Events and highlights on the progress related to recovery operations at Fukushima Daiichi Nuclear Power Station

September, 2014

Section 1: Executive summary

(1) The fact sheet uploaded in the link below is a summary of the current situation
http://www.kantei.go.jp/foreign/96_abe/decisions/2014/pdf/140221factsheet.pdf

(2) Information update from the previous fact sheet

The following information was updated from the previous fact sheet: 1) important events that happened after October 2013 were added and 2) examples of "preventive and multi-layered" measures that were additionally adopted in December 2013.

(3) The previous fact sheet is available online at
http://iaea.org/newscenter/news/2014/infcirc_japan0314.pdf

Section 2: Current conditions and forecast onsite

2.1: Relevant information pertaining to issues related to the recovery (including spent fuel and fuel debris management)

(1) New Information

(i) Newly added topics (in the past months since February)

Newly added topics in the past months since February are as follows. For additional details of these issues, please refer to the "related information" section.

- Status update report: Update on seawater quality near Fukushima Daiichi: All levels outside the port are within safe regulatory limits (Tokyo Electric Power Company (TEPCO)) (September 12, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1241751_5892.html
- Two facilities are set to improve water management at Fukushima (TEPCO) (August 13, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1240604_5892.html
- Detailed analysis results regarding the water quality of the groundwater being pumped out for by-passing at Fukushima Daiichi Nuclear Power Station (Ministry of Economy, Trade and Industry (METI)) (August 5, 2014)
  http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140805_01a.pdf
- TEPCO takes major step forward at Fukushima UNIT 1 (TEPCO) (August 1, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1239910_5892.html
- TEPCO reports more progress at Fukushima, along with its other nuclear plants (TEPCO) (August 1, 2014)

http://www.tepco.co.jp/en/press/corp-com/release/2014/1239909_5892.html

- TEPCO'S advances water treatment facility expected to become fully operational by end of this year (TEPCO) (July 31, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1239858_5892.html
- "Progress Status of Fuel Removal from Unit 4 of Fukushima Daiichi NPS" has been updated (TEPCO) (July 30, 2014)
  http://www.tepco.co.jp/en/decommision/index-e.html
- Soundness of storage tanks secured at Fukushima Daiichi NPS (TEPCO) (July 24, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1239559_5892.html
- TEPCO exploring new approaches to removing trench water (TEPCO) (July 23, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1239539_5892.html
- Detailed analysis results regarding the water quality of the groundwater being pumped out for by-passing at Fukushima Daiichi Nuclear Power Station (METI) (July 2, 2014)
  http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140702_01a.pdf
- TEPCO's 'ALPS' restart part of major upgrade to water treatment (TEPCO) (June 26, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1238403_5892.html
- Monitoring air dose rates in road/its adjacent area and vacant land lot from a series of surveys by car-borne radiation detectors and survey meters after the Fukushima Daiichi NPS accident (Nuclear Regulation Authority (NRA))
  http://www.nsr.go.jp/english/library/data/special-report_20140620.pdf
- Detailed analysis results regarding the water quality of the groundwater being pumped out for by-passing at Fukushima Daiichi Nuclear Power Station (METI) (June 5, 2014)
  http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140605_01a.pdf
- Construction of water-blocking ice wall starts at Fukushima (TEPCO) (June 3, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1237060_5892.html
- Fukushima water treatment system (Multi-nuclide Removal Facility) unit successfully restarted (TEPCO) (May 29, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1236858_5892.html
- (Information updated) TEPCO's Fuel Removal from Unit 4 Spent Fuel Pool at Fukushima Daiichi Nuclear Power Station (NRA) (May 28, 2014)
  http://www.nsr.go.jp/english/newsrelease/data/20140528.pdf
- Bypass of Clean Groundwater to Ocean Starts (TEPCO) (May 21, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1236566_5892.html
- Location of the Water Leakage from the Unit 3 Reactor Container Identified at Fukushima Daiichi Nuclear Power Station (TEPCO) (May 16, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1236458_5892.html
- Pumping up of Groundwater Starts after Agreement with Fishermen (TEPCO) (April 9, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1235426_5892.html
- Fukushima Fishermen, TEPCO Reach Important Agreement Allowing Groundwater Discharge (TEPCO) (April 7, 2014)

http://www.tepco.co.jp/en/press/corp-com/release/2014/1235388_5892.html

- Establishment of Fukushima Daiichi Decontamination & Decommissioning Engineering Company (March 25, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1235009_5892.html

(ii) Notable topics among recent updates

(a) Pumping up groundwater by the sub-drain system has started

Reducing groundwater flowing into the Reactor buildings and the seaside areas can be achieved by sub-drain water pumping. In addition to the Groundwater bypassing which is already in operation, pumping out groundwater from the point much closer to the turbine building is expected to have greater effect in reducing the amount of groundwater inflow to the buildings.

On August 11th, TEPCO applied for a change of plan of drain facilities to NRA and following August 12th, pumping out groundwater by the sub-drain system has started as a trial operation. After being pumped out, the groundwater goes through multi-nuclide removal equipment and after this decontamination process, the water condition will be checked (This analysis result of groundwater will be announced by TEPCO). TEPCO and the Government of Japan are now explaining the content, function, and its effect of this countermeasure to the local stakeholders, such as fishermen's unions and the Fukushima prefectural government. It has been made clear that without getting consent from these stakeholders, releasing this groundwater to the sea will not be conducted.

(b) TEPCO plans to install additional multi-nuclide removal equipment

The equipment removes radionuclides from the contaminated water, and therefore reduces risk. The existing multi-nuclide removal equipment (known as ALPS: Advanced Liquid Processing System) aims to reduce the levels of 62 nuclides in contaminated water to the legal discharge limits or lower. (ALPS cannot remove tritium.) TEPCO is planning to install additional equipment similar to the existing one. Moreover, TEPCO has already started the validation project for installation of high performance equipment, which can reduce secondary wastes by more than eighty percent (a national subsidized project with the budget of JPY 15 billion).

(c) Freezing the connection area of the trench and the turbine building is different from the installation of the frozen soil wall

The frozen soil wall measure aims to reduce the volume of groundwater inflow into the buildings by surrounding the buildings with frozen-soil walls (a national subsidized project with the budget of JPY 31.9 billion). Technical validation for countermeasures for high-velocity groundwater and for controlling groundwater level has been conducted since last August, and small scale test succeeded in construction of frozen soil wall. The construction work began from June 2nd 2014 with the aim of starting the freezing operation in FY 2014.

