficiency of data. In the circumstances, continued monitoring for cesium, strontium, and other radionuclides is required to properly assess risk.

50. Japan's argument also introduces the appropriate level of protection (ALOP) into the assessment of Article 2.3 as Japan is asking the Panel to find that Japanese and non-Japanese food products pose identical or similar risks of exceeding Korea's ALOP. However, the text of Article 2.3 does not frame the ALOP as a benchmark to determine whether there is any discrimination.

51. The Panel-appointed experts confirmed that radionuclides have additive effects and that any additional amount of radiation increases the risks of adverse effects. They also confirmed that there is evidence that radiation can have effects even at very low doses. There is no dispute that the FDNPP added to levels of radionuclides present in Japan's territory before the accident. Therefore, even under Japan's erroneous products-based test, Korea's regulator has a legitimate right to be concerned about the consumption of products with radionuclide contamination stemming from the FDNPP.

52. Even accepting *arguendo* Japan's approach, Japan has emphasized that a key factual proposition underlying its claims is that the overall exposure to Korean consumers from cesium

and all other radionuclides will remain below 1 mSv/year if cesium levels in Japanese food are within Korea's 100 Bq/kg threshold. Japan's proposition is based on an incorrect characterization of Korea's ALOP.

53. In any event, even under an erroneous product-based approach, food products from one origin posing a risk of exposure should not be deemed "identical or similar" within the meaning of Article 2.3 to the food products from another origin posing a risk of exposure. As asserted above, the ALOP has no bearing on the application of Article 2.3.

54. Thus, even assuming Japan's product-based test were correct and Japan succeeded in establishing this factual proposition, it would not demonstrate that products from Japan and products from the rest of the world pose similar risks. This is because Japan's definition of Korea's ALOP is incorrect. Likewise, Japan's criterion for similarity, which is exclusively based on whether an overall dose of 1 mSv/year is exceeded, is not an appropriate criterion for similarity under Article 2.3.

55. As discussed in Korea's submissions, Korea also conducts additional testing on Korean and third-country products. When cesium or iodine is detected, the samples are subject to further analysis for additional radionuclides. The alleged differences that Japan identifies are in the frequency and location of testing. However, these differences are rationally related to the different conditions prevailing in Japan. The additional testing requirements provide information on the levels of strontium and other additional radionuclides in fisheries and agricultural products imported from Japan. Large amounts of strontium and other radionuclides were released and continue to be released from the FDNPP. As explained by Korea's expert, there have been only limited measurements of strontium and other non-cesium radionuclides such that the information about these radionuclides in Japanese territory is insufficient to draw robust conclusions. Thus, the need to test fisheries and agricultural products from Japan more frequently, and the need to require the test prior to entry into the market, are both rationally related to the conditions prevailing in Japan. As such, any differences in frequency and location, which reflect different conditions, cannot constitute arbitrary or unjustifiable discrimination for purposes of Article 2.3.

56. Korea further notes that the import ban on fishery products is circumscribed to products from the Fukushima prefecture and the seven surrounding prefectures. Thus, the import bans are rationally related to the conditions prevailing in those prefectures.

57. Finally, Japan's argument under the second sentence of Article 2.3 is premised on its claim under the first sentence. Because Japan has failed to substantiate its claim under the first sentence of Article 2.3, the claim under the second sentence must also be rejected.

IX. KOREA'S SPS MEASURES ARE CONSISTENT WITH ARTICLE 5.6

58. The arguments and evidence put forward by Japan are insufficient to establish a violation of Article 5.6 of the SPS Agreement.

A. The Flaws in Japan's Article 5.6 Claim

1. Japan's Claim Is Premised on an Incorrect Characterization of Korea's ALOP

59. Japan continues to claim that Korea's ALOP for exposure to man-made radionuclide contamination in food is 1 mSv/year, and that Japan's proposed alternative measure (i.e., cesium testing) achieves this dose limit. This is incorrect.

60. As previously noted, the Appellate Body has held that the determination of the ALOP "is a *prerogative* of the Member concerned."[17] An Article 5.6 analysis thus requires an examination of whether possible alternative SPS measures meet the ALOP "*as determined by the Member*

[17] Appellate Body Report, *Australia – Salmon*, para. 199. (original emphasis)

concerned."[18] The Appellate Body has held that the panel is charged with "identifying the level of protection of the Member whose SPS measure is challenged."[19]

61. As Korea has repeatedly shown, its ALOP is to maintain radioactivity levels in food consumed by Korean consumers at levels that exist in the ordinary environment – in the absence of radiation from a major nuclear accident – and thus maintain levels of radioactive contamination in food that are "as low as reasonably achievable" (ALARA), below the 1 mSv/year radiation dose limit.

62. Korea's ALOP is not a fixed quantitative threshold but instead aims to achieve a high to very high level of protection below the 1 mSv/year dose limit. It is incorrect for Japan to characterize Korea's ALOP as 1 mSv/year when Korea has made clear that its "acceptable" level of radiation exposure is below the 1 mSv/year dose limit. Korea maintains a highly prudent approach to the management of radionuclides from external sources, and therefore aims to control the additional radiation exposure from Japanese imports to be as low as possible below 1 mSv/year.

63. Korea maintains an ALOP that is high, conservative, and consistently applied across all categories of such risk. To do this, it establishes a range of measures that contribute to the ALOP. The measures that are under dispute are such measures. The nature of the measures and their method of determination will vary according to the substance concerned and the nature of its human health effect. In this case, Korea uses the ALARA approach to establish quantitative thresholds from which exposure would result in a level as far as possible below 1 mSv/year. The use of the ALARA principle is a well-known part of the Codex standards and is applied to establish maximum levels (MLs) for contaminants in food necessary to protect consumers. Notably, the application of the ALARA principle in food safety differs from its application in the radiological protection context.

64. The ALARA principle is articulated in Article 1(34) of the Korea Food Code. In addition, Korea has consistently expressed its ALOP with sufficient precision. As a result, the Panel should accord significant weight to Korea's articulation of its ALOP.

65. Korea reiterates that it is well-established that there is no obligation for an importing Member to set its ALOP in "quantitative terms."[20] In fact, in *Australia – Apples*, the Appellate Body confirmed that Australia's ALOP was "providing a high level of sanitary or phytosanitary protection aimed at reducing risk to a very low level, but not to zero."[21] The Appellate Body found that Australia's ALOP makes clear that Australia's acceptance of "very low" risk is a standard that is stricter than standards that would accept "moderate", "high", or "extreme" risk, but not as strict as standards that would accept only "negligible" risk. While there were no "upper bounds" or numerical thresholds provided in Australia's ALOP, the Appellate Body still found that the ALOP made clear Australia's acceptable level of risk and could be applied in international trade.

66. As shown in Exhibit KOR-143, the 1 mSv/year dose limit is the upper bound of the "tolerable" level of risk, but Korea's ALOP, or "acceptable level of risk", is a level below that dose limit, which reflects the ALARA principle. Ultimately, while Korea's ALOP is not defined in quantitative terms, it is not vague or equivocating.[22] In fact, Korea's ALOP is notably more precise than Australia's ALOP in *Australia – Apples*. Japan attempts to confuse Korea's clear standards by arguing that "tolerable" is synonymous with "acceptable" and therefore everything below the "upper bound" of 1 mSv/year is "acceptable." In doing so, Japan has continued to avoid engaging with the information submitted in Exhibit KOR-143 and other authoritative sources explaining the ALARA principle.

2. Japan's Claim Is Also Premised on an Incorrect Characterization of Cesium Testing As "Another Measure" Under Article 5.6

67. Japan also fails to make a valid claim under Article 5.6 because cesium testing does not constitute "another measure" under footnote 3 to Article 5.6. A Member invoking Article 5.6 must establish the existence of "another measure" that achieves the ALOP of the respondent Member.

[18] Appellate Body Report, *Australia – Salmon*, para. 204. (original emphasis)
[19] Appellate Body Report, *India – Agricultural Products*, paras. 5.220-5.221.
[20] Appellate Body Report, *Australia – Apples*, para. 343. Korea's second written submission, para. 268.
[21] Appellate Body Report, *Australia – Apples*, para. 369.
[22] See Appellate Body Report, *Australia – Salmon*, para. 206.

The term "another" is "[u]sed to refer to a different person or thing from one already mentioned or known about". The Appellate Body confirmed this in *India – Agricultural Products*, where it stated that "[i]n order to succeed in a claim under Article 5.6, a complainant must establish that there is an *alternative* measure…."[23] The term "alternative" indicates that the measure is different to the measure currently being applied by the respondent Member.

68. Japan errs when it states that cesium testing is an "alternative" measure that is "different" from the measure currently being applied by Korea. Korea already applies cesium testing to imports of Japanese food products. Therefore, cesium testing is not different to the measures already being applied by Korea.

69. The panel in *Brazil – Tyres* also confirmed the principle that a measure already being applied by the respondent party cannot constitute an "alternative" measure. The panel specifically found that "the alternative measures…do not constitute alternatives that could apply as a substitute for the import ban on retreaded tyres … Rather, they would appear to be complementary measures that Brazil in fact already applies, at least in part."[24] The panel's finding was upheld on appeal by the Appellate Body, which noted that "some of the proposed alternatives are not real substitutes for the Import Ban since they complement each other as part of Brazil's comprehensive policy."[25]

70. Similarly, cesium testing is not an "alternative" measure to Korea's import bans or additional testing requirements, but rather a "complementary" measure already being applied by Korea that is "cumulative rather than substitutable" with respect to those measures challenged by Japan. Japan concedes that cesium testing is an "integral element" of Korea's additional testing requirements because the requirement to undertake additional testing depends on the results of a prior cesium test. Indeed, cesium testing, the additional testing requirements, and the import bans are all integral and complementary parts of Korea's comprehensive response to the radioactive contamination from the FDNPP. The measures are complementary in that they are applied to target different prefectures in Japan that pose different risks based on their proximity to the FDNPP accident and prior recordings of high levels of radioactivity in food products, as well as to address food safety risks arising from contamination in Japanese food products by different radionuclides. Thus, cesium testing is a complementary measure already currently applied by Korea and does not constitute an "alternative" measure that could apply as a "substitute" for Korea's import ban and additional testing requirements. Similarly, the Appellate Body has held that "[s]ubstituting one element of [a] comprehensive policy for another would weaken the policy by reducing the synergies between its components, as well as its total effect" and therefore found that the panel did not err in "rejecting as alternatives to the Import Ban components of Brazil's policy regarding waste tyres that are complementary to the Import Ban."[26]

71. Japan also states that the fact that cesium testing alone is "different" from Korea's existing measures is evident to Japan's fishermen and farmers because cesium testing alone would significantly enhance competitive opportunities for their products. Japan misses the point. Whether a measure enhances or restricts competitive opportunities for products is relevant for determining whether the proposed alternative measure is "significantly less restrictive to trade" than the challenged measure but is not relevant for determining whether the proposed measure constitutes "another measure" under footnote 3 of Article 5.6.

72. In addition, Japan refers to Korea's ALOP, which it again mistakenly describes as achieving a committed dose exposure of Korea's consumers that does not exceed 1 mSv/year. Japan then claims that the additional testing requirements make no independent contribution to Korea's ALOP. In doing so, Japan attempts to distinguish Korea's measures from those in *Brazil – Retreaded Tyres*, which each allegedly contributed independently to the achievement of the policy objective at issue. However, the panel in *Brazil – Retreaded Tyres* noted in fact that the European Communities' proposed waste tyre disposal schemes would not seem able to achieve the same level of protection pursued by Brazil – i.e., "non-generation" of waste tyres in the first place – as the import ban.[27] As a result, the panel found that such schemes are not "an *alternative* to the import ban in light of the level of protection Brazil pursues in relation to the health risks

[23] Appellate Body Report, *India – Agricultural Products*, para. 5.203. (emphasis added)
[24] Panel Report, *Brazil – Tyres*, para. 7.172.
[25] Appellate Body Report, *Brazil – Tyres*, para. 181.
[26] Appellate Body Report, *Brazil – Retreaded Tyres*, para. 172.
[27] Panel Report, *Brazil – Retreaded Tyres*, para. 7.177.

concerned..."[28] Thus, the panel found that the European Communities' proposed measures did not contribute to the achievement of Brazil's policy objective or level of protection.

73. Similarly, cesium testing alone cannot achieve Korea's policy objective of achieving a high level of protection or ALOP for its people, which is not 1 mSv/year. Japan is incorrect when it states that additional testing requirements contribute nothing additional to the achievement of Korea's ALOP. Korea aims to achieve a very high level of protection that is stricter than the 1 mSv/year dose limit of the International Commission on Radiological Protection (ICRP). As Korea noted at the Second Substantive Meeting, it is undisputed between the parties that strontium is hazardous and even more so than cesium. The additional testing provides information on the levels of strontium and other radionuclides in Japan's food products, and as a result, independently contributes to Korea's policy objective or ALOP. Thus, this is not a case where, in proposing cesium testing only, Japan is merely removing a "redundant" measure.

74. In sum, because cesium testing is a "complementary" measure currently applied by Korea as part of its comprehensive regulatory response to the FDNPP accident, cesium testing itself does not constitute "another measure" that could apply as a "substitute" for Korea's import ban and additional testing requirements under footnote 3 of Article 5.6.

75. For these reasons, Japan's proposed measure – cesium testing – does not constitute "another measure" within the meaning of footnote 3 and Article 5.6 and, consequently, Japan's claim must fail.

