IV. Immediate actions to assist residents affected by the nuclear accident (Actions in off-site)

1. Roadmap for immediate actions to assist residents affected by the nuclear accident

The “Roadmap for immediate actions to assist residents affected by the nuclear accident” (hereinafter referred to as “Roadmap”) was established on May 17 at the Nuclear Emergency Response Headquarters. Reinforcement and continued implementation of monitoring, efforts related to evacuation areas, efforts to help evacuees return home, and other support measures are indicated within Roadmap (Attachment IV-1). As for monitoring, screening, decontamination of the soil etc., and the disposal of rubble etc. that can serve as the basis of people’s lives or agricultural and industrial activities relevant entities will work together to make effective and efficient responses, and they can certainly implement the tasks. The progress status was announced on August 19 (Attachment IV-2).

2. Initiatives to lift the “Evacuation-Prepared Area in Case of Emergency” designation

(1) Policy governing initiatives

On July 19, the Nuclear Safety Commission (NSC) published “Basic Policy of the Nuclear Safety Commission of Japan on Radiation Protection for Termination of Evacuation and Reconstruction” (Attachment IV-5), and outlined protection measures against radiation in response to “Emergency exposure situations” and “Existing exposure situations.” It sets forth the necessity of building systems for the environmental monitoring and the exposure dose estimation of individuals that will constitute the scientific basis for administrative decisions for implementation of protective measures including decontamination and remediation and for lifting the evacuation designation.

It then states the need to create a health assessment system formulated on the basis of those endeavors. Over the long term, it recommends combining a full range of decontamination and improvement methods in setting forth radiation protection measures, and it states it is critical to have residents participate in the planning of activities and policies related to protection against radiation.

On August 4, in accordance with the Act on Special Measures Concerning Nuclear Emergency Preparedness Article 20, Item 5, in response to a request from the head of the Nuclear Emergency Response Headquarters for its opinion, the NSC published “Standpoint of the Nuclear Safety Commission for the Termination of Urgent Protective Actions implemented for the Accident at Fukushima Dai-ichi Nuclear Power Plant” (IV-6). It was shown that the basic approach for lifting the measures are; 1) as the condition for lifting the evacuation designation, the dose should be lower than the standard established for the measures; 2) making of preparations for protection measures newly deemed necessary; and 3) building a framework that enables local municipalities and residents to take part in formulating plans for new protection measures. It also indicates conditions for lifting each of the designations of “Evacuation-Prepared Area in Case of Emergency,” “Evacuation Area,” and “Deliberate Evacuation Area.” Specifically with regard to the lifting of the Evacuation Area designation in only certain parts of the Area, lifting this designation would require that it be certain that the dose to which residents would be exposed will amount to 20 mSv or less per year from the day the designation is lifted, that necessary decontamination and other operations be performed prior to its lifting, and so on. In addition, on the same day,

the NSC confirmed the validity of the state of ensuring safety at the nuclear facilities of the TEPCO Fukushima Dai-ichi NPS.

On August 9, the Nuclear Emergency Response Headquarters established the "Concept of Reviewing Evacuation Areas, etc." (Attachment IV-7). The current directions regarding evacuation, etc. have been made for the purpose of securing a certain distance from the nuclear power station due to the unstable situation in the NPS or of reducing the influence of radiation in places having high cumulative doses. However, it was decided that orders for evacuation will be reviewed promptly in cases in which major changes have occurred in the grounds for issuing these directions. The points to be checked then include (1) the distance necessary to be secured, in accordance with the results of the safety assessment of the nuclear facilities, (2) the results of radiation dose monitoring in the area, (3) the prospects for recovering public services, infrastructure, and other aspects of the residents' living environment. It was determined that a review of the area's designation would be made when all three of these conditions were satisfied and that the return by residents would also begin. The Japanese government intends to lift the Evacuation-Prepared Area in Case of Emergency in a lump at the stage when local municipalities have completed the development of their restoration plans based on their residents' intention because it was possible to confirm about the validity to lift it from a viewpoint of safety of nuclear facilities and from the monitoring results of radiation in the area.

(2) Radiation monitoring to enable lifting of the Evacuation-prepared Area in Case of Emergency designation

1) Regarding “Monitoring Coordination Meeting”

Regarding radiation monitoring of the accident at Tokyo Electric Power Company, Inc. (TEPCO) Fukushima Dai-ichi Nuclear Power Station (“TEPCO’sFukushima Dai-ichi NPS”), it was decided to organize a “Monitoring Coordination Meeting” based on the idea that it was appropriate to assess overall impacts upon the surrounding environment and transition into radiation monitoring that would contribute to the consideration of future countermeasures, and that it was necessary to coordinate the radiation monitoring performed by the related ministries, local government and operators. (Attachment IV-8)

The Conference is composed of the co-chairs of Mr. Hosono, Minister for the Restoration from and Prevention of Nuclear Accident, Mr. Kondo, Senior Vice-Minister of the Environment, Mr. Sonoda, Parliamentary Secretary of Cabinet Office and Mr. Hayashi, Parliamentary Secretary of Ministry of Education, Culture, Sports, Science and Technology (MEXT), and persons in charge of this matter at related ministries and agencies, at the Fukushima Prefectural Government, and at TEPCO. The Conference first convened on July 4 to discuss future directions for proceeding with radiation monitoring and other agenda items. The second Conference meeting was held on August 2 to determine the “Comprehensive Monitoring Plan.” (Attachment IV-9)

In the plan it was stipulated that environmental restoration of the area surrounding TEPCO’s Fukushima Dai-ichi NPS and “more detailed monitoring” to meet the needs of children’s health and people’s safety and security would be implemented, that the state should take responsibility for coordinating with local governments, nuclear operators, and other relevant parties to provide information that is integrated and easy to understand, and that radiation monitoring should be implemented in a way avoiding any omissions. In concrete terms, monitoring was divided into six sectors, with the allocation of ministries and organizations in charge of aggregating information, performing or supporting measurement, etc. and implementing analysis shown for each sector.

a. General environmental monitoring (soil, water and atmosphere, etc.), air space, sea areas, schools, and public facilities, etc.
b. Ports, airports, parks, and sewage, etc.
c. Water environment (Water resources, rivers and lakes, ground water and, bathing

resorts), natural parks and waste
d. Cultivated soil, forests, and pasture grass
e. Foodstuffs (Agricultural products, forestry products, livestock products, and fishery products, etc.)
f. Tap water

2) Radiation monitoring to enable lifting of the Evacuation-prepared Area in Case of Emergency designation

It is necessary to conduct a diverse range of monitoring, compile the results and provide information in a user-friendly format in working to lift the designation of "Evacuation-Prepared Area in Case of Emergency" for Minamisoma City, Tamura City, Kawauchi Village, Hirono Town and Naraha Town.

In light of this, first of all, the emphasis was based on children's standpoints and local requests so that residents can have peace of mind in their daily lives. Through coordination with related ministries and agencies, Fukushima Prefecture, and others under the framework of the Monitoring Coordination Conference, in July MEXT, the Local Nuclear Emergency Response Headquarters, and others conducted monitoring described in points 1) to 3) given below, followed by the compilation and release of a radiation distribution map incorporating these measurement results along with the release of individual survey results (published on August 9 (Figures IV-2-1 to IV-2-5); published on August 16).

1) Monitoring of major points within the sites of elementary schools, junior high school, high schools, kindergartens and nurseries (hereinafter referred to "schools") as well as hospitals, libraries, children's centers, facilities for children with disabilities, and after-school children's club(hereinafter referred to "public facilities, etc.")
2) Whole area monitoring of school zones, parks, and so on by traveling survey and by unmanned helicopter drones focused on areas used in daily life, etc. centered on schools and public facilities, etc.
3) Detailed monitoring in response to individual requests by cities, towns and villages

The measurement results (Table IV-2-1) published in August indicate that in all the cities, towns and villages subject to measuring, the air dose rate at heights of both 1 m and 50 cm is between 1.0 μSv/h and 1.9 μSv/h, or less than 1.0 μSv/h, at almost all

measured spots including the areas surrounding schools and other major points. At the same time, an air dose rate exceeding 3.0 μSv/h was measured at the height of 1 m in parts of Minamisoma City, Tamura City and Kawauchi Village (on a road near the Deliberate Evacuation Area, in the vicinity of Evacuation Recommendation Spots, and so on).

Table IV-2-1 Maximum and minimum air dose rate values, monitored by city, town and village[*1]

(μSv/h at a height of 1 m (upper row) and 50 cm (lower row))

Monitoring type	Minamisoma City	Tamura City	Kawauchi Village	Hirono Town	Naraha Town
1) Monitoring of major points within sites such as schools and public facilities [outdoors]	0.1-1.4	0.2-1.0	0.3-0.5	0.3-0.8	―
	0.2-1.4	0.2-1.1	0.4-0.6	0.3-0.9	―
2) Detailed whole area monitoring of school zones, parks, etc. by traveling survey and an unmanned helicopter, focused on areas used in daily life, centered on schools and public facilities	0.1-4.2	0.2-3.6	0.2-2.0	0.3-1.6	―
	0.1-4.7	0.3-4.0	0.2-2.2	0.3-1.8	―
3) Detailed monitoring in response to individual requests of cities, towns and villages	0.47-3.0	0.2-3.1	0.2-4.5	0.3-1.4	0.6-1.1
	0.47-5.5	―	0.2-4.7	0.5-0.9	0.8-1.6

[*1] Prepared on the basis of "Regarding the measurement results of action plan for radiation monitoring to enable lifting of the Evacuation-prepared Area in Case of Emergency designation", released by MEXT on August 9.

3) Implementation Status concerning broad airborne monitoring

MEXT has been measuring the air dose rate of 1 m high from the ground surface and the concentration of radioactive cesium accumulated on the ground surface by using a large radiation detector mounted on a helicopter. At present, in cooperation with the various local authorities, it has been monitoring Miyagi, Tochigi, Ibaraki and Yamagata Prefectures, the western part of Fukushima Prefecture, Gunma Prefecture, and Niigata Prefecture. And monitoring on the other prefectures will be conducted arbitrarily from now on. (Figures IV-2-6 and IV-2-7).

Moreover, regarding the monitoring within 80 km of TEPCO's Fukushima Dai-ichi NPS, monitoring is scheduled to be conducted in cooperation with the Ministry of Defense in every season of the year from now on to confirm chronological changes in the impact of radioactive materials.

Content of measurement

- The air dose rate of 1 m high above the ground surface is measured by a high sensitivity radiation detector (NaI scintillator) mounted onto an aircraft flying at an altitude ranging from 150 m to 300 m off the ground, measuring the gamma rays coming from the ground surface continually, with attenuation due to altitude factored into the results.
- On the other hand, regarding the measurement of deposition amount of radioactive materials on the ground surface, each radioactive nuclides deposited on the ground surface is calculated based on the results measured on land during the monitoring period through the use of germanium semiconductor detector.

