WHO SITREP NO 16

Japan earthquake and tsunami
Situation Report No. 16
25 March 2011
As of 14:30 hrs Manila Time

World Health Organization
Western Pacific Region

All times stated below are in Tokyo time.

SITUATION SUMMARY

- A 9.0 magnitude earthquake occurred on 11 March 2011 in Japan at 5:46:23 GMT, hitting the northeast coast of Honshu in Japan.
- Chief Cabinet Secretary of Japan advised residents to voluntarily evacuate from within the 20 km to 30 km radius from Fukushima Daiichi Nuclear power plant, in view of the difficult living conditions in the area.
- Based on official figures of the Japan government, 9 811 persons are confirmed dead, 2 779 injured and more than 17 541 missing. There are 245 394 evacuees.
- Member States continue to receive updates through the International Food Safety Authorities Network (INFOSAN) and have been requested to report results undertaken on imported food from Japan. Japan is informed of these findings through INFOSAN and WPRO.
- It was reported on 24 March that three workers at Unit 3 had exposure of 173-180mSV; two possibly have beta-radiation burn (total 17 workers exposed to >100 mSV, all related to Fukushima Daiichi).
- Fukushima Daiichi nuclear power plant
    - Reactor 1 and 3 had light in the control unit. The final check-up of electrical equipment is underway at reactors 2 and 4 before they will turn on the electricity.
    - Pressure of the nuclear core of unit 1 is still high 0.376/0.358 MPaG.
    - Water injecting operations were done in reactor 3 on 24 March.

EVENT INFORMATION

Weather

(Source: Japan Meteorological Agency, 25 March)

25 March: Tohoku area may have snow or rain in the afternoon, especially in the Pacific side with strong blowing wind until 26 March morning.

23-29 March: Minimum and maximum temperature will be lower than usual and it may drop below freezing in the morning and evening in Tohoku (Pacific side) and northern part of Kanto.

POPULATION STATUS

Combined deaths and missing counts are > 27 000.

Table 1: Confirmed number of deaths, missing, injured and evacuated persons

Prefectures	Death	Missing	Injured	Evacuee
Hokkaido	1		3	
Aomori	3	1	66	367
Iwate	3 025	4 869	130	42 837
Miyagi	5 889	6 671	1 044	89 608 (Including evacuees from Fukushima)
Akita			8	
Yamagata	1		18	3 595 (Evacuees from Fukushima and Miyagi)
Fukushima	834	5 997	220	85 085
Tokyo	7		77	920 (Evacuees from Iwate, Fukushima and Miyagi)
Ibaragi	20	1	663	2 902 (Including evacuees from Fukushima)
Tochigi	4		133	2 803 (Including evacuees from Fukushima)
Gunma	1		35	3 137(Evacuees from Fukushima and Miyagi)
Saitama			42	3 478(Evacuees from Fukushima etc.)
Chiba	17	2	205	1 468 (Including evacuees from Fukushima)
Kanagawa	4		127	537 (Evacuees from Fukushima)
Niigata			2	7 224 (Evacuees from Fukushima)
Yamanashi			1	678 (Evacuees from Fukushima and Miyagi)
Nagano				370 (Evacuees from Fukushima and Ibaraki)
Shizuoka			4	385(Evacuees from Fukushima)
Kouchi			1	
Total	**9 811**	**17 541**	**2 779**	**245 394**

HEALTH STATUS, LIFELINE SERVICES AND RESPONSE

Health care facilities

No updates.

Communicable diseases

No further updates on cases of ILI and gastroenteritis.

An internet-based ad-hoc surveillance system has been developed by Infectious Disease Surveillance Centre, National Institute of Infectious Diseases (http://www.syndromic-surveillance.net/hinanjo/index.html), but is not functioning as of the morning of 23 March.

Non-communicable Diseases

It was reported on 24 March that three workers at Unit 3 had exposure of 173-180mSV; two possibly have beta-radiation burn (total 17 workers exposed to >100 mSV, all related to Fukushima Daiichi).

Hypothermia

People continue to face cold temperatures with insufficient heating. Hypothermia has been reported particularly among the elderly population in the evacuation centres.