3. Japan's Claim Is Premised on the Use of the Scaling Factor Method though the Pre-Conditions for Use of the Method Are Not Met

76. Japan claims that cesium testing achieves Korea's alleged ALOP of 1 mSv/year. In doing so, Japan relies heavily on the analysis provided in Exhibits JPN-11 and JPN-148. Korea has already shown that 1 mSv/year is not Korea's ALOP. In addition, Korea has shown that Japan's methodological approach is flawed.

77. Japan repeatedly claims that it is not using the Scaling Factor Method (SFM) in the Exhibit JPN-11 and JPN-148 statements. Contrary to those claims, Korea has shown that Japan's consultants indeed used the SFM in their analysis. As Korea previously pointed out, Exhibit JPN-148 references a "scaling approach" throughout the analysis. The SFM is a technique for predicting amounts of other unmeasured radionuclides on the basis of ratios with Cs-137. The SFM was developed to predict emissions from nuclear facilities where the characteristics of the source terms are very well characterized and relatively unchanging over time. This method relies on a very strong correlation among radionuclides and other conditions that are not met in this case. However, Korea's experts demonstrated that Japan's analysis based on the SFM is scientifically invalid because (i) there are no acceptable grounds for the use of a scaling factor and (ii) there is no evidence of any correlation between cesium and other radionuclides for the purposes of assessing food safety

4. Japan's Measurement Data Are Insufficient

78. Japan claims that measurements in Japanese food products in Exhibits JPN-11, JPN-148, JPN-238 and JPN-239 confirm the conservative nature of the 100 Bq/kg cesium threshold. Japan asserts that the data further confirms that, if cesium levels are below 100 Bq/kg, overall exposure will not exceed 1 mSv/year. Japan's argument has several flaws.

79. As Korea has explained, the data included in Exhibits JPN-11, JPN-148, JPN-238 and JPN-239 were not available to Korea's regulator at the time the measures at issue were taken or even when this Panel was established. Thus, assessing Korea's measures against these analyses and data would constitute an improper second-guessing of Korea's regulator and would violate the applicable standard of review and the Panel's terms of reference.

80. Japan has emphasized the conservative nature of its approach, including its assumptions regarding the contribution of strontium to the overall radiation dose. However, Japan's approach is

[28] Panel Report, *Brazil – Retreaded Tyres*, para. 7.178.

novel as was confirmed by one of the Panel's experts. Any such novel assumptions or new approach must be validated through sufficient measurements, including of strontium and other radionuclides. Such measurements did not exist at the time the Panel was established and do not yet exist today. Thus, all assertions regarding the supposedly conservative nature of Japan's approach, and utilizing data after September 28, 2015, are *ex post facto* rationalizations.

81. In addition, as Korea has noted, the data set in Exhibits JPN-11 and JPN-148 is quite limited. Only 419 pairs of cesium and strontium data points were provided to support the conclusion in Exhibit JPN-148. Subsequently, Japan submitted an updated sample set of 579 pairs of cesium and strontium data points, which now included data points with the "ND" values for cesium or strontium, or both. However, even including the "ND" values in the analysis of the Sr-90/Cs-137 ratio for a total of 579 pairs of data points is not sufficient, considering the long period of time that has elapsed since the Fukushima accident in 2011.

82. To this day there are highly insufficient samples of strontium measurements within Japan's monitoring program. One of the Panel's experts recommended that one-third of the amount of money spent on measuring Cs-134+137 should be spent on measuring Sr-90. Another expert suggested that 5 percent of samples should also be analysed for Sr-90. To date, Japan has measured 1,272,711 Cs-134+137 samples and only 3,752 Sr-90 samples, which is about 0.295 percent of the total cesium measurements. Even fewer samples have been tested for significant radionuclides such as H3, Ru, Ce, among others.

83. Without sufficient measurement data, Korea cannot ensure that testing for cesium only will guarantee that overall exposure remain below Korea's ALOP.

5. The Additional Testing Requirements Are Not Significantly More Restrictive to Trade than Japan's Proposed Measure

84. Japan errs when it asserts that Korea's additional testing requirements are trade-restrictive because of the additional time and increased costs associated with the testing, and because testing supposedly must be conducted in Japan.

85. As Korea has stated, differences in time or costs associated with the process for testing additional radionuclides as opposed to cesium cannot be an indicator of trade restrictiveness. Any additional time or increased costs are the result of the scientific process or current state of technology that is available for testing. As Japan itself recognizes, strontium and other additional radionuclides are more difficult to test than cesium. That is independent from any action taken on the part of Korea's regulator. Korea cannot be penalized under Article 5.6 because there is not a faster method for testing additional radionuclides.

86. Strontium testing is no more burdensome than other tests used in the food safety context, for example, for mercury. The technical limitations that prevent quicker and cheaper strontium testing should not be understood to be a restriction on trade, particularly since these limitations are completely outside the control of Korea.

87. Japan also continues to incorrectly state that a Japanese product found to contain cesium must be shipped back to Japan to undergo additional testing. This is an incorrect fact that Korea has repeatedly clarified. Korea notes that a Japanese product that is subject to additional testing requirements can either undergo such testing in Japan prior to export to Korea, or if already at the Korean border, the product can undergo additional testing in Korea at an institution that is authorized by Japan. Thus, Japan's attempts to highlight the costs associated with shipping the Japanese consignment back to Japan for additional testing are not relevant.

88. Japan therefore has failed to establish that its proposed measure is "significantly less restrictive to trade" than the additional testing requirements. Because Japan fails to establish the key elements under Article 5.6, the Panel should reject Japan's claim.

2 B. The Role of Panel Experts in Assessing Japan's Article 5.6 Claim

89. Finally, Korea recalls that the role of panel experts in an assessment of Article 5.6 is limited. Whether or not an alternative measure's level of risk achieves a Member's appropriate level of protection is a question of legal characterization that cannot be delegated to scientific experts.[29]

90. Yet, during the expert meeting, several of the Panel experts opined on the "necessity" of Korea's SPS measures in light of Korea's ALOP. This is a question that falls outside the purview of the Panel experts. The ALOP is the sole prerogative of Korea, and whether an SPS measure is "necessary" to achieve Korea's ALOP is a legal question that cannot be delegated to scientific experts. Korea further notes that a large number of the experts' responses were premised on a dose limit of 1mSv/year, which, as Korea has explained repeatedly, is not Korea's ALOP.

X. KOREA'S SPS MEASURES ARE CONSISTENT WITH ARTICLE 7 / ANNEX B OF THE SPS AGREEMENT

A. Publication of Korea's SPS Measures

91. Korea promptly published the SPS regulations at issue through press releases and notices that were immediately posted on government websites. Thus, Korea has fully complied with its transparency obligations under Article 7 and Annex B(1). Indeed, publication on the intern is the approach recommended by the SPS Committee.

92. Japan was well aware of Korea's press releases and notices as it specifically referred to many of them in the request for consultations, request for establishment of a panel, and in its submissions to this Panel.

93. Japan argues that the publication of the basic requirements of a regulation is not sufficient to provide more or less complete familiarity with the regulation. However, Korea has demonstrated that its press releases and notices provided detailed information about the SPS measures at issue. The information that Korea provided was sufficient to enable interested Members to become acquainted with them. In fact, several of Japan's exhibits were compiled using information from Korean government websites. The information that Japan complains was not provided was either provided by Korea, or is information that is generally not included in SPS regulations, such as the rules of origin.

94. Finally, Japan seems to introduce a new requirement that publication on the Internet only complies with Annex B(1) if it occurs "in a specifically designated location". Japan fails to provide any basis in the text of Annex B(1) for this requirement. Indeed, Annex B(1) does not specify the medium to be used for publication, nor does it require that publication occur "in a specifically designated location".

B. Korea's SPS Enquiry Point

95. Korea has satisfied its obligations under Annex B by establishing an Enquiry Point, which was responsive to Japan's questions. The Panel should reject Japan's attempt to apply a strict liability standard under Annex B(3). The actual language used in Annex B(3) indicates that the obligation on Members is to "ensure that one enquiry point exists". There is no indication in the text of Annex B(3) that the drafters intended to establish a strict liability standard pursuant to which a single instance in which an Enquiry Point fails to respond to a request could give rise to a WTO dispute.

96. Simply because in a single instance an Enquiry Point may not have provided information that satisfied the requesting party, does not give rise to a violation of Annex B(3).

97. Regardless, in this case, Korea's Enquiry Point responded to Japan's request and provided Japan with the requested information. Japan rests its entire claim in this case on a single request (24 June 2014), to which Japan acknowledges Korea responded,[30] and an alleged follow-up

[29] Appellate Body Report, *Australia – Apples*, para. 384. See Korea's first written submission, para. 98.
[30] Japan's first written submission, para. 185.

(13 November 2014).[31] Thus, at most, Japan's claim would be based on a single instance in which the Korean Enquiry Point would have failed to respond to a request. This does not constitute a failure by Korea to "ensure that one enquiry point exists which is responsible for the provision of answers to all reasonable questions from interested Members as well as for the provision of relevant documents".

98. In sum, Japan's claims under Article 7 and Annex B have no merit and should be rejected by the Panel.

XI. KOREA'S SPS MEASURES ARE CONSISTENT WITH ARTICLE 8 / ANNEX C OF THE SPS AGREEMENT

99. Japan's arguments fail to establish that Korea's additional testing requirements are inconsistent with Article 8 and Annex C of the SPS Agreement.

3 A. Scope of Article 8 and Annex C

100. Japan fails to demonstrate that Korea's additional testing requirements are "procedures" within the meaning of Annex C. Japan argues that a "procedure" is defined as "[t]he fact or manner of proceeding with *any* action, or in *any* circumstance or situation". In other words, a "procedure" refers to the way or the manner in which an action or situation is processed. However, Korea's additional testing requirements do not specify the "way or manner" in which an action or situation must take place. They do not dictate the process for testing, only that testing for additional radionuclides be conducted for products that contain at least 1 Bq/kg of cesium or iodine.

101. Japan references the apparently broad scope of the wording in the chapeau of Annex C and footnote 7 of Annex C. However, the fact the chapeau references "*any* procedure" or that footnote 7 indicates that Annex C procedures can include "procedures for sampling, testing and certification," does not change the fact that Korea's additional testing requirements must still first be characterized as "procedures."

102. Because Korea's additional testing requirements indicate that testing for additional radionuclides must be conducted in products that contain at least 1 Bq/kg of cesium or iodine, not how or in what way or manner the testing is to be conducted, the additional testing requirements are not "procedures". Notably, footnote 7 to Annex C also specifies that "control, inspection and approval procedures" include "procedures for sampling, testing and certification." A "procedure" for testing would have to articulate a process for conducting the testing beyond just requiring that the testing be conducted.

103. Japan incorrectly asserts that Korea's definition of "procedures" hinges on the "specificity" or "formality" of the measure and the amount of detail published regarding the measure. On the contrary, Korea's arguments concern the nature of the measure itself and not the specificity of the details published regarding the measure. Korea's additional testing requirements are not "procedures" because they do not concern the process for conducting testing, and not because of any alleged lack of specificity in the information published about the requirements.

104. Thus, because Korea's additional testing requirements are not "procedures," they are not covered under Article 8 and Annex C.

B. Assuming Annex C(1)(a) Applies, Korea's Additional Testing Requirements Are Not Undertaken in a Less Favourable Manner For Imported Products Than For Like Domestic Products

105. Japan claims that Korea's additional testing requirements are inconsistent with Annex C(1)(a) because they allegedly are not "undertaken and completed … in no less favourable manner for imported products than for like domestic products."

[31] Japan's first written submission, paras. 184-190.

106. Japan has the burden of establishing "likeness" and has failed to meet this burden. Japan also has failed to establish that the additional testing requirements are undertaken in a "less favourable" manner for Japanese imports.

107. The approach to "less favourable treatment" under Annex C(1)(a) should proceed pursuant to the analytical approach under Article 2.1 of the TBT Agreement. The Appellate Body has found that Article 2.1 of the TBT Agreement does not "prohibit[] *any* detrimental impact on competitive opportunities for imports in cases where such detrimental impact on imports stems exclusively from *legitimate regulatory distinctions*."[32]

108. Any differences in treatment of Japanese products resulting from Korea's additional testing requirements do not amount to less favourable treatment because they are explained by a legitimate regulatory distinction. Korea has demonstrated that it implemented its additional testing requirements with respect to Japanese food products because of the food safety risks posed by the radioactive contamination from the FDNPP. Thus, Japan's claim of inconsistency with Annex C(1)(a) fails.

C. Assuming Annex C(1)(c) Applies, Korea's Additional Testing Requirements Are Not Inconsistent With This Provision

109. Japan also claims that Korea's additional testing requirements are inconsistent with Annex C(1)(c). Korea's additional testing requirements are not "information requirements" under Annex C(1)(c). However, even assuming they were subject to Annex C(1)(c), Korea's additional testing requirements are necessary to achieve Korea's ALOP.

110. Japan's attempt to liken the situation in this case with *Russia – Pigs (EU)* is misplaced. In that case, the panel examined the necessity of Russia's requests for information ("information requirements") required for the process of determining the existence of African swine fever (ASF)-free areas within the European Union (Article 8 / Annex C "procedure").[33] Thus, "information requirements" are requests for information to carry out an Article 8 / Annex C procedure. In contrast, Korea does not separately request information in order to carry out its additional testing requirements. The additional testing requirements do not involve "information requirements" that are separate from the measure itself.

111. Japan itself has stated that both the additional testing and certification requirements involve or constitute information requirements. As Japan's statement reflects, the additional testing requirements do not involve "information requirements" that can be separated from the measure itself. Japan also asserts that Korea requires not only additional testing be undertaken, but also that a "test report" or "certificate" be submitted to disclose the results of the additional testing to Korean authorities. Again, a test report or certificate is not a separate information requirement in order to carry out an Article 8 / Annex C procedure. The submission of a test report or certificate is part of the additional testing requirement itself, as there would be no purpose to requiring additional testing if the results of that testing were not recorded and presented to Korean authorities.

