

Local Stakeholder participation in Japan contaminated areas after Fukushima: Impressions from a short visit in the context of the FAIRDO project



Eduardo Gallego
Nuclear Engineering Department
Technical University of Madrid (UPM)

Understanding the magnitude of the three catastrophes: earthquake



Understanding the magnitude of the three catastrophes: tsunami



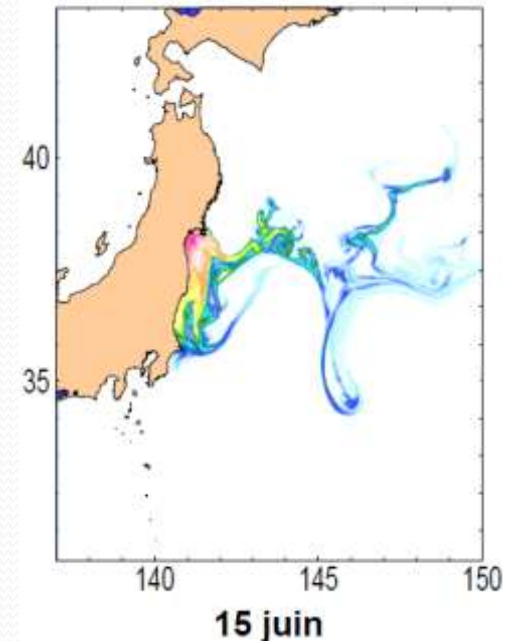
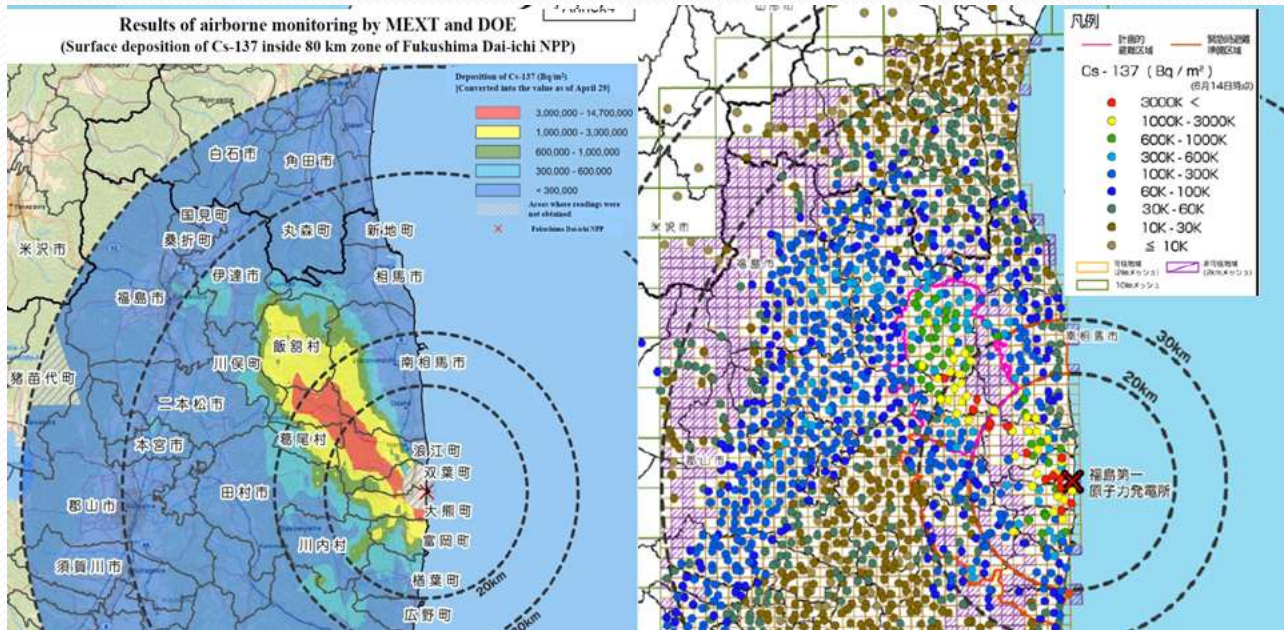




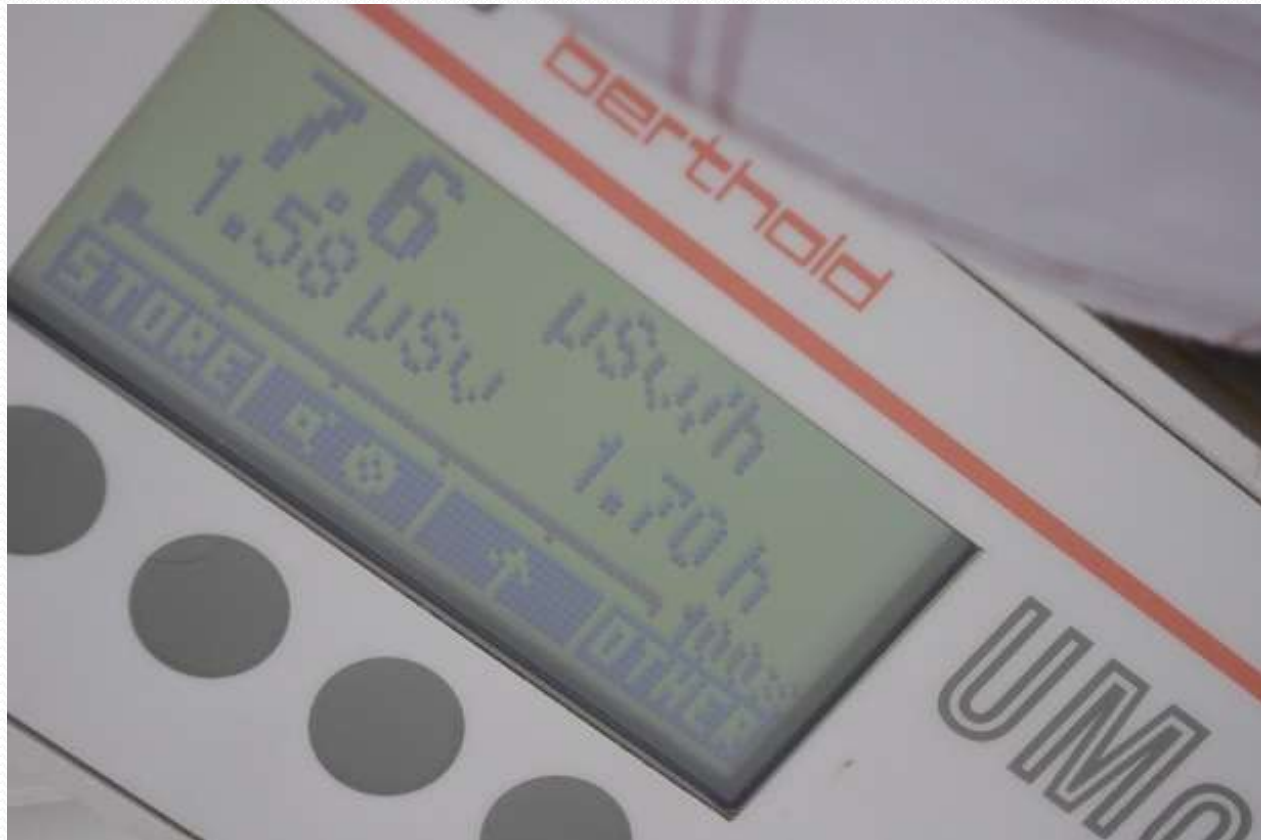
Photo: E. Gallego.



Understanding the magnitude of the three catastrophes: nuclear accident and contaminated environment



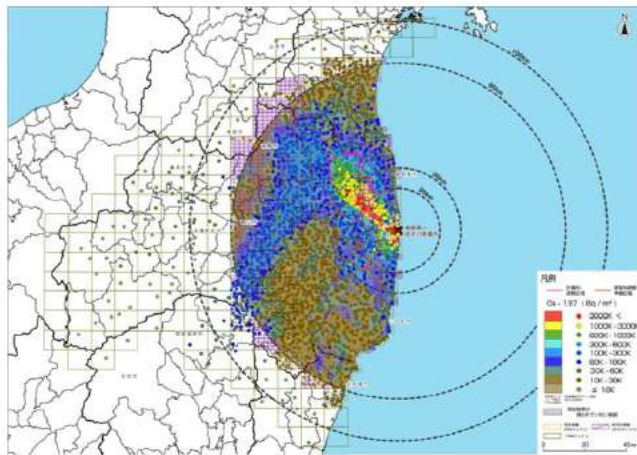
Having the opportunity to check contamination levels



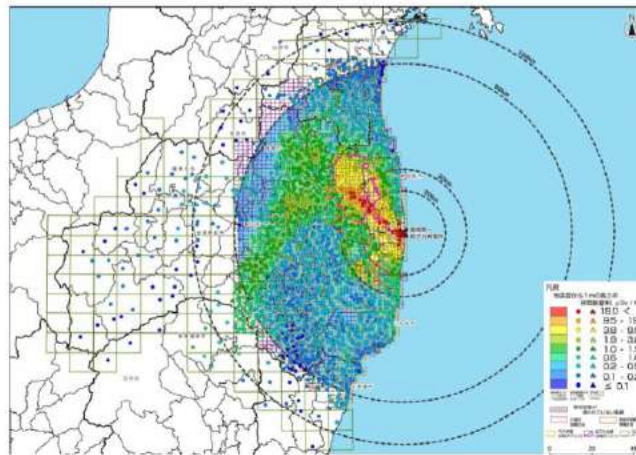
1. ASSESSMENTS OF RADIOLOGICAL CONTAMINATION SITUATION

Surface survey

- ◆ Detailed measurements and mapping of ground surface deposition distribution of radionuclides
 - ◆ Wide area radiation dose-rate distribution measurements and mapping using monitoring vehicles
- ↓
- ◆ The results provides the source term for predictive models of future radioactive spread.