In order to prepare for the installation of the frozen soil wall to prevent the groundwater from flowing into the turbine buildings, the contaminated water in the trench is needed to be removed. In this process, first, the connection area of the trench and the turbine building will be frozen. Next, the contaminated water inside the trench will be pumped out. Finally, water cutoff material will be injected into the trench and shafts. Regarding this measure, in order to avoid misunderstanding and confusion, it is

needed to be understood that freezing the connection area of the trench and turbine building is different from the installation of the frozen soil wall.
As it has been broadcasted, it is taking more time to complete the freezing abovementioned connection area than it was scheduled. However, it is important to note that it is not the frozen soil wall that is facing difficulty and that it is not causing any negative impact on the leakage of the contaminated water. The small scale test has been successfully done for the frozen soil wall and as soon as the removal of the contaminated water from the trench is completed upon the success in freezing this connection area, the installation of the frozen soil wall will start. The Government of Japan will continue taking each countermeasure, including these measures, step by step together with TEPCO to solve the contaminated water issue.
As for the detailed information on freezing the connection area of the trench and the turbine building as well as the difference from the installation of the frozen soil wall, please refer to the following URL:
http://www.iaea.org/newscenter/news/2014/freezingmeasures220914.pdf

(d) Taking necessary measures to prepare for the removal of Unit 1 temporary cover in order to prevent scattering of the radioactive materials at the debris removal work, TEPCO adopted multi-layered dispersal prevention measures and has implemented these measures with priority given to safety. In addition, the framework for monitoring radioactive substances has been strengthened, and the scheme for information dissemination has been enhanced.
For further information on these measures, please refer to the video clip uploaded at the following URL.
http://www.tepco.co.jp/en/news/library/archive-e.html?video_uuid=kletx9w5&catid=61795

(e) Establishment of the new "Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF)"

(1) "Nuclear Damage Compensation Facilitation Fund," which was established in 2011 in order to support the compensation for nuclear damage occurred during the accident at the TEPCO's Fukushima Daiichi Nuclear Power Plant, has been reorganized to be "Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF) and now it is also in charge of some of the decommissioning issues. The new NDF is expected to challenge the tasks with expertise and continuity which have not been sufficiently dealt with so far from Mid-and-long term landscape.

(2) The roles of the new NDF will be as follows:
i. Strategy planning of important issues including fuel debris retrieval and waste management
ii. Planning and schedule control of R&Ds needs.
iii. Support of schedule control of key items
iv. Enhancement of international cooperation

(f) Establishment of "International Collaborative Research Center on Decommissioning" (tentative name)
(1) Ministry of Education, Culture, Sports, Science and Technology (MEXT) is planning to establish an international research center on decommissioning bringing together expertise and knowledge from academia, industry and government. This research center is not only to provide technologies gathered during academia-industry-

government cooperation to TEPCO and make research results reflected during the decommissioning and reconstruction of Fukushima, but it is also to provide a research database as an international public asset.

(2) The functions of the research center will be as follows:

i. Functioning as the center for international research with academia-industry-government

ii. Creating international collaborative research promotion system

iii. Contributing to human resources development

iv. Sharing research results with the international community

(g) Interim Storage Facility

(1)Necessity of Interim Storage Facility

Large amount of contaminated soils and waste have been retrieved during the decontamination work in Fukushima Prefecture. This contaminated soil has been sitting at temporary storage sites. Because it is currently difficult to specify the method of final disposal, it is necessary to establish Interim Storage Facilities for safe and secured storage until permanent disposal facilities are available.

(2)Recent updates of this item

The Minister of the Environment, Minister for Reconstruction, Governor of Fukushima Prefecture, Mayors of Okuma town and Futaba town had a meeting on September 1st 2014. The Governor of Fukushima Prefecture accepted the foundation of Interim Storage Facilities. Taking into account of governor's acceptance, two Mayors agreed with Japanese government to commence an explanation for landowners of candidate site.

The Japanese government is aiming to have Interim Storage Facilities operating from January next year.

(h) Reports say that debris removal work conducted in the last year may have caused rice contamination.

(1)Facts

Radioactive caesium exceeding a government-set limit of 100 becquerels per kilogram was detected in October 2013 in rice harvested in the same year in several areas in the city of Minamisoma, Fukushima Prefecture, and a survey conducted by the Ministry of Agriculture, Forestry and Fisheries (MAFF) revealed the possibility of direct adherence of radioactive caesium to rice plants besides its absorption from the land.

In the light of the incident in which radioactive materials were blown by the wind during debris removal work conducted in Fukushima Daiichi Nuclear Power Station in August 2013, the Government of Japan discussed this matter and concluded that there was no clear evidence or relationship connecting these two incidents.

(2) Measures to be taken

In light of these situations, the Government is conducting a survey of the source of radioactive materials by analyzing the composition of particles including radioactive materials detected in rice or its plant.

The Government has also increased the number of dust monitors or fallout investigation points and strengthened the monitoring in cooperation with the Fukushima Prefectural Government.

The Government has repeatedly requested TEPCO since last March to take measures in order to prevent dust dispersal on the occasion of debris removal being conducted in the Reactor No.1.

(3) Safety of the Japanese agricultural products

Furthermore, the Government has been providing scientific data to the international community including countries imposing import regulations on Japanese agricultural products with regard to radioactive materials, and the rice reported to exceed the limit is on the list attached to the monitoring data provided. Screening has been conducted with regard to all of the rice harvested in Fukushima Prefecture including the city of Minamisoma, and only the rice confirmed not to contain radioactive materials exceeding the limit is and will be in the market.

(i) "Report on the Monitoring of Radionuclides in Fishery Products" was released by the Fisheries Agency of Japan

Since the accident at the TEPCO's Fukushima Daiichi Nuclear Power Station (NPS), the Government of Japan and local authorities have cooperated closely with relevant bodies to secure the safety of fishery products. With an aim to promote accurate understanding on the safety of Japanese fisheries products at home and abroad, the data and information accumulated in the inspection of the last three years was evaluated comprehensively in this Report.

In Japan, in order to prevent the fishery products exceeding the limits from being distributed to the market, about 50 thousand samples of fishery species have been inspected by checking their levels of radioactive material; where the levels exceeded the limits, restrictions and suspensions on distribution and shipping were implemented appropriately.

In this Report, yearly trend of inspection results of radioactive caesium is displayed with respect to the main habitats and fish species. The radioactive caesium level in fishery products has greatly decreased, and today, samples exceeding 100 Bq/kg can be observed only in limited areas and fish species.