112. Japan also continues to challenge the additional testing requirements as being "unnecessary" to "ensure compliance with Korea's 1 mSv/year ALOP". In making such arguments, Japan is challenging the necessity of the testing requirements themselves and not any requirement to provide information. In doing so, Japan simply reiterates its Article 2.3 and 5.6 arguments. Even so, Korea has repeatedly shown that only testing for cesium does not ensure compliance with Korea's ALOP. As a result, its additional testing requirements are necessary.

113. Finally, in its responses to Panel questions after the Second Substantive Meeting, Japan asserted that in the event the Panel were to consider that Korea's additional testing requirements do not constitute "information requirements" within the meaning of Annex C(1)(c), Japan submits that the additional "certification" requirements alone constitute "information requirements", and that these certification requirements are not "limited to what is necessary for appropriate control, inspection and approval procedures." Even if the Panel were to accept this new argument at such a late stage in the proceedings, Japan again errs in trying to adopt a formalistic separation between

[32] Appellate Body Report, *US – Clove Cigarettes*, para. 174 (emphasis added).
[33] Panel Report, *Russia – Pigs (EU)*, paras. 7.564-7.571.

the additional testing requirements and the so-called "additional certification requirements." The "additional certification requirements" are not separate from the "additional testing requirements." They reflect the results from the testing conducted.

114. Even if Korea's additional testing requirements are subject to Annex C(1)(c), Korea has shown that the additional testing requirements are necessary to achieve Korea's ALOP given the insufficient measurement data on radionuclides other than cesium, the lack of correlation found between cesium and other radionuclides, and the ongoing contamination stemming from the FDNPP.

D. Assuming Annex C(1)(e) Applies, Korea's Additional Testing Requirements Are Limited To What Is Reasonable And Necessary

115. A "specimen" refers to a sample taken from a larger consignment. Annex C(1)(e) refers to regulations on the control, transport, inspection and approval of diagnostic specimens (including biological samples, infectious substances, etc.) for disease control and testing purposes. The World Organization for Animal Health (OIE) (or formerly the International Office of Epizootics), which is specifically referenced in the preamble of the SPS Agreement, has adopted standards in relation to the handling of such specimens. The most relevant standards are included in Chapter 1.1.3 of the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals: "Transport of Specimens of Animal Origin". The OIE Manual articulates requirements for the transport, collection, storage, handling and acceptance of animal specimens.

116. Korea's additional testing requirements do not concern "individual specimens". While Korea's additional testing requirements involve testing certain randomly selected samples within each Japanese consignment for other radionuclides if more than 1 Bq/kg of cesium or iodine is detected, the additional testing requirements do not outline methods or procedures concerning how the "individual specimens" or "biological samples" will be collected, handled, stored, and transported. Thus, Korea's additional testing requirements are not such procedures covered under Annex C(1)(e).

117. Even if Korea's additional testing requirements were to fall within the scope of Annex C(1)(e), they are both reasonable and necessary to achieve Korea's ALOP. Moreover, Japan's Annex C(1)(e) claim is again premised on misrepresentations regarding the key elements of Korea's additional testing requirements. Testing for additional radionuclides does not have to take place in Japan. Korea only requires that the laboratory or institution conducting the testing be authorized by the Japanese government, and thus has implemented its additional testing requirements in a reasonable manner.

E. Assuming Annex C(1)(g) Applies, the Provision Does Not Impose a Mandatory Obligation on Korea's Additional Testing Requirements

118. Korea notes that Annex C(1)(g) uses the words "should be used" rather than "shall", or even "are" which is used in Annex C, paragraphs 1(a), 1(c), and 1(e). The plain language meaning of "should", as opposed to "shall", means that this provision is hortatory.

119. Korea also notes that the language in Annex C(1)(g) is very similar to Article 5.2.6 under the TBT Agreement. However, in the latter, the mandatory nature of the provision is explicit. The distinctions in the language used in the two agreements must be given effect.

120. Moreover, the language in Article 5.2.6 of the TBT Agreement has a "necessity" test embedded within the provision. By contrast, Annex C(1)(g) only encourages the "minimizing" of inconvenience. There is an inherent lack of specificity in how each Member is to minimize the inconvenience to applicants, importers, and exporters in any given situation and what that entails. As a result, other language in the provision also provides further support for the hortatory nature of Annex C(1)(g).

121. Even assuming that Annex C(1)(g) were to impose a mandatory obligation, Korea has already demonstrated that Japan's claim fails because it is again premised on mischaracterizations of Korea's additional testing requirements.

122. Japan claims that Korea erroneously compares (i) pre-market testing of Japanese food products with (ii) point-of-sale testing of both Japanese and domestic food products. Japan then asserts that domestic Korean food products are subject only to point-of-sale testing, which may include additional testing, and are not subject to pre-market testing. This is incorrect.

123. Cesium testing is conducted on samples from randomly selected final products. In addition, Korea conducts radioactivity testing on randomly selected domestic products both at the pre-market stage (i.e., at the stage of production) and at the point-of-sale stage, in the same manner as radioactivity testing is conducted for imported foods both at the border and at the point-of-sale. Moreover, additional testing is also required for domestic Korean products that are found to contain more than 1 Bq/kg of cesium or iodine at both the pre-market stage (i.e., at the stage of production) and point-of-sale stage.

124. With respect to the "siting of facilities," Korea does not require that food products from Japan containing at least 1 Bq/kg of cesium or iodine be sent back to Japan for additional testing. Korea permits the testing for additional radionuclides to occur in Korea or prior to export to Korea, as long as the testing is conducted by an institution authorized by the Japanese government.

125. With respect to the "selection of samples", Korea reiterates that domestic food products are also subject to additional testing if at least 1 Bq/kg of cesium or iodine was detected. Japan incorrectly alleges that under Korea's measure, mandatory additional testing is required for all consignments from Japan in which any cesium or iodine is found, while Korean products are not subject to similar mandatory testing for additional radionuclides when cesium or iodine is found. For Korean products that have been found to contain at least 1 Bq/kg of cesium or iodine, testing for additional radionuclides is mandatory.

126. The plain text of Annex C(1)(g) references the "criteria" used in the "selection of samples" of imported and domestic products. Japan does not challenge cesium testing, whether at the pre-export stage or at the Korean border. That means Japan does not challenge the scope or frequency of that testing. Japan's Annex C(1)(g) claim only relates to Korea's additional testing requirements. Korea has shown that the "criteria" used in the "selection of samples" of imported and domestic products for additional testing is the same. Specifically, if 1 Bq/kg of cesium or iodine is detected, both imported Japanese products and domestic Korean products are subject to mandatory additional testing requirements. Pursuant to its annual Guidelines for Food Safety Management, Korea has required additional testing for strontium, plutonium, and other radionuclides if 1 Bq/kg of cesium or iodine is detected.

127. Japan then claims that the Panel must ensure an "apples-to-apples comparison" of the differences in sampling criteria under Annex C(1)(g) which may necessitate an assessment of whether any differences in sampling criteria are rationally related to, and justified by, differences in the respective purpose of the schemes being compared. This is a new test proposed by Japan, which is not linked to the plain text of Annex C(1)(g). There is no indication of a trade-restrictiveness or necessity test in the provision. Annex C(1)(g) only encourages Members to use the "same criteria" with respect to the "siting of facilities" and "selection of samples" for imported products and domestic products. Annex C(1)(g) does not call for an analysis of whether the differences in sampling criteria are "rationally related to, and justified by, differences in the respective purpose of the schemes being compared". As a result, the Panel should disregard Japan's attempts to insert new tests into its analysis that do not have any basis in the text of Annex C(1)(g).

128. Ultimately, however, because Annex C(1)(g) does not impose a mandatory obligation, Japan fails to show that Korea's additional testing requirements are inconsistent with Annex C(1)(g) of the SPS Agreement.

XII. CONCLUSION

129. For these reasons, Korea respectfully requests that the Panel reject Japan's claims in their entirety.

ANNEX C

ARGUMENTS OF THE THIRD PARTIES

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ANNEX C-1

INTEGRATED EXECUTIVE SUMMARY OF THE ARGUMENTS OF BRAZIL

BRAZIL'S VIEWS ON THE TRANSPARENCY OBLIGATIONS IN THE SPS AGREEMENT

1. Brazil intervenes in this dispute due to its systemic interest in the correct and consistent interpretation of the obligations contained in the Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement"), particularly those related to transparency and the provision of information related to SPS measures by the WTO Members. This integrated executive summary integrates comments made by Brazil in its Third Party Written Submission and the responses to the Panel's questions.

2. In its third party submission, Brazil clarified that it does not question the Members' right to adopt sanitary measures they deemed necessary, including an appropriate level of protection higher than that established by international standards. However, this right is not unbounded as the adoption of SPS measures are to be applied only to the extent necessary, based on scientific principles and in a non-discriminatory manner.

3. Brazil understands that the transparency obligations under Article 7 and Annex B are not something irrelevant, but central pieces of the SPS Agreement, and are directly linked to the right to adopt SPS measures. These obligations constitute the adequate means to inform others Members affected by the measures and to provide additional information they deemed necessary.

4. In what regards the obligation contained in Article 7 and Annex B, Brazil explained that, in order to maintain the balance of rights and obligations in the WTO, Members need to ensure that any sanitary measure which may affect international trade are promptly informed to the Membership, particularly those directly affected by the implementation of the measure. The duty to inform is not to be understood as *pro forma*, but entails the need to provide prompt, on-time, and effective information on all aspects of the relevant measure.

5. As for the questions of the Panel to the third parties, Brazil argued that the scope of the publication obligation provided for in Annex B(1) is not straightforward and should be interpreted in light of the provision's own object and purpose. In this sense, when Annex B(1) determines that measures adopted be published promptly "in such a manner" as to enable interested Members to become acquainted with them, it establishes that the content of the publication/notification in order to comply with this publication obligation is not fixed.

6. The expression "in such a manner" of Annex B(1) works as an operative element that informs the scope of the publication obligation and the level of detail of information to be provided. As the very basis of transparency obligations, Brazil understands that the SPS measure itself need to be published and does not agree with interpretations that suggest that the publication obligation may be narrower depending on the specificities of the relevant regulation. Nevertheless, although in most situations the simple publication of the text of the relevant SPS measures may suffice to provide enough information to interested Members, there may be cases in which the nature of the measure requires additional information so as to allow the Membership to "become acquainted with" the real scope of the SPS measure.

ANNEX C-2

INTEGRATED EXECUTIVE SUMMARY OF THE ARGUMENTS OF CANADA

I. INTRODUCTION

1. As a third party in this case, Canada submitted a written statement, an oral statement, and responses to third party questions issued by the Panel. In this Executive Summary, Canada summarizes its position on issues related to the scope of SPS Agreement Annex B.1 and Annex B.3, the interpretation of Article 2.3, and the impact of Article 5.7 on Articles 2.3 and 5.6.

A. SPS Agreement Transparency Provisions: Annex B

1. The regulation must be published under Annex B.1

2. It is Canada's position that the adopted regulation must be published pursuant to Annex B.1. Canada believes that the plain and ordinary meaning of the provision, in accordance with Article 31(1) of the Vienna Convention on the Law of Treaties (Vienna Convention), is clear and requires that all adopted SPS regulations be published promptly.

3. The context of Annex B.1 also suggests that it is the final measure itself that must be published. In contrast to Annex B.5(a) and (b), which refer to the publication of a *notice* in advance of a regulation, and Annex B.5(c), which refers to the actual copies of the *proposed* regulation, Annex B.1 clearly refers to the *adopted* measure itself that must be published promptly.

4. Canada also notes that footnote 5 to Annex B.1 states that regulations include "laws, decrees, or ordinances which are applicable generally". The Appellate Body in *Japan – Agricultural Products II* clarified that measures that are "similar in character" to those in the footnote also fall within the scope of Annex B.1. Canada does not believe a press release falls within the scope of Annex B.1 as it is not the regulation itself, it does not fall within the scope of footnote 5, and is not "similar in character" to those instruments in footnote 5. Canada does not believe that publishing a summary of a regulation is sufficient to fulfil the requirements of Annex B.1. However, if the actual regulation or measure is appended to the press release, or if there is a direct web link to the regulation or measure in a press release, the requirement to publish the "regulation" in Annex B.1 would be met.

2. "To become acquainted with" a measure in Annex B.1 means a measure must provide the level of information necessary for an exporter to understand what is required for a product to get to market

5. Annex B.1 requires that the publication of a measure be done in such a manner as to allow other Members "to become acquainted with them". It is Canada's position that this requirement goes beyond the mere publication of the measure, to whether the measure provides a level of information necessary for an exporter to understand what is required for a product to get to market.

6. In accordance with Article 31(1) of the Vienna Convention, Canada notes that the ordinary meaning of the word "acquaint" in the Shorter Oxford English Dictionary is to be made "aware" or "familiar". This suggests that a threshold amount of information must be included in the regulation. In this case, exporters would need to be sufficiently aware and familiar with the measures so that they could export their products. This could only be achieved if the measure includes a certain degree of detail and specificity. Canada also believes that the meaning of "in such a manner" should not be restricted to how a measure is published, but speaks to the content of the measure.

7. Canada notes that the Appellate Body in *Japan – Agricultural Products II* stated that the scope of Annex B.1 should be interpreted in light of the object and purpose of the provision. Canada believes that its position on the interpretation of Annex B.1 is supported by the object and purpose of the provision and the SPS Agreement more generally, which is to facilitate transparency and the predictability of the rules affecting trade in products subject to those rules.