Cs-137 deposition distribution map



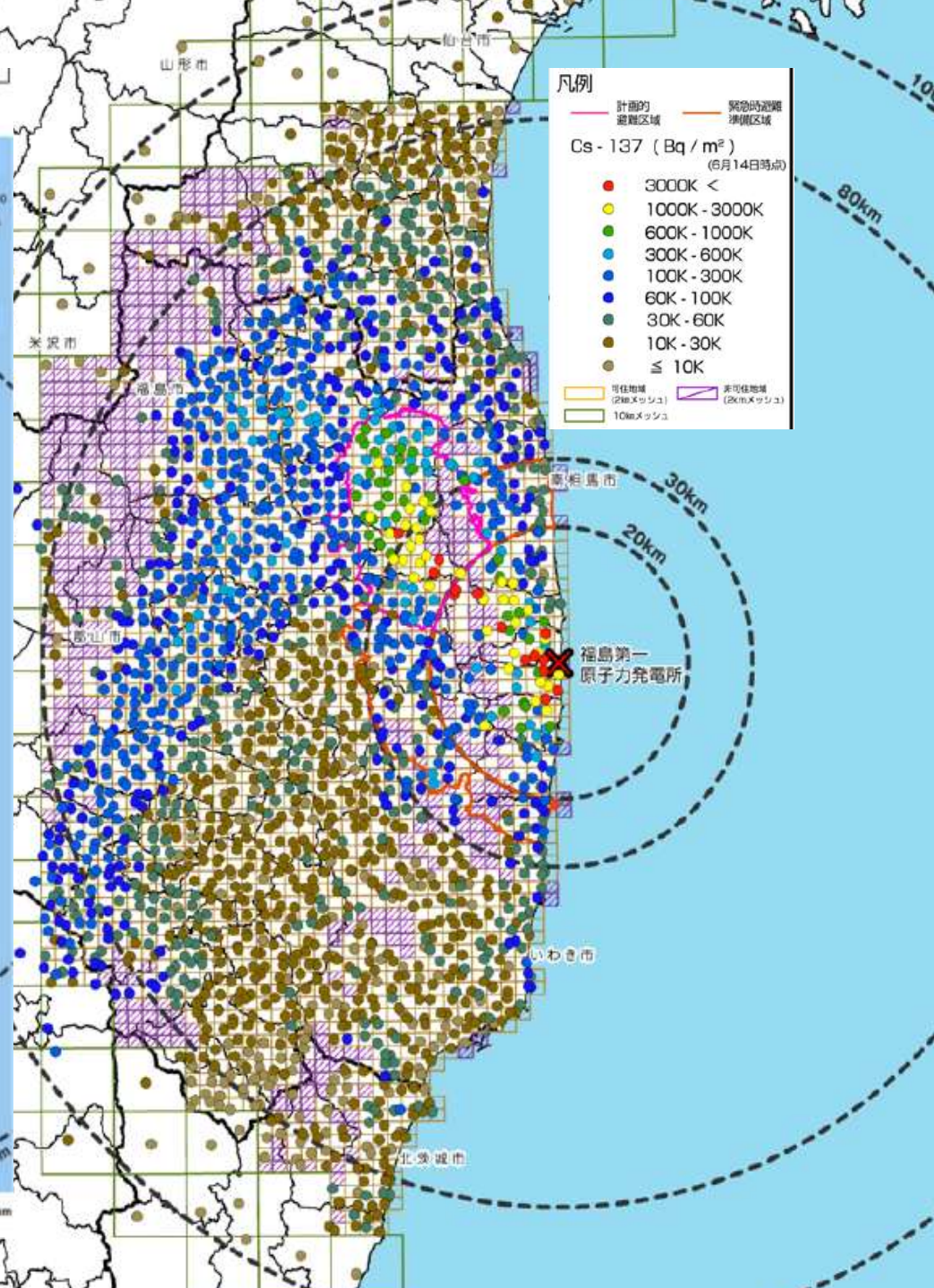
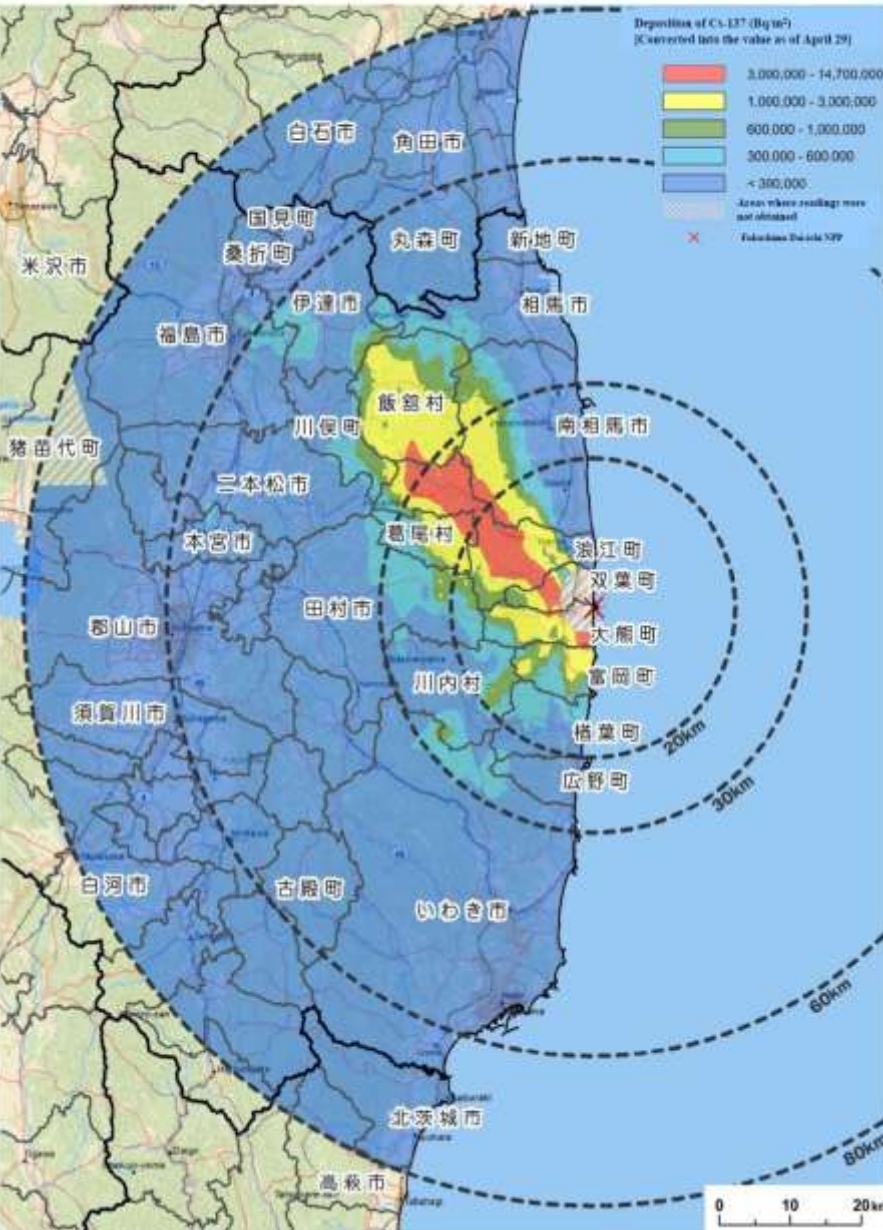
Dose-rate measurement at each mesh elements