Care of the elderly

No updates.

Tsunami-related symptoms/aspiration pneumonia

No updates on pneumonia cases.

Mental Health

- MHLW is coordinating the needs by location and deployments of mental health workers to the sites.

Response to health and lifeline services

The National Emergency Management Committee, led by the Prime Minister, has been established to oversee and coordinate all response activities. A state of emergency has been declared. All prefectures have also activated the local government response.

Medical team activities

- The National Centre for Child Health and Development and Japanese Society of Emergency Paediatrics deployed a team to Miyagi prefectural Paediatric Hospital for assessing the paediatric medical needs.

- 96 teams, consisting of 514 members are responding to Iwate, Miyagi and Fukushima from the National Hospital Institution, Japan Red Cross Society, and Japan Medical Association, etc.
- Some 225 pharmacists are deployed to Miyagi (156), Fukushima (53), Iwate (14), Ibaragi (2) by the Japan Pharmaceutical Association and the Japanese Society of Hospital Pharmacists.
- On 24 March, the Japanese Nursing Association dispatched 67 nurses to Iwate.

Public health nurse teams are being deployed to evacuation centres in Fukushima, Iwate and Miyagi (Table 2).

Table 2: Public health nurse teams being deployed to evacuation centres and public health centres (25 March)

	Number of team	Location
Responding	95	Iwate(27), Miyagi(39)+Sendai city(27), Fukushima(2)
Mobilizing	4	Iwate(2), Miyagi(2)
Standby	6	Iwate(4), Miyagi(2)
Total	105	Iwate(33), Miyagi(43)+Sendai city(27), Fukushima(2)

Table 3: Mental health care teams deployed (25 March)

	Number of team	Location
Responding	23	Iwate(7), Miyagi(12)+Sendai city(3), Fukushima(1)
Mobilizing	3	Iwate(2), Sendai(1)
Standby	7	Iwate(1), Miyagi(5), Fukushima(1)
Total	33	Iwate(10), Miyagi(18)+Sendai city(4), Fukushima(2)

Food/water/essentials

The Ministry of Health, Labour and Welfare (MHLW) reported on 25 March that 652 254 households were without water. Food, water and other essentials items continue to be supplied to affected areas.

Management of dead bodies
MHLW is supporting local governments for the management of the dead.

Communication
Improvement: Some 164 641 telephone lines remain out of service. A reported 2 316 base stations of mobile companies are not working. Some mobile companies provide free satellite phone, cell phone and charger as well as disaster messaging services.

Buildings
There are 18 713 buildings completely destroyed while partially destroyed reported at 6 565.

Electricity
Gradual improvement: As of 24 March, approximately 210 000 households remain without power, mostly in the Tohoku region.

Gas
Slow improvement: Some 433 215 households remain without gas supply.

Transport
As of 24 March, 2 027 roads damaged have been reported from 11 prefectures (Aomori, Miyagi, Yamagata, Akita, Tokyo, Ibaragi, Tochigi, Saitama, Gunma, Chiba and Iwate). There were reports of 54 damaged bridges in four prefectures. Many roads and highways have remained closed. Assessments from Fukushima were not yet completed.

As of 24 March, 36 damaged rail lines in three prefectures were reported. About 30 local trains in the affected area remain out of service.

All 15 ports in the affected area are available for “disaster measures".

RADIATION AND NUCLEAR FACILITIES

Updates on Fukushima Daiichi plant

- Reactor 1 and 3 had light in the control unit. The final check-up of electrical equipment is underway at reactors 2 and 4 before they will turn on the electricity.
- Pressure of the nuclear core of unit 1 is still high 0.376/0.358 MPaG.
- Water-injecting operations were done in reactor 3 on 24 March.
- According to media, water sampling at the ground floor of Unit 3 shows 10 000 times more radioactive substances compared with cooling water in the nuclear unit. Cs-137 was detected.