8. The amount of information necessary to meet the threshold in Annex B.1 will depend on the circumstances of the particular measure. In some cases, a measure may be less complex and require less detail for a Member and its exporters to become sufficiently "acquainted" with the measure. However, in other cases a measure may include a series of complex requirements and necessitate a greater level of detail and explanation for exporters to understand what is required of them.

9. Canada agrees with Norway's citation of three cases under Article X:1 of the GATT 1994, as support for its position on this issue based on the similarity of the provision to Annex B.1 of the SPS Agreement. In *EC – IT Products*, the Panel held that the minutes of a Customs Code Committee meeting did not provide traders and governments with adequate knowledge of the measures at issue. In *Dominican Republic – Import and Sale of Cigarettes* and *Thailand – Cigarettes (Philippines),* the panels set out specifically what type of information would be necessary to meet the requirements of the transparency provision. These cases suggest strongly that there is a substantive requirement to the transparency provisions of Article X:1 of the GATT 1994, and not just a procedural requirement, and Canada believes that the same substantive requirement exists for Annex B.1 of the SPS Agreement.

3. Annex B.3 includes a substantive obligation to provide answers to "reasonable questions" and to provide "relevant documents" where requested

10. Canada believes that Annex B.3 is not limited to a procedural requirement of establishing an Enquiry Point, but includes a substantive obligation of responding meaningfully to reasonable questions and providing relevant documents that fall within the scope of Annex B.3(a)-(d).

11. It is Canada's position that limiting Annex B.3 to a procedural requirement is contrary to the plain and ordinary meaning of the provision, and would deprive it of any practical meaning. Furthermore, such an interpretation would be contrary to the object and purpose of the provision, which is clear from reading the text: there is an obligation to not only have an Enquiry Point, but to answer all reasonable questions and provide documents that fall within the scope of the provision. To suggest that the text of the treaty should be interpreted as requiring the establishment of an Enquiry Point to respond to inquiries that fall within the subparagraph (a)-(d), but that there is no obligation to actually answer any of these inquiries, is absurd. As stated by the Appellate Body in *Australia – Salmon*, it "would obviously be wrong to interpret the SPS Agreement in a way that would render nugatory entire articles or paragraphs of articles of this Agreement and allow Members to escape from their obligations under this Agreement".

12. Canada also believes there is extensive support for its position when the provision is read in its context. Annex B.4, also under "Enquiry Points", clearly assumes that the documents requested under Annex B.3 will be delivered (and supplied at a certain price). Canada also recalls that Article 7 (Transparency) requires Members to "…provide information on their [SPS] measures in accordance with the provisions of Annex B", and Annex B.3 reflects the obligation in Article 7 to provide relevant documents and answer reasonable questions.

13. Canada disagrees with the United States' position that Members' substantive obligations with respect to transparency are not found in Annex B.3, but are found in other provisions such as Annex B.1 and Article 5.8. Canada notes that the transparency obligations in Annex B.1 and Article 5.8 address two very narrow and specific scenarios. Annex B.1 addresses the requirement to promptly publish the adopted SPS measure in such a manner as to enable Members to become acquainted with them, while Article 5.8 allows a Member to request an explanation of the reasons for an SPS measure when there is reason to believe that the measure is constraining or has the potential to constrain its exports, and the measure is not based on international standards. The only other substantive transparency obligations in Annex B fall under "Notification Procedures", which are also limited and specific in their application: they apply in the context of a proposed

regulation. It would be illogical to suggest that there are comprehensive transparency obligations for proposed regulations, but none when the measure has been adopted.

14. Canada has taken the position that the meaning of "reasonable questions" and "relevant documents" in Annex B.3 should be determined in light of what information Members and exporters need in order to ensure equality of competitive opportunities for foreign producers and exporters. This position is supported by the plain and ordinary meaning of "reasonable" and "relevant" in the Shorter Oxford English Dictionary. "Reasonable" means "appropriate or suitable to the circumstances or purpose" and not "irrational, absurd or ridiculous". "Relevant" means "bearing on, connected with, or pertinent to the matter at hand". Canada submits that what would constitute reasonable information or relevant documents in this case would be information that would be necessary for exporters to understand what is required for a product to be eligible for market access.

15. Overall, there will be an element of discretionary judgment that WTO panels will have to exercise in deciding what level of detailed information must be published in Annex B.1 and what can be addressed subsequently under Annex B.3. Canada believes that the two provisions work in tandem.

B. SPS Agreement Substantive Provisions

1. SPS Agreement Article 2.3 and "where identical or similar provisions prevail"

16. The first sentence of Article 2.3 sets out a three-step test that includes the following cumulative elements: a) that identical or similar conditions prevail in the territories of the Members being compared; b) that the challenged measure discriminates between those Members; and c) that the discrimination is arbitrary or unjustifiable.

17. The first step of the test requires a comparison of conditions, similar to that found in Article XX of the GATT 1994. Canada notes that the Appellate Body in *EC – Seal Products* stated that the term "conditions" could encompass a number of circumstances facing a country, while the panel in *Australia – Salmon (Article 21.5 – Canada)* stated that discrimination under Article 2.3 of the SPS Agreement may include discrimination between products that are different.

18. Canada takes the position that it is the similarity of risks that is the central factor in the first step of the Article 2.3 analysis. For example, the mere presence of a disease in a Member's territory and the risk associated with that disease may be a relevant condition if the same or similar disease prevails in another Member's territory. A comparison of the level of risks posed by comparable products may be one of many factors that can be taken into account in an "identical or similar conditions" analysis. Canada also notes that the jurisprudence suggests that the conditions to be compared must be relevant and case-specific, and that the regulatory objective of a measure can provide guidance on the question of which conditions prevailing in Members are relevant. In the context of this case, Canada believes that an assessment of relevant conditions should include, for example, the presence of toxins within a territory, namely the presence of cesium, and the risk-mitigating measures in place to assure the sanitary safety of food products.

2. The nature of a provisional measure under Article 5.7 should be taken into account in an assessment under Articles 2.3 and 5.6

19. Canada believes that the provisional nature of a measure is a relevant consideration for the purposes of the other substantive obligations in the SPS Agreement, if the measure also satisfies the criteria in Article 5.7.

20. Canada recalls the position of the Appellate Body in *EC – Approval and Marketing of Biotech Products*, that the threshold issue for Article 5.7 is whether relevant scientific evidence is insufficient. A measure would fall within the scope of Article 5.7 only if the four cumulative criteria cited by the Appellate Body in *Japan – Agricultural Products II* are met: the measure is imposed where relevant scientific information is insufficient; the measure is adopted on the basis of pertinent information; the Member adopting the measure seeks to obtain the additional

information necessary for a more objective assessment of risk; and that the Member reviews the measure accordingly within a reasonable period of time.

21. Canada notes that the panel in *EC – Approval and Marketing of Biotech Products* stated that the obligations of Articles 2.1, 2.3 and 2.4 are applicable to provisional measures under Article 5.7. However, Canada believes that if a measure meets the requirements of Article 5.7, this must be taken into account in an assessment of the measure under Articles 2.3 and 5.6. Therefore, for example, an analysis under Article 2.3 would take into account the fact that there was insufficient evidence to complete a full risk assessment on which to base the measure. Similarly, an assessment under Article 2.3 should take into account the fact that a measure is provisional under Article 5.7. For example, in assessing whether a measure is arbitrary or unjustifiable, Korea may provide a justifiable rationale for the imposition of more stringent measures against Japanese fish products as compared to similar products from other countries.

ANNEX C-3

INTEGRATED EXECUTIVE SUMMARY OF THE ARGUMENTS OF THE EUROPEAN UNION

1. CLAIMS RELATED TO ARTICLE 7 AND ANNEX B OF THE SPS AGREEMENT

1.1. THE ALLEGED FAILURE TO PUBLISH THE SPS REGULATIONS

4.1.2.1. Relationship of Article 7 and Annex B

1. The European Union (EU) agrees with previous panels and the Appellate Body that a finding of inconsistency with Annex B would result in a finding of inconsistency also with Article 7. The EU recalls that previous panels have therefore started by examining the claims under Annex B.

4.1.2.2. Paragraph 1 of Annex B

2. According to Annex B(1), Members shall ensure that SPS regulations (i.e. SPS measures, read in conjunction with footnote 5 of the SPS Agreement) are published promptly "in such a manner as to enable interested Members to become acquainted with them." The Appellate Body has previously stated in *Japan – Agricultural Products II* that the object and purpose of Annex B(1) is to enable interested Members to become acquainted with SPS measures and to enhance transparency regarding those measures. With regard to the similarly worded publication obligation in Article X:1 GATT 1994, the panel previously found in *EC – IT Products* that the publication should provide governments and traders with "adequate" knowledge of the measures in question. The case law as well as the fact that the SPS Agreement contains several provisions dealing with transparency (e.g. Article 5.8, Article 7, Annex B) underline the importance of transparency obligations under the SPS Agreement.

3. The overall purpose of Annex B(1) therefore is to ensure that other Members (and their exporters) are able to understand the SPS measure in question, to know what is required of them so that they can continue exporting e.g. their food and feed products to the Member adopting the SPS measure. Whether a given publication fulfils this purpose in a specific case will depend on a case-by-case analysis.

4. Accordingly, the EU considers that in principle the publication of the SPS measure as such is required but also sufficient to fulfil the transparency obligation under Annex B(1). However, what is required of a Member to comply with the obligation to publish may depend on the factual circumstances of a given case. The EU therefore does not take the position that the publication by Korea of press releases regarding the SPS measures *per se* allows to conclude on the inconsistency of the publication with Annex B(1) on the grounds that a press release does not constitute the SPS measure itself. The EU considers that in certain exceptional circumstances, the publication of a text falling short of the full text of the SPS measure may be sufficient to fulfil the transparency obligations. In the case of a press release, this could be the case, for example, if the press release contains a web link to the full text of the respective SPS measure or if the SPS measure is described in such a manner so as to amount *de facto* to the publication of the SPS measure. The EU does not conclude on the factual question as to whether this is the case.

1.2. THE ALLEGED FAILURE TO PROVIDE INFORMATION

5. Annex B(3) states that each Member "shall ensure that one enquiry point exists" which is "responsible" for providing answers and documents. In view of the importance of the transparency obligations under the SPS Agreement, the EU considers that Annex B(3) would be devoid of purpose if it would contain a mere obligation to set up an enquiry point and to provide any type of answers or documents, irrespective of their substantive content.

6. According to the European Union's view, Annex B(3) contains an obligation for Members to provide meaningful answers and documents. The provision of an answer/document creates a presumption that the obligation to provide meaningful answers has been complied with. This presumption may be rebutted in which case the panel may find an inconsistency with Annex B(3).

7. However, the obligation to provide meaningful answers is subject to certain limitations, e.g., (i) it only applies with respect to "reasonable" questions and "relevant" documents; (ii) it is subject to a standard of reasonableness; (iii) it must be considered in the overall context (e.g. not every

failure to reply is an inconsistency) and (iv) the questions and documents must "regard", i.e. be closely related to the items listed exhaustively in subparagraphs (a) to (d).

8. The EU also notes that any argument that Article 5.8 contains a specific (and hence the only) obligation to provide answers under the SPS Agreement cannot prevail. Article 5.8 concerns a specific obligation to provide "explanations of the reasons" for an SPS measure in particular circumstances. This is a situation which is not necessarily covered by Annex B(3) and hence Article 5.8 is not relevant to define the scope of the obligation under Annex B(3).

2. CLAIMS RELATED TO ARTICLE 2.3 OF THE SPS AGREEMENT

2.1. RELATIONSHIP OF ARTICLE 2.3 WITH OTHER PROVISIONS

9. The EU agrees with previous case law stating that an inconsistency with Article 2.3 can be found independently of an inconsistency with the more specific obligation of Article 5.5. Therefore Japan may invoke an inconsistency with Article 2.3 without having to invoke Article 5.5.

10. The EU also considers that the potential provisional nature of Korea's SPS measures and hence Article 5.7 and its relationship with Article 2.3 may be relevant for the panel's assessment in the present case. Japan makes no claim under Article 5.7 of the SPS Agreement. Korea also does not make an explicit argument under Article 5.7, except to generally describe its measures as "provisional in nature pursuant to Article 5.7". Korea's arguments under Article 2.3 (and under Article 5.6) focus on the alleged lack of scientific information. The EU notes that Article 5.7 can be relied upon by the respondent against a claim brought under another relevant provision of the SPS Agreement even if the complainant did not invoke Article 5.7.

11. The EU considers that Article 2.3 remains applicable even if a measure is provisional under Article 5.7. Other than in Article 2.2, Article 5.7 is not mentioned as a qualified exemption in Article 2.3. The EU also considers that the provisions in Article 5.7 and Article 5.5 (and Article 5.6, see below) are closely connected and contextually inform each other. A situation of insufficient scientific evidence should not completely insulate the regulating Member from the specific non-discrimination obligation under Article 5.5 and the same applies to the general non-discrimination obligation under Article 2.3. However, the assessment under Article 2.3 would in such case be informed by the fact that a provisional measure is, by definition, based on incomplete information. This is similar to the situation in EC - Biotech where the panel held that, where scientific evidence is insufficient, Members are only required to perform a risk assessment which "takes into account available pertinent information". The non-discrimination analysis of a provisional measure should therefore not be carried out under the same standard as for a definitive measure, based on a full risk assessment.