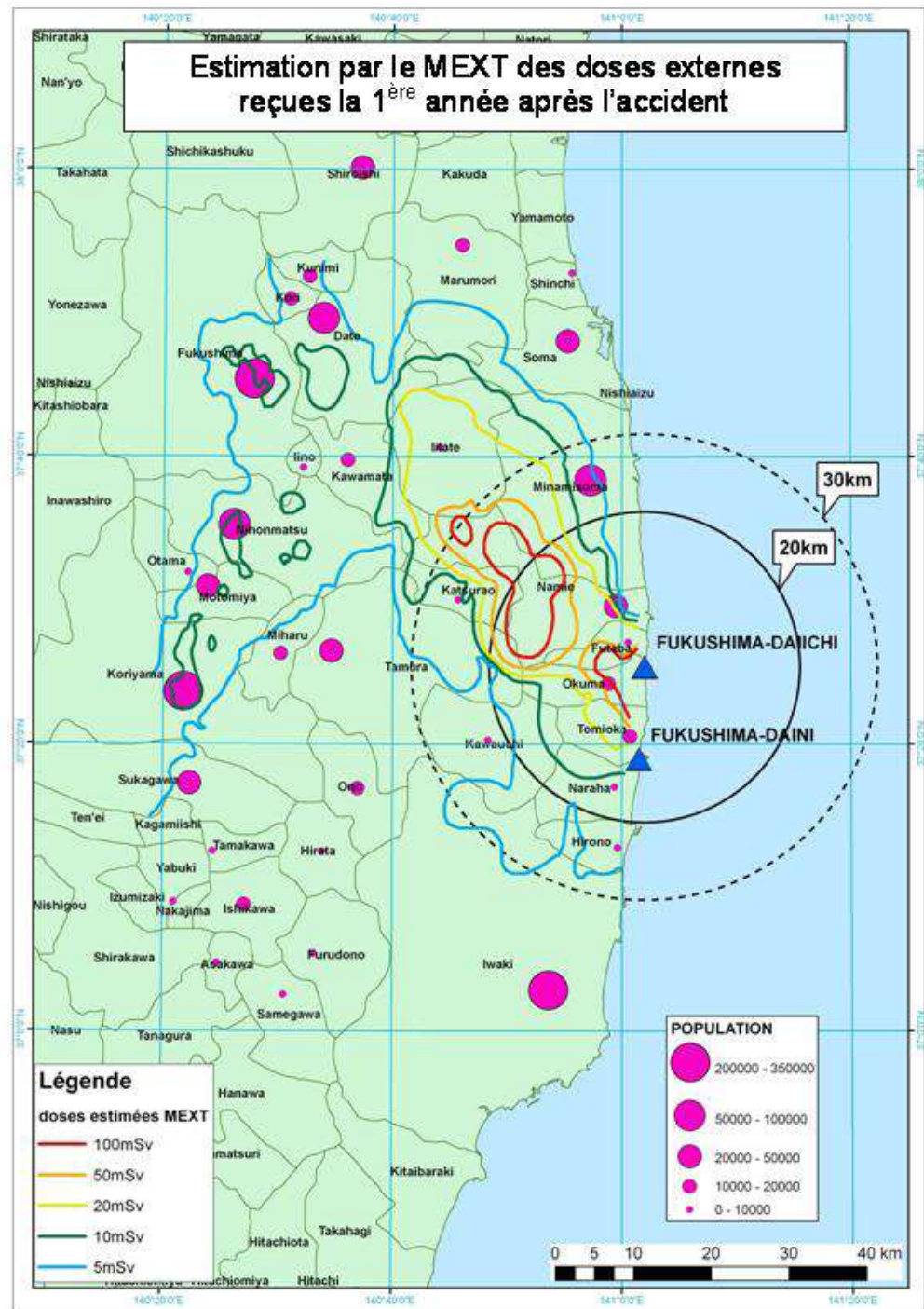
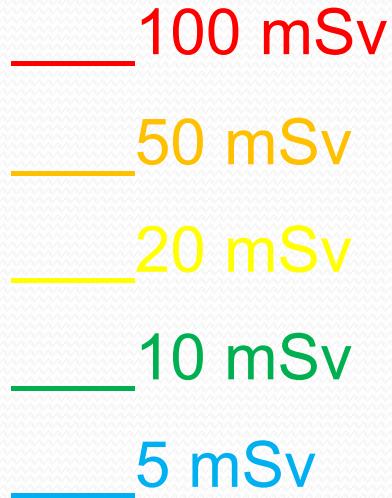
Measurement using survey vehicles

Radiation dose-rate distribution maps

Results of airborne monitoring by MEXT and DOE
 (Surface deposition of Cs-137 inside 80 km zone of Fukushima Dai-ichi NPP)

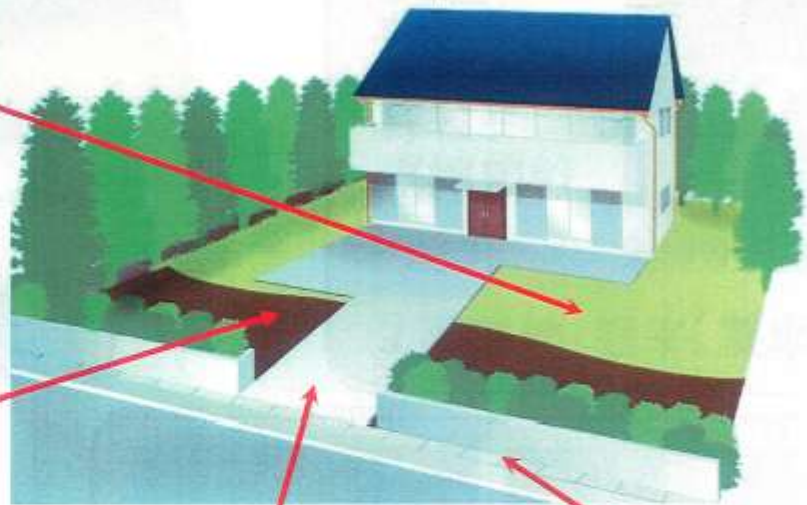


IRSN-MEXT. External projected dose in 1 year (mSv)



除染作業内容 住宅・事業用建物 (特定避難勧奨地点を含む地域) 25

④庭(芝生)
はぎ取りもしくは深刈り

⑤庭(土・砂利)