Table 4: Status of reactors at Fukushima Daiichi plant (25 March)

Unit.No	Operation status prior to earthquake	INES assessment	Fire/ Explosion	Damage to building of the unit	Fuel rod status	pressure of nuclear core	Temperature of nuclear core	Pressure container	Spent fuel storage pool temperature	Water spraying /injection for spent fuel storage pool	Recovery of electricity	Recent operations (19-25 Mar)
Unit1 (460,000Kw)	Operating	Level 5 (18 Mar)	H-explosion (12 Mar); white smoke /steam (24Mar)	Severely damaged	Failure to cool the fuel rod	0.376/0.358 MPaG (25Mar)	217.9/172.4C (24Mar)	Maintained	Unable to measure		electric line is working from outside and checking up for electric equipment is underway (23Mar)	Sea water pumping
Unit2 (784,000Kw)	Operating	Level 5 (18 Mar)	Sound of explosion (15 Mar); white smoke (21, 22 Mar); white smoke steam(24Mar)	Damage on wall	Failure to cool the fuel rod	minus0.023/0.025 Mpa G (25Mar)	100/105C (24Mar)	Suppression pool may be damaged (15 Mar)	28.0 (25Mar)	Injection: 58t	electric line from outside is working and checking up for electric equipment is underway (22Mar)	Sea water pumping; water injection for spent fuel storage pool (20 Mar)
Unit3 (784,000Kw)	Operating	Level 5 (18 Mar)	H-explosion (14 Mar); greyish smoke (21, 22 Mar): black smoke(23 Mar, 4:20PM) ;white smoke/ steam(24Mar)	Severely damaged	Failure to cool the fuel rod	0.038/minus0.101Pp a G(25Mar)	65.5(pending) /155.7 (24Mar)	Pressure is stable (21Mar)	Not able to measure	Spray and Injection: 3927t in total	lighted in central operating room(22Mar)	Sea water pumping; water spray by fire engine (19, 20, 22 Mar);water infection for spent fuel storage pool (23, 24Mar)
Unit4 (784,000Kw)	Under regular check-up	Level 3 (18 Mar)	Fire (15-16 Mar); white smoke Steam (24Mar)	Severely damaged	No fuel rod			Maintained	Not able to measure	Spray: 685t in total	electric line is working from outside and checking up for electric equipment is underway (23Mar)	Water spray by fire engine (20-25 Mar)
Unit5 (784,000Kw)	Under regular check-up		Nil	make a hole in the ceiling (18,19 Mar)	Not under operation			Maintained	50.9C (25Mar)		power supply from outside is working and replaced emergency generator function (22 Mar)	Emergency generator operating and cooling operation by pump started for spent fuel storage pool (19 Mar); Coolant pomp became not working (23Mar) replacement will be done on 24 Mar
Unit6 (784,000Kw)	Under regular check-up		Nil	make a hole in the ceiling (18,19 Mar)	Not under operation			Maintained	22.5C (25Mar)		electric line is working from outside and checking up for electric equipment is underway (22 Mar)	Emergency generator operating and cooling operations started for spent fuel storage pool (19 Mar) ;

Radiation levels

Higher than expected radiation levels continue to be detected at the plant facility, most recently at the main gate, west of reactor 2; however, radiation levels are continuing to fall. Due to cooling and electric operations at the plant, radiation levels have not been consistently measured at the main gate since 17 March. Key measurement values, locations and dates are as follows:

SDF helicopters involved in the cooling operations (17 March):

- 4.13 milli Sv/h at 1000ft (300m);
- 87.7 milli Sv/h at 300ft (90m).

Measures taken at the control room:

- 18 March (3254 micro Sv/hr; 23:30);
- 19 March (2820 micro Sv/hr; 23:30);
- 20 March (2487 micro Sv/hr; 23:30);
- 21 March (2016 micro Sv/hr, 16:50)

Measurements taken near reactor 3:

- 20 March (2670 micro Sv/hr);
- 21 March (2319 micro Sv/hr).