12. The EU also takes the view that Article 2.3 cannot be meaningfully applied in the present case without taking into account if Korea's SPS measures are provisional, whether Article 5.7 is invoked or not and whether the conditions of Article 5.7 are fulfilled or not. In deciding any claim under Article 2.3, a panel must look at the totality of the facts and evidence which may include the provisionality of a measure. This is also warranted under Article 11 DSU. The EU also considers that the fact that "all relevant factors" should be considered for the guidelines with respect to the implementation of the non-discrimination obligation under Article 5.5 indicates that all relevant factors should also be considered for an analysis as regards non-discrimination under Article 2.3.

2.2. ARTICLE 2.3

13. Under Article 2.3, first sentence, an SPS measure is discriminatory if (1) the measure discriminates between the territories of Members other than the Member imposing the measure, or between the territory of the Member imposing the measure and that of another Member; (2) the discrimination is arbitrary or unjustifiable; and (3) identical or similar conditions prevail in the territory of the Members compared. The EU agrees with the position of previous panels that measures that constitute arbitrary or unjustifiable discrimination also constitute a disguised restriction under Article 2.3, second sentence.

14. The central issue under Article 2.3 in the present case appears to be whether identical or similar conditions prevail in the territory of the Members compared. The EU recalls that Article 2.3, contrary to the usual position with respect to non-discrimination obligations under other WTO agreements, may also include discrimination between different (non-competing) products. Article 2.3 therefore does not require a comparison in order to determine whether certain products are "like" but requires a comparison in order to determine whether conditions are similar or identical.

15. Japan's comparison in the present case focuses on the question of whether and to what extent Japanese food and food from other sources may contain cesium and other radionuclides. Contrary to Korea's contention, the EU does not consider that this constitutes an assessment as to whether the products are comparable, since Japan did not carry out any analysis of the competitive relationship between Japanese and non-Japanese fishery products. The level of radionuclides in food products is one important element to assess whether conditions are similar in a case like the present one. However, the EU considers that the panel will have to carefully assess whether Japan has shown, on the basis of a comparison of all relevant factors, that the conditions in the respective territories are similar.

3. CLAIMS RELATED TO ARTICLE 5.6 OF THE SPS AGREEMENT

16. Under Article 5.6, an SPS measure is more trade-restrictive than required if there is an alternative SPS measure which (1) is reasonably available, taking into account technical and economic feasibility; (2) achieves the Member's ALOP and (3) is significantly less trade restrictive than the contested measure. It is for each Member to choose its own ALOP. However, the Member should calibrate its measures according to the chosen level.

3.1. IMPORT BANS

17. The EU proceeds on the assumption that Japan's proposed alternative measure corresponds to Korea's approach to food from non-Japanese sources.

18. The Appellate Body has noted that the SPS Agreement contains an implicit obligation to determine the appropriate level of protection. Where a Member does not do so with sufficient precision, the ALOP may be established by panels on the basis of the level of protection reflected in the SPS measure actually applied. With this in mind, the relationship between Korea's 1 mSv/year benchmark and the "ALARA" principle should be clarified, in order to understand at which level the ALOP is actually set. Moreover, the Panel may look to the "SPS measure actually applied" for evidence on Korea's ALOP. If such an assessment showed that Korea seeks to ensure an ALOP of 1 mSv/year with respect to Korean food and non-Japanese imports, it would be difficult to see how a different ALOP could apply to Japanese imports. If the ALOP was said to be "ALARA" for food from all sources, this might suggest that Korea's measure does not reach Korea's own ALOP with respect to Korean and non-Japanese food.

19. Another contentious issue is whether Japan's proposed alternative measure achieves Korea's ALOP. In this respect, the EU focuses on the relationship between necessity, as expressed in Article 5.6, and insufficient scientific evidence, as expressed in Article 5.7 of the SPS Agreement. As mentioned earlier, none of the Parties invokes Article 5.7 in the present case.

20. Article 5.6 should be read together with Article 2.2 of the SPS Agreement. Article 2.2 excludes from its scope of application the kinds of situations covered by Article 5.7. This does not necessarily mean that situations covered by Article 5.7 are excluded from the scope of Article 5.6. Articles 5.6 and 5.7 are closely connected provisions. For example, the reference to "technical feasibility" in Article 5.6 could lead the adjudicator to ask whether it was technically feasible, in a situation of insufficient scientific evidence, for the regulator to design a less restrictive measure; conversely, the Article 5.7 requirements to base provisional measures on "available pertinent information", to seek additional information and review the measure, are a way of preventing the maintenance of overly trade-restrictive measures. In deciding any claim under Article 5.6, a panel must look at the totality of the facts and evidence. It is hard to see how facts and evidence showing that a measure is, in some sense, provisional in nature could be disregarded just because Article 5.7 was not relied upon. Moreover, even where those facts and evidence would not in themselves be sufficient to fulfil the requirements of Article 5.7, there is no basis on which a panel could simply disregard them entirely, in view of its obligation under Article 11 DSU.

21. The *EC - Biotech* panel held that, where scientific evidence is insufficient, Members are only required to perform a risk assessment which "takes into account available pertinent information". Such considerations should also weigh in with respect to Article 5.6. A provisional measure is, by definition, based on incomplete information. There may be uncertainty as to such a measure's contribution to the Member's ALOP, or its trade-restrictiveness. Alternative measures may be more difficult to implement on a provisional basis. A provisional measure could still be more trade restrictive than necessary, for example if it does not take into account "available pertinent information". Conversely, the fact that a measure is manifestly unnecessary and disproportionate would be relevant to determining whether or not the measure is in fact based on pertinent information. Both scenarios would support the conclusion that the measure breaches both Article 5.7 and Article 5.6.

22. Moving on, the EU agrees that, in principle, product testing is a less trade restrictive measure than an import ban, since it still allows imports to access the regulating Member's market. Finally, the EU agrees with Japan that the regulating Member's existing use of the alternative measure with respect to the same or closely comparable products or risks could support the claim that the measure is reasonably available.

3.2. ADDITIONAL TESTING REQUIREMENTS

23. The EU refers *mutatis mutandis* to its comments on the necessity of the import bans, adding only the following remarks on whether the alternative measure is significantly less trade restrictive. Here, the central issue is the extent of market access permitted by the two measures being compared. Any additional costs, complexities and delays that are imposed on imports as a result of the measure at issue, which would not be imposed under the alternative measure, should be taken into account. Thus, the EU disagrees with Korea insofar as it seems to suggest that differences in costs and delays are not a relevant consideration.

24. With respect to Korea's argument that additional testing is also contemplated by the Codex standard, the EU notes that whether or not an SPS measure is based on an international standard is not necessarily an issue that arises under the third prong of the Article 5.6 test. If the measures were considered to conform to a relevant international standard, they would benefit from a rebuttable presumption of conformity with the SPS Agreement under Article 3.2. Article 5.6 of the SPS Agreement applies "without prejudice" to Article 3.2. Consequently, in such a situation, it would be for the complainant to rebut the presumption of necessity.

4. CLAIMS RELATED TO ARTICLE 8 AND ANNEX C OF THE SPS AGREEMENT

25. The Appellate Body has found that Article 8 of the SPS Agreement "establishes an obligation to comply with the provisions in Annex C". A violation of the obligations in Annex C will also entail a violation of Article 8. Korea argues that an SPS measure itself cannot also constitute a "procedure" subject to Annex C. The EU does not find such a rigid distinction convincing. An SPS measure may itself contain rules on inspection and control procedures. For example, if a measure simply requires food to be tested on importation in order to establish whether it contains a certain contaminant, it would be an SPS measure, but it would also concern inspection and control procedures. On the other hand, the requirements of Annex C should not apply to each and every SPS measure. Annex C measures must concern control, inspection and approval procedures.

26. Many of the specific provisions of Annex C are similar to obligations that are expressed elsewhere in the SPS Agreement. For example, paragraph 1(a) is related to the non-discrimination rule of Article 2.3, and paragraphs 1(c) and 1(e) are reminiscent of the necessity rules in Articles 2.2 and 5.6. With this in mind, the EU expects that the Panel will have largely completed its task with respect to some of the Annex C claims by deciding on Japan's Article 2.3 and 5.6 claims.

27. Regarding paragraph 1(a), the EU recalls the finding of the *EC - Biotech* panel that "a mere showing that a Member has undertaken or completed a particular approval procedure in a manner which is unfavourable for a given imported product would not be sufficient to establish a "less favourable manner" of undertaking or completing approval procedures if the relevant Member's conduct is explained by factors or circumstances unrelated to the foreign origin of the product." Regarding paragraph 1(c), the same report suggests that a complainant should normally identify "specific information requirements which were imposed on applicants" in the relevant procedures, and "why any such requirements were not necessary". Regarding paragraph 1(e), that panel suggested that it is not sufficient that the procedure involves testing of specimens, but that the claim must identify specific requirements which were imposed "for the approval of individual specimens".

ANNEX C-4

EXECUTIVE SUMMARY OF THE ARGUMENTS OF NEW ZEALAND

I. Introduction

This case and the associated third party submissions have raised some important systemic issues concerning transparency and provisional measures under the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). New Zealand's participation as a third party in these proceedings reflects our systemic interest in the proper implementation of the SPS Agreement.

II. Relationship between Articles 5.7, 2.3 and 5.6

Article 5.7 of the SPS Agreement relates to provisional measures, adopted in cases where relevant scientific evidence is insufficient. Japan makes no claim under this Article. Consequently, Korea does not make a specific legal argument relating to Article 5.7. While Article 5.7 is not directly at issue in this case, Korea generally describes its measures as "provisional in nature pursuant to Article 5.7 of the SPS Agreement"[1] and its arguments under Articles 2.3 (Non-Discrimination) and 5.6 (Appropriate Level of Protection) draw on the alleged lack of scientific information, and inability to carry out a risk assessment.[2]

The EU argued, in its third party submission, that the provisional nature of a measure is relevant to the analysis carried out under Articles 2.3 and 5.6. In contrast, New Zealand considers that articles 2.3 and 5.6 apply in the same way to both provisional and definitive SPS measures.

In relation to Articles 2.3 and 5.7, the EU says in its written submission "the non-discrimination analysis of a provisional measure should not be carried out under the same standard as for a definitive measure, based on a full risk assessment." New Zealand takes a different view. A different standard should not be applied. However, if relevant, the factors surrounding the imposition of provisional measures may be taken into account when carrying out an analysis under Article 2.3. For instance, the fact that insufficient evidence is available about conditions in one Member *vis a vis* another Member may contribute to a finding that similar conditions do not prevail in these two countries. Evidence will have to be adduced as to the lack of evidence available, leading to the claim that similar conditions do not prevail.

We apply a similar analysis to Article 5.6. We do not consider that a different standard should be applied to assessing the compliance of provisional measures with Article 5.6. Rather, the circumstances surrounding the establishment or maintenance of a measure should be taken into account when assessing whether the measures in questions are "not more trade restrictive than required to achieve the [Member's] appropriate level of protection, taking into account technical and economic feasibility". The consideration of technical feasibility provides scope to consider the technical difficulties which may arise from having a lack of scientific information available when designing a measure or considering alternative measures (in terms of footnote 3 to Article 5.6) and determining whether it will meet a Member's appropriate level of protection.

In this case it is not necessary for the Panel to consider this issue in order to resolve the dispute, as Korea's measures have not been shown to be provisional in accordance with Article 5.7. However, if a Panel were to take into account the provisional nature of measures in an examination of claims under Articles 2.3 and 5.6, then it must be demonstrated that the measures are indeed "provisional" in accordance with Article 5.7. The burden falls on the party invoking the Article 5.7 "justification" to prove that their measures comply with Article 5.7, meeting the four cumulative requirements which must be met in order to adopt and maintain a provisional SPS measure (as set out by the Appellate Body in *Japan — Agricultural Products II*[3]). In the absence of such proof, arguments relating to insufficient scientific evidence and provisional measures may not

[1] Korea First Written Submission, para. 83.
[2] Korea First Written Submission, paras. 138, 190, 244 and 248.
[3] Appellate Body Report, *Japan - Measures Affecting Agricultural Products*, WT/DS76/AB/R, adopted 22 February 1999, para. 89.

be part of the interpretative exercise under Articles 2.3 and 5.6. We cannot "relax" the core obligations in these two articles by referencing Article 5.7 but not providing any evidence that the elements of Article 5.7 are met.

III. Annex B(1) of the SPS Agreement requires publication of the measure itself

New Zealand's view is that the publication obligation under Annex B(1) requires publication of the text of the relevant SPS measures, in all instances. Annex B(1) states clearly that all SPS regulations (SPS measures such as laws, decrees, or ordinances) shall be published. Moreover, an interpretation of this obligation in accordance with the plain reading of the words, and in light of the object and purpose of the Annex – transparency – suggests that the measures themselves are to be published.

Publishing an incomplete summary of regulations, for example, through a press release, is not an acceptable means of satisfying this obligation. Given the technical nature of SPS regulations, in order to ensure compliance, Members must have access to the full text of regulations. This is especially important for measures of a provisional nature, which are adopted without prior notice and without Members having had an opportunity to comment.

A requirement to publish the text of SPS measures provides a predictable baseline which must be met by all Members. While the legal obligation to publish SPS measures will be met once the text of the measure is published, Members should be encouraged to publish extra information relating to their measures to assist with implementation and understanding. A Member must never publish *less* than the measure itself.

New Zealand does not see a continuum of obligations as useful here, with publication meaning less than the text of an SPS regulation in some circumstances, and more than the text of the regulation in other circumstances. Rather than Members unilaterally deciding what they should publish, depending on how complex they believe their regulations to be, Members need certainty about what they are obligated to publish. New Zealand sees one fixed standard - publication of the measure itself - as facilitating such certainty.