- ・除草
- ・表層はぎ取り



- ・埋め戻し

⑥舗装
表層研削もしくは高圧洗浄



⑦側溝
汚泥除去・高圧洗浄



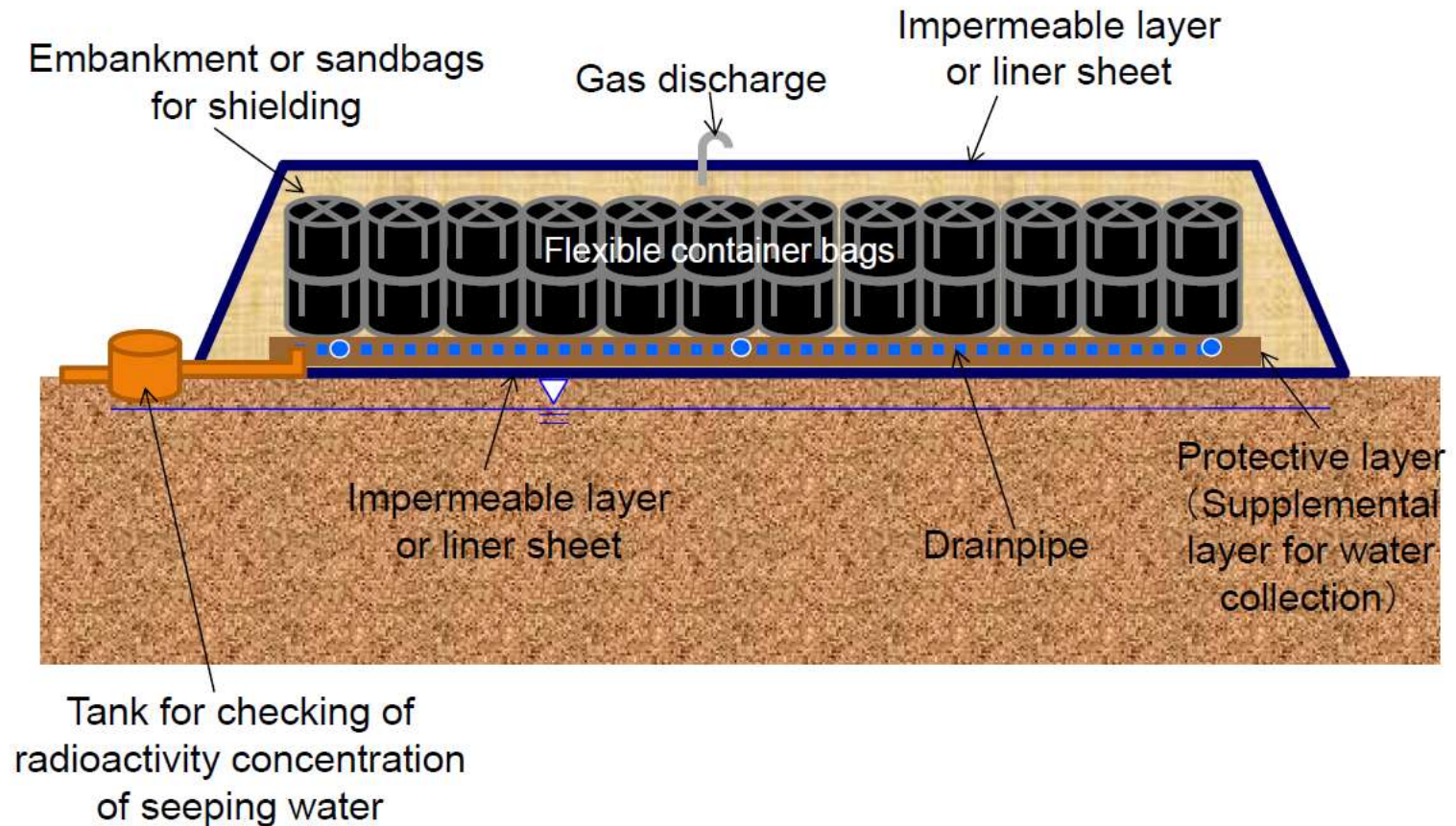




Oguni-Soma. Photo E. Gallego

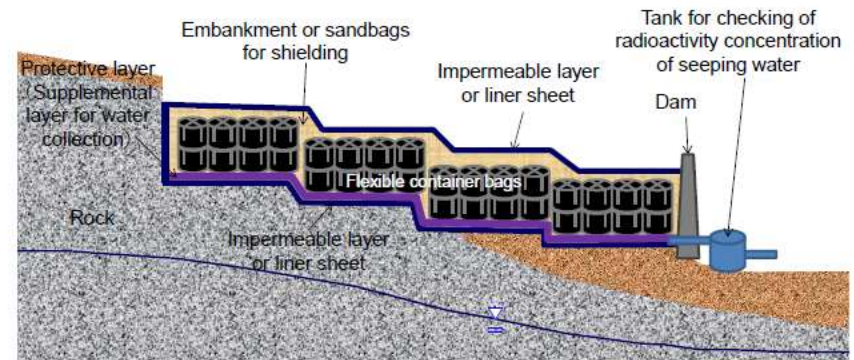
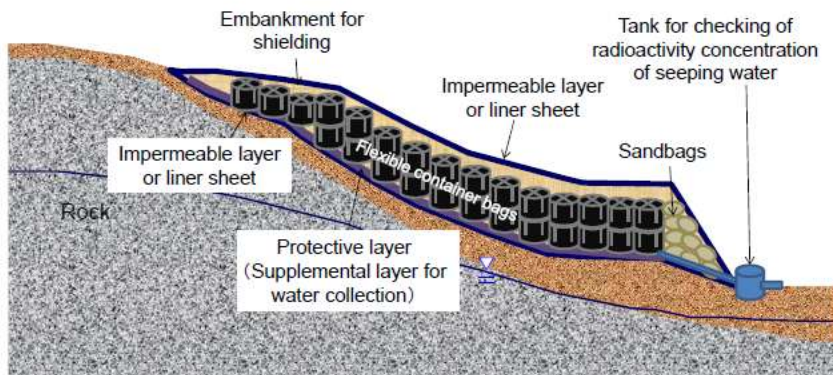
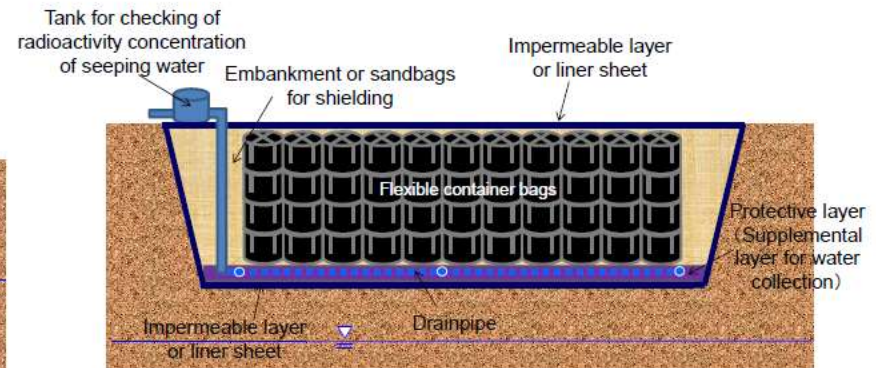
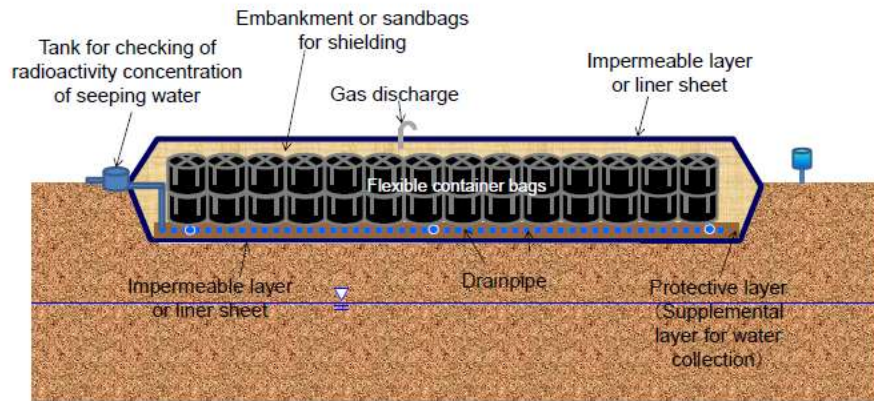
2. DEMONSTRATION of DECONTAMINATION

Temporary storage for radioactive waste: mound type



2. DEMONSTRATION of DECONTAMINATION

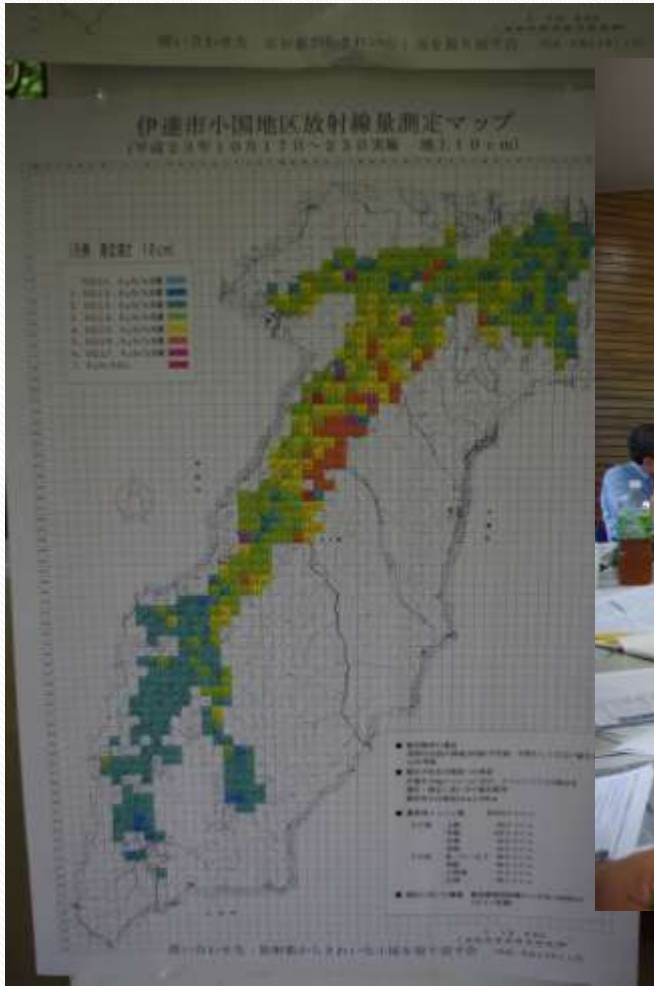
Temporary storage for radioactive waste





Namie Town. Photo E. Gallego

■ Stakeholder engagement and initiatives to take control of the radiological situation



Meeting at Oguni. Photo: E. Gallego

Detailed radiation dose level maps elaborated by voluntary people in Oguni. Photo: E. Gallego

■ Stakeholder engagement and initiatives to take control of the radiological situation



■ Stakeholder engagement and initiatives to take control of the radiological situation



Legal Framework

Act on Special Measures concerning the Handling of Radioactive Pollution

Promulgated: at the end of August 2011, Fully came into force: January 1, 2012

Basic Principles of the Act

-Decided by the Cabinet: November 11, 2011

The Order and Ordinance

-Promulgated: December 14, 2011

Decontamination-related regulations:

Standards for decontamination, standards for collection and transfer, storage standards for the removed soil, etc.

Designation of the target areas: December 28, 2011

Special Decontamination Areas: 11 municipalities*
(20km radius from NPP + area with 20 mSv of annual cumulative dose)

Intensive Contamination Survey Areas: 104 municipalities
(area with 1-20 mSv annual cumulative dose)