The report is available at the following URL:

(Full Report)

http://www.jfa.maff.go.jp/e/inspection/pdf/fullreport.pdf

(Summary)

http://www.jfa.maff.go.jp/e/inspection/pdf/summary.pdf

(j) "Groundwater bypassing" at Fukushima Daiichi Nuclear Power Station started on May 21st

"Groundwater bypassing" is one of the countermeasures to reduce the volume of groundwater flowing into the buildings at TEPCO's Fukushima Daiichi Nuclear Power Station. This countermeasure is to pump out groundwater from wells at the mountainside area beside the reactor buildings and this groundwater will be released to the sea (bypassing) after passing the quality analysis survey. TEPCO and the Government of Japan have been explaining the content, function, and its effect of this countermeasure to the local stakeholders, such as fishermen's unions and Fukushima prefectural government.

In April 2014, the fishermen's unions showed their intention to accept the plan of conducting this groundwater bypassing. In addition, from April 9th, TEPCO has been

making effort to prepare for the actual release of the groundwater such as water quality analysis of the groundwater being pumped up. On May 16th, TEPCO and the Government of Japan published water quality analysis results conducted by three different analysis agencies. These results show that the radioactive levels of sampled water were substantially below the operational targets (each of the target is set by TEPCO and these operational targets are set at the very low level compared to the legal discharge limits). As for the detailed analysis results of these three agencies, please refer to the table shown in the following link:

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/21140514_01a.pdf

Following the fact that TEPCO and the Government of Japan have reported and explained about these detailed analysis results to the local stakeholders, the Government of Japan decided to announce that the groundwater bypassing would be operated (i.e. groundwater being pumped out will be released to the sea) on May 21st.

Whenever TEPCO releases groundwater, government officials (*) will check the entire process of the release. In addition to this, TEPCO and the Government of Japan will publish detailed analysis results of the groundwater being pumped up on a regular basis in order to secure transparency.

* Staff from the Intergovernmental Liaison Office for Decommissioning and Contaminated Water Management near Fukushima Daiichi Nuclear Power Station.

Following this operation, the radioactive analysis of the sea water was conducted by TEPCO (the sea water used for this analysis was sampled during and after the operation at the nearest sea water sampling post from the groundwater releasing point) and no significant change of radioactivity was observed in the analysis. The sea water used for this analysis was sampled during and after the operation at the nearest sea water sampling post from the groundwater release point.

For further detail of the analysis result, please refer to the following TEPCO's website:

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/gw_drainage_140523-e.pdf

(iii) Information update on the decommissioning process

Progress status report is made monthly by METI. This report is the summary of the recent progress of the decommissioning made after the last progress status report was publicized. The summary and URL of the progress report is as follows:

- The Progress status report as of May 29, 2014 is available online http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140529-e.pdf

The report discusses many recent updates to the decommissioning process such as groundwater bypassing and Fukushima meal service center for workers. The following figures show some parts of the recent progress.

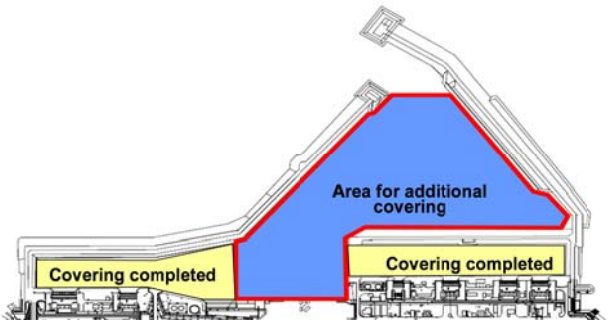
Figure 1: Water release through the ground water bypass

Figure 2: Image of the Fukushima meal service center

- The Progress status report as of June 27, 2014 is available online http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140627_e.pdf

The report discusses many recent updates to the decommissioning process such as installing land-side impermeable walls with frozen soil and covering over the sea bottom soil. The following figures show some parts of the recent progress.

Figure 3: Installation of frozen pipes of land-side impermeable walls with frozen soil



Boring machine
(Heavy machine for drilling)

- The Progress status report as of July 31, 2014 is available online http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140731_e.pdf

The report discusses many recent updates to the decommissioning process such as anti-scattering measures when dismantling R/B Unit 1 cover and additional measures for removing contaminated water from the seawater pipe trench. The following figures show some parts of the recent progress.

Figure 4: Scope of additional covering over sea bottom soil within port

Figure 5: External appearance and work at the new Administration Office Building

- Archives of the status report are available online:

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/#progress_status

(2) Related information

Information provided in the links below includes the description and the schedule of preventive and multi-layered measures for the contaminated issues in order to remove the source of contamination, isolate groundwater from contamination, and prevent further leakage of contaminated water. A summary and a full report are available at the following links.

(Summary)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/131210gaiyou_E.pdf

(Full report)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/131210report_E.pdf

As for other relevant issues, "METI's website for decommissioning" covers various issues in detail:

- METI's website for decommissioning
  http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html
  For NRA's recent news releases, please see the following link.
- http://www.nsr.go.jp/english/newsrelease/
  For TEPCO's activities, please see TEPCO's website.
- TEPCO's website for current situation of Fukushima Daiichi and Daini nuclear power stations
  http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html

2.2 Recent incidents and progress (in the past months since February)

Related information:

- Immediate Release: Small fire from generator of rest house put out via extinguisher, no one injured (TEPCO) (July 15,2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1239153_5892.html
- Fukushima Plant unharmed by earthquake occurred on July 12th, all workers are safe, TEPCO reports (TEPCO) (July 12,2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1238987_5892.html
- Inappropriate Transfer of Contaminated Water at Fukushima Daiichi Nuclear Power Station (NRA) (April 15, 2014)
  http://www.nsr.go.jp/english/newsrelease/data/20140415.pdf
- Unit 4 Fuel Removal Work Suspended after Power Halt but Restart during the Day: No Rise in Radiation, No Abnormality at the Other Plants (TEPCO) (February 25, 2014)
  http://www.tepco.co.jp/en/press/corp-com/release/2014/1234483_5892.html
- Water was discovered leaking from the upper part of Tank C-1 in H-6 Tank Area (NRA)(February 20, 2014)
  http://www.nsr.go.jp/english/newsrelease/data/20140220.pdf

- Water was discovered leaking from a flange of a water pressure measuring instrument at TEPCO's Fukushima Daiichi Nuclear Power Station (NRA)(February 6, 2014) http://www.nsr.go.jp/english/newsrelease/data/20140206.pdf

Section 3: Monitoring results

3.1: Onsite monitoring results reported by TEPCO

-3.1.1 Radionuclide releases to the atmosphere

(1) Outline of the item

On-going monitoring of the air at the site of the Nuclear Power Station has detected no significant increase in radiation levels.

(2) Noteworthy change in data in May and June

Except for the slight changes in the density of Cs-134, Cs-137 which were nearly negligible, the monitoring result is ND (ND indicates that the measurement result is below the detection limit). In this regard, no announcement has been made by TEPCO for this item.