Schedule to date

- Schedule
  - Within 80 km of NPS the 3rd airborne monitoring: May 31-July 2
  - Miyagi Prefecture airborne monitoring: June 22-June 30
  - Tochigi Prefecture airborne monitoring: July 12-July 16
  - Ibaraki Prefecture airborne monitoring: July 26-August 2
  - Yamagata Prefecture airborne monitoring: August 9- (under arrangement at present)
  - Airborne monitoring in the western part of Fukushima Prefecture: August 16-(under arrangement at present)
  - Gunma Prefecture airborne monitoring: August 23-(under arrangement at present)
  - Niigata Prefecture airborne monitoring: August 30-(under arrangement at present)

- Aircraft
  - Self-Defence Force's helicopters, Local authorities' disaster-prevention helicopters or private helicopters (mounted with airborne monitoring systems borrowed from the U.S. Department of Energy)
  - Private helicopters dedicated to airborne monitoring (airborne monitoring system owned by the Nuclear Safety Technology Center)

Schedule in the future

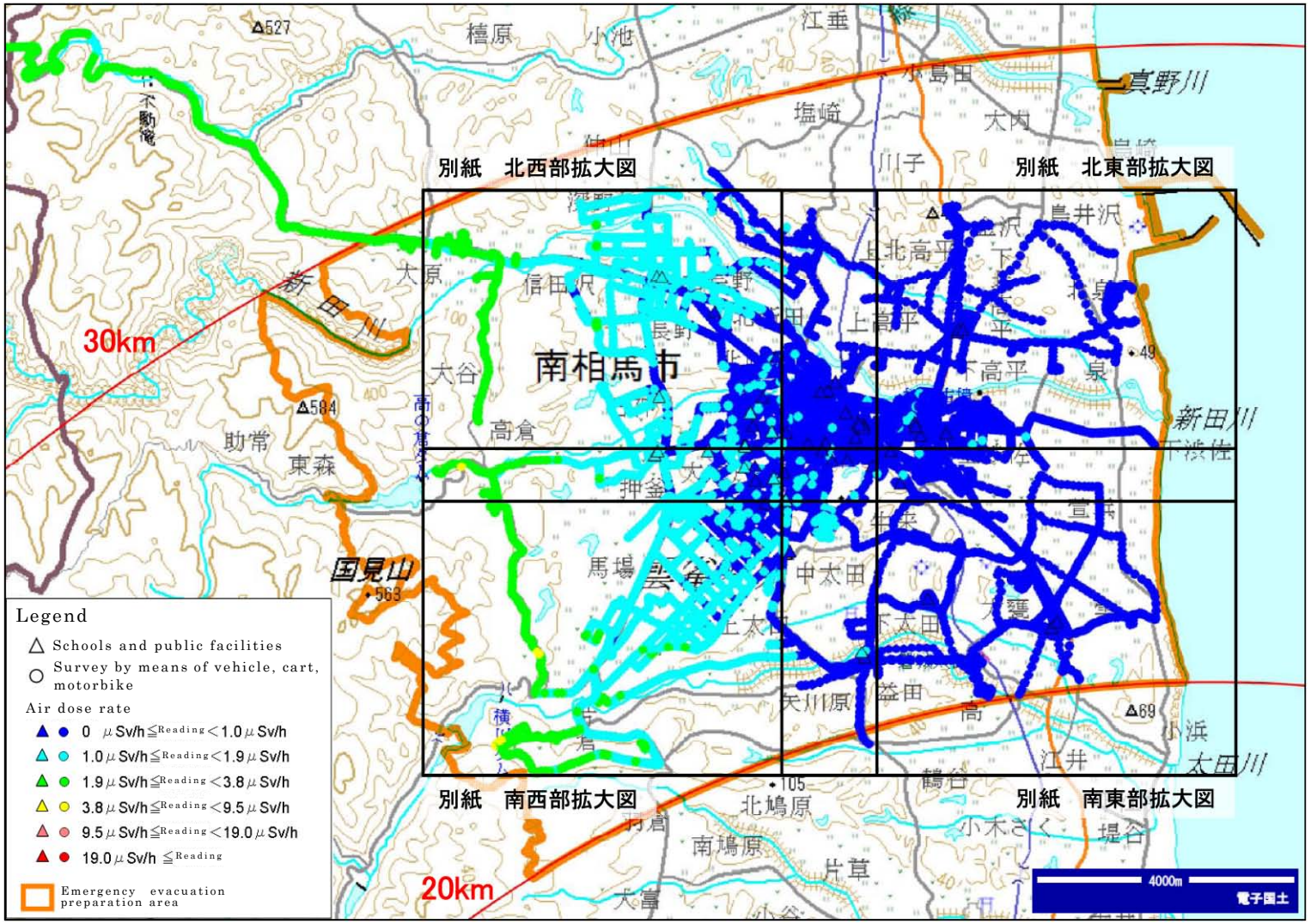
- Schedule
  - The extensive area stretching from Aomori Prefecture to Aichi Prefecture will be monitored in the future by around the end of this year to confirm the impact of the release of radioactive materials across a broader area.

4) Preparation of accumulated dose estimation map, etc.

MEXT has been preparing the "accumulated dose estimation map" and other materials from the observed values of air dose rate, etc. with the cooperation of Japan Atomic Energy Agency (JAEA), an incorporated administrative agency. The map published on April 11 by the Nuclear Emergency Response Headquarters was used as review data for establishing the Deliberate Evacuation Area.

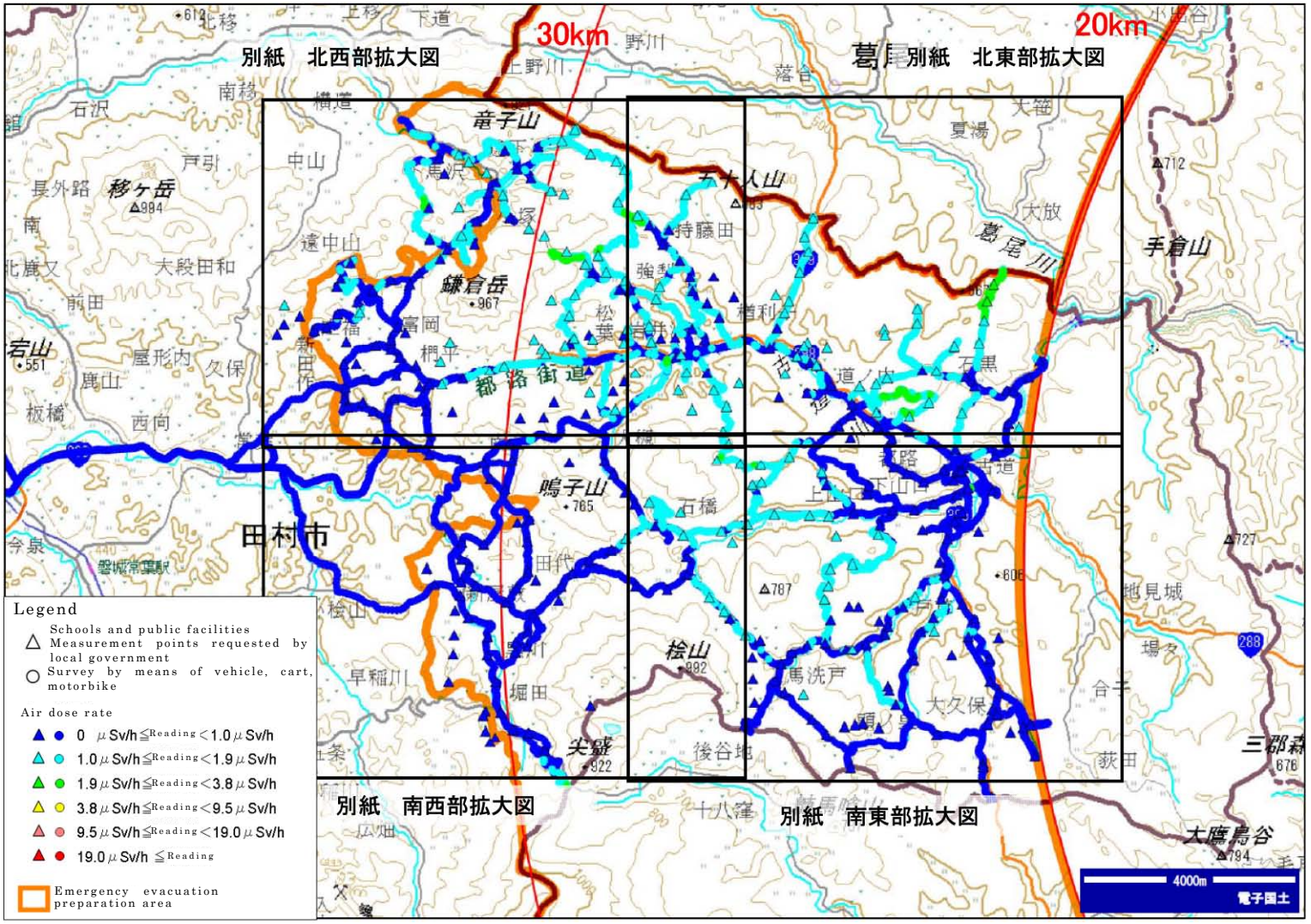
Also, based on the "Environmental Monitoring Reinforcement Plan" developed by the Nuclear Emergency Response Headquarters on April 22, MEXT has prepared a "distribution map of air dose rate" and "accumulated dose estimation map" since April 26, publishing this map six times up to August 31.

(Publications dates up to August 31 were: April 26, May 16, June 3, June 21, July 20 and August 19; Figures IV-2-8 to IV-2-10)



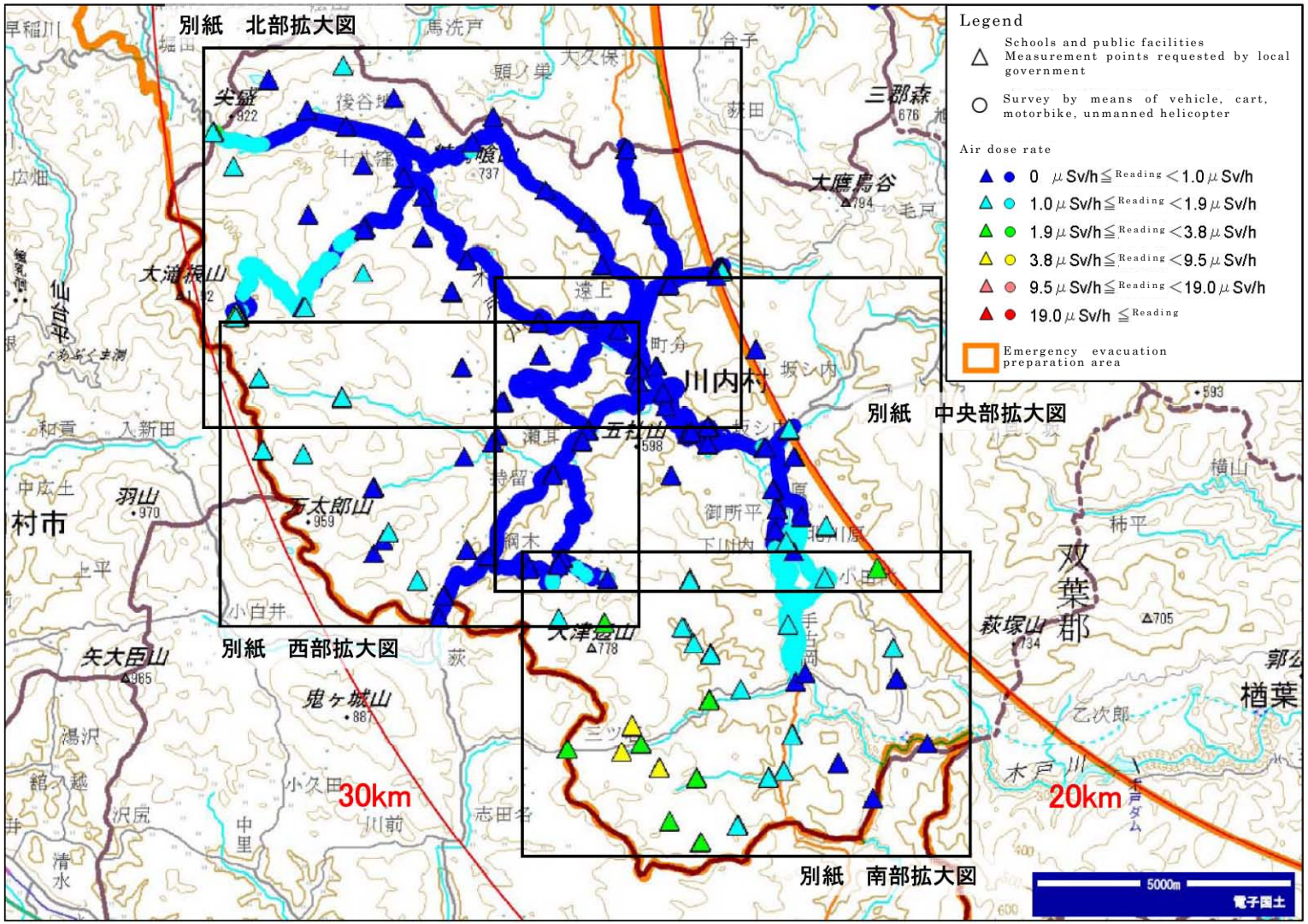
(As July, 2011)