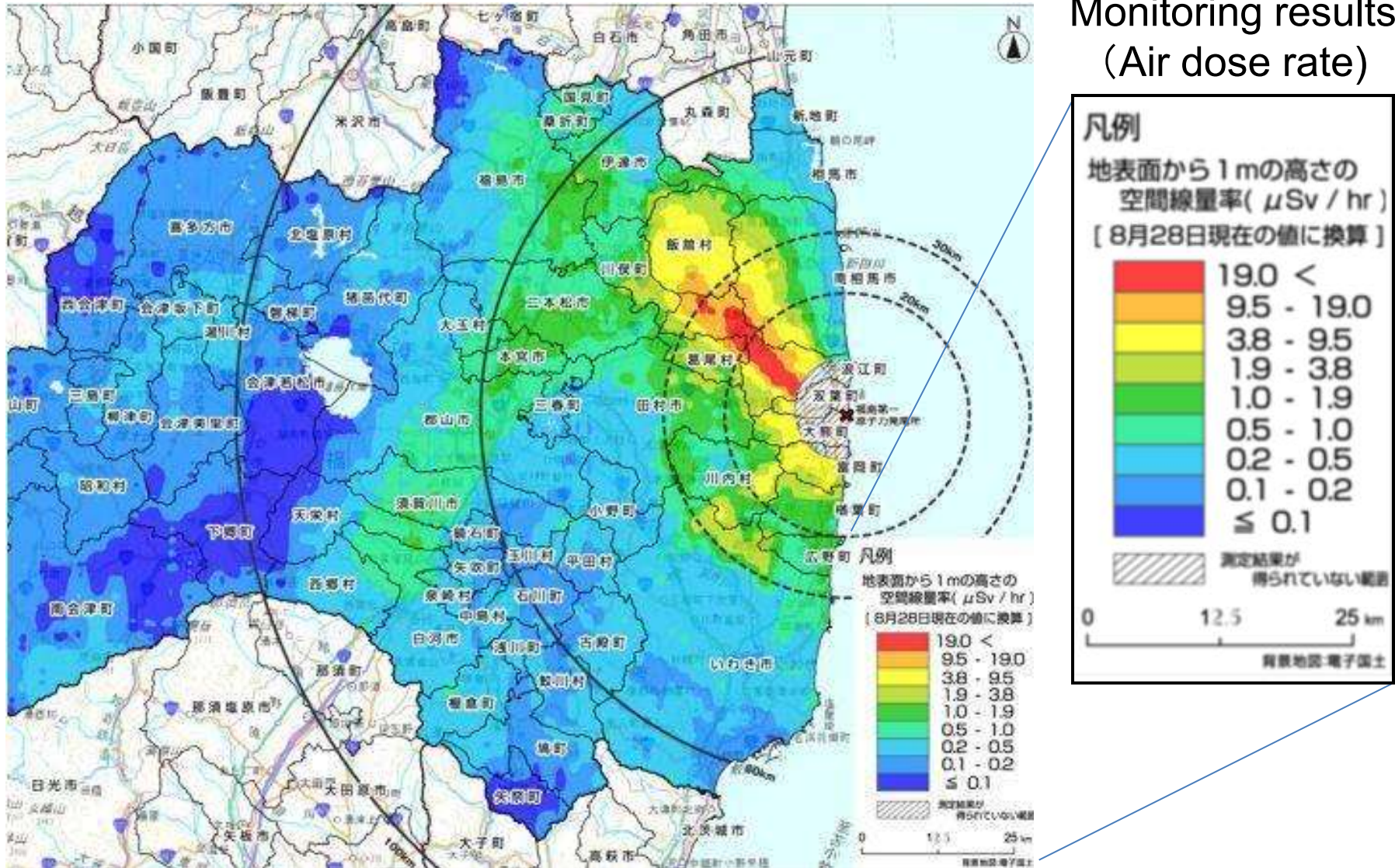
Waste-related regulations:

Designation standards for Designated Waste, collection and transfer standards, storage standards and final disposal standards for decontaminated waste, etc.



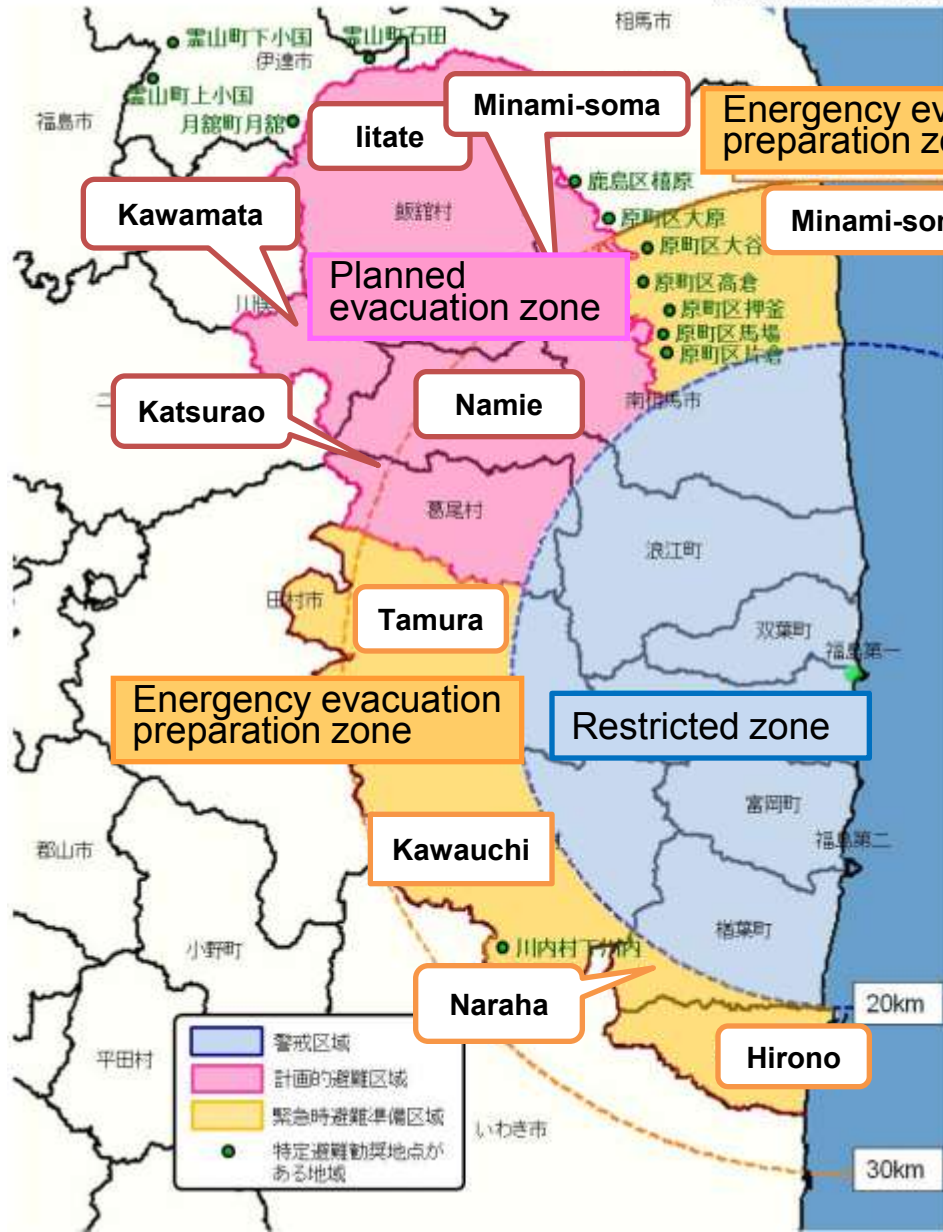
Radioactive materials spread widely including to the area in NW direction where high dose areas are distributed.

Monitoring results
(Air dose rate)



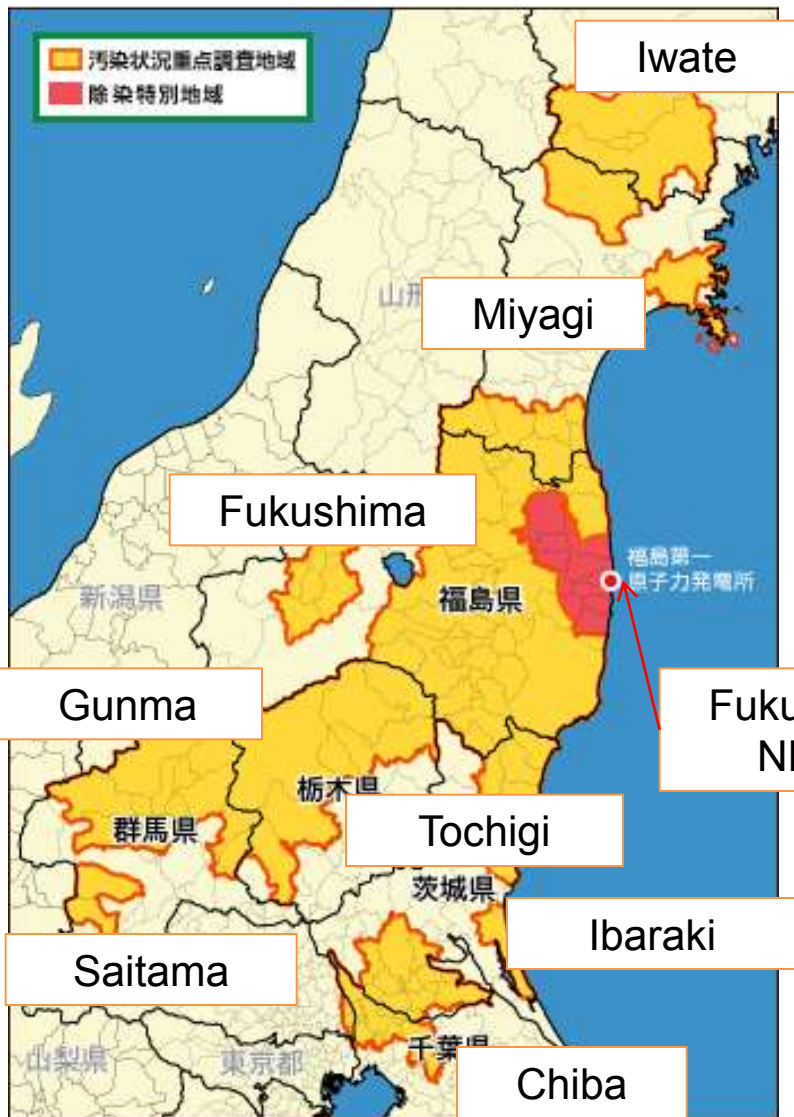
Zones of Evacuation Instruction

警戒区域、計画的避難区域、緊急時避難準備区域及び特定避難勧奨地点がある地域の概要図
(平成23年8月3日現在)