* Slight changes in the density of Cs-134 were reported on May9th and 16th.

* Slight changes in the density of Cs-137 were reported on May9th, 16th, and 30th, June20th and 27th.

(3) Monitoring result data

The monitoring results in the air at the site of the Nuclear Power Station are available in the following webpage (Please see the calendar titled "in the air at the site of Power Station"). This monitoring result is updated every day on this site.

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/index-e.html

- 3.1.2 Radionuclide releases to the sea (including groundwater monitoring results)

(1) General outline of the item

Results of radioactive nuclide analysis are published for the samples of groundwater at the east side of the Unit 1-4 Turbine Buildings and seawater at the port in order to monitor the source and the extent of the radioactive materials in the groundwater, and to determine whether the materials included in groundwater affect the sea.

Increased radioactivity has been observed within the port, in an area smaller than 0.3 km^2. However, ongoing monitoring in the surrounding ocean area has detected no significant increase in radiation levels outside the port or in the open sea, and has shown that radiation levels in these areas remain within the standards of the World Health Organizations guidelines for drinking water.

(2) TEPCO's report on radionuclide releases to the sea

TEPCO issued a report which includes progress and status of the ground improvement by sodium silicate. This report is available online: http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2014/images/handouts_2tb-east-e.pdf

In addition, the historical data of radioactive concentration in the groundwater sampled at the Unit 1-4 bank protection are available online with the csv format. The data from north of Unit 1, between intakes of Units 1 and 2, between intakes of Units 2 and 3, and between intakes of Units 3 and 4 are available at the following sites respectively.

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest02-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest03-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest04-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest05-e.csv

(3) Related information

Analyses regarding radionuclide releases are conducted in different parts of the sea (outside of the port, inside of the port, and inside of the Unit 1-4 water intake channel). Results of these analyses and analysis results of groundwater are as follows (the information is automatically updated daily).

- Analysis Results of Groundwater (Unit 1-4 Bank Protection)
  http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/tb-east_map-e.pdf
- Analysis Results of Seawater (Outside of the Port)
  http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/seawater_map-e.pdf
- Analysis Results of Seawater (Inside of the Port)
  http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/intake_canal_map-e.pdf
- Analysis Results of Seawater (Inside of Unit 1-4 Water Intake Channel)
  http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east_map-e.pdf

3.2: Offsite monitoring results

1. Monitoring results of air dose rates in the 20 Km radius zone around Fukushima Daiichi Nuclear Power Station

(1) Outline of the item

The monitoring of air dose rates in the 20 Km radius zone around Fukushima Daiichi Nuclear Power Station has been conducted at 50 points in the zone (the types of detectors used for monitoring are NaI scintillation detectors and/or an ionization chamber type survey meters). The air dose rates in the 20 Km radius

zone have continuously been decreasing since May 2011 (after the accident at Fukushima Daiichi Nuclear Power Station on March 11, 2011).

(2) Noteworthy updates in the past months

As described in (1) above, the air dose rates in the 20 Km radius zone around the Nuclear Power Station have been in a downward trend, and the monitored air dose rates were stable during May to July 2014. Based on these results, any further announcement was not made on this item (e.g., significant increase of air dose rates in the 20 Km radius zone) during May to July 2014.

(3) Monitoring results

Each of the following URL leads to the monitoring results of air dose rates in the 20 Km radius zone around Fukushima Daiichi Nuclear Power Station in May, June and July 2014:

May: http://radioactivity.nsr.go.jp/en/list/239/list-201405.html
June: http://radioactivity.nsr.go.jp/en/list/239/list-201406.html
July: http://radioactivity.nsr.go.jp/en/list/239/list-201407.html

The following URL leads to an archive of monitoring results:
http://radioactivity.nsr.go.jp/en/list/239/list-1.html

2. Monitoring results of dust in air and soil in the 20 Km radius zone around Fukushima Daiichi Nuclear Power Station

(1) Dust

The monitoring results of dust obtained during May to July 2014 show that the concentrations of dust were either ND (ND indicates that the measurement result is below the detection limit) or very low. Based on the results, any further announcement was not made on this item (e.g., significant increase of the concentrations of dust) during May to July 2014.

The following URL leads to the monitoring results (dated 29 July, 2014) of dust:
http://radioactivity.nsr.go.jp/en/contents/9000/8719/24/223_20140729.pdf

(2) Soil

Radiation monitoring of soil is conducted as appropriate. The latest monitoring of soil was conducted during July 2014. The following URL leads to the monitoring results (dated July 14, 2014) of soil:
http://radioactivity.nsr.go.jp/en/contents/9000/8652/24/495_20140714.pdf

(3) Previous monitoring results

The following URL provides the previous monitoring results (from April 2011 to the present) of dust in air:
http://radioactivity.nsr.go.jp/en/list/240/list-1.html

3. Estimated values and measured values of environmental radioactivity at 1m height from the ground surface in other prefectures (46 prefectures in total) other than Fukushima Prefecture

(1) Outline

The air dose rates measured using the monitoring stations installed in other prefectures have mostly returned to the equal level of the air dose rates before the accident.

(2) Updates during May to July 2014

The estimated and measured values were relatively stable during May to July 2014. Based on the results, any further announcement was not made on this item (e.g., significant increase of the estimated and measured values) during May to July 2014.

(3) Monitoring results

The following URL leads to the estimated and measured values, and new monitoring results are uploaded nearly every day:
http://radioactivity.nsr.go.jp/en/list/192/list-1.html

3.3: Sea area monitoring results of seawater, sediment and biota

(1) Outline

Sea area monitoring results in the area around Fukushima Daiichi Nuclear Power Station have indicated that the radiation levels outside the port or in the open sea have been relatively stable.

(2) Updates during May to July 2014

The sea area monitoring results during May to July 2014 were relatively stable as described in (1) above. Based on the results, any further announcement was not made on this item (e.g., significant increase of sea area monitoring results) during May to July 2014.

(3) Related information

Sea area monitoring is classified to be conducted in 5 areas (Area 1: Sea area close to TEPCO's Fukushima Daiichi Nuclear Power Station, Area 2: Coastal area, Area 3: Off-shore area, Area 4: Outer sea area, and Area 5: Tokyo bay area), and this information is available under the "Monitoring of Sea Water" section of the NRA webpage entitled "Readings of Sea Area Monitoring". This webpage also includes monitoring results of sediment under the "Monitoring of Marine Soil" section, and it is also classified into 4 areas (Area 1: Sea area close to TEPCO's Fukushima Daiichi Nuclear Power Station, Area 2: Coastal area, Area 3: Off-shore area, Area 4: Tokyo bay area). The NRA has been providing a weekly report on sea area monitoring results. The "Readings of Sea Area Monitoring" webpage covers various issues and the webpage's information is periodically updated several times a week. The following URLs lead to this webpage and the weekly report on sea area monitoring results:

- Readings of Sea Area Monitoring
  http://radioactivity.nsr.go.jp/en/list/205/list-1.html
- Sea Area Monitoring (Weekly Report)
  http://radioactivity.nsr.go.jp/en/list/295/list-1.html

Section 4: Off-site Decontamination

4.1: Outline

Off-site decontamination is in operation since the accident of Fukushima Daiichi Nuclear Power Station. Currently, target areas of decontamination are categorized as below.