Figure IV-2-1　Distribution map of air dose rate in emergency evacuation preparation area
(The entire edition Minamisoma City 1m height)



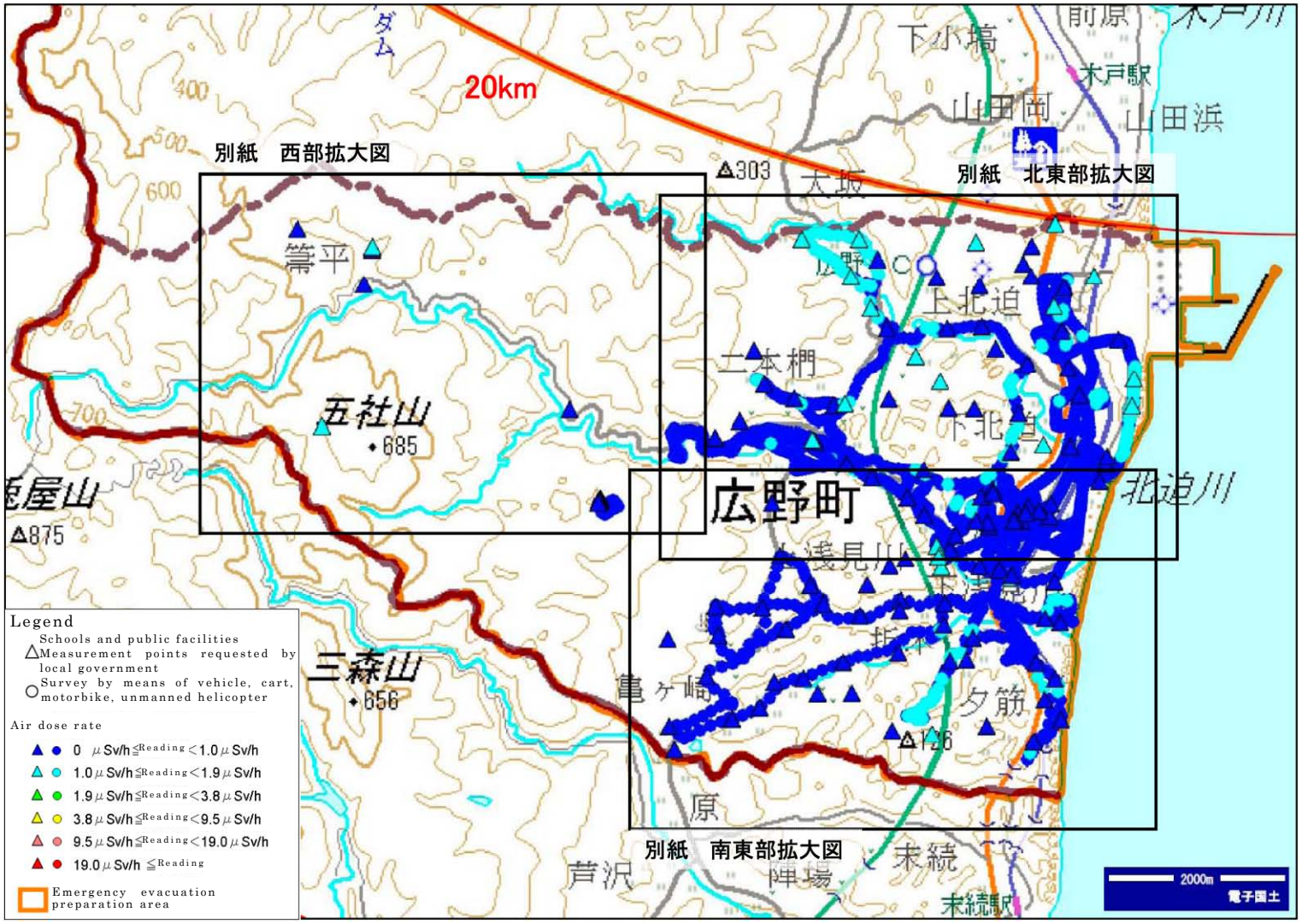
(As July, 2011)

Figure IV-2-2　Distribution map of air dose rate in emergency evacuation preparation area
(The entire edition Tamura City 1m height)



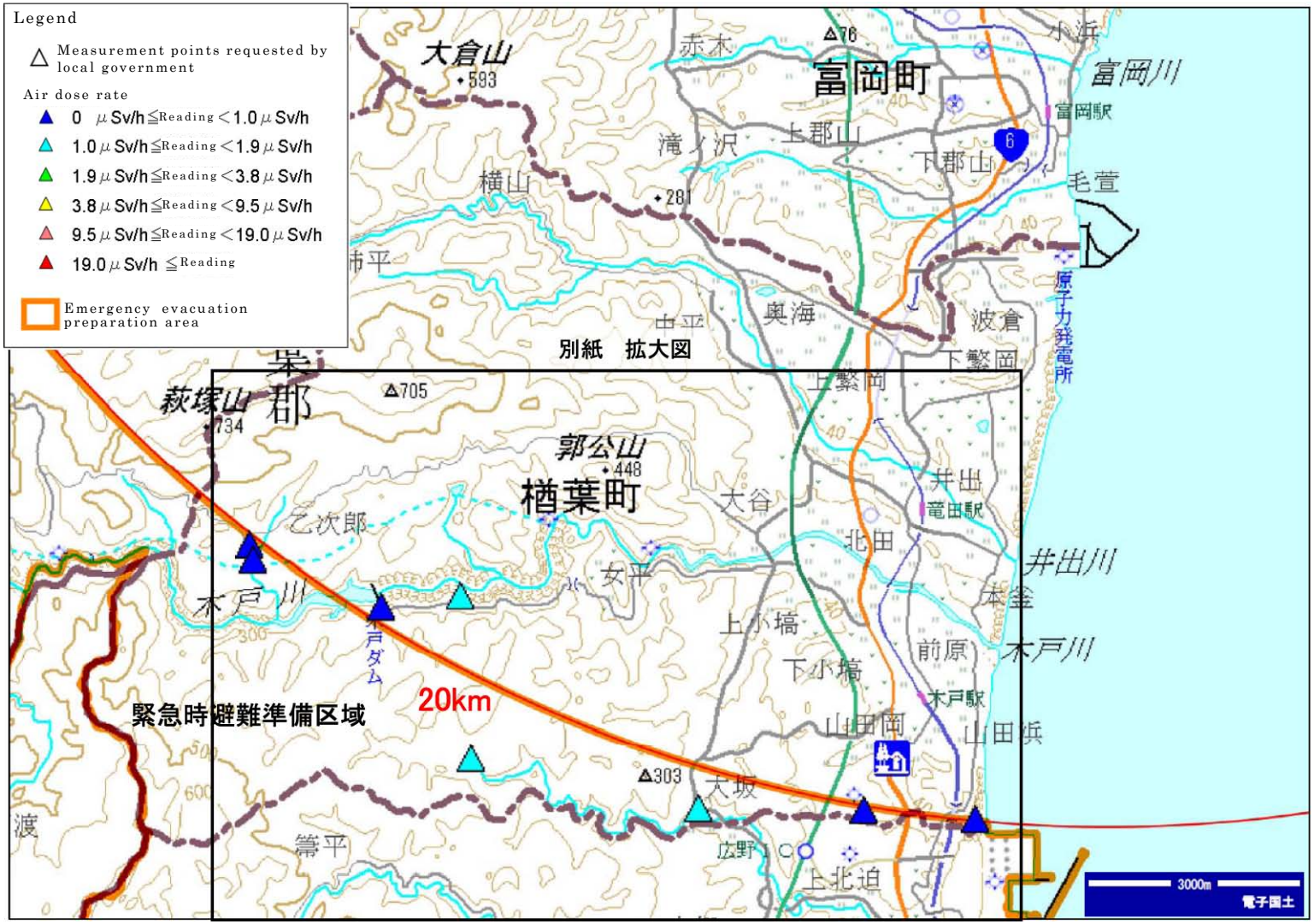
(As July, 2011)

Figure IV-2-3　Distribution map of air dose rate in emergency evacuation preparation area
(The entire edition Kawauchi Village 1m height)



(As July, 2011)

Figure IV-2-4　Distribution map of air dose rate in emergency evacuation preparation area
(The entire edition Hirono Town 1m height)



(As July, 2011)

Figure IV-2-5　Distribution map of air dose rate in emergency evacuation preparation area
(The entire edition Naraha Town 1m height)

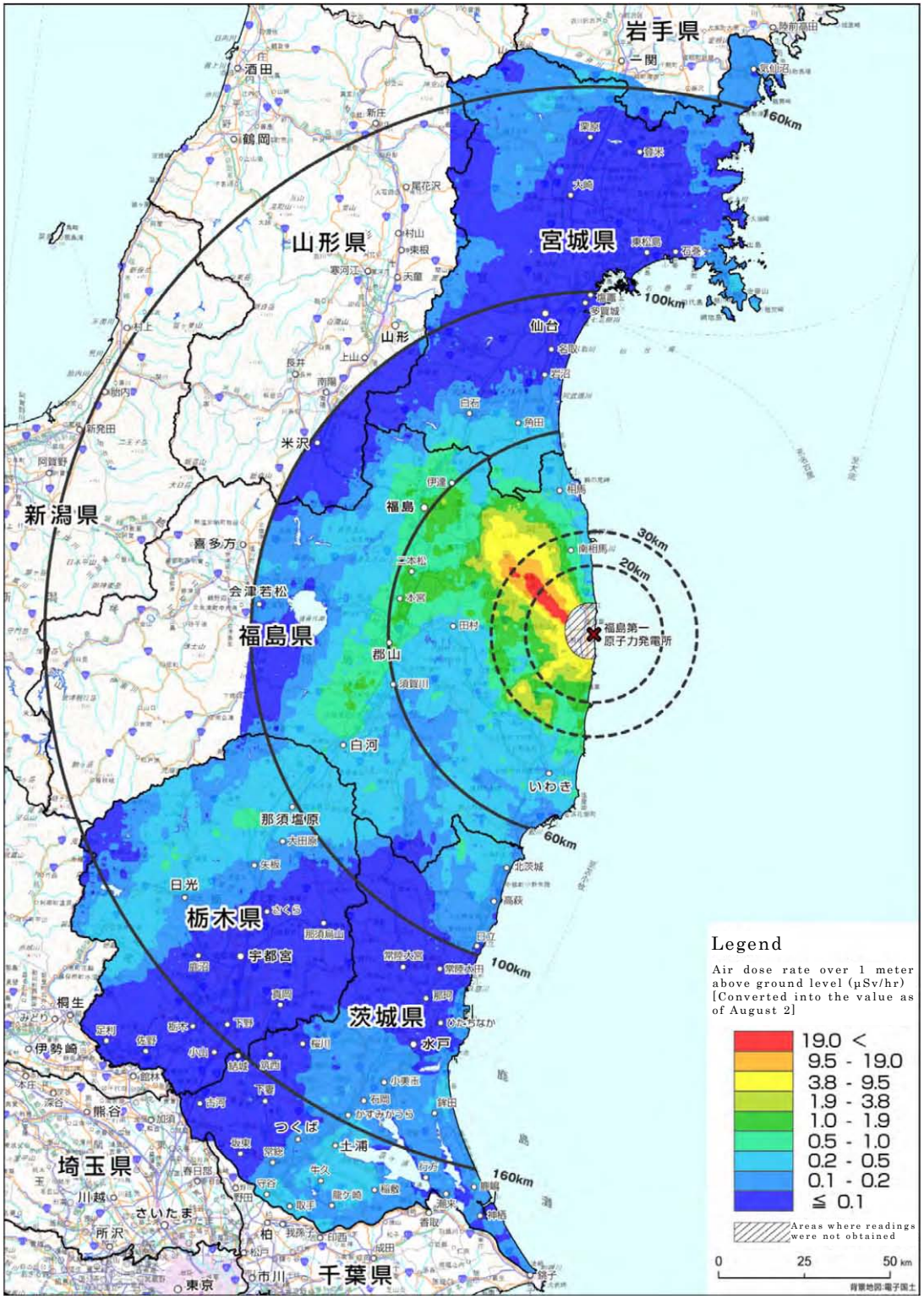


Figure IV-2-6 Results of aircraft monitoring
(Air dose rate over 1 meter above ground level)