Evacuation zones	Population (thousand)
Restricted zone	78
Planned evacuation zone	10
Emergency evacuation preparation zone (Lifted on September 30.)	58
Total	150

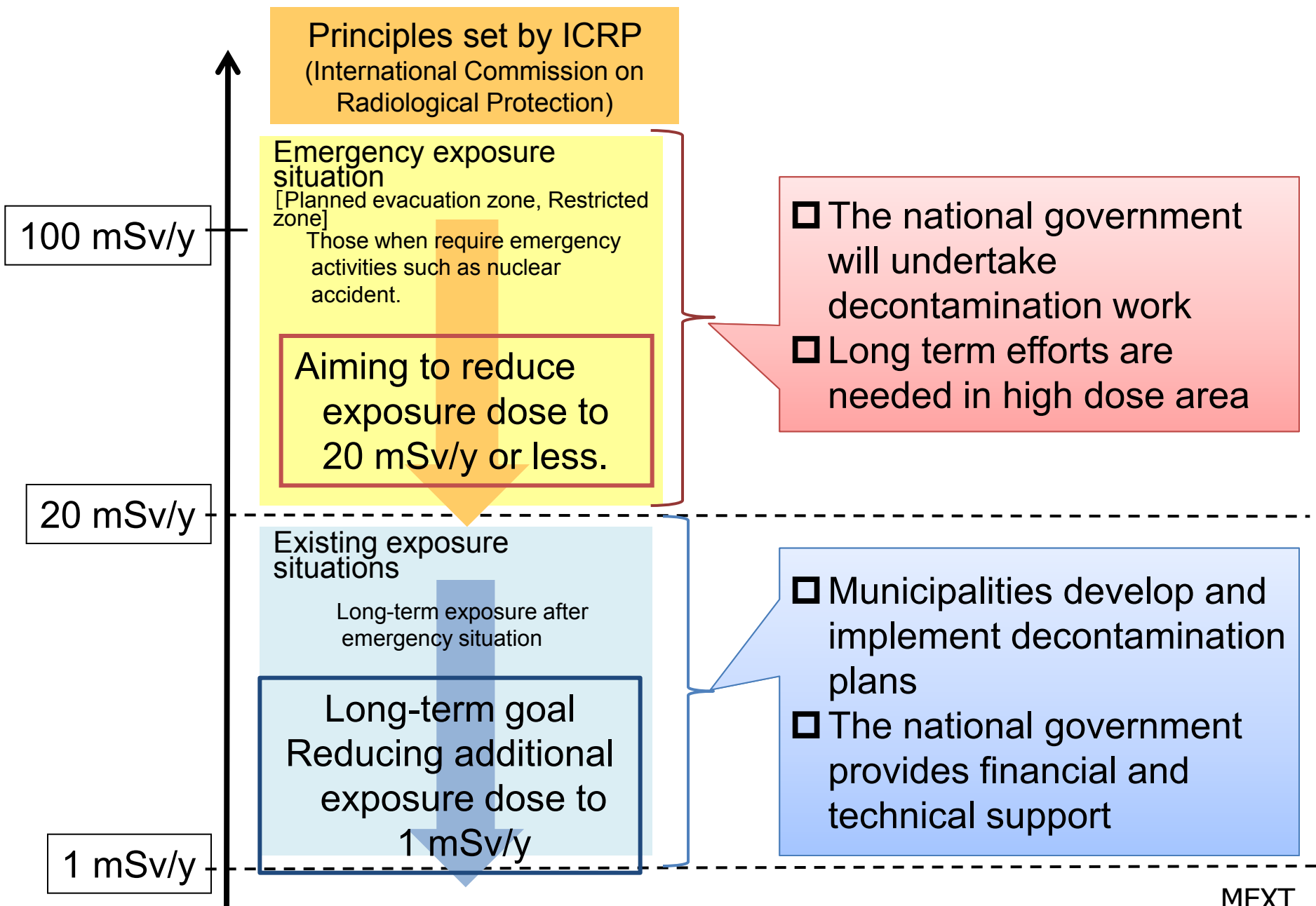
Special Decontamination Area and Intensive Contamination Survey Area

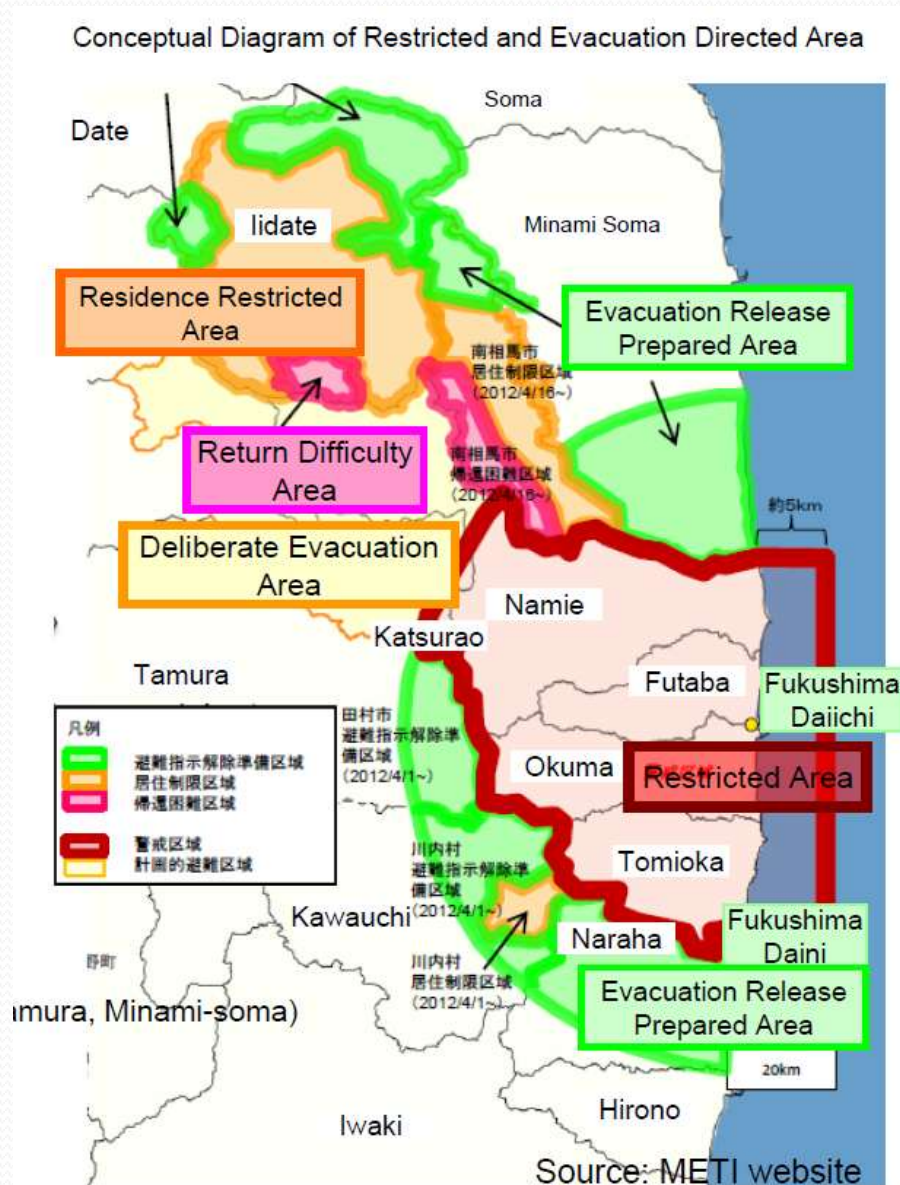






Basic Approach of Decontamination Work





2012: some less contaminated areas start to be released in summer

Target values for the Decontamination

Additional * exposures over 20mSv/y

- Aim at stepwise and rapid reduction of those areas based on the ICRP Recommendation (2007).