4.1.1 Special Decontamination Area (SDA)

National Government is responsible for development of plans and implementation of measures for decontamination of SDA. SDA consists of the previous “restricted areas” located within a 20 km radius from the TEPCO Fukushima Daiichi Nuclear Power Station and the previous “deliberate evacuation areas” where the additional annual effective dose for individuals was anticipated to exceed 20 mSv.

4.1.2 Intensive Contamination Survey Area (ICSA)

ICSA is the area where the air dose rate is over 0.23 μSv/h (equivalent to over 1 mSv/y of additional dose under a certain condition). 100 municipalities in 8 prefectures are designated as this Area at first. Decontamination for the area is implemented by each municipality with financial and technical supports by the national government.

4.2: Current status

4.2.1 SDA

- Development of decontamination plans for all 11 municipalities is completed.

- Decontamination work for 4 municipalities (Tamura-city, Kawauchi-village, Naraha-town, Okuma-town) has been completed in accordance with the decontamination plans

4.2.2 ICSA within Fukushima Pref. (Outside of Fukushima Pref.)

- Approximately 70% (100% in other prefectures) of planned decontamination projects for public facilities have been completed.

- Approximately 50% (90% in other prefectures) of planned decontamination projects for residential houses have been completed.

4.3: Related information

The MOE has also been conducting the technology demonstration projects for decontamination, aiming to promote the development of such technologies for effective and efficient decontamination and for the volume reduction of removed soils and wastes. The results of demonstration are to be published with the evaluation from the viewpoints of effectiveness, economic efficiency and so on.

The following URL leads to the web page of MOE's, which post information related to Decontamination:

- Measures for Decontamination of Radioactive Materials Discharged by the accident at the TEPCO's Fukushima Daiichi Nuclear Power Station.

http://josen.env.go.jp/en/

Section 5: Food products

5.1: Summary of testing

Food samples are routinely monitored to ensure that they are safe for all members of the public.

During the month of May 2014, 21,619 samples were taken and analysed. Among these samples, 56 samples were found to be above the limits (Cs-134+Cs-137: 100 Becquerel/kg). This represents 0.26 percent of all samples.

During the month of June 2014, 31,679 samples were taken and analysed. Among these samples, 36 samples were found to be above the limits (Cs-134+Cs-137: 100 Becquerel/kg). This represents 0.11 percent of all samples.

During the month of July 2014, 24,520 samples were taken and analysed. Among these samples, 33 samples were found to be above the limits (Cs-134+Cs-137: 100 Becquerel/kg). This represents 0.13 percent of all samples.

Restrictions are imposed on the distribution of food products, if the level of radioactive contaminants of the food product exceeds the limit (Cs-134+Cs-137: 100 Becquerel/kg). Restrictions are to be removed, when the level of radioactive contaminants of the food product is monitored to be constantly below the limit for a certain period of time. Therefore, the products on which the distribution restrictions are newly imposed are the products whose radioactive contaminant level exceeded the limit in the past month. By the same logic, the products whose restrictions are newly removed are the products whose radioactive contaminant level has been lower than the limit for a certain period of time.

5.2: Results of monitoring food products

(1) The current situation and protective measures

The fact sheet uploaded in the link below is the summary of the current situation and the measures taken by the Government of Japan:
http://www.mhlw.go.jp/english/topics/2011eq/dl/food-130926_1.pdf

(2) Noteworthy updates in the past months (from May to July)

The lists of food products whose status regarding the restriction was changed are as follows.

(i) Products whose distribution was newly restricted in May

- Wild Aralia sprout produced in Nasushiobara-shi, Tochigi prefecture
- Wild Pteridium aquilinum produced in Kamaishi-shi, Iwate prefecture
- Wild Japanese royal ferns produced in Kanuma-shi, Tochigi prefecture
- Bamboo shoots produced in Tenei-mura, Fukushima prefecture

- Wild Aralia cordata produced in Sukagawa-shi, Souma-shi, Hirono-machi and Katsurao-mura, Fukushima prefecture
- Wild Japanese royal ferns produced in Hirono-machi and Otama-mura, Fukushima prefecture
- Wild Aralia sprout produced in Inawashiro-machi, Fukushima prefecture
- Pteridium aquilinum produced in Katsurao-mura, Fukushima prefecture
- Wild Pteridium aquilinum produced in Hirono-machi, Fukushima prefecture
- Wild Aralia sprout produced in Sakura-shi, Tochigi prefecture
- Wild Aralia cordata produced in Kawauchi-mura, Fukushima prefecture
- Koshiabura produced in Nagano-shi and Karuizawa-machi, Nagano prefecture
- Koshiabura produced in Nakano-shi and Nozawaonsen-mura, Nagano prefecture
- Whitespotted char (excluding farmed fish) captured in Watarase river , Tochigi prefecture (limiting area within Ashio-machi, Nikko-shi and including its branches)

(ii) Products whose restrictions were removed in May
- Nibe croaker captured in Ibaraki offshore
- Soybeans produced in Kurihara-shi (limiting to former Kaneda-mura), Miyagi prefecture
- Hilgendorf saucord captured in Fukushima offshore

(iii) Products whose distribution was newly restricted in June
- Wild Giant butterbur produced in Tenei-mura, Fukushima prefecture

(iv) Products whose restrictions were removed in June
- None

(v) Products whose distribution was newly restricted in July
- Wild mushrooms produced in Motegi-machi, Tochigi prefecture

(vi) Products whose restrictions were removed in July
- Halfbeak, Gurnard and Northern sea urchin captured in Fukushima offshore
- Log-grown shiitake (outdoor cultivation) produced in Haga-machi that is managed based on shipment and inspection policy set by Tochigi prefecture
- Log-grown Shiitake (indoor cultivation) produced in Date-shi that is managed based on shipment and inspection policy set by Fukushima prefecture
- Log-grown shiitake (indoor cultivation) produced in Shinchi-machi, Fukushima prefecture
- Japanese dace captured in Kesen river (including its branches), Iwate prefecture

(3) Monitoring results data

See the link below (new monitoring results are added nearly every day):

http://www.mhlw.go.jp/english/topics/2011eq/index_food_radioactive.html

(4) Information focused on the safety of the fishery products

The information that is provided above in (1)-(3) cover fishery products, but in addition to this information, further detailed information is available on the Fisheries Agency's website

http://www.jfa.maff.go.jp/e/inspection/index.html

(i) Summary of monitoring on fishery products

The first half of the website consists of summary of monitoring on fishery products. For further information and to see the actions taken to ensure the safety of fishery products, please refer to the fact sheet uploaded in the site. This fact sheet is available in English, French, Spanish, Russian, Chinese and Korean.