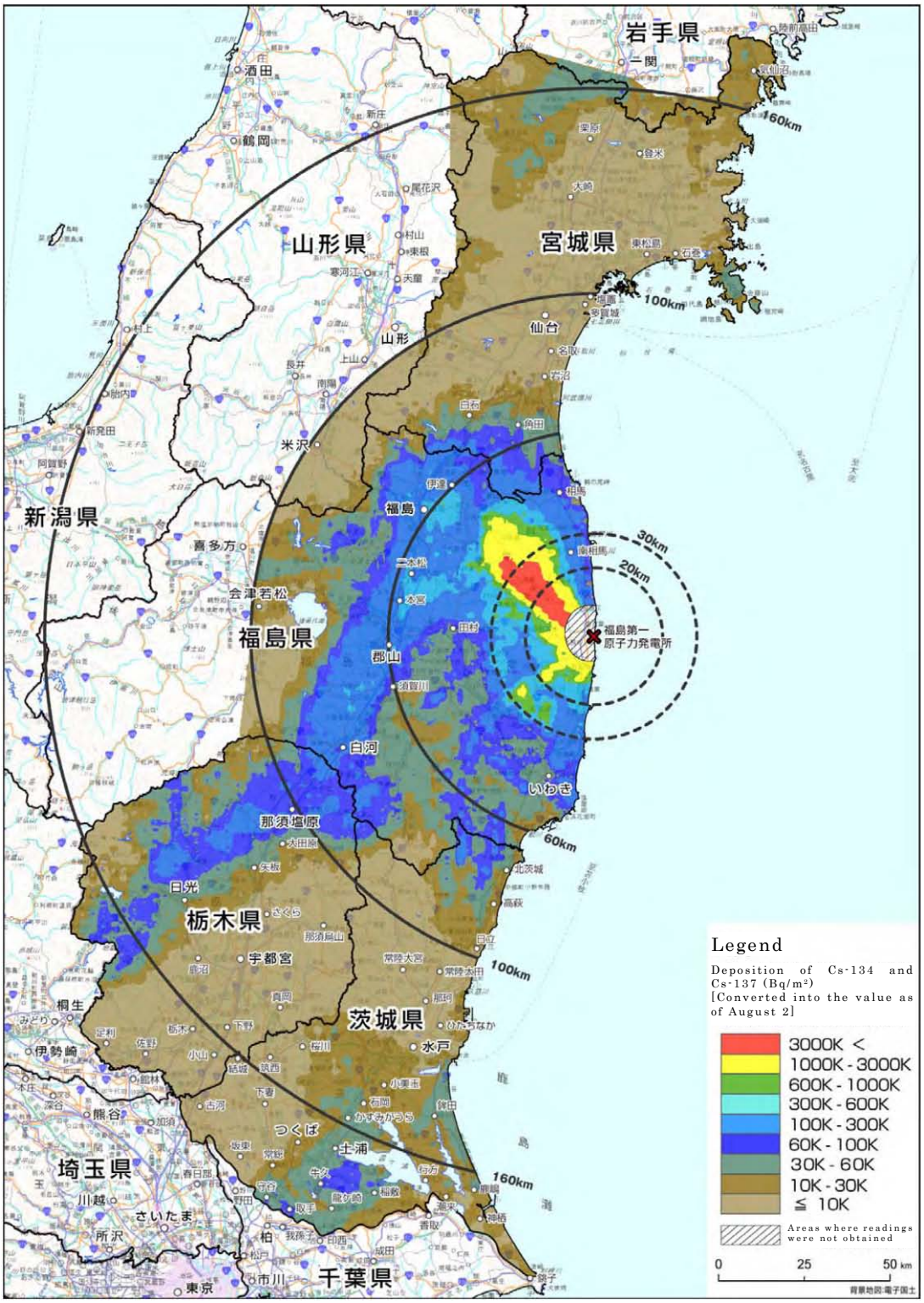
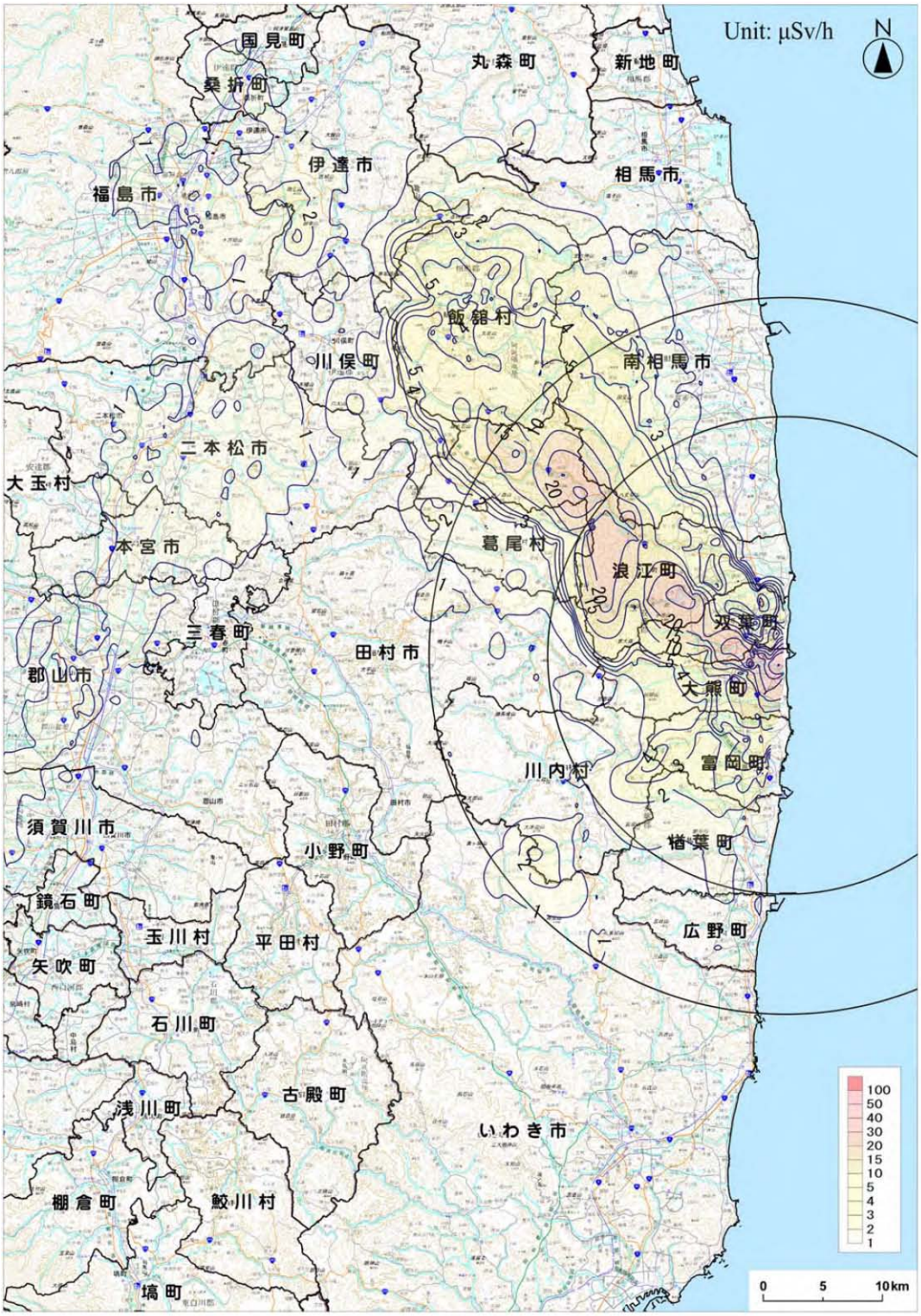
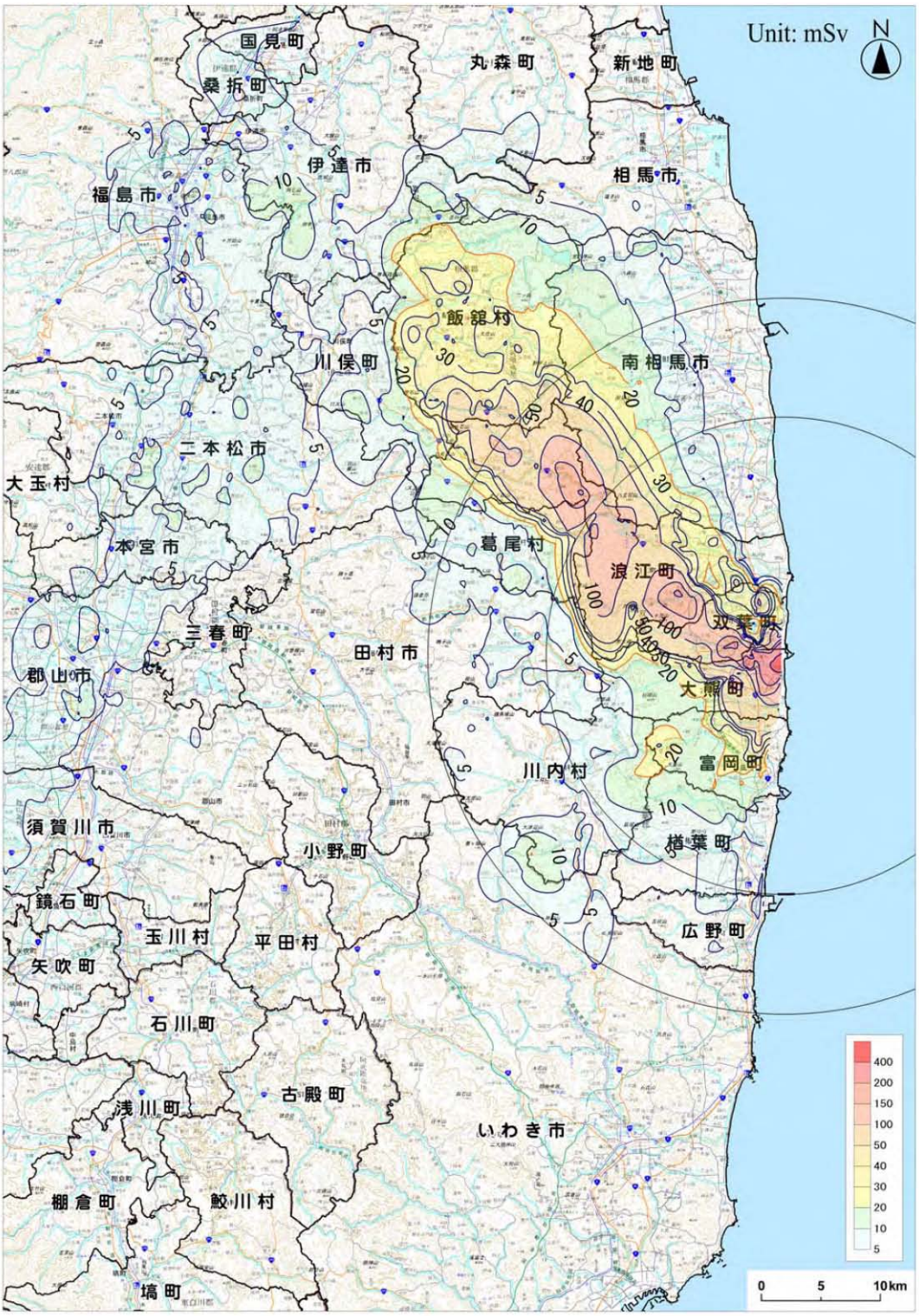