* 'additional' means beyond natural background and medical exposure

Additional exposures < 20mSv/y

- As a long term goal, aim at reducing to 1 mSv/y or less

General Public

- Reduce estimated annual exposure of the general public by 50 % in 2 years (by Aug 2013)

by radioactive decay, decay by natural factors and by decontamination

Children

- Reduce estimated annual exposure of children by 60 % in 2 years (by Aug 2013) by thorough decontamination of their living environment.

by radioactive decay, decay by natural factors and by decontamination

- The goals will be reviewed periodically

Framework of Support for the Promotion of Decontamination

1. Acceleration of training for operators, etc.

Opening of decontamination workshops for operators of decontamination works, site supervisors and work managers

2. Strengthening of Technical Support

Allocation of experts and transmission & provision of information through implementation of the demonstrative project for decontamination technology and operation of the Decontamination Information Plaza

3. Promotion of understanding by residents

Opening of the area dialogue meetings and dispatch of specialists to the briefing meeting for residents

1. Acceleration of Training for Operators

FY 2011

Decontamination work training sessions

- When: from October 2011 onwards

Fukushima Prefectural Government held 15 sessions in 5 locations in the prefecture

- Target: people involved in decontamination work

3,373 people completed the training

Radiation and decontamination training sessions

- When: from January 2012 onwards

Fukushima Prefectural Government held 32 sessions in 7 locations in the prefecture

Target: Group leaders involved in radiation measurements and decontamination activities in the area
2,050 attended the training sessions

FY 2012

Workshops for decontamination works

- Training course for persons involved in decontamination work (continued from FY2011),

Target number: 7,500 people

Target: Persons involved in decontamination work in Fukushima Prefecture

- Training course for site supervisors

Target number: 1,500 people

Target: Persons those who give directions and supervise decontamination work sites in Fukushima Prefecture

- Training course for work managers

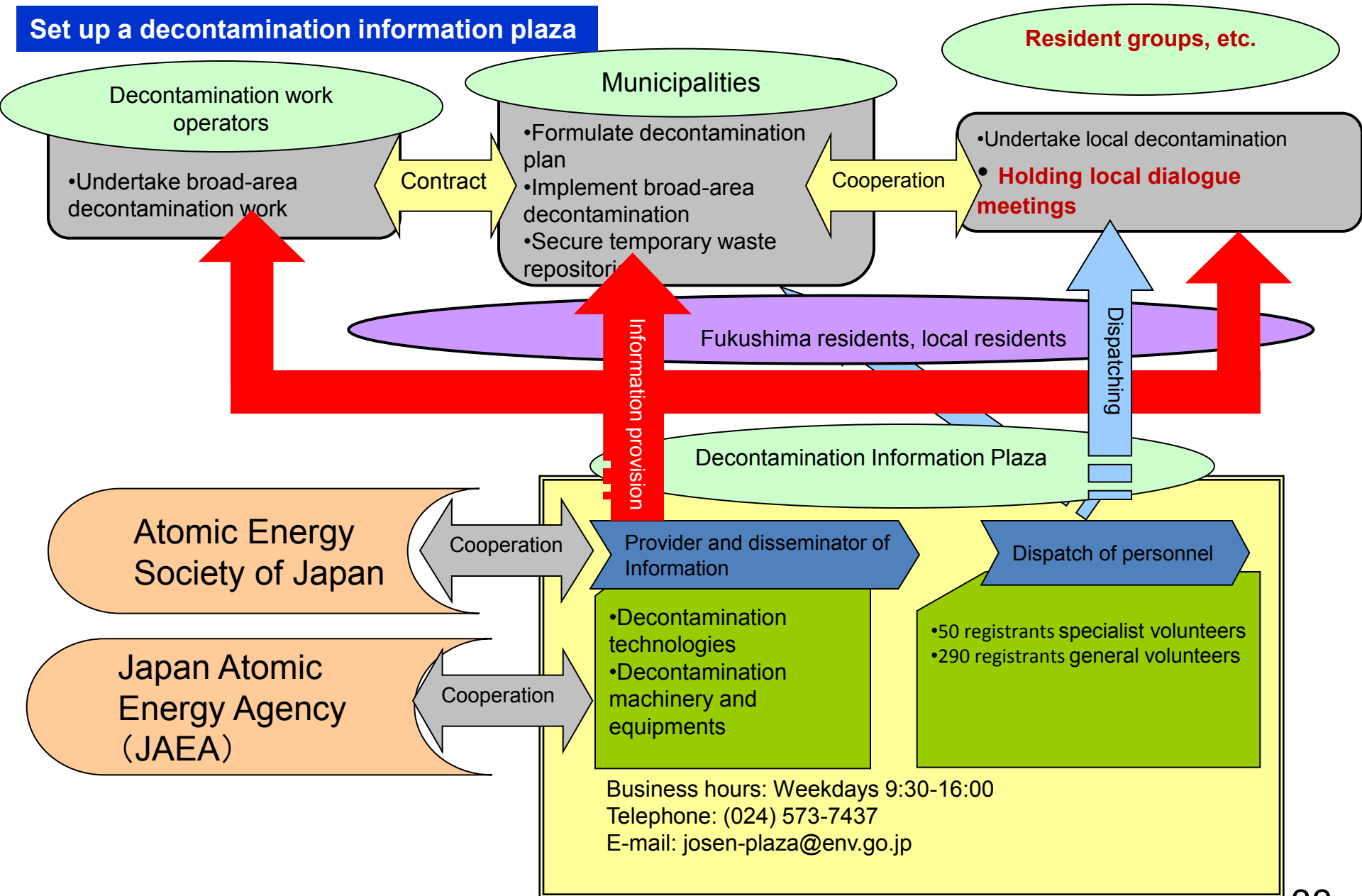
Target number: 1,000

Target: Persons involved in the supervision of progress of decontamination work commissioned by municipalities in Fukushima Prefecture



2. Strengthening of Technical Support ①

Set up a decontamination information plaza



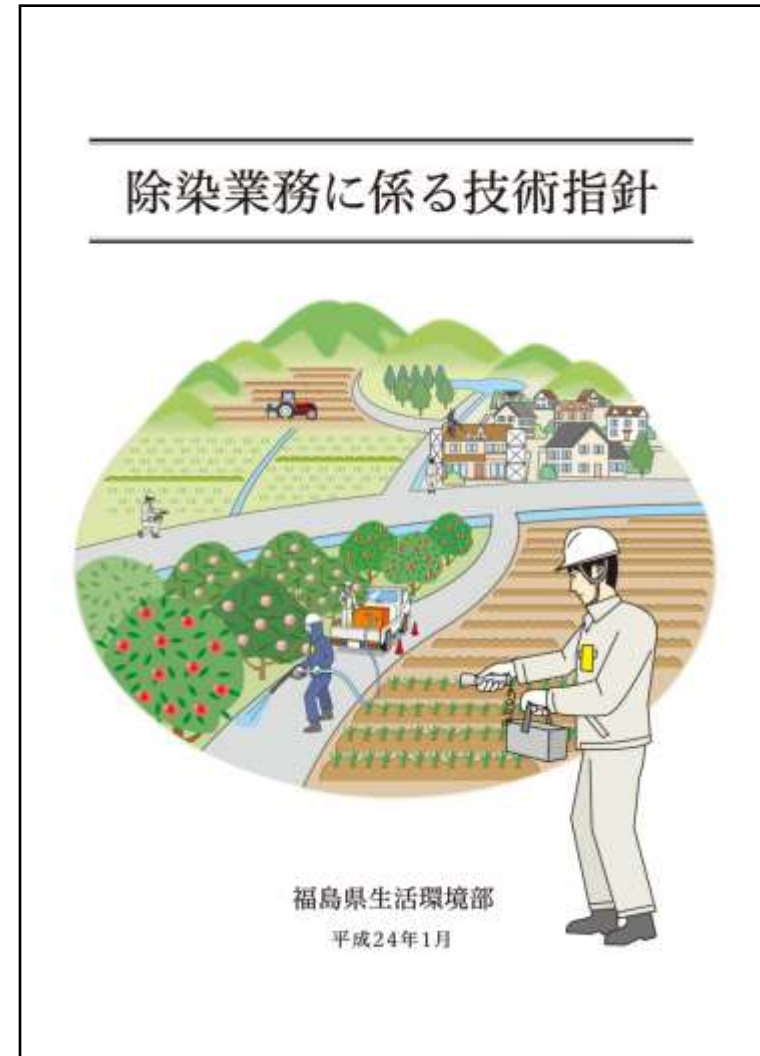
2. Strengthening of technical support④

Technical Guidelines for Decontamination Work

The Fukushima Prefectural Government prepared *Technical Guidelines for Decontamination Work* to specifically indicate the order, methods, and management standards of decontamination work that can be readily undertaken at decontamination locations (January 31, 2012)

Contents of the Guidelines

- (1) In the guidelines, the Prefectural Government set down work procedures, decontamination methods, and matters requiring caution in contamination work that will be central to full-fledged decontamination work. Efforts were made to present contents in a way that persons in charge of decontamination work for the first time would find easy to understand through the use of diagrams and photos, etc.
- (2) The guidelines also present measures for preventing radiation injuries to workers engaged in decontamination work.
- (3) The guidelines also established management standards (management of completed portions, quality control, radiation control, photographic control)



2. Strengthening of Technical Support ⑤

Guide to measures for radiation dose reduction

- Preparation of a guide that sets out essential details for conducting decontamination activities to eradicate radioactive material in the everyday living space of people, such as school commuting routes (July 15, 2011)
- Preparation of a guide for the decontamination of general residential buildings (Second Edition) to reduce the radiation dose that local residents are exposed to (October 31, 2011)



3. Promotion of understanding by residents①

We will dispel the anxiety and doubts regarding the impact of radiation and decontamination of residents of this prefecture and we will foster a sense of safety and security in their hearts and minds of people.

○ Safety and security forums <FY 2011>

•Dates:

1st forum: Sunday, November 27, 2011 at Pulse Iizaka

2nd forum: Sunday, November 29, 2012 Koriyama Kaisei Gakuen

3rd forum: Sunday, December 12, 2012 Royal Hotel Maruya

4th forum: Sunday, December 19, 2012 Iwaki Myojo University

•Attendants: General residents of Fukushima (about 890)

○ Opening of the regional dialogue forum which works toward the promotion of decontamination <FY 2012>

The 1st Forum: Sunday May 13, 2012 CORASSE Fukushima

○ Support in area dialogue meetings

•Date: October 2011 –

Dispatch of specialists to meetings organized by resident neighborhood group

•Target: General residents of Fukushima Prefecture

安全・安心フォーラム *Fight! Functional* **がんばろう 福島!**
 ~ 除染の推進に向けて ~
皆様の疑問にお答えします!