(ii) Monitoring results data

The second half of the website consists of various monitoring results on radioactivity measured in fishery products.

Section 6: Radiation Protection of Workers

Information pertaining to radiation protection of workers involving TEPCO's Fukushima Daiichi NPP Accident is updated on the following website of the Ministry of Health, Labour and Welfare (MHLW):

http://www.mhlw.go.jp/english/topics/2011eq/workers/index.html

6.1: TEPCO Fukushima Daiichi NPP

The status on the exposure dose, health care management and radiation protection of the workers at TEPCO's Fukushima Daiichi NPP are as follows.

(1) Status of Radiation Exposure

Exposure doses of the workers at TEPCO Fukushima Daiichi NPP are reported to the MHLW once a month. The latest monthly report is available on the following webpage (Updated on April 30, 2014):

http://www.mhlw.go.jp/english/topics/2011eq/workers/irpw/ede_140430.pdf

(2) Radiation Protection

Information on radiation protection of workers including measures to be taken and evaluation of committed effective dose of workers at the affected plant is updated.

"Response and Action Taken by the Ministry of Health, Labour and Welfare of Japan on Radiation Protection for Workers Involved in the TEPCO Fukushima Daiichi Nuclear Power Plant Accident" is available on the following webpage. (Updated on November 2, 2013)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/irpw.pdf

"Results of the Additional Re-evaluation of Committed Effective Doses of Emergency Workers at TEPCO's Fukushima Daiichi Nuclear Power Plant" is available on the following webpage. (Updated on March 25, 2014)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/dr/pr_140325.html

(3) Long-term Health Care

Information on long-term health care of emergency workers including health examination and guidelines is updated on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/index.html#lhc

6.2: Decontamination/Remediation

The status on radiation protection of the workers engaged in decontamination and remediation of contaminated materials derived from Fukushima Daiichi NPP Accident are as follows.

(1) Decontamination/Remediation

Information on decontamination and remediation including guidelines and results of labour inspection is updated. The latest press released document, “Results of supervision/instructions to employers of decontamination works”, is available on the following webpage. (Updated on March 12, 2014)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/dr/pr_140312.html

(2) Waste Disposal

A Ministerial Ordinance for Preventing Radiation Hazards of workers engaged in the disposal of accident-derived waste, etc. was put into effect on July 1, 2013. Information on waste disposal work including guidelines is updated on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/index.html#wd

(3) Other Related Topics

Other related information on waste disposal work is updated. Employers’ driven database systems to accumulate radiation exposure doses of decontamination workers has established since April 1, 2014. The related information is updated on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/ort/ri_1226_17.html

6.3: Related Information

(1) Press Releases

Press releases from the MHLW on radiation protection of workers are updated on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html#pr

(2) Guidelines/Notifications

Guidelines and notifications from the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html#gn

(3) Regulations/Legislations

Regulations and legislations of the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html#rl

(4) Governmental reports

Governmental reports issued by the MHLW are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html#gr

(5) Leaflets/Brochures

Leaflets and brochures published by the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html#lb

Section 7: Actions taken by the Japanese Government

7.1: Currently implemented public protective actions in place (i.e., food restrictions)

1. Actions have been taken regarding food safety during February to April, 2014

   Actions to restrict food distribution or removal of these restrictions are taken based on monitoring results. For the products whose distribution was newly restricted or whose restrictions were removed during February to April, please refer to 4.2(2)

2. Further information on this topic is available online:

   http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html

3. Supplementary note (explanation for fishery products)

   The scope of the protective actions covers not only agricultural products but also fishery products. For further information about the monitoring result of the fishery products, please refer to Section 4.2(4).

7.2: Measures implemented to improve public communication

1. Information from the last months

   The Government of Japan has actively been strengthening its communication process to ensure timely dissemination of accurate information on the current status of activities onsite in multiple languages for the international community. In 2014 Japan provided updates in January on 9, 15, 22 and 30, in February on 5, 17, 21, 26 and 28, in March on 4, 8, 11, 18 and 20, in April on 1, 8, 16, 18 and 23, in May on 2, 8, 13, 14, 20, 21, 26, 27 and 30, in June on 2, 3, 12, 17, 20 and 24, in July on 1, 9, 16, 22 and

29, in August on 4, 6, 13, 19 and 27, and so far in September on 2, 9, 16. All of the updates provided to the IAEA are available on this webpage:
http://www.iaea.org/newscenter/news/2013/japan-basic-policy-full.html

2. Relevant activities in disseminating information to the public

(1) Press Conference

Recovery operations at Fukushima Daiichi Nuclear Power Station including contaminated water issues are one of the major issues which the Government of Japan has been focusing on. Since progress has been made frequently, there are updates arising on a daily basis. To explain the updates to the public, the Government of Japan disseminates the relevant information through press conferences. The Chief Cabinet Secretary and the Minister of Economy, Trade and Industry are the main briefers of the press conference, but other ministers or press secretaries may also be the briefer, depending on the subject.

(2) Information delivery to media

The government has been providing relevant information for both the domestic and the foreign press including that stationed in Tokyo and for other media, using various means such as press conferences, press briefings, press tours and press releases. For example, the Fisheries Agency has conducted a media tour to a radioactivity monitoring site for fishery products (Marine Ecology Research Institute) in order to facilitate better understanding for monitoring on fishery products.

(3) Providing information to foreign nations through diplomatic channels

Whenever there is a significant update, the Ministry of Foreign Affairs sends out a notification with relevant information to all foreign missions stationed in Tokyo. The same information is conveyed to all Japanese embassies, consulate generals, and missions. As necessary, the information would be shared with foreign nations and relevant organizations through these diplomatic channels.

In addition, the Ministry of Foreign Affairs holds briefing sessions on Fukushima Daiichi Nuclear Power Station issues for the foreign missions stationed in Tokyo, when there is a significant update. The information on the last briefing session is shown in the link below.

http://www.mofa.go.jp/dns/inec/page22e_000505.html

(4) Measures taken by TEPCO

TEPCO has thus far been providing briefings on the status of Fukushima Daiichi Nuclear Power Station. In June 2014, in order to supplement such briefings, it arranged field observation tours of Fukushima Daiichi Nuclear Power Station for diplomatic officials and employees of embassies to Japan.