Figure IV-2-7 Results of aircraft monitoring
(Total of accumulative amount of Cs-134 and Cs-137)



背景地図：電子国土

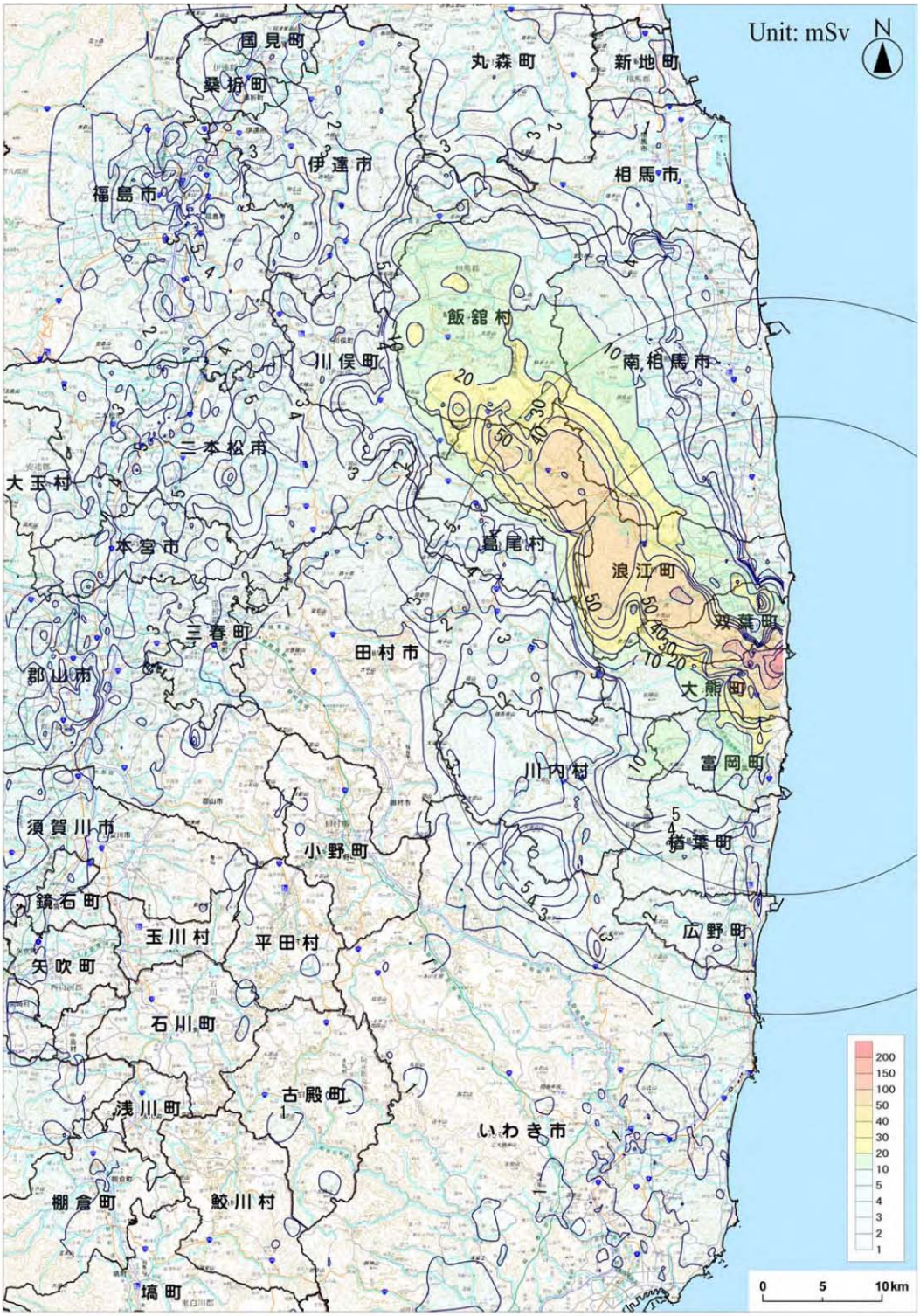
Figure IV-2-8　Dose rate map (Estimates; as August 11, 2011)



Adopting monitored values up to 24:00 on August 11, 2011

背景地図：電子国土

Figure IV-2-9 Integrated dose map
(Estimates; Integrated dose up to March 11, 2012)



Adopting monitored values up to 24:00 on August 11, 2011

背景地図：電子国土

Figure IV-2-10 Integrated dose map
(Estimates; Integrated dose up to August 11, 2011)

3. Preparation of maps indicating radiation doses etc.

In order to keep observing the impact of radioactive materials deposited on the ground surface on residents' health and the environment into the future, MEXT collected to analyze the soil at about 2,200 points within roughly 100 km from TEPCO's Fukushima Dai-ichi NPS before the rainy season, when the soil surface condition would be changed by the heavy rain. MEXT also measured the air dose rate at each of those points.

MEXT moreover performed surveys on the migration status of radioactive materials in the soil in depth direction, rivers, and underground water in the early stages of the accident.

Past activity

- MEXT collected to analyze the soil at about 2,200 points within roughly 100 km from TEPCO's Fukushima Dai-ichi NPS and also measured the air dose rate at those points, using radiation measuring instruments.
- In order to grasp the detail of the distribution status of radioactive materials around the roads, MEXT performed a travelling survey mainly on national and prefectural roads in the area, and continuously measured the air dose rates.
- Regarding the air dose rate, MEXT released a dose measurement map (the dose measurement map compiled from the air dose rates at the height of 1 meter from the ground surface at the spots where the soil was collected, and the travelling survey map compiled from the measured results by travelling survey as the air dose rates at the height of 1 meter from the ground surface) on August 2. (Figures IV-3-1 and IV-3-2)
- Regarding the results of the soil analysis, MEXT finished the nuclide analysis and released the data of radioactive cesium on August 30. (Figures IV-3-3 and IV-3-4)
-
- These released results were confirmed as valid through a comparison with monitoring results to previous information on the position of measuring points etc. and the confirmation by a "Review Meeting on the Preparation of Distribution Maps of Radiation Dose, etc." established within MEXT composed of outside eminent persons.

Future plans

- Regarding the results of the soil analysis, MEXT will release the data of the

nuclides in addition to radioactive cesium after confirming the validity of the results.

- Also, regarding the confirmation survey on the migration status of radioactive materials, the survey is currently being conducted so that the results are scheduled to be compiled and released around September.