開 会
 福島県知事 | 佐藤 雄平
 日本原子力学会会長 | 田中 知

基調講演
 除染を進める福島県の挑戦 : 福島県生活環境部長 荒竹 宏之

講 演
 放射線モニタリングと健康影響 : 日本原子力学会 服部 隆利
 環境修復に向けて ~放射能除染の必要性と課題~ : 日本原子力学会 井上 正
 生活圏の除染を進める上での課題と対策 : 福島県政策推進部長 高田 光

対話集会 専門家との対話により、皆様の日頃の疑問にお答えします。

①健康影響分科会 ファシリテーター: 日本原子力学会 占部 通正
 ②除染推進分科会 ファシリテーター: 日本原子力学会 大場 幹子

日 期	平成23年11月27日(日) 13:00~16:00 (開場12:30)
会 場	バルセイイざか 〒960-0201 福島市飯坂町字筑前27番地の1 TEL024-542-2121
対 象 者	どなたでも参加できます 参加費 無 料
申込方法	裏面の参加申込書を郵送、FAX又はメールにてお送りください。 (申込みをされなくても入場できますが、事前に申込みされた方を優先させていただきます。)

主催/福島県・日本原子力学会 | お問い合わせ先 | 福島県生活環境部除染対策課 TEL024-521-8315

3. Promotion of understanding by residents (participation) ②

Supportive project for activities to reduce the radiation dose

1. Target of the project

To subsidize necessary cost for **decontamination activities to be conducted by the Neighborhood Associations and the Parents and Teachers Association (PTA)** for reduction of radiation dose in the school routes and parks.

2. Outline of the project

① Operational entities

Administrative districts, autonomous associations, neighborhood associations, PTA and community development associations

② The amount of subsidies

Up to 500 thousand yen per project operator

Up to 250 thousand yen for the 2nd operation, but 100 thousand yen will be added for work in high places.

③ Budget for FY2012 1,991,096 thousand yen

3. Budget for FY2011

3,107 operators in 44 municipalities 1,593,159 thousand yen

The European Platform on Preparedness for Nuclear and Radiological Emergency Response and Recovery: The NERIS Platform

Eduardo GALLEGO – UPM

(Based on commonly developed material by the NERIS management board members: R. Mustonen; K. Anderson; J. Camps; M. Cindro; C. Croteau; T. Duranova; G. Héri; Dubreuil; A. Nisbet; D. Oughton; W. Raskob; T. Schneider)

FAIRDO Working Session, Fukushima University, 19th July, 2012

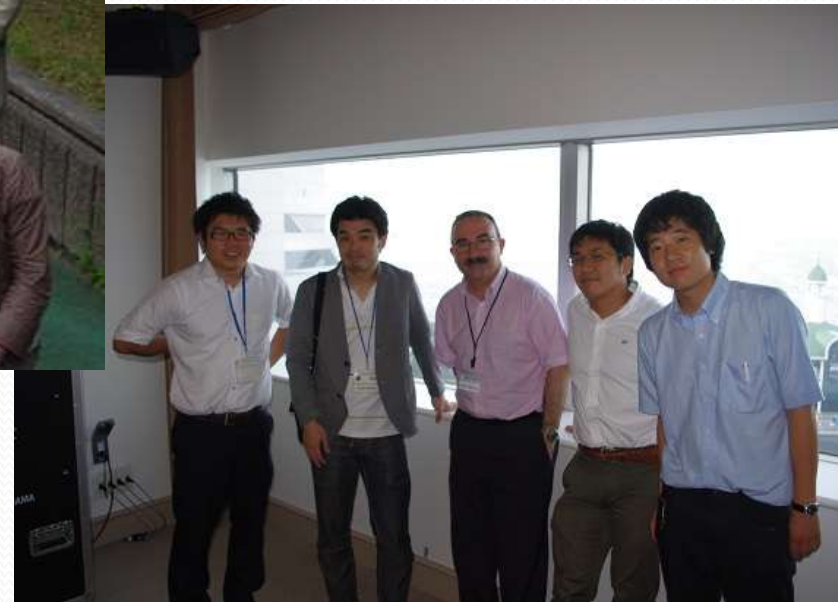
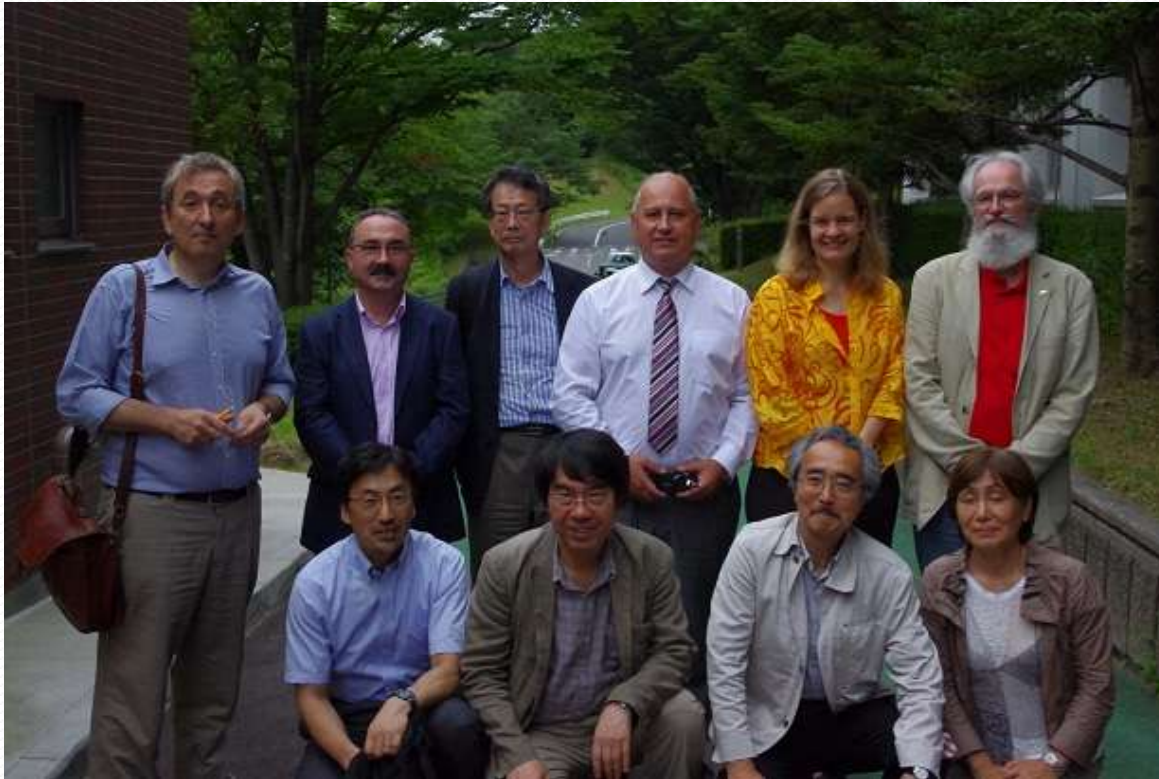
The Framework for post-accident preparedness in Europe.

The IRPA guiding principles for stakeholder engagement

- Optimization of decontamination activities:
 - Resources are not unlimited
 - Zero contamination levels are not physically attainable
- Role of compensation to affected population
- Ensuring acceptability of locally produced food:
 - provide good communication on the radiological importance of the legal limit of 100 Bq/kg for food.
 - 100 Bq \leftrightarrow 1.3 μ Sv
 - For external exposure: the reference levels are expressed in dose values (mSv per year)
 - However, for intake of radioactivity in food, the reference is changed! (the derived intervention level is becoming a limit between safe / unsafe!)
 - Develop “new references” of risk for very low radioactivity in food (for instance: what a regular intake can imply, compared to natural radioactivity in the body...)

- The impression is that a tremendous collective effort is being done but not always in the most effective way
- Every administration and technical organization is putting its best knowledge and personal efforts at all levels, but perhaps there is a lack of horizontal communication and understanding, and this may cause lack of effectiveness
- More and more effective dialogue forums are needed to create greater consensus and to regenerate confidence in government and prefectural administrations
- Additional significant efforts should be put in developing a practical radiation protection culture at all levels (individuals, families, neighborhoods, schools, university, farmers associations, municipalities, and the prefecture and country level), which helps to put radiation risks in their right position and to take better informed decisions, considering not only radiation risk but all the relevant dimensions such as health, environmental, economic, social, psychological, cultural, ethical, political, etc.

Many thanks!



Many thanks!

No recovery without decontamination

To be born in Fukushima, grow up in Fukushima, work in Fukushima, get married in Fukushima, have children in Fukushima, raise children in Fukushima, see the faces of my grandchildren, see the faces of my great grandchildren, and spend the last days of life in Fukushima.

This is my dream.

From “A Message from Fukushima” at the opening ceremony of the 35th All Japan High School Integrated Cultural Festival.

To restore the “true sky” of Fukushima as soon as possible, we are determined to continue to face the many challenges ahead of us.