Measurements taken at the Main gate, west of reactor 2:

- 17:40, 21 March (494 micro Sv/hr)
- 18:30, 21 March (1932 micro Sv/hr)
- 07:30, 22 March (261.6 micro Sv/hr)
- 08:30, 23 March (229.3 micro SV/hr)
- 14:30, 23 March (435.0)
- 16:20, 23 March (280.9)
- 23:50, 23 March (223.0)
- 08:00, 24 March (211.6)
- 07:00, 25 March (192.6)

Radioactivity in soil

NHK reported on 25 March that Japanese authorities had detected a concentration of a radioactive substance 1,600 times higher than normal in soil at a village 40 kilometers away from the Daiichi nuclear power plant in Fukushima Prefecture. The disaster task force in Fukushima surveyed radioactive substances in soil about five centimeters below the surface at six locations around the plant from last Friday through Tuesday. The results announced on Wednesday show that 163 000 becquerels of radioactive Cesium-137 per kilogram of soil has been detected in Iitate Village, about 40 kilometers northwest of the plant.

Table 5: Levels of radiation measured at nearby prefectures

	IBARAKI PREFECTURE Mito City	TOCHIGI PREFECTURE Utunomiya city	GUNMA PRERECTURE Maebashi city	SAITAMA PREFECTURE Saitama City	CHIBA PREFECTURE Ichihara City	TOKYO Shingyuku
Historic background level	0.036~0.056	0.030~0.067	0.017~0.045	0.031~0.060	0.022~0.044	0.028~0.079
15/3/2011 (7pm-8pm)	0.239	0.321	0.389	0.169	0.055	0.361
16/3/2011 (7pm-8pm)	0.241	0.212	0.109	0.067	0.04	0.053
17/3/2011 (3pm-4pm)	0.21	0.189	0.096	0.063	0.038	0.05
18/3/2011 (2pm-3pm)	0.189	0.167	0.086	0.058	0.034	0.05
19/3/2011 (6am-7am)	0.18	0.157	0.083	0.058	0.033	0.047
20/3/2011 (4pm-5pm)	0.174	0.153	0.072	0.052	0.032	0.045
21/3/2011 (4pm-5pm)	0.34	0.133	0.085	0.106	0.082	0.125
22/3/2011 (4pm-5pm)	0.378	0.148	0.11	0.114	0.106	0.142
23/3/2011 (4pm-5pm)*	0.343	0.141	0.096	0.12	0.104	0.146
24/3/2011 (Max (1am-7am))	0.317	0.138	0.095	0.12	0.101	0.14

COMMENTS: Yellow indicates higher than background level; all times in Tokyo time

*for Saitama, last measure done 2-3pm

Monitoring of seawater quality

TEPCO has reported contamination of seawater with radioactive iodine and cesium. The levels reported were as follow:

Distance south of Fukushima No. 1 nuclear plant (m)	Sampling Date	Number of times guideline value* is exceeded		
		Iodine-131	Cesium-134	Cesium-137
10	21-Mar 14:30	126.7	24.8	16.5
330	22-Mar 06:30	29.8	2.5	1.7
8000	22-Mar 00:38	80.3	1.3	0.9
10000	22-Mar 14:28	28.5	0.8	0.4
16000	22-Mar 15:06	16.7	0.7	0.5

** Guidance values are 40 Bq/L (I-131); 60 Bq/L (Cs-134) and 90 Bq/L(Cs-137)*

Japanese authorities have reported that they will measure radioactivity in the marine environment around the Fukushima Daiichi nuclear power plant. The monitoring will be conducted from 22 to 23 March by the Japan Agency for Marine-Earth Science and Technology (JAMSTEC). Sea water sampling from eight locations will be sampled and analysed by the Japan Atomic Energy Agency (JAEA), and results will be provided on 24 March. The analysis will include radionuclide concentrations found in sea water and dose rate. The IAEA will continue to follow this information. (Source: http://www.iaea.org/newscenter/news/tsunamiupdate01.html)

The Ministry of Education, Culture, Sport, Science and Technology (MEXT), Japan will also conduct a sampling and analysis of sea water near the Fukushima Daiichi nuclear plant that covers 8 locations 30 km off the coast at 10 km intervals east of Fukushima Daiichi nuclear plant. The first set of data based on sampling on 23 March has just been reported. Three out of eight points were found to exceed the Japanese guidance level for radioactive iodine of 40 Bq/L. The reported values were 76.8, 54.7 and 42 Bq/L. All samples were within the guidance value for Cesium-137.