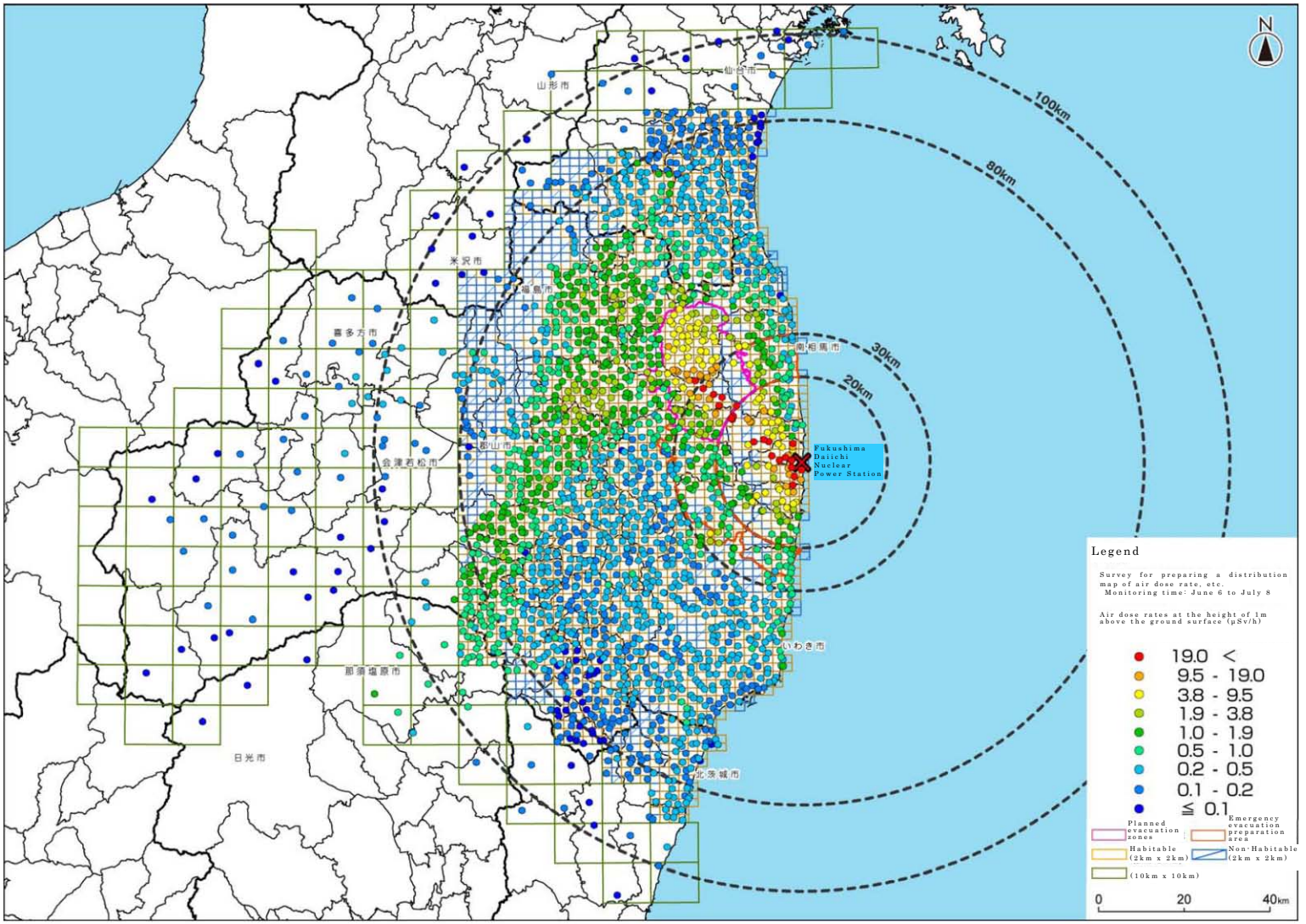


Figure IV-3-1 Map of air dose rates at points where soil samples were collected

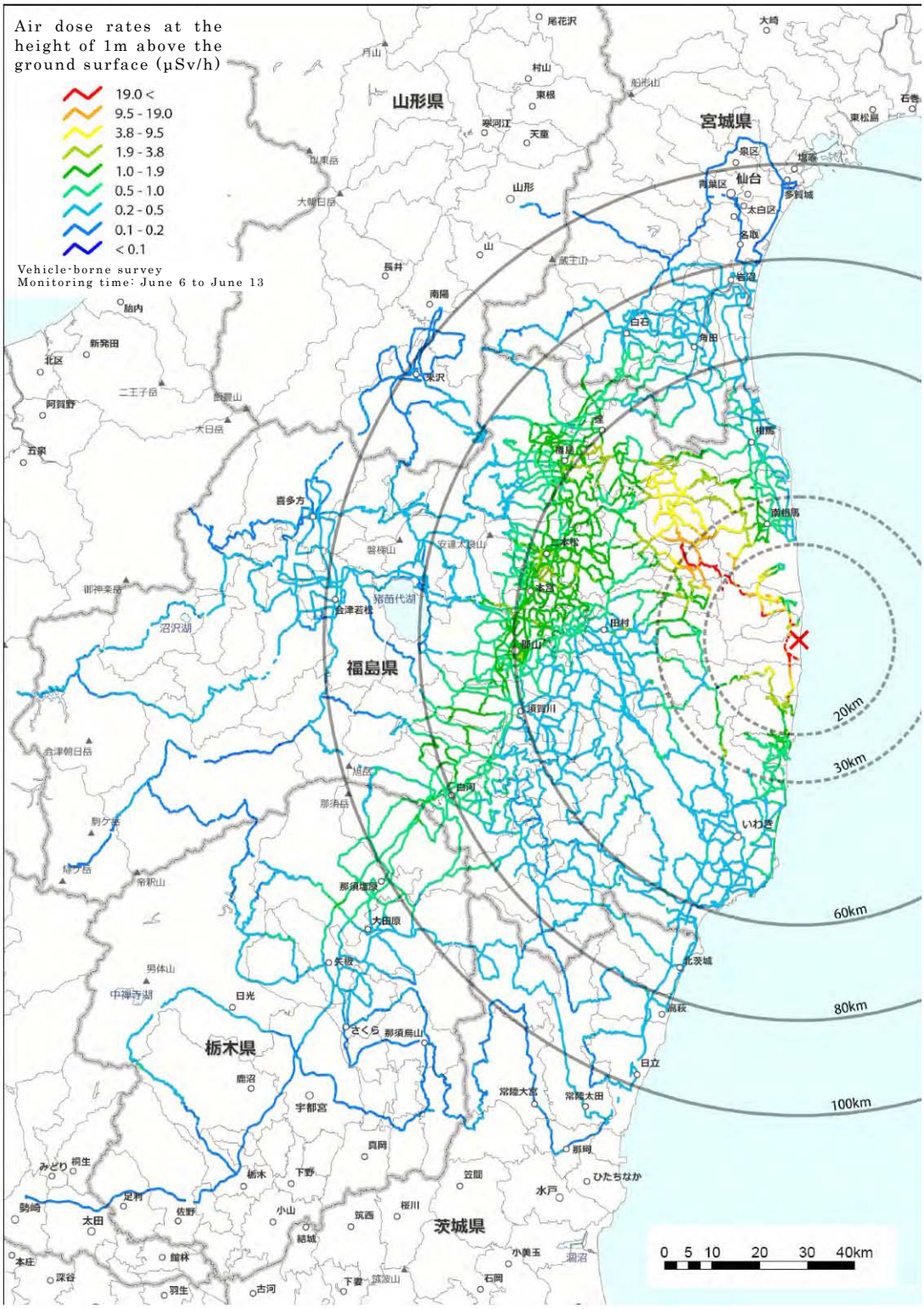


Figure IV-3-2 Map of the vehicle-borne survey at the area within 100km from the Fukushima Dai-ichi NPS and outside this area in Fukushima prefecture

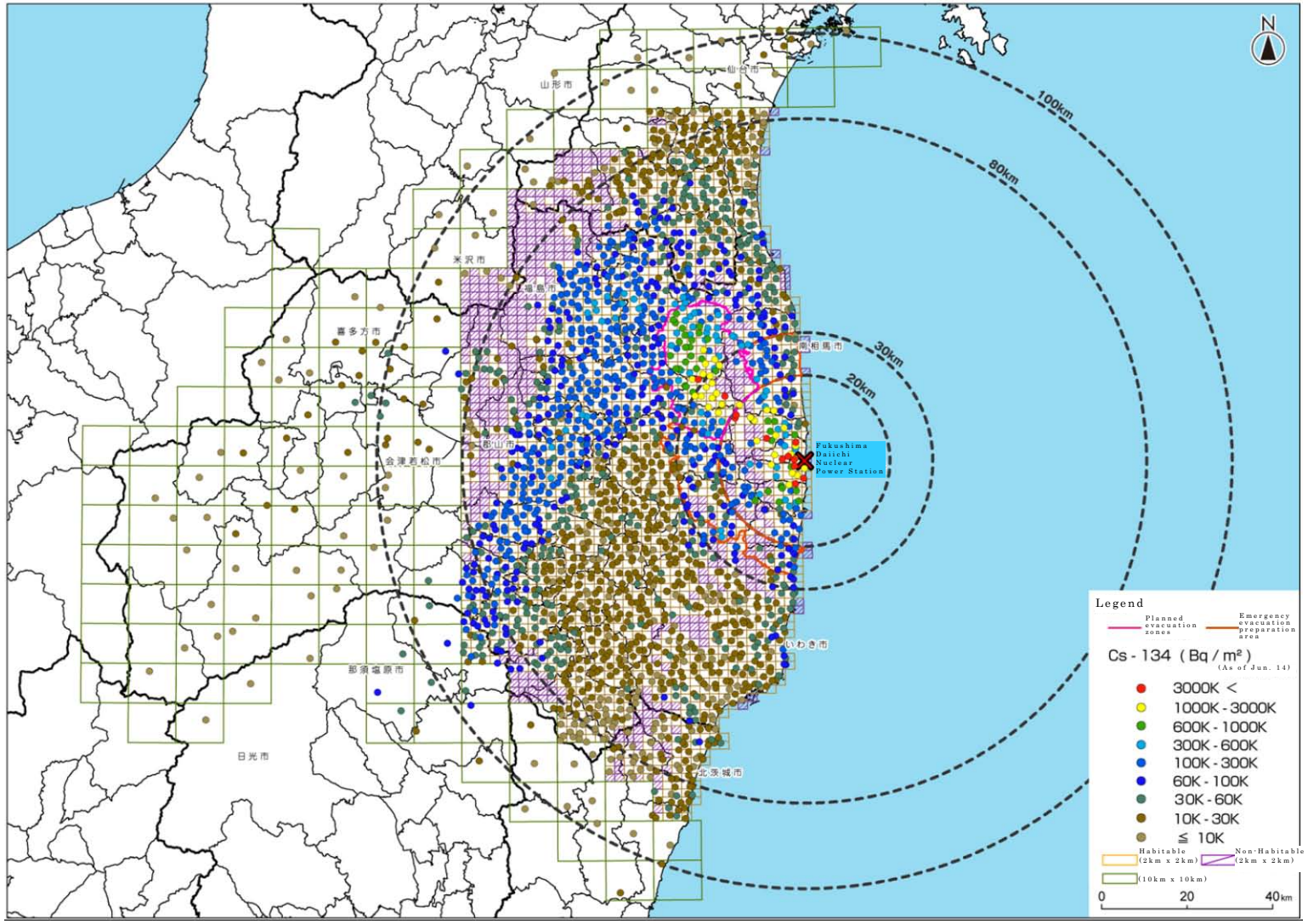


Figure IV-3-3　Map of Concentration of Cs-134 in Soil

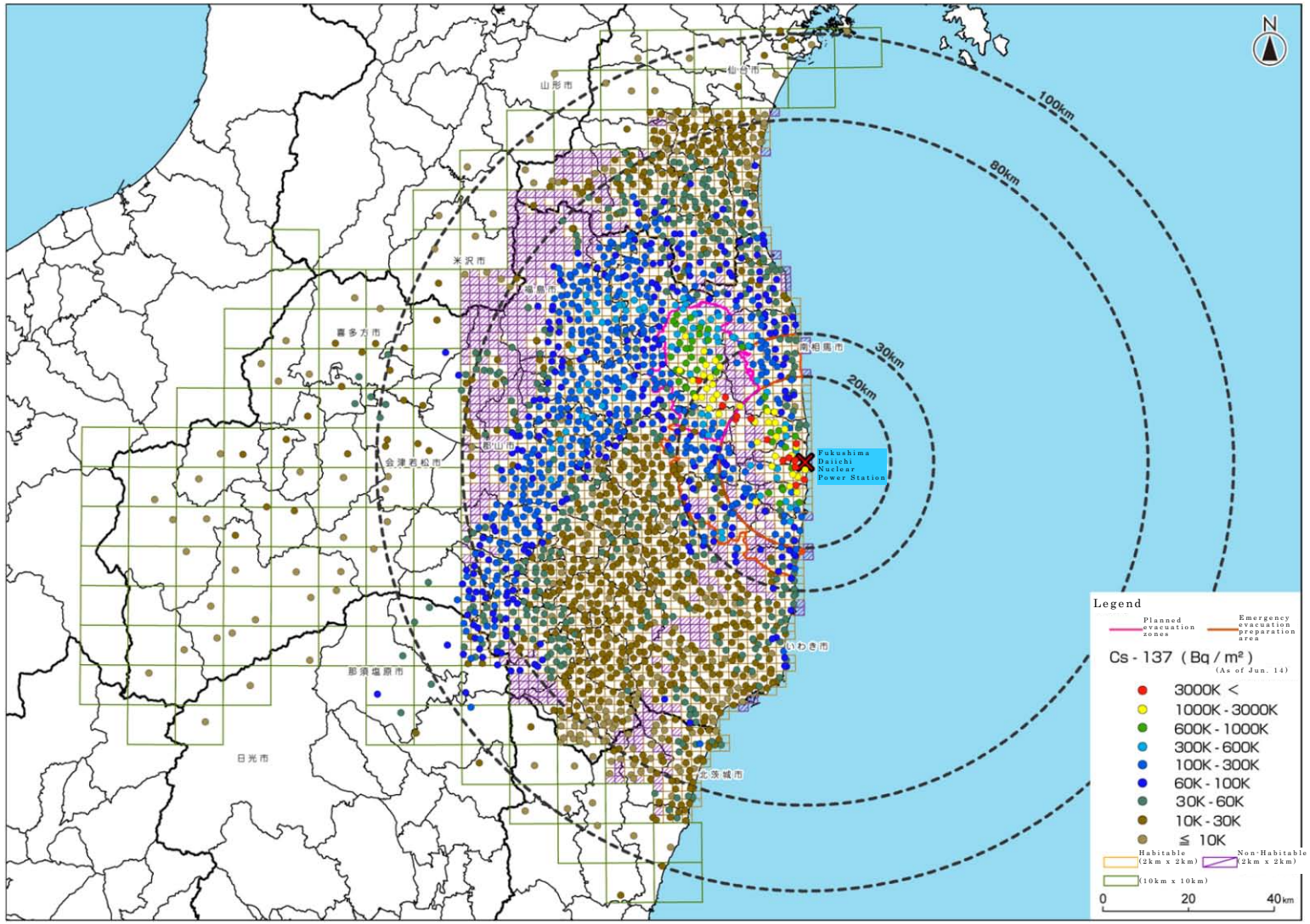


Figure IV-3-4　Map of Concentration of Cs-137 in Soil

4. Measures for decontamination and waste, etc.

(1) Comprehensive response to contamination by radioactive materials

In order to prevent widespread impact of radioactive materials, it is important to carry out comprehensive measures for radiation protection including internal exposure and to secure safety of residents.