We recognise that in some cases, additional information may be required by some Parties in order to interpret particularly complicated measures. However, it is the role of the enquiry point, pursuant to Annex B(3), to provide this information if requested by interested Members.

IV. Annex B(1) of the SPS Agreement does not govern the level of detail required in a measure

There are two possible interpretations of the obligation that "Members shall ensure that all sanitary and phytosanitary regulations which have been adopted are published promptly in such a manner as to enable interested Members to become acquainted with them."

The first interpretation is that this obligation is about access to SPS regulations; the manner in which a regulation is published refers to the way in which a regulation is published, the medium of publication. Regulations must be published in an accessible way, such as on a government website, or in easily accessible journals. Annex B(1) applies to regulations that *have been adopted*. Therefore, it would not follow from this that Annex B(1) should govern the level of detail that a regulation must go into, because it applies to regulations that have already been adopted.

The second interpretation is that the manner in which a regulation is published refers to the content of the regulation, and the level of detail required in the publication so that a Member can become acquainted with the requirements of the regulation.

New Zealand's inclination is to follow the first interpretation. The ordinary meaning of the word manner ("a way in which a thing is done or happens") in the context of this obligation seems to refer to the way in which a regulation is published, rather than the level of detail required of the regulation (for the reasons set out above in paragraph 7).

However, if the Panel takes the second interpretation of Annex B(1) and determines that it governs the level required in a regulation, New Zealand considers that the level of detail required by Annex(1) is that which will allow Members to understand what is required for compliance with a

particular SPS regulation. New Zealand agrees with Canada, who adopted a similar approach in its oral statement, stating that "the level of detail or information required by Annex B(1) is that which allows Members and its exporters to understand what is required for their products to be eligible for market access".

V. Members are required to provide answers to reasonable questions and relevant documents under Annex B(3), not under Article 5.8

New Zealand considers that Annex B(3) contains a substantive obligation for Members to both establish an enquiry point, and through this enquiry point, to respond to all reasonable questions from interested Members as well as provide relevant documents.

As stated by Canada in its third party written submission,[4] to interpret this obligation in a way that requires an enquiry point to be established, but does not require the enquiry point to actually respond to questions, makes little sense. Further, the qualifications placed on what can be directed to the enquiry point – *reasonable* questions and requests for *relevant* documents – would be ineffective and unnecessary if there were no obligation to respond to questions at all.

Article 5.8 is applicable only in a narrow range of circumstances. It allows Members to request an explanation of the reasons for SPS measures in situations where they have reason to believe that a specific SPS measure maintained by another member is constraining, or has the potential to constrain its exports, and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist. On the contrary, Annex B(3) is applicable in a much wider range of circumstances – Members must provide answers to all reasonable questions from interested Members, as well as provide relevant documents regarding any SPS regulations adopted or proposed within their territory, risk assessment procedures, and the determination of their appropriate level of sanitary or phytosanitary protection, among other things.

As we can see from a comparison of these two provisions, the purpose and content of Article 5.8 and Annex B(3) are different, and they are applicable in different situations. Article 5.8 is specific to Members seeking clarification about the reasons behind measures they believe to be constraining and not based on international standards. However, under Annex B(1) a Member may ask reasonable questions and request relevant documents about *any* SPS measure imposed by a Member.

[4] Canada Third Party Written Submission, para. 21.

ANNEX C-5

EXECUTIVE SUMMARY OF THE ARGUMENTS OF NORWAY

I. INTRODUCTION

1. A transparent regulatory framework is a prerequisite for international trade in general and the importation of food products in particular. Without the possibility to gain access to relevant and precise information regarding the requirements applicable to the importation of food products, traders are left without predictability and the appropriate due process guarantees. In the Recommended procedures for implementing the transparency obligation of the SPS Agreement (Article 7), the SPS Committee recognised transparency as one of the fundamental principles of the WTO.[1]

II. THE RELATIONSHIP BETWEEN ARTICLE 7 AND ANNEX B

2. Article 1.3 of the SPS Agreement states that "[t]he annexes are an integral part of this Agreement". The SPS Agreement Article 7 refers to Annex B, stating that "Members […] shall provide information on their sanitary or phytosanitary measures in accordance with Annex B". In *India – Agricultural Products* the panel clarified that "Article 7 must be read together with the provisions of Annex B of the SPS Agreement".[2] Moreover, the same panel pointed out that the Appellate Body has found that "an inconsistency with the provisions of Annex B results in an inconsistency with Article 7".[3]

3. Accordingly, it is quite clear that a violation of any of the paragraphs of Annex B will result in a violation of Article 7 of the SPS Agreement. Whether this is the situation in the case at hand, will depend on an interpretation of paragraph 3 and the assessment of the facts.

III. PUBLICATION REQUIREMENTS

A. Interpretation of Article 7 and paragraph 1 of Annex B

a) Publication vs information

4. In *Japan - Agricultural Products II* the Appellate Body addressed paragraph 1 of Annex B to the SPS Agreement and stated that;

> The object and purpose of paragraph 1 of Annex B is "to enable interested Members to become acquainted with" the sanitary and phytosanitary regulations adopted or maintained by other Members and thus to enhance transparency regarding these measures. In our opinion, the scope of application of the publication requirement of paragraph 1 of Annex B should be interpreted in the light of the object and purpose of this provision. [4]

5. Article 7 of the SPS Agreement contains an obligation on Members, namely that Members "shall provide information" on their sanitary or phytosanitary measures. This must be done in accordance with the provisions in Annex B, which clarifies and specifies the content of Article 7. Following Annex B(1), adopted SPS regulations must be "published promptly in such a manner as to enable interested Members to become acquainted with them".

6. In *Japan – Agricultural Products II*, guidelines had been distributed to a limited number of addressees, and the Ministry of Agriculture, Forestry and Fisheries (MAFF) was available to answer queries. Still, the panel found that this was not sufficient to satisfy the publication requirement in Annex B(1) of the SPS Agreement.[5] Norway understands this to mean that access to information

[1] G/SPS/7/Rev.3, para. 1.
[2] Panel Report, *India – Agricultural Products,* para. 7.741.
[3] Ibid, referring to Appellate Body Report, *Japan – Agricultural Products II*, para. 108.
[4] Appellate Body Report, *Japan - Agricultural Products II*, para. 106.
[5] Panel Report, *Japan - Agricultural Products II,* para. 8.115.

upon request would not fulfil the publication requirement. Rather, the publication requirement in paragraph 1 of Annex B and Article 7 must be interpreted to the effect that it entails a positive obligation on the Member, a duty to act on one's own initiative and to publish all SPS regulations.

7. Thus, the publication requirement will be fulfilled only if SPS regulations are published in a manner that makes them publicly available, so all interested Members and traders can become acquainted with them. This interpretation is in line with the fundamental aim of transparency, namely to facilitate international trade by ensuring clarity and predictability of Members' regulations.

b) The content of the publication requirement

8. In accordance with paragraph 1 of Annex B to the SPS Agreement*,* Members shall ensure that "all sanitary and phytosanitary regulations" are published promptly. In line with the wording of the SPS Agreement*,* it is the SPS regulation itself that must be published. This interpretation is also in line with the assessment of the panel in *Japan - Agricultural Products II.*[6] Footnote 5 to Annex B(1) clarifies that "regulations" mean "sanitary and phytosanitary measures such as laws, decrees or ordinances which are applicable generally", thus referring back to the wording of Article 7 of the SPS Agreement*.* This entails an obligation to publish the *text* of the relevant SPS measures, regardless of the specificities of the relevant regulation.

9. Should, however, the Panel find that paragraph 1 of Annex B to the SPS Agreement does not contain an unconditional obligation to publish the SPS regulation itself, Norway would argue, in the alternative, that this provision nevertheless contains an obligation on Members to publish complete and sufficiently detailed information on the regulation to allow other Members and traders to achieve the clarity and predictability necessary to facilitate international trade in food products. This follows from the standard set in paragraph 1 of Annex B to the SPS Agreement*,* namely that SPS measures must be published "in such a manner as to enable interested Members to become acquainted with them" (underlining added).

10. Similar publication requirements may be found in a number of WTO Agreements and case law concerning other WTO Agreements containing such provisions may also be relevant for the interpretation of the SPS Agreement*.* In this respect, Norway refers to the panel reports in *EC – IT Products,*[7] *Dominican Republic — Import and Sale of Cigarettes*[8] and *Thailand — Cigarettes (Philippines).*[9] These cases illustrate that Members must publish complete and precise information regarding the applicable rules and restrictions on the importation of food products. The manner in which this information is published must be adequate, to ensure that it enables Members to become acquainted with them.

11. The case at hand also illustrates the need for precise information on SPS regulations, to ensure that Members and traders are able to gain knowledge about the regulatory framework within which they must operate. Moreover, the challenges highlighted by Japan in this case point back to the object and purpose of transparency as a fundamental principle of the WTO, namely to achieve a greater degree of clarity, predictability and information about trade policies, rules and regulations of Members for the benefit of all traders.

12. In its First Written Submission, Korea argues that Japan complains about a level of detail that goes beyond the publication requirement in paragraph 1 of Annex B to the SPS Agreement.[10] Moreover, Korea claims that "[t]he fact that paragraph 3 anticipates that interested Members may have questions confirms that publication under paragraph 1 does not require that publication include a description with the level of detail demanded in this case by Japan".[11]

13. Norway does not share this interpretation of the relationship between paragraphs 1 and 3 of Annex B of the SPS Agreement*.* As set out above, it is in our view clear that the publication requirement in paragraph 1 relates to the measure itself. We cannot, however, see that the obligations set out in paragraph 3 affect or limit the scope of the publication requirement in

[6] Ibid.
[7] Panel Reports, *EC – IT Products,* paras 7.1086 and 7.1087.
[8] Panel Report, *Dominican Republic - Import and Sale of Cigarettes,* para. 7.414.
[9] Panel Report, *Thailand - Cigarettes (Philippines*), paragraph 7.789.
[10] Korea's First Written Submission, para. 376.
[11] Korea's First Written Submission, para. 377.

paragraph 1. Rather, paragraph 3 complements paragraph 1 in that it stipulates easy access, through one enquiry point, to relevant information on SPS measures. This includes, but is not limited to, information about the measure itself. Paragraph 3 has a much wider scope, in that it obliges Members to provide documents on proposed SPS measures, control and inspection procedures, risk assessment procedures etc.

14. Thus, the level of detail demanded by Japan is not in itself decisive for the content of the publication requirement. What must be published is the SPS regulation itself, irrespective of the level of detail in the regulation.

IV. THE INTERPRETATION OF ARTICLE 7 AND PARAGRAPH 3 OF ANNEX B

a) The obligation to provide answers and documents in paragraph 3 of Annex B

15. Annex B of the SPS Agreement is entitled "Transparency of Sanitary and Phytosanitary Regulations" and concerns in its entirety different forms of transparency provisions. This reflects the importance of clarity, predictability and information on national regulations for the trade in food products.

16. Paragraph 3 requires Members to establish enquiry points which are responsible for "the provision of answers to all reasonable questions from interested Members" and "for the provision of relevant documents". The obligation to have an enquiry point is not disputed in this case, rather the disagreement between Korea and Japan concerns the precise content of the obligation in paragraph 3.

17. To this, Norway would argue that an obligation on Members to answer reasonable questions and to provide relevant documents follow from the wording of paragraph 3. The answers and the documents may not necessarily be prepared by the enquiry point itself, for instance other governmental entities may assist the enquiry point. However, the basic idea with the enquiry point is that interested Members shall have one point of contact in another Member where it will be able to obtain answers to its questions.

18. Read in the context of the wording of Article 7 of the SPS Agreement, which states that "Members shall […] provide information […] in accordance with […] Annex B", it is further underlined that the Member that receives a reasonable question though its enquiry point, is obligated to answer the question. Likewise, if a Member receives a request for relevant documents through its enquiry point, it is obligated to provide them.

19. This interpretation finds support not only in an ordinary reading of the text and its context, but also in the revised Recommended Procedures for Implementing the Transparency Obligations of the SPS Agreement (Article 7), adopted by the SPS Committee.[12] In paragraph 1, in the final sentence, it is stated that "[t]ransparency under the SPS Agreement also includes answering reasonable questions". In paragraph 52 of the Recommended Procedures, under the heading "Guidelines for National Enquiry Points", it is stated that the enquiry point "is an effective avenue for obtaining information regarding SPS systems and measures from other Members".

20. Moreover, an interpretation of paragraph 3 under which a Member was not obliged to provide answers, but merely to have an enquiry point with no obligations to follow up on requests received, would not be in line with the purpose of the provision, namely to increase transparency to facilitate international trade. If the provision were to be interpreted as Korea suggests,[13] it would be rendered a mere formalistic provision – to establish an enquiry point – but with no real content. In Norway's view, such a reading of the provision would defeat its very purpose.

b) The obligation to provide "relevant documents" in paragraph 3 of Annex B

21. What constitutes "relevant documents" must be assessed on a case by case basis. However, the interpretation of which type of documents that are relevant is informed by the context in which this term is used. In this respect, Norway refers in particular to Article 7 of the

[12] G/SPS/7/rev.3.
[13] Korea's First Written Submission, paras. 392 and 393.

SPS Agreement, which imposes an obligation to provide information on SPS measures in accordance with Annex B. Moreover, paragraph 1 of Annex B, contains an obligation to publish *SPS regulations*, which is to be understood as *SPS measures*.[14]

22. In light of the obligation to publish and provide information on SPS measures, such measures are indeed "relevant documents" in the context of paragraph 3 of Annex B. The obligation to publish the measure cannot be interpreted as excluding the measure itself from the obligation of the SPS enquiry point to provide relevant documents.