These briefings have been conducted with the aim of facilitating a correct understanding through the expeditious communication of accurate information outside of Japan, as well as maintaining TEPCO's accountability as the main party responsible for the accident.

The purpose of the field tours is to enable participants to observe the actual circumstances as they are at the power station by viewing and touring the actual site, in conjunction with the briefings at diplomatic missions. Moreover, TEPCO expects to utilize the network of diplomatic officials to build a new relationship, and provide a connection with TEPCO which had not been open before conducting these tours.

(5) Disseminating information to Japanese populations

In general, the information is shared with Japanese populations through the channels shown above in (1)-(2). In addition to these efforts, the Government of Japan has improved public communication by enriching the content of relevant ministries' webpage and by hosting a local briefing session on a case by case basis. METI regularly informs the progress of the decommissioning activities and contaminated water countermeasures to Fukushima prefecture and 13 local municipalities surrounding the site through video conference and direct visits.

3. Risk Communication

(1) Policy package regarding radioactive risk communication aiming for evacuees returning their home

In February 2014, the Government of Japan adopted a policy package regarding radioactive risk communication aiming for evacuees returning to their homes. The importance of addressing in detail each person's concern and apprehension is expected to increase, and the Government of Japan decided to adopt a comprehensive package regarding risk communication based on such recognition.

This package includes following measures:

(i) Reinforce the ongoing risk communication approaches to further address the individual's concern and apprehension

Up until now, the Government of Japan provided relevant information to the public regarding the impact of radiation on one's health through various measures such as hosting a lecture session or seminar by inviting radiation experts to the evacuation site or supplying a range of publication magazines to affected people.

In addition to these measures, it is necessary to provide open communication for people to freely ask any questions. The Government will address this issue by recognizing that the people's perception on the impaction of radiation on one's health varies from person to person.

The Government of Japan will reinforce its risk communication approaches by taking finely textured measures to alleviate individual's concern in evacuation order municipalities.

(a) Providing information in an accurate and straightforward manner

(b) Reinforcing risk communication approaches to small groups of people (man to man or in an intimate setting)

(c) Capacity building of experts in local areas

(d) Enriching risk communication services being delivered by therapists who closely support the local regions

(ii) Continuous delivery of risk communication service to other areas in Fukushima and expanding to the national audience

Regarding the following measures for risk communication which intend to cover Fukushima prefecture as well as rest of other prefectures in Japan, the Government will feedback the on-site challenges, improve the content and delivery of the measures to more effective ones and would make continuous effort.

(a) Meetings to explain radioactive substances in food will be held, and experts

who can communicate precise information corresponding to specific regions will be trained so that workshops, etc. will be held all over Japan. In addition, information dissemination about radioactive substances in food will be promoted through utilization of the Internet, provision of public information to consumers and so on.

(b) A telephone counseling service will be furnished to respond to inquiries from people with health anxiety due to radiation.

(c) Lectures, trainings, etc. about health effects of radiation will be provided.

(d) Teaching materials for schools about radiation will be prepared and distributed, and workshops, etc. for teachers will be held.

(e) Individual doses will be monitored with personal dosimeters, etc., and risk communication based on such monitoring results will be conducted to disseminate correct knowledge about radiation.

(2) Practical measures for evacuees to return their homes by NRA

NRA formulated practical measures of radiation protection for the evacuees, who will return their homes, from scientific and technological points of view in cooperation with other governmental organizations. The practical measures stay on addressing the difficulties which the evacuees have been facing. It is expected that the practical measures will be helpful for the evacuees to make decisions whether they return their homes or not.

The detail of these measures taken by NRA is available in the following link:
http://www.nsr.go.jp/english/library/data/special-report_20140204.pdf

4. Related websites

Information is frequently shared in English on the following websites:

- The Ministry of Foreign Affairs:
  http://www.mofa.go.jp/policy/page3e_000072.html
- The Nuclear Regulation Authority:
  http://www.nsr.go.jp/english/
- The Ministry of Economy, Trade and Industry:
  http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html
- The Food Safety Commission of Japan:
  http://www.fsc.go.jp/english/emerg/radiological_index_e1.html
- The Ministry of Health Labour and Welfare:
  http://www.mhlw.go.jp/english/topics/2011eq/index_food_policies.html
- The Ministry of Agriculture, Forestry and Fisheries:
  http://www.maff.go.jp/e/quake/press_110312-1.html
- TEPCO (Information on water leakage):
  http://www.tepco.co.jp/en/nu/fukushima-np/water/index-e.html
- TEPCO (General information on activities onsite):
  http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html

IAEA assessment on aspects presented in the September 2014 report *'Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS'*

Multi-layered countermeasures against contaminated water

As reported by Japan, multi-layered countermeasures have been planned or implemented by TEPCO and the Government of Japan to address the contaminated water issues at TEPCO's Fukushima Daiichi Nuclear Power Station, including restoration of the sub-drain system, installation of the seaside impermeable wall, improvement of the Advanced Liquid Processing System (ALPS), construction of the frozen soil wall, operation of the groundwater bypass system and construction of water-blocking ice walls in the trenches by freezing.

The IAEA considers that such multi-layered countermeasures could contribute to reducing the risks associated with groundwater ingress into the basement of the buildings, the continued accumulation of contaminated water to be treated and stored on site and the uncontrolled discharge of radioactivity into the sea.

In particular, restoration of the sub-drain pumping system could reduce groundwater ingress substantially (TEPCO's estimates: approximately 200 tons can be reduced per day). For this, TEPCO intends to pump up groundwater from the sub-drains surrounding the reactor buildings at the rate of 500 to 700 tons per day, treat the pumped up water to meet very stringent standards, and discharge to the sea after getting agreement from all relevant stakeholders and obtaining regulatory approval.

The presence of high activity water in the seaside trenches continues to be a cause for concern because of the potential risks of leaking into the surrounding areas, including the sea. Efforts to freeze water in the trenches close to their connection to the buildings have so far been only partially successful. The IAEA encourages TEPCO to continue its efforts to address this issue.

The IAEA notes TEPCO's efforts to improve the performance of the existing ALPS water treatment system and adding new capacity. Additional similar water treatment systems are also under installation. When completed and fully operational, three such systems should contribute to a faster and more effective treatment of the very large amount of contaminated water stored at the site.

TEPCO continues to operate the groundwater bypass system. The effectiveness of this operation should ultimately be reflected in reducing the volume of contaminated water to be treated and stored. TEPCO will have to closely monitor actual operational data to confirm and quantify the effectiveness of this operation.