Therefore, on August 25, in order to install the function of control center towards responding to the issues such as decontamination, waste, food safety and so on, the national government established the Office of Response to Contamination by Radioactive Materials" headed by Assistant Chief Cabinet Secretary under Minister for the Restoration from and Prevention of Nuclear Accident. Together with this, the national government established the "Coordination Meeting on Response to Contamination by Radioactive Materials" for the coordination system among each Ministry as well as the "Advisory Meeting on Response to Contamination by Radioactive Materials" for the technical advisory function.

(2) Act on Special Measures concerning Handling of Radioactive Pollution

a Outline of the Act on Special Measures

The "Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the NPS Accident Associated with the Tohoku District – Off the Pacific Ocean Earthquake That Occurred on March 11, 2011 (Act No. 110 of 2011)" was submitted to the 177th Diet by the Chairman of the Committee on Environment of the House of Representatives, on August 23, 2011 and was enacted on August 26, promulgated on August 30, with portions of it having entered into effect on the same day.

Subsequent to its enactment, the basic principles and standards based on this Act will be established; decontamination plans made by the national government or by local public institutions grounded in this Basic Principles will be stipulated from January 1, 2012; and decontamination works will be advanced.

The overview of the systems prescribed by the Act on Special Measures is as follows.

○ Development of the Basic Principles

The Minister of the Environment develops a draft of the basic principles regarding the handling of the environment pollution caused by radioactive materiaThe Minister of the Environment develops a draft of the basic principles regarding the handling of the environment pollution caused by radioactive materials, and requests a resolution at a Cabinet Meeting

○ Implementation of monitoring and measurement of contamination of the environment caused by radioactive materials

The Minister of the Environment promptly prepares and implements a system of unified monitoring and measurement to figure out the situation of environment pollution.

○ Measures including decontamination and disposal of wastes contaminated by radioactive materials discharged by the accident

(i) Measures, etc. taken by the relevant nuclear power producer (the nuclear power producer discharged radioactive materials)

Relevant nuclear power producer shall carry out disposal, etc. of wastes at the NPS. Also, based on requests of the national or local governments, relevant nuclear power producer shall take necessary measures such as the dispatch of personnel, etc.

(ii) Disposal of wastes contaminated by radioactive materials

① The Minister of the Environment designates areas where wastes may be contaminated by radioactive materials, to such a degree that special control is required.

② The Minister of the Environment develops a plan regarding disposal, etc. of wastes in the area of ①.

③ The Minister of the Environment designates wastes which are located outside the area of ① and whose state of contamination by radioactive materials exceeds a certain level.

④ Disposal of the wastes in the area of ① and the wastes designated as ③ is carried out by the national government on the basis of the standard.

⑤ As for the disposal of wastes with low levels of contamination except those of ④, the regulation of the Waste Disposal and Public Cleansing Law is adapted.

(iii) Measures for decontamination of soils, etc. (including vegetation, workpieces) contaminated by radioactive materials

① The Minister of the Environment, giving due consideration to the degree of contamination, designates areas where it is necessary for the national governments to carry out measures for decontamination, etc.

② The Minister of the Environment develops a plan to carry out these measures for decontamination, etc. in the area of ①, and

the national government carries out the measures for decontamination, etc. on the basis of the standard.

③ The Minister of the Environment designates areas other than ① where decontamination conditions are expected not to conform to requirements.

④ As for zones recognized as not conforming to the requirements through an investigation on the state of contamination in the area of ③, the governor of the prefecture (including the mayor of the municipality designated by Cabinet order), develops plans designating matters regarding the measures for decontamination, etc.

⑤ Based on the plan of ④, the national government, the governor of the prefecture, the mayor of the municipality, etc. carry out measures for decontamination, etc. on the basis of the standard.

⑥ The national government, as requested by the governor of the prefecture, the mayor of the municipality, etc., and when it is recognized as necessary, shall carry out measures of decontamination, etc. based on the plan of ④ on behalf of the said prefecture and municipality, etc.

b Preparation towards full-scale enforcement of the Act on Special Measures

Hereafter, taking into account of the results of verification projects of decontamination and other issues, the national government is scheduled to arrange matters needed for enforcement of requirements to specify regions, the standards including the disposal standards, by the end of this year.

(3) “Basic Concept for Pushing Ahead with Decontamination Works” and “Basic Policy for Emergency Response on Decontamination Works”

In order to ease warrant of residents to radioactive contamination, decontamination is an urgent task that should be tackled immediately, and on August 26, the GNER HQs established “Basic Concept for Pushing Ahead with Decontamination” and “Basic Policy for Emergency Response on Decontamination Works” which compiles the immediate targets and working principles for the next two years.

In this regards, the contents prescribed by these principles are transitioned in sequence as soon as the framework of the Act on Special Measures concerning

Handling of Contamination by Radioactive Materials enacted on the same day comes into fully effect. (Attachment IV-22)

<Basic Concepts>

a) By directly pushing ahead with decontamination works with focus on the areas where the annual exposure dose is estimated at greater than 20 mSv, the national government aims to reduce the estimated annual exposure dose to less than 20 mSv;
b) Even in areas with an estimated annual exposure dose of less than 20 mSv, the national government will work with municipalities and local residents to conduct effective decontamination work, so that the estimated annual exposure dose will be closer to 1 mSv; and
c) By putting a high priority on thorough decontamination work in children's living spaces (such as schools or parks), the government aims to reduce their estimated annual exposure dose closer to 1 mSv as early as possible and continue with further reductions .

<Immediate targets>

a) Long-term targets are decided to reduce the additional annual exposure dose to less than 1 mSv in the region of existing exposure situation, and for implementing decontamination in the radiation-contaminated areas, it is targeted to reduce the estimated annual exposure dose by approximately 50% for general public and by roughly 60% for children in particular within the next two years. (IV-2-13)
b) With this regards, as to the future impacts of radioactive materials, based on advice from the Nuclear Safety Committee, trial calculations was carried out with consideration for the physical reduction of radioactive materials as well as reduction by the natural factors such as weather based on the past actual measurement values, and the result has been come out that the estimated annual exposure dose at the time after two years past decrease about 40 % compared to the one at this point.

(4)Specific efforts towards carrying out monitoring and decontamination

a. Effort towards immediate implementation of decontamination based on the Basic Policy for Emergency Response on Decontamination Works

On August 24, aiming at supporting municipalities playing their roles on

development of plans upon carrying out decontamination, the national government established on-site “Fukushima Decontamination Promoting Team” and enhanced an on-site system towards carrying out decontamination.

In addition, effective and efficient decontamination, the national government decided to provide technical information continuously through carrying out model projects in each region, and launched technical verification projects at the end of August.

Moreover, based on “Basic Policy for Emergency Response on Decontamination Works” above, regarding decontamination projects, etc. carried out emergently, the Cabinet decision was made that the immediate needed budget of about 220 billion yen is corresponded by reserve fund of the Restoration from the Great East Japan Earthquake, on the same day, on August 26, as the establishment of the basic policy on emergency works.

b. Initiatives in municipalities

Some municipalities in Fukushima prefecture have already proceeded the decontamination works. For example, Date city implemented a demonstration experiment for decontaminate of pools and private houses toward the whole city decontamination, and successfully reduced the radiation dose to an acceptable level. (Attachment IV-10)

c. Decontamination of residents’ living space

The Nuclear Emergency Response Headquarters completed “Basic Concept on Cleaning Activity (Decontamination) in Living Space in Fukushima Prefecture (Excluding Restricted Areas and Deliberate Evacuation Areas)” (Attachment IV-11) to inform Fukushima Prefecture and the Ministry of the Environment on July 15, 2011 on ideas such as the effectiveness of cleaning and points to note when local residents perform cleaning activities, because radioactive materials have been detected in earth and sand as well as in fallen leaves in gutters, for example.

This was compiled based on a demonstration experiment performed in six residences in Fukushima City and Nihonmatsu City and their surrounding areas. The results showed a decline in dose rate after the soil and sand in gutters along roads was removed. In a model assessment of the demonstration experiment, the result showed that the exposure dose can be decreased due to cleaning activities, if local residents make appropriate efforts such as wearing masks.

d. Measures at schools, nursery center, etc.

Based on “Provisional Concept on Utilization of School Building and School Yard, etc. of Schools etc. in Fukushima Prefecture” by The Nuclear Emergency Response Headquarters, notification was given to Fukushima Prefecture regarding “Provisional Concept on Utilization of School Building and School Yard, etc. of Schools in Fukushima Prefecture” on April 19. And that same day, notification was given to Fukushima Prefecture, Koriyama City, and Iwaki City regarding “Provisional Concept on Utilization of Nursery Center Building and Nursery Center Yard, etc. of Nursery Center in Fukushima Prefecture” and on April 26, they were given notification on “Provisional Concept on Utilization of Nursery Center Building and Nursery Center Yard, etc. of Child Welfare Facilities in Fukushima Prefecture” .

In the administrative correspondence of May 11, “Measures for Reduction of the Air Dose rate in School Yard/Kindergarten Yard, etc. of Schools, etc. on the Basis of On-Site Investigation,” and that of May 12, “Measures for Reduction of the Air Dose rate in the Building and Yard of Child Welfare Facilities, etc. on the Basis of On-Site Investigation),” the two methods of “the method of placement under the ground in focused way” and “up-and-down substitution method”, whose effectiveness had been confirmed as measures to reduce the air dose concentration of school yards and kindergarten yards, etc., were indicated.

In “Immediate Actions for Reducing Doses Received by Pupils and Students at School, etc. in Fukushima Prefecture” published on May 27, and “Immediate Actions for Reducing Doses Received by Children at Child Welfare Facilities, etc. in Fukushima Prefecture,” published on June 6, as for a measure for reducing dose which is related to school soils of which the air dose rate at school yards and kindergarten yards is 1 μSv/h or more, 1 mSv per year or less is to be the radiation dose for which exposure is permissible for school children at schools and nursery center, etc., immediately in this fiscal year by providing financial assistance.

On June 20, the national government decided to take the same financial measures also for areas other than areas within Fukushima Prefecture (The Nuclear Emergency Response Headquarters).

On August 26, in response that “Provisional Concept on Utilization of School Building and School Yard, etc. of Schools in Fukushima Prefecture” was

deemed to complete its role due to the establishment of the "Guidelines on Carrying Out Decontamination by Municipalities", the national government notified "On Reduction of Dose Rate in School Building and School Yard of School in Fukushima Prefecture" (Attachment IV-3) and "On Reduction of Dose Rate in Nursery Center Building and Nursery Centers Yard, etc. of Nursery Centers in Fukushima Prefecture" (Attachment VI-4) to Fukushima Prefecture, etc. on the same day, and instructed that, after the summer holidays (for nursery center, etc. from August 26), the annual dose rate received by pupil and school children at school and nursery center, etc. is to be reduced to 1 mSv or less in principle, the air dose rate in school yard and kindergarten yard is to be targeted under 1μSv/h, and recognition and decontamination of the point where dose rate is locally high are to be promoted. Also, in response to the establishment of the basic principles on emergency decontamination works, the government notified "On Reduction of Dose Rate in Child Welfare Facilities, etc. except Nursery Center, etc. in Fukushima Prefecture" to Fukushima Prefecture, and instructed the immediate concept again.

As for measuring the air radiation dose in schools, kindergartens and nursery center, etc., along with the air dose rate being continuously measured, cumulative dosage meters will also be distributed to all primary and secondary schools, etc. in Fukushima Prefecture, and to schools outside Fukushima Prefecture, as requested, when the air dose rate in their school yard is 1 μSv/h or more.

e. Dose reduction projects, etc. of public facilities and school zones, etc.