23. Accordingly, Norway does not share Korea's assertion that "there is no basis for Japan to complain that it was not provided with 'copies of the measures at issue'".[15] Rather, the provision of copies of the measure itself seems to be at the very heart of what are "relevant documents" in the context of paragraph 3 of Annex B.

[14] Cf. footnote 5 to Annex B(1).
[15] Korea's First Written Submission, para. 395.

ANNEX C-6

EXECUTIVE SUMMARY OF THE ARGUMENTS OF THE UNITED STATES

EXECUTIVE SUMMARY OF US THIRD PARTY ORAL STATEMENT

I. INTRODUCTION

1. The United States will first address the two transparency obligations set forth in Article 7 and Annex B; second, we address interpretive issues related to Japan's claims arising under Article 2.3 and Article 5.6.

II. JAPAN'S TRANSPARENCY CLAIMS UNDER ARTICLE 7 AND ANNEX B

2. Neither Article 7 nor Paragraph 1 of Annex B prescribes the form in which a measure must be published. Therefore, the United States considers that publication through a press release would not necessarily raise a concern under the SPS Agreement. More important to compliance with a Member's obligation is the manner and content of any publication. Paragraph 1 of Annex B requires publication of the SPS *measure* itself, which includes any laws, decrees, or ordinances that are applicable generally. We do not understand Korea to take the position that its import bans and other requirements are unwritten measures.

3. Given the requirements of Paragraph 1, Korea's publication of press releases *about* the measures would appear to fall short of its publication obligation. While publication of the press releases may have made Japan and other Members aware of the existence of the SPS measures, that publication did not contain the SPS measures themselves. And by including bullet summaries of the details of the measures but not the measures themselves, the press releases did not enable Members to become acquainted with each measure because any summary necessarily paraphrases the language of the measure itself.

4. Paragraph 3 of Annex B provides that each Member shall ensure that one enquiry point "exists, which is responsible for the provision of answers to all reasonable questions", and for providing relevant documents. On its face, Paragraph 3 creates a procedural obligation to ensure that an enquiry point "exists" and that this enquiry point "is responsible for" providing certain information. By its terms, Paragraph 3 does not itself impose a substantive obligation on a Member to provide information or to explain the reasons behind its measures.

5. Members' substantive obligations with respect to transparency and the provision of certain information regarding SPS measures are created by other provisions of the SPS Agreement. For example, Article 5.8 requires a Member to provide an explanation of the reasons for an SPS measure if requested; Article 5.8 does not, however, require that the information be published or provided by the enquiry point described in Paragraph 3.

6. Rather, Paragraph 3 requires that a mechanism exist through which Members may submit questions or request documents, among other things; it does not impose additional substantive obligations on the enquiry point itself. Indeed, one can imagine that the enquiry point may be the office that receives an enquiry, but would then communicate the enquiry to the relevant government office to which it relates. Similarly, a concerned Member, instead of making enquiries to the enquiry point, may bring its concerns directly to the government office to which that concern relates.

III. ARTICLE 2.3

7. The United States considers that the factual assessment at issue under Article 2.3 should be based on all relevant factors to the conditions that may affect the risk presented by a product to human, animal, or plant life or health within the territory, including, but not limited to, the conditions occurring in a Member's territory and any relevant conditions relating to the product at issue.

8. The panel in *India – Agricultural Products* deemed relevant the presence of a disease within a territory, and the concomitant risk associated with that disease. It is appropriate for the Panel to consider differences that may exist between and among WTO Members from which the products are imported, including with regard to circumstances in which the products do not pose a risk even though they originate in a country reporting a unique condition that, alone, could result in a higher risk. Here, for example, the radionuclide release resulting from the accident in Japan is a relevant factor, just as the risk associated with the presence of radionuclides for particular products – regardless of their location – is relevant. These and other factors should be part of the Panel's assessment of whether Japan has shown that similar conditions prevail with respect to other Members.

IV. ARTICLE 5.6

9. It is not clear from the submissions whether Korea's measure is based on scientific evidence demonstrating that, as a result of the accident, radionuclides other than cesium are present in the Japanese environment in excess of acceptable levels and could be transmitted via traded products. It is further not clear whether radionuclides other than cesium could be present in the subject products even where safe amounts of cesium are detected. The United States notes that while the existence or sufficiency of any such scientific evidence could be addressed in the context of a legal claim pursuant to Articles 2.2 or 5.1 of the SPS Agreement, these articles appear to be outside the scope of this proceeding.

10. The precise level of protection Korea intends to achieve through these measures is unclear from its submission. In cases where a Member does not determine its appropriate level of protection, or does so with insufficient precision, a panel may identify the level of protection on the basis of the level of protection reflected in the SPS measure actually applied. In this respect, the level of cesium in products Korea deems safe for import from Members other than Japan would be a relevant consideration.

EXECUTIVE SUMMARY OF RESPONSES OF THE UNITED STATES OF AMERICA TO THE PANEL'S QUESTIONS FOR THE THIRD PARTIES

11. Annex B, Paragraph 1, sets forth one publication obligation for all SPS "regulations." To publish an SPS regulation is to print the text that constitutes the measure itself. The "measures" are typically written, and publication of such a measure would therefore mean printing the text of the measure.

12. Content, not form, is the focus of compliance with the publication obligation. In some cases, for Members to become acquainted with the SPS measure at issue, additional information may also need to be published to meet the obligation. For example, when a law incorporates by reference another law, ordinance, or decree, the referenced measure also may need to be published.

13. "Acquainted" is synonymous with familiar and conversant. To become acquainted with an SPS regulation, Members must be provided with enough information not only to be aware of the measure, but to be familiar with the content of the measure. As discussed above, for a written measure – which we understand Korea's measure to be – this obligation would include publication of the measure itself.

14. On its face, Annex B, Paragraph 3, creates an obligation to ensure that an enquiry point "exists" and that this enquiry point "is responsible for" providing certain information including responses to reasonable questions. By its terms, however, Paragraph 3 does not obligate a Member to reply to each such question through the enquiry point or stipulate the nature or substance of any response. Therefore, Annex B, Paragraph 3, alone, does not provide a substantive standard against which an enquiry point's response to a request can be measured.

15. Paragraph 3 states that the enquiry point is to be "responsible" for providing answers to all "reasonable" *requests*, but does not set out the nature of the response. Paragraph 3 ensures that no Member will be precluded from making an enquiry about an SPS measure, including, for example, because the Member does not know how best to direct its enquiry.

16. On the other hand, Article 5.8 is an example of Members' substantive obligations with respect to transparency and the provision of certain types of information regarding SPS measures. Unlike Annex B, Paragraph 3, Article 5.8 does not designate a process, *e.g.*, point of contact. In other words, Article 5.8 obligates a Member maintaining a measure to provide, upon request, an explanation of the reasons for an SPS measure that constrains exports. The United States invoked Article 5.8 as an example of a substantive obligation to provide information of a particular nature, and to distinguish the substantive language of Article 5.8 from the procedural language of Annex B, Paragraph 3, to establish a process and entity to receive enquiries.

17. Regardless of the channel by which a request pursuant to Article 5.8 is made, Article 5.8 (and not Annex B, Paragraph 3) dictates the content of the response, *i.e.*, an explanation of the reasons for the measure.

18. Therefore, the relationship between Annex B, Paragraph 3, and Article 5.8 is that a Member could appropriately exercise its rights under Article 5.8 to seek an explanation of the reasons for an SPS measure by way of the enquiry point required by Annex B, Paragraph 3; alternatively, a Member could exercise the same rights without the enquiry point.

19. The United States does not fully agree with the EU's positon that the provisional nature of a measure is relevant under the analyses in Articles 2.3 and 5.6, as a Member will adopt a measure provisionally, within the meaning of Article 5.7, only when the evidence is insufficient to conduct a risk assessment pursuant to Article 5.1. This does not mean the obligation under Article 5.1 is "less stringent" but that a different obligation applies in that specific situation.

20. The United States agrees with New Zealand that, in this case, it is not necessary for the Panel to determine whether a "similar accommodation" is required in relation to claims under Articles 2.3 and 5.6. Korea did not invoke Article 5.7. Nor has either party submitted evidence or argumentation on the provisional nature of the measure such that the Panel could make such a finding. Without more, whether the provisional nature of a measure could be relevant to a panel's analysis under Articles 2.3 and 5.6 would not appear to be a question raised by this dispute, and therefore the Panel need not address it to make findings consistent with DSU Article 7.1.

ANNEX D

CERTAIN PROCEDURAL RULINGS MADE BY THE PANEL

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ANNEX D-1

Decision of Panel on request for enhanced third-party rights

KOREA — IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES
(WT/DS495)

Dear representatives of Canada, Norway, and Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu (Chinese Taipei),

The Panel refers to the joint communication dated 1 March 2016 from Canada, Norway and Chinese Taipei (the requesting third parties), asking the Panel to exercise its discretion under Article 12.1 of the DSU to grant third parties enhanced rights in the Working Procedures "in order to ensure that the interests of third parties can be fully taken into account." Specifically, the requesting third parties ask the Panel to grant them rights to: (i) "receive an electronic copy of all submissions and statements of the parties, including responses to Panel questions, up to the issuance of the interim report"; and (ii) "be present for the entirety of all substantive meetings of the Panel with the parties".

On 11 March 2016, following the Panel's invitation to comment on the request, Korea (the respondent) expressed its opposition to the granting of enhanced rights to third parties in these proceedings. On the same date, Japan (the complainant) indicated that it did not oppose the request so long as certain procedural concerns could be accommodated and that confidential information would be protected. The Panel also received comments from a number of other third parties supporting the request: the European Union, Guatemala, India, and New Zealand. The United States submitted that any deviation from the DSU should only be granted with the parties consent.

We understand that the additional rights requested are limited to allowing the third parties to be present during all substantive meetings without taking the floor and to receiving all written communications of the parties up to the issuance of the interim report without the right to present views on those communications.

The Appellate Body has clarified that panels "enjoy a discretion to grant additional participatory rights to third parties in particular cases, as long as such 'enhanced' rights are consistent with the provisions of the DSU and the principles of due process."

[1] Prior panels have used this discretion on a number of occasions, such as when the measures at issue resulted in significant economic benefits for certain third parties,[2] where third parties maintain measures similar to the measures at issue[3], or where the third party was involved as a party in a parallel panel proceeding.[4] None of these factors is present in this dispute.

In making their joint request, Canada, Norway, and Chinese Taipei have identified as the bases for receiving enhanced third party rights their systemic interests in the case as it will be "breaking new legal ground" regarding the transparency obligations under the SPS Agreement, as well as the need to be fully apprised of arguments and evidence so as not to compromise their ability to make submissions in the event of an appeal.

With respect to the argument that the Panel is considering issues of first impression with respect to several obligations in the SPS Agreement, we observe that many panels are faced with the task of interpreting provisions that have not yet been subject to dispute settlement. Members would

[1] Appellate Body Report, *US – FSC (Article 21.5 – EC),* para. 243. *See* also Appellate Body Report, *EC – Hormones (Canada)*, para. 154; Appellate Body Report, *US – 1916 Act*, para. 150; Panel Report, *EC – Export Subsidies on Sugar*, para. 2.3.

[2] Panel Reports, *EC – Bananas III (Guatemala and Honduras),* para. 7.8; Panel Report, *EC – Tariff Preferences*, Annex A, para. 7(a). See, also, Panel Reports, *EC – Export Subsidies on Sugar*, para. 2.5.

[3] Panel Report, *EC – Tariff Preferences*, Annex A, para. 7(b).

[4] Panel Report, *EC — Hormones (Canada)*, para. 8.17.

have been aware, when drafting the DSU, that panels would be called upon regularly to consider important systemic issues of first impression. They drafted the basis for third-party access contained in Article 10 of the DSU with this in mind. In our view, therefore, the fact that a panel will consider issues of first impression is not sufficient to justify according enhanced third-party rights beyond those contained in Article 10 of the DSU.

Nor are we persuaded that the additional access requested is required to ensure that the ability of the requesting third parties to make written submissions to, and be given an opportunity to be heard by, the Appellate Body in the event of an appeal would not be compromised. The drafters of the DSU devised Article 10 in full knowledge of and bearing in mind that third parties would have an opportunity to make submissions and be heard by the Appellate Body and considered that the access permitted under Article 10 would be sufficient to enable them to participate effectively in appellate proceedings. We also note that, in addition to access to the full written submissions up to the first substantive meeting and the right to be heard, any Member, including third parties, may request non-confidential summaries of the parties' arguments under Article 18.2 of the DSU. Moreover, third parties will be able to read the Panel Report, which will contain the executive summaries of the parties' arguments as well as the Panel's detailed reasoning for its findings pursuant to Article 12.7 of the DSU.

Finally, in reaching our decision, we are mindful that the distinction drawn in the DSU between parties and third parties should not be blurred.[5]

For the reasons stated above, we decline Canada, Norway, and Chinese Taipei's joint request for enhanced third party rights in these proceedings.

Yours sincerely,

William Ehlers
Chairperson of the Panel

c.c. H.E. Mr Junichi IHARA
Permanent Mission of Japan

H.E. Mr CHOI Kyong-lim
Permanent Mission of the Republic of Korea

H.E Mr Marcos GALVÃO
Permanent Mission of Brazil

H.E. Mr YU Jianhua
Permanent Mission of China

H.E. Mr Marc VANHEUKELEN
Permanent Mission of the European Union

H.E. Mr Eduardo Ernesto SPERISEN-YURT
Permanent Mission of Guatemala

H.E. Ms Anjali PRASAD
Permanent Mission of India

H.E. Mr. Vangelis VITALIS
Permanent Mission of New Zealand

H.E. Mr Gennady OVECHKO

[5] Panel Report, *EC- Bananas III (Guatemala and Honduras)*, para. 7.9. See also, Panel Report, *EC – Tariff Preferences*, Annex A, para. 7(d); Panel Report, *EC –Export Subsidies on Sugar (Australia, Brazil and Thailand)*, para. 2.7. Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.166.