Removal of the temporary cover surrounding Unit 1

As reported by TEPCO, the removal of the temporary cover surrounding the Unit 1 reactor building will start, so that the overhead crane can be installed to remove the debris on the operating floor, aiming to start the fuel removal work in fiscal year 2017. According to TEPCO, several safety measures will be employed to maintain safety, such as the use of anti-scattering agent to prevent radioactive substances from escaping into the atmosphere, installing sprinklers to hold down dust during the work and operating remote controlled machinery to protect workers from exposure.

Based on the information that has been made available, the IAEA considers that the removal of the temporary cover is an appropriate step towards the decommissioning of the plant.

Removal of fuel assemblies from Unit 4 Spent Fuel Pool

According to TEPCO's report, as of 16 September 2014, 1232 spent fuel assemblies (out of 1331 assemblies) and 22 non-irradiated fuel assemblies (out of 202 assemblies) have been removed from the Unit 4 Spent Fuel Pool to the common pool through 57 cask transportations since November 2013. (http://www.tepco.co.jp/en/decommision/index-e.html)

Based on the information made available, the IAEA acknowledges that TEPCO is making progress towards achieving completion of the spent fuel removal from Unit 4 in line with the targeted schedule (i.e., completion within 2014).

Environmental remediation in the off-site areas

The environmental remediation activities have been on-going in the Special Decontamination Areas ("SDA", consisting of the "restricted areas" within a 20 km radius from the Fukushima Daiichi NPP and the "deliberate evacuation areas" where the additional annual effective dose for individuals was anticipated to exceed 20 mSv) and the Intensive Contamination Survey Areas ("ICSA", comprising the areas in which the dose rate is over 0.23 µSv/h (equivalent to over 1mSv/y of additional dose rate under a certain condition). See page 14, 4.1.2. As reported by Japan, the Governor of Fukushima Prefecture accepted the construction of Interim Storage Facilities where the contaminated soil and waste generated from decontamination activities in Fukushima Prefecture will be stored. The mayors of Okuma town and Futaba town agreed that the Government of Japan would commence explanation to landowners of the candidate site.

The IAEA acknowledges the significant efforts to continue remediation activities in both the SDA and ICSA, and the progress made towards the establishment of the Interim Storage Facilities. Based on the information that has been made available, the IAEA encourages Japan to carry out appropriate measures for the safety of the facilities and activities for the management of contaminated materials, in line with the advice given by the IAEA review team which conducted the "Follow-up IAEA International Mission on Remediation of Large Contaminated Areas Off-site the Fukushima Daiichi Nuclear Power Plant" in October 2013.

Sea area monitoring results

Sea area monitoring data continued to be published regularly by NRA for the 5 sea areas defined by NRA: Area 1 - Sea area close to TEPCO's Fukushima Daiichi Nuclear Power Station; Area 2 - Coastal area; Area 3 - Off-shore area; Area 4 - Outer sea area; and Area 5 - Tokyo bay area. The results of seawater monitoring in all five areas show that radionuclide levels in seawater are well below regulatory limits and are therefore of no radiological concern. Moreover, these results show that concentrations of tritium, strontium-90, caesium-134 and caesium-137 in seawater have been relatively stable, with no significant changes observed during the last six months. No significant change in radioactivity levels in seawater in these areas has been observed since the commencement of the discharge of bypassed groundwater either. The levels of strontium-90, caesium-134 and caesium-137 in marine sediment for the 4 areas defined by the NRA for marine sediment monitoring (Area 1 - Sea area close to TEPCO's Fukushima Daiichi Nuclear Power Station; Area 2 - Coastal area; Area 3 - Off-shore area; and Area 4 - Tokyo bay area) have also been stable during the last six months.

Based on the sea area radioactivity monitoring results in all five areas and other related information that has been made available, the IAEA considers that the situation in the marine environment is stable but should continue to be monitored.

Sea area monitoring data quality assurance

Two IAEA experts visited Japan from 8 to 14 September 2014 to collect water samples from the sea near TEPCO's Fukushima Daiichi Nuclear Power Station, to support high-quality gathering and analysis of radioactivity data by the responsible authorities in Japan. The visit by the experts was the first follow-up activity to the advisory points on sea area monitoring presented in the report by the *IAEA International Peer Review Mission on Mid- and Long-Term Roadmap Towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station Units 1-4*, which, in late 2013, had reviewed Japan's efforts to plan and implement the decommissioning of the plant. Advice from that mission included conducting interlaboratory comparisons in order to foster greater transparency and confidence in the sea area monitoring results produced, as well as presenting these results to the public in a scientifically correct but understandable way.

Water samples collected during the visit were shared between the IAEA Environment Laboratories and Japanese laboratories, and will be analysed independently by each. The results will then be compared to check the quality of the analyses and document the reliability and comparability of data. The IAEA and Japan are also discussing the details of their cooperation regarding sea area monitoring.

The Nuclear Regulatory Authority photographs taken during the seawater collection mission can be found at: http://www.nsr.go.jp/english/data/f1/140916.pdf. Additional images are also available at https://www.flickr.com/photos/iaea_imagebank/sets/72157647698942692/.

Food products

The authorities in Japan are continuing to implement a comprehensive programme of food monitoring and testing. Regulatory limits for levels of caesium radionuclides in food products remain in force. A surveillance and control regime is in place to monitor radionuclide levels in food (including seafood) against the legal limits, in order to ensure that the food supply chain remains safe. According to information provided by Japan, the situation with regards to food, fishery and agricultural production remains stable. This information, and the food monitoring to date, do not raise any new or immediate issues regarding the safety of the food supply chain.

Based on information provided by Japan, food monitoring measurements indicate that the concentration of radiocaesium in more than 99% of the food items sampled are either not detectable or are below regulatory limits. Controls on food products from areas where radionuclide levels are above limits are used to restrict the distribution of food products with radiocaesium above regulatory levels. These restrictions are lifted or revised when testing indicates that food collected from a specific area no longer exceeds the limits or are introduced in areas where certain food items need to be controlled. The revisions and updates to the food restrictions indicate the continued vigilance of the authorities in Japan and their commitment to protecting consumers and trade.

The implementation of protective actions to ensure the safety of the food supply is one facet in maintaining confidence in the safety and quality of food. Initiatives such as public engagement and risk communication are also important in this respect, and the information provided by Japan also illustrates how the authorities are addressing this at both local and national levels.

The IAEA considers that systems are in place and are being implemented that prevent food and agricultural products with levels of caesium radionuclides in excess of the legal limits from entering the food supply chain. Based on the information that has been made available, the Joint FAO / IAEA Division

understands 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.