The national government allocated the expenditure for Fukushima Prefecture in the second supplementary budget to urgently prevent effects of radiation on children, etc. in schools, parks, commuting routes to school, and public facilities, such as community centers, currently used by children and other residents.

f. Monitoring and decontamination of agricultural lands, etc.

(Monitoring agricultural soils)

Based on the implementation policy established by the Government Council for Science and Technology Policy (CSTP), MAFF, in cooperation with MEXT, has been conducting investigations on the concentration of radioactive materials in agricultural soils in Fukushima Prefecture and the five surrounding prefectures (Miyagi, Tochigi, Gunma, Ibaraki and Chiba)

since May 30.

(Contents of measurement)

In order to grasp the distribution of radioactive materials concentration in agricultural soils, MAFF launched an investigation of soils on May 30.

(Measuring methodology)

About 360 points in Fukushima Prefecture, and about 220 points in the five surrounding prefectures (Miyagi, Tochigi, Gunma, Ibaraki and Chiba), thereby totaling about 580 points of soil in all, were collected. A germanium semiconductor detector was used for their analysis.

(*Measurement results)*

A distribution map of the concentration of radioactive materials in agricultural soils was prepared and issued on August 30. (Figure IV-4-1)

(*Development of decontamination technology of agricultural soils*)

Regarding agricultural soils contaminated by radioactive materials, in order to rapidly establish an effective and efficient technology for decontamination, MAFF, in cooperation with CSTP, MEXT, and the Ministry of Economy, Trade and Industry, is currently making efforts to develop technology for decontaminating radioactive materials, including verifying the effects of physical, chemical, and biological decontaminating methods in agricultural fields of affected areas, among other areas.

(Conducting verification research)

On May 28, in Iitate Village, Fukushima Prefecture, a verification study at on-site agricultural fields began. At the village, growing sunflowers, etc. (May 28), a removal test of surface soils (June 13), rice planting in agricultural fields whose surface soil had been removed (June 20), and a decontamination test using soil puddling and drainage (August 24), etc., were conducted. Also, in Kawamata Town, research includes growing amaranthus, etc. (June 29).

g. Monitoring in forest areas

In order to figure out the contamination situation in the forest areas so far,

the following activities have been conducted:

a) Monitoring from aircrafts by MEXT (from April)

b) Detailed surveys inside forests in order to figure out the behaviors of radioactive materials, conducted by the Forestry and Forest Products Research Institute (from May)

c) Survey on the air dose concentration in privately owned and state-owned forests, etc., conducted (results of the survey was released on July 14) by Fukushima Prefecture and Kanto Regional Forest Office, Forestry Agency (activities of a) and b) mentioned above are still in operation).

At MAFF, in order to examine how to deal with contaminated forests in the future, surveys focusing on the air dose concentration and the concentration of radioactive materials are to be conducted in all forest areas in Fukushima Prefecture, and a distribution map showing concentrations will be prepared and issued.

(5) Handling of disaster wastes, etc.

a. Handing of disaster wastes in Fukushima Prefecture

On June 23, “Policy on Disposal of Disaster Wastes in Fukushima Prefecture” (Attachment IV-12) was compiled. This policy stipulates that 1) flammable waste is to be incinerated at incineration facilities having bag filter equipment and exhaust fume absorption functions. 2) For bottom ash contaminated with 8,000Bq/kg or less, it is to be disposed by landfill, on the condition that the site of the land will not be reused later as residences, etc. 3) While in cases of contamination that exceeds 8,000Bq/kg, it is to be temporarily stored.

On July 28, in “Temporary Storage in Disaster Waste Disposal in Fukushima Prefecture” (Attachment IV-13), the methods of temporary storage of 1) storage in drums, 2) storage in municipal solid waste disposal sites, and 3) other methods, were shown for cases in which contamination is from 8,000 to 100,000 Bq/kg. As for the case of temporary storing waste that exceeds 100,000 Bq/kg, it cites storage at facilities equipped to shield against radioactive doses appropriately.

On August 9, the national government complied “Incineration Facility and Monitoring of Disaster Waste Disposal in Fukushima Prefecture” (Attachment IV-14). For incineration facilities equipped with electrostatic precipitators, those that also have an exhaust fume absorption function can be used for

incineration. It also showed the frequency of the monitoring of incinerated ash and other related information.

b. Handling of municipal solid waste by relevant prefectures

On June 28, the national government complied “Immediate Handling and Measurements of Incinerated Ash in Municipal Solid Waste Facility” (Attachment IV-15). Regarding incinerated ash discharged from municipal solid waste by incinerating facilities in the sixteen prefectures in the Tohoku and Kanto regions etc., it requests that fly ash be measured. In cases of more than 8,000 Bq/kg, it is stored temporarily; if it is less than that amount, it can be landfilled at final waste disposal sites. Furthermore, “Temporary Storage of Incinerated Ash, etc. in Municipal Solid Waste Facility” of July 28 advises that the incinerated ash concerned is treated by the same method as in Fukushima Prefecture. Meanwhile, according to “Precedent Inquiry on Possibility of Contamination of Radioactive Materials into Industrial Waste” of July 5, as for incinerated ash discharged from industrial waste incineration facilities in the sixteen prefectures in Tohoku and Kanto regions, etc., the national government made a request for sample survey, and, as for incinerated ash with detectable radioactive materials, it is to be handled on the basis of “Immediate Handling and Measurements of Incinerated Ash in Municipal Solid Waste Facility.” (Attachment IV-15)

On August 29, MOE notified all the prefectures of “Disposal of Waste likely to be Contaminated by Radioactive Materials in Municipal Solid Waste Facility” (Attachment IV-21), and reiterated the request made on June 28 regarding the handling of incinerated ash generated by municipal solid waste facilities. It also showed basic viewpoints on safety in the disposal and the method for monitoring disposal facilities (Attachment IV-20).

Subsequently, on August 31, the national government complied “Policy on Disposal Method of Incinerated Ash, etc. with Contamination that exceeds 8,000 Bq/kg and is less than 100,000 Bq/kg”. It showed the concrete disposal methods of the incinerated ash in all the prefectures etc. including Fukushima Prefecture.

c. Handling wastes resulted from the disaster in Iwate and Miyagi Prefectures

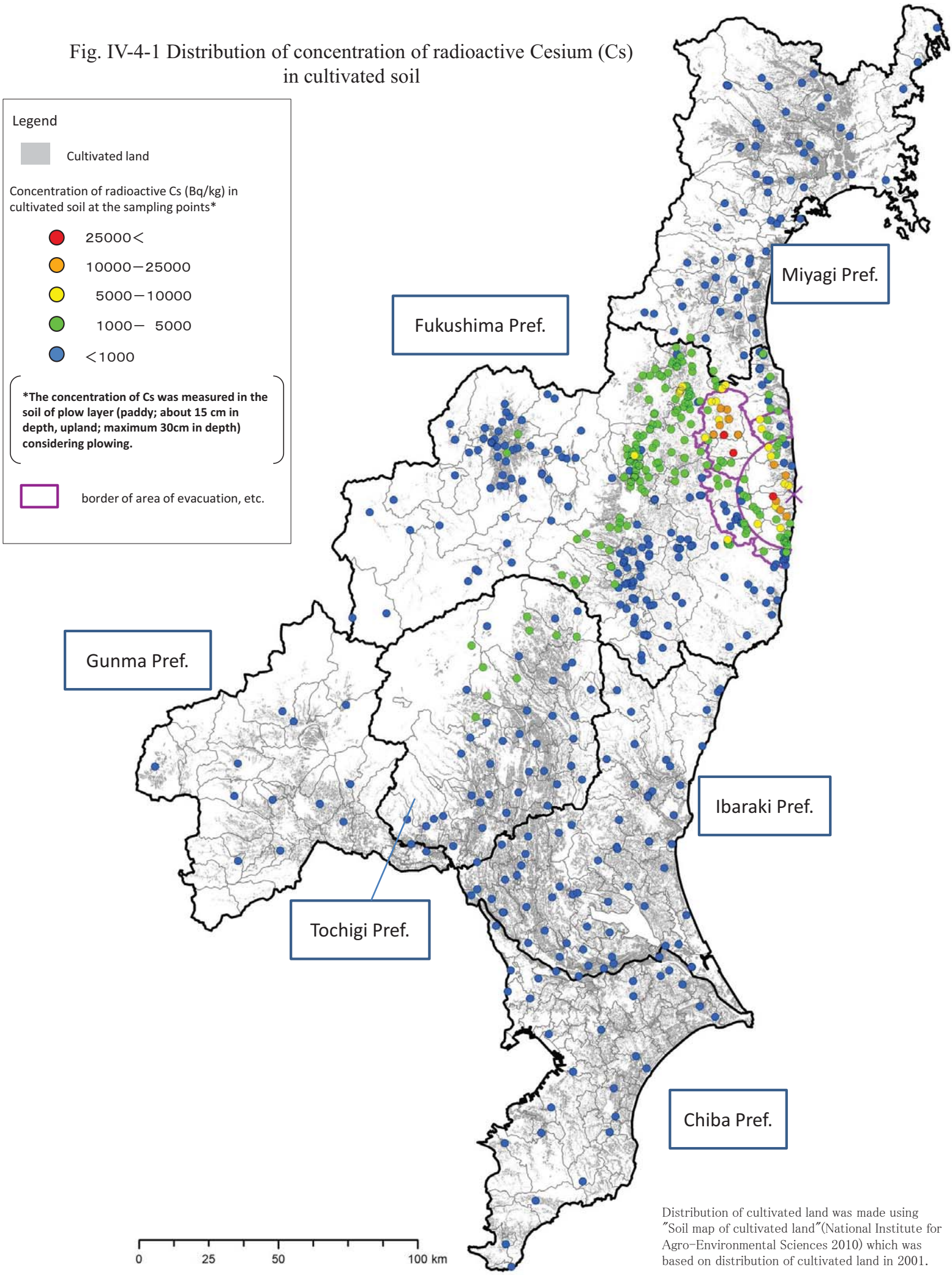
On August 11, the national government complied “On Progress of Disaster Wastes Disposal at Regional Scale (A Guideline Regarding Progress of

Regional Scale Disposal of Disaster Wastes)" (Attachment IV-16), and, in order to proceed with the disaster waste disposals at regional scale in Iwate and Miyagi Prefectures, it showed the methods to ensure safety in order to obtain understanding from the accepting side, that is, both the local authorities and the residents, such as, in principle, measurements of the concentration of radioactive materials in disaster wastes in primary temporal repositories, as well as confirmation of the air dose rate of disaster wastes when taking them out.

d. Disposal of sludge from water and sewerage, etc.

On 16 June, considering that radioactive materials were being detected from sewage sludge, etc. in various prefectures, mainly in eastern Japan, the national government complied an examination result by relevant ministries regarding the policy for immediate handling of dewatered sludge, etc. ("Policy on Immediate Handling of By-products detected Radioactive Materials such as Water and Sewerage, etc." (IV-17)) (GNER HQ, Ministry of Land, Infrastructure, Transport and Tourism, MHLW, etc.), and it is being notified to relevant ministries and relevant prefectures. In cases in which radioactive concentration is continuously high at the time of incineration, incinerating and melting disposal requires the proper functioning of dust collecting machines. Also, sludge, etc. contaminated with 100,000 Bq/kg of radioactive cesium concentration or less can be stored temporarily at controlled disposal sites, keeping an appropriate distance from residential areas and so on. Sludge, etc. contaminated with 8,000 Bq/kg or les landfill on the condition that the site of the land will not be reused later as residences, etc. (Attachment IV-18)

Fig. IV-4-1 Distribution of concentration of radioactive Cesium (Cs) in cultivated soil



Distribution of cultivated land was made using "Soil map of cultivated land"(National Institute for Agro-Environmental Sciences 2010) which was based on distribution of cultivated land in 2001.

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