Permanent Mission of the Russian Federation

H.E. Mr Michael PUNKE
Permanent Mission of the United States of America

ANNEX D-2

Decision of Panel on selection of experts[*]

KOREA — IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES
(WT/DS495)

Dear Sirs [representatives of Korea and Japan],

The Panel recalls that pursuant to Article 13 of the DSU and Article 11.2 of the SPS Agreement, we have decided to consult experts in this dispute in the following areas: (i) release of nuclear materials into the environment (by accident or other means); (ii) radionuclide contamination in foods including testing methods and any differences in contamination based on the source of contamination (air, groundwater, or naturally occurring); and (iii) radionuclides in marine environments including issues of radionuclide deposits in the ocean and levels of radioactivity in marine organisms.

The Panel received names of experts from UNSCEAR, ICRP, IAEA, WHO, and FAO/Codex. The Panel is grateful to these organizations for their assistance. The Panel contacted each of the 25 named experts and inquired as to their availability, conflict of interest and areas of expertise. The parties were provided with the information of the 15 available experts and given the opportunitiy to comment.

The Panel has considered the background and qualifications of each available expert as well as the importance of having more than one expert to respond to questions in each area.[1]

In addition, the Panel carefully considered the comments submitted by the parties. The Panel notes that Japan accepts all of the proposed experts, although it has expressed preferences for some over others. With respect to Korea's comments on the experts, the Panel notes that Korea accepts 5 of the proposed experts and objects to the rest.

Korea objects to one expert who had been preliminarily consulted by Korea in this matter. Korea objected to two experts because of their previous affiliations with the Japanese government in this area. The Panel found these objections to be well founded and will not select these experts.

Korea objects to four experts because they appeared to have participated in the drafting of a 2013 report by UNSCEAR on the Fukushima Dai-ichi accident. Korea argues that because in its view its measures were adopted provisionally because there was insufficient scientific evidence to conduct a risk assessment within the meaning of Article 5.7 of the SPS Agreement, the Panel could not rely on any expert that had participated in a risk assessment.

First, the Panel notes that the UNSCEAR report was commissioned by an organ of the United Nations who of course sought the best experts in the field. The report dealt with the immediate effects of the disaster on the people living in and around the Fukushima Dai-ichi nuclear power plant not those who consume some Japanese products as part of their diet. There are some elements in the report that address internal exposure of people living in and around the Fukushima Dai-ichi nuclear power plant through consumption of contaminated food, but the report is not an assessment of the risks arising from human consumption of radionuclides in food products.

Furthermore, the Panel does not agree with Korea that anyone who participated in a risk assessment would be *per se* inappropriate to consult in a situation where Article 5.7 is raised by the respondent. The Panel does not believe that this is the principle established by the Appellate Body in *US/Canada – Continued Suspension*. Nevertheless, the Panel notes that it was able to identify enough suitable experts without selecting the four experts who participated in the preparation of the UNSCEAR report.

[*] The Panel has made certain redactions indicated as [***] to protect the privacy of the experts.
[1] Therefore, the Panel, at this time, did not select experts who had expertise in only one identified area.

Based on its evaluation, the Panel selects the following experts:

Expert	Recommended by	release of nuclear materials into the environment (by accident or other means)	radionuclide contamination in foods	radionuclides in marine environments
Lynn ANSPAUGH	UNSCEAR, WHO	Yes	Yes	Yes
Rolf MICHEL	UNSCEAR	Yes	Yes	
Lavrans SKUTERUD	ICRP	Yes	Yes	
Patsy THOMPSON	UNSCEAR	Yes	Yes	Yes
Joanne BROWN	WHO	Yes	Yes	

The Panel notes that it has selected two experts, [***] and [***] who Korea objects to. In making its selection the Panel considered first, that Korea objects to every expert proposed with expertise in radionuclides in marine environments. Therefore, there was no way for the Panel to have experts in this field without selecting one that Korea objects to.

The Panel examined Korea's objections to all the available experts with expertise in radionuclides in marine environments. The Panel finds that Korea's objections to [***] and [***] are not sufficient to preclude them from serving as experts assisting the Panel in evaluating the evidence presented.

With respect to [***], Korea mentions (i) [***] involvement in the preparation of the UNSCEAR report on Fukushima Dai-ichi; (ii) as well as some statements [***] made with respect to radon exposure from natural gas in fracking sites; and (iii) statements purportedly made by [***] with respect to the wildlife at Chernobyl.

With respect to [***] participation in the UNSCEAR report, the Panel recalls its reasoning above that this is not *per se* a reason to exclude an expert. Moreover, the Panel notes that [***] was listed as a "critical reviewer" of the report, which indicates to us that the report does not reflect [***] own work. With respect to [***] statements on radon, the Panel notes that radon is not a man-made radionuclide subject to Korea's measures and that [***] statements were made in the context of an environmental release and not about the presence of radionuclides in food. Finally, there is an allegation, without citation, that [***] made a statement about wildlife living near Chernobyl. The Panel cannot objectively evaluate this statement without more information. Nevetherless, even if accurate, the alleged statement does not relate to humans consuming food or other products from the Chernobyl site. Therefore, the Panel finds that Korea's objection is insufficient to demonstrate any bias or partiality on [***] part.

Korea objects to [***] because Korea believes that [***] has written articles in which [***] has provided [***] own assessment of the risk posed by the FDNPP. However, Korea does not provide citations to such articles. Instead, Korea provides an excerpt from an article in a [***] newspaper written by [***] which relates to the effects of post-Fukushima radiation on fish caught off the West Coast of North America. [***] comment relates to the diluation of the radioactive waste by the time it crosses the Pacific, thus posing limited health risk to [***] consuming [***] products. Korea's letter then turns to a different quotation from a different news article without making an overt reference to the change. In that article [***] was explaining, in [***] [***], a [***] government initiative to provide iodine thyroid blocking pills to those within a 10km radius of a nuclear power plant for immediate use in the event of an accident. [***] statement about people not needing to fear living near a nuclear power plant has nothing to do with food consumption from an area contaminated after a nuclear accident. Finally, Korea cites a press release from Families Against Radiation Exposure, which appears to be a [***] NGO in [***]. The statements attributed to [***] are from 2009, two years before the Fukushima disaster, and do not relate to the consumption of food that has been contaminated after a nuclear release, but rather to children living near nuclear power plants. The Panel also notes that in the latter two instances, [***] was acting in [***] [***] as an official of the [***]. Therefore, the Panel finds that Korea's assertion that [***] has provided an assessment of the risks posed by the FDNPP is unsubstantiated.

Korea also requests that the Panel seek additional experts in the areas of severe nuclear accidents and the risks of radionuclides to human health. Neither party in this dispute has claimed that man-made radionuclides are not risky to human health. Neither party has disputed the serious health risks from stochastic effects of exposure to radiation (such as thyroid cancer, leukemia, and other cancers). Therefore, the Panel does not consider that it needs assistance in assessing any evidence in this area.

With respect to severe nuclear accidents, the Panel recalls that one of the areas of expertise it has sought assistance in is "release of nuclear materials into the environment (by accident or other means)". The Panel believes that this encompasses severe nuclear accidents. The Panel recalls that it has sought the names of experts from the international organizations dealing with the effects of severe nuclear accidents – the WHO, Codex, the IAEA, ICRP and UNSCEAR. We are therefore confident that we have received the names of those who are the most qualified to assist the Panel in evaluating the evidence presented to it with respect to the accident at Fukushima Dai-ichi.

The Panel is committed to its obligation, as explained by the Appellate Body, to ensure due process in these proceedings by selecting experts that are independent and impartial.[2] For the reasons stated above, the Panel is satisfied that the five selected experts all have the relevant expertise required and are capable of rendering independent and impartial advice to the Panel on the relevant issues in the dispute. The Panel recognizes and will bear in mind the fact that its obligation to protect the parties' due process rights applies not only to the process for selecting experts, but also to the Panel's consultations with the experts, and continues throughout the proceedings.[3]

In light of the importance of the present decision, the Panel shall annex this communication to its Report.

Yours faithfully,

William Ehlers
Chairman of the Panel

[2] Appellate Body Report, *US/Canada – Continued Suspension*, para. 436.
[3] Ibid.

ANNEX D-3

Decision on redacting submissions to be sent to experts

KOREA — IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES
(WT/DS495)

Dear Sirs [representatives of Korea and Japan],

The Panel wishes to thank the parties for their comments of 14 September 2016 on the redacted versions of the submissions to be sent to the experts.

Paragraph 36 of the Panel's Working Procedures for Consultations with Experts provides that "[t]he Panel may provide the experts, on a confidential basis, with relevant parts of the parties' submissions, including exhibits, as well as with any additional information deemed necessary." The Panel notes that the parties have differing view on whether the entirety of the parties' submissions should be transmitted to the experts in light of the reference to relevant parts in the Working Procedures. Although, sending un-redacted versions would have been less time consuming for both the Panel and the parties, the Panel has decided to adopt a conservative approach towards the interpretation of the Working Procedures and redact portions of the submissions. The purpose of the redaction is to provide the experts with a clear picture of the factual issues they need to consider without the distraction of the legal argumentation.

In particular, the Panel applied the following criteria for redaction. First, argumentation that was solely legal in nature and referring to interpretation of WTO obligations was redacted. Second, argumentation and facts that related to claims that the Panel is not seeking advice from the experts on (namely Article 7, Article 8 and Annexes B and C) were redacted. Finally, the Panel sought to redact any potentially inflammatory characterisations of the parties' arguments or actions. The Panel has reviewed the redactions in light of these criteria and the parties' comments and made changes where relevant.

In particular, the Panel has adjusted the redaction on Article 8 and Annex C claims. Although there was reference to some of the relevant scientific issues in these sections, they are repetitive of those under Articles 2.3 and 5.6. Therefore, in the interest of consistency across submissions the entirety of the sections on Article 8 of both parties will be redacted. The Panel maintains its redaction of the legal arguments on what is the relevant condition for comparison under Article 2.3. These issues are not relevant for the experts' analysis of the factual questions being posed to them. The Panel will not redact argumentation about the methodologies used by the experts of either party or their suitability for supporting the conclusions reached. These are precisely the issues where the Panel needs the advice of the experts. The revised redactions can be put on the USB key provided earlier. Please contact the Panel Secretary to arrange a time for this.

We note Japan's concern that the experts may require some additional context to assist them in answering the Panel's questions. In this regard, the Panel recalls that paragraph 36 of the Panel's Working Procedures for Consultations with Experts states that "[t]he experts shall have the opportunity to request, through the Panel, additional factual information or clarifications from the parties, if it shall aid them in answering the Panel's questions". . The Panel also recalls that the parties will be able to provide their own advance questions to the experts to assist them in preparation for the meeting as well as pose oral questions to the experts at the meeting. The Panel trusts that these mechanisms will adequately address Japan's concern.

In its communication of 14 September 2016, Japan notes that planning for attendance at panel meetings can be burdensome and that the revised timetable should be based on a realistic time-frame for the experts to prepare their responses to the Panel's questions. The Panel understands Japan's concerns and indeed this was one of the main considerations for the Panel to propose moving the date of the second meeting. In its letter to the parties of 7 September 2016, the Panel noted that there was a "large volume of complex material on the record that the experts will have to review in order to respond" [to the Panel's questions]. The Panel believes the revised draft

timetable responds to the need to provide the experts with sufficient time to answer the Panel's questions. Moreover, in light of Japan's comments on the revised timetable the second meeting is likely to begin in January or early February 2017 and there is scope within the timetable that would allow the Panel to grant the experts an extension if one is required without necessitating moving the meeting date.

In its letter of 14 September 2016, Korea notes that the Table of Documents sent to the parties included Annex A and Annex B but that that these two annexes had not been included on the USB key. Korea asks if it could review any redactions to these annexes if they are to be sent to the experts. In an email of 12 September 2016, responding to a similar query from Japan, the Secretariat informed the parties that these two annexes are to be sent to the experts but as they had not been redacted they had not been included in the documents on the USB key. Korea also requests that Korea's opening statement at the first substantive meeting be added to the Table of Documents. This has been done.

Yours faithfully

William Ehlers
(Chairman of the Panel)

ANNEX D-4

Decision of Panel on request to comment on exhibits

KOREA — IMPORT BANS, AND TESTING AND CERTIFICATION REQUIREMENTS FOR RADIONUCLIDES
(WT/DS495)

Thank you for your email. After reviewing Japan's comments on the relevant exhibits, the Panel notes that Japan does not contest the exhibits as such, but rather takes issue with the fact that Korea did not provide a translation of all relevant parts of Exhibits KOR-299(a) and KOR-304(a). As Japan's comments were limited to pointing out the full text of the exhibits, the Panel does not see the need for Korea to comment further.

The Panel recalls that paragraph 10 of its Working Procedures requires that "translations should include all germane portions of documents that the party seeks to rely upon. Germane portions include not only specific provisions of measures, but also relevant context." In light of Japan's comments and taking account of paragraph 10 of the Panel's Working Procedures, the Panel requests that Korea provide full translations of any slides relating to Japan's "measures to prevent fish movement inside and outside the harbour" including, but not limited to, p. 14. and the entirety of KOR-304(a).

Such translations should be provided to the Panel by 5 p.m. Friday, 28 April 2017.