Food safety and drinking-water quality

Monitoring and risk management actions - Japan

As of 17 March 2011, all local food safety inspection authorities were directed to monitor/investigate radionuclide levels in foods for identification/prevention of potential food safety risks associated with radioactive nuclide contaminations. The notice indicates the provisional regulation values for radionuclide in different types of foods. Foods that exceed these levels are regulated under the Food Sanitation Act. As such, actions to prevent consumption of foods that exceed the provisional levels must be applied.

In addition to these measures the following restrictions are in place following Article 20.3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156, 1999):

Prefecture	Risk Management Action
Fukushima	Consumption and distribution of all leafy vegetables (spinach, komatsuna, cabbage, parsley), flowerhead brassicas (broccoli, cauliflower), and milk produced in Fukushima (n.b milk and turnip – distribution limited only) have been stopped.
	Voluntary ban (which has been implemented) on consumption and distribution for all agricultural products from <30 km from Daiichi (implemented 19 March)
Ibaraki	Consumption and distribution of all spinach, kakina, parsley and milk produced in Ibaraki have been stopped.
Gunma	Consumption and distribution of all spinach and kakina in Gunma have been stopped.
Tochigi	Consumption and distribution of all spinach and kakina in Tochigi have been stopped.

Food sampling results have been received from Gunma, Fukushima, Chiba, Ibaraki, Kanagawa, Nagano, Niigata, Saitama, Tochigi, Tokyo, Yamagata Prefectures. A total of 353 milk, produce and other food samples results have been obtained from the MHLW from 19 to 24 March (Please note that WPRO is no longer using data gained from Prefecture level websites).

On 23 March, Miyagi, Yamagata, Saitama, Chiba, Niigata and Nagano prefectures were instructed to extend monitoring tests for agricultural and livestock products (similar to what Fukushia, Ibaraki, Tochigi and Gunma have been doing).

Seafood testing has been put in place in Ibaraki and Chiba Prefectures.

Within 3.5 km from south to north and 1.5 km to east (ocean side) from Fukushima Daiichi, no commercial fishing has been allowed both prior and since the explosion at Fukushima Daiichi. Since the explosion, no ship can go inside within 30 km from Fukushima Daiichi (media).

On 22 March, the Food Safety Commission met and agreed to review the provisional regulation values.

Monitoring and risk management actions - International

In the Western Pacific Region, the following countries have put in place additional monitoring procedures associated with imported food from Japan: Malaysia, New Caledonia, Republic of Korea and Taiwan, China (unofficial information); and Australia, China, Hong Kong, China, Philippines and Singapore (official information). New Zealand is assessing the situation and has not put in place specific monitoring procedures associated with this event.

Outside of the Western Pacific Region, several countries have also put in additional monitoring procedures; of particular note is the European Commission and the US FDA.

Member States continue to receive updates through the International Food Safety Authorities Network (INFOSAN) and have been requested to report results undertaken on imported food from Japan. Japan is informed of these findings through INFOSAN and WPRO.

Frequently asked questions on the food contamination issues have been updated and are available at: http://www.wpro.who.int/media_centre/jpn_earthquake/FAQs/faqs_foodcontamination.htm .

Drinking-water quality

The MHLW issued a press release dated March 23 (posted on its web site on 25 March) reporting results of radioactive materials survey conducted by Ibaraki Prefecture, etc. on tap water. Based on the results, MHLW requested anew that Tokai-mura village and Hitachiota-shi City inform their residents to refrain from having infants drink tap water. Water supplies found to be exceeding the level of the "Index values for infants (radioactive iodine)" were Tokaimura village Water Supply Utility in Tokaimura village (188.7 Bq/kg, and the Suifu District Hokubu (northern area) Small Scale Water Supply Utility in Hitachiota-shi City (245 Bq/kg). It may be noted that none of the reported results exceeded the "Index values for restrictions on the intake of food and beverages."

The water supply utilities that the MHLW requested by 18:00 on 23 March to inform residents to refrain from drinking tap water include: Iitate Small-Scale Water Supply Utility (in Iitate-mura village) in Fukushima prefecture.

