Basic Survey (Radiation Dose Estimates) reported on 12 November 2013

1. Response Rates and Radiation Dose Estimates

1.1 Response Rates of Residents

The overall effective response rate to the Basic Survey (radiation dose estimates), which targeted the entire population of Fukushima Prefecture, was 23.6% (484,864/2,056,994) as of 30 September 2013.

Regional variations in the response rates were observed, ranging from 13%–15% in Aizu and Minami-aizu to 44% in Soso area. (Table 1)

1.2 Radiation Dose Estimates

Recorded movements of respondents are converted to digital data, and effective external cumulative doses are calculated using the dose calculation system developed by the National Institute of Radiological Sciences. Doses have been estimated for 460,887/484,864 respondents (95.1%) as of 30 September 2013 (Table 1), and the results have been returned to 440,642 respondents.

Table 1 Response rates to the Basic Survey

As of 30 September 2013

Area(preceding and full-scale surveys)	Target population a	Response b	Response rates c=b/a	Completed dose estimation d	Proportion e=d/b	Returned results f	Proportion g=f/b
Kempoku	505,539	133,953	26.5%	129,716	96.8%	125,606	93.8%
Kenchu	560,116	117,020	20.9%	111,756	95.5%	106,714	91.2%
Kennan	152,776	26,932	17.6%	25,727	95.5%	24,399	90.6%
Aizu	267,696	40,434	15.1%	37,601	93.0%	35,922	88.8%
Minami-aizu	30,831	4,141	13.4%	3,789	91.5%	3,631	87.7%
Soso	196,205	87,196	44.4%	81,243	93.2%	78,072	89.5%
Iwaki	343,831	75,188	21.9%	71,055	94.5%	66,298	88.2%
Total	2,056,994	484,864	23.6%	460,887	95.1%	440,642	90.9%

Including Yamakiya of Kawamata, Namie and Iitate

1.3 Response Rates (Visitors)

The survey questionnaire was distributed upon request to non-residents who were visiting or staying in Fukushima Prefecture at the time of the accident. Of 2,070 responses, doses have been estimated for 1,779 respondents (85.9%), and the results shall be returned accordingly. (Table 2)

Table 2 Response rates to the Basic Survey

(Visitors) As of 30 September 2013

Number of request a	Response b	Response rates c=b/a	Completed dose estimation d	Proportion e=d/b	Returned results f	Proportion g=f/b
3,801	2,070	54.5%	1,779	85.9%	1,705	82.4%

2. Results of Radiation Dose Estimates

Radiation doses for a total of 460,887 residents have been estimated to date. The results for 451,364 respondents (excluding radiation workers) suggested that the doses for more than 90% of the respondents were <2 mSv in Kempoku and Kenchu areas. The doses for approximately 91% of the respondents in Kennan area and more than 99% of those in Aizu and Minami-aizu were <1 mSv. Doses for 78% of respondents in Soso area and more than 99% of respondents in Iwaki were also <1 mSv. (Table 3)

Table 3

Estimated external radiation doses in the first four months (preceding and full-scale survey)

As of 30 September 2013

Effective Dose (mSv)	Total	Excluding radiation workers				By region (excluding radiation workers)													
						Kempoku *		Kenchu		Kennan		Aizu		Minami-aizu		Soso **		Iwaki	
<1	304,418	298,332	66.1%	94.9%		40,602	31.7%	65,167	59.0%	23,076	90.7%	36,971	99.4%	3,732	99.4%	59,689	77.9%	69,095	99.2%
1-2	132,159	129,817	28.8%			74,887	58.4%	38,989	35.3%	2,364	9.3%	217	0.6%	23	0.6%	12,782	16.7%	555	0.8%
2-3	20,519	20,141	4.5%	4.8%	99.8%	12,136	9.5%	6,057	5.5%	12	0.0%	8	0.0%	0	-	1,908	2.5%	20	0.0%
3-4	1,508	1,432	0.3%			439	0.3%	290	0.3%	0	-	1	0.0%	0	-	699	0.9%	3	0.0%
4-5	618	576	0.1%	0.2%		44	0.0%	6	0.0%	0	-	0	-	0	-	524	0.7%	2	0.0%
5-6	488	432	0.1%			25	0.0%	2	0.0%	0	-	0	-	0	-	405	0.5%	0	-
6-7	288	253	0.1%	0.1%	0.2%	8	0.0%	0	-	0	-	0	-	0	-	245	0.3%	0	-
7-8	163	127	0.0%			1	0.0%	0	-	0	-	0	-	0	-	126	0.2%	0	-
8-9	123	82	0.0%	0.0%		0	-	0	-	0	-	0	-	0	-	82	0.1%	0	-
9-10	76	46	0.0%			0	-	0	-	0	-	0	-	0	-	46	0.1%	0	-
10-11	75	45	0.0%	0.0%		0	-	0	-	0	-	0	-	0	-	45	0.1%	0	-
11-12	52	32	0.0%			1	0.0%	0	-	0	-	0	-	0	-	31	0.0%	0	-
12-13	37	14	0.0%	0.0%	0.0%	0	-	0	-	0	-	0	-	0	-	14	0.0%	0	-
13-14	35	13	0.0%			0	-	0	-	0	-	0	-	0	-	13	0.0%	0	-
14-15	32	11	0.0%	0.0%		0	-	0	-	0	-	0	-	0	-	11	0.0%	0	-
15≤	296	11	0.0%		0.0%	0	-	0	-	0	-	0	-	0	-	11	0.0%	0	-
Total	460,887	451,364	100.0%	100.0%	100.0%	128,143	100%	110,511	100%	25,452	100%	37,197	100%	3,755	100%	76,631	100%	69,675	100%
Max	66mSv	25mSv				11mSv		5.9mSv		2.6mSv		3.6mSv		1.6mSv		25mSv		4.8mSv	
Mean value	0.8mSv	0.8mSv				1.2mSv		0.9mSv		0.5mSv		0.2mSv		0.1mSv		0.7mSv		0.3mSv	

* Including Yamakiya of Kawamata.

** Including Namie and Iitate.

Percentages have been rounded and may not total to 100%.

3. Evaluation of the results

The latest effective radiation dose estimates showed similar trends to those observed so far.
Since previous epidemiological studies[1)] indicate no significant health effects at doses ≤100 mSv, we concluded that radiation doses estimated so far are unlikely to cause adverse effects on health, although this conclusion is based on external radiation doses estimated only for the first four months following the accident.

References

1) Sources and effects of ionizing radiation, United Nations Scientific Committee on the Effects of Atomic Radiation, UNSCEAR 2008 Report to the General Assembly, with scientific annexes.