The water supply utilities that the MHLW requested by 18:00 on May 23 to inform residents to refrain from having infants drink tap water:

- Fukushima prefecture: Tsukitate/Date-shi (city) Small-Scale Water Supply Utility (Date-shi (city)), Koriyama-shi (city) Water Supply Utility (Koriyama-shi (city)), Tamura-shi (city) Water Supply Utility (Tamura-shi (city)), Minamisoma-shi (city) Water Supply Utility (Minamisoma-shi (city)), Kawamata-machi (town) Water Supply Utility (Kawamata-machi (town)), and Iwaki-shi (city) Water Supply Utility (Iwaki-shi (city)). (The requests for all these utilities are ongoing.)
- Tokyo Metropolitan Government: Tokyo Water Supply Utility (The regions covered: 23 wards, Musashino-shi (city), Machida-shi (city), Tama-shi (city), Inashiro-shi (city) and Mitaka-shi (city). (The requests for all these utilities are ongoing.)

TEPCO conducted a re-sampling survey to examine the effect of radioactive materials in the seawater. We had informed the result to Nuclear and Industrial Safety Agency (NISA) and the government of Fukushima Prefecture, because radioactive materials were detected as reported in the web site: http://www.tepco.co.jp/en/press/corp-com/release/11032411-e.html.

Place	**I-131 (Bq/kg)**				**Cs-137 (Bq/kg)**			
	20 Mar	**21 Mar**	**22 Mar**	**23 Mar**	**20 Mar**	**21 Mar**	**22 Mar**	**23 Mar**
Iwate (Morioka City)	ND	ND	3.4	9.3	ND	ND	ND	0.13
Akita (Akita City)	ND	ND	0.76	2.0	ND	ND	ND	ND
Yamagata (Yamagata City)	ND	ND	3.9	ND	ND	ND	ND	ND
Ibaraki	12	58	12	24	0.48	18	4.8	3.3
Tochigi (Utsunomiya City)	10	13	15	56	2.8	6	5.3	9.3
Gunma (Maebashi City)	5.9	4.7	9.3	7.0	1.2	0.72	0.37	0.72
Saitama (Saitama city)	2.0	3.4	9.2	12	ND	ND	ND	0.32
Chiba (Ichihara City)	0.68	0.59	0.48	7.8	ND	ND	ND	ND
Niigata (Niigata City)	3.6	3.2	3	7.8	ND	ND	ND	ND
Kanagawa (Chigasaki City)	ND	-	0.93	0.75	ND	ND	ND	ND
Yamanashi (Kofu City)	0.24	ND	ND	ND	ND	ND	ND	ND
Shizuoka (Shizuoka City)	ND	ND	0.14	ND	ND	ND	ND	ND
Tokyo (Shinjuku ward)	2.9	5.3	19	ND	ND	0.22	0.31	1.5

WHO/WPRO RESPONSE

- WPRO Situation room is on 24/7 operation to collect information and to monitor the evolving events.
- WPRO closely coordinates with the Ministry of Health, Labour and Welfare of Japan for updates on radiation concerns, food safety issues, health situation in the evacuation centres and other post-disaster health issues. The National IHR Focal Point of Japan has been designated as the contact person of WHO on the event.

TRAVEL AND TRADE ADVISORIES

The International Civil Aviation Organization (ICAO), on behalf of the International Atomic Energy Agency (IAEA), International Maritime Organization (IMO), the World Health Organization (WHO) and the World Meteorological Organization (WMO), issued a joint statement on the continued safety of air transport operations in Japan.

These five organizations confirmed that there are no restrictions to normal air transport operations at Japan's major airports, including both Haneda and Narita.

The ICAO statement further confirmed that there are no health reasons that would require the screening of passengers emanating from Japan. Moreover the Organization confirmed that there is no health risk associated with increased levels of radiation that have been detected at some airports.

RISK COMMUNICATION

WHO Action

- FAQs on drinking water posted on HQ and WPRO web sites.

CONTACTS FOR MORE INFORMATION

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