Lessons Learned from the Site of Chernobyl Nuclear Accident (Inspection Report)

How JA Shin Fukushima should deal with protective measures for radioactive contamination

Purposes of taking part in the inspection were to find out:

Achievement status of decontamination of life-sustaining forests and farmlands, and viability of agricultural restoration deals and newly applied promotional measures

Measures for maintaining good-health of the cooperative members

February 4, 2012
The International Science and Technology Centre (**ISTC**)
The Science and Technology Center in Ukraine (**STCU**)

Takashi Kan-no
Representative Executive Director
JA Shin Fukushima

The accident at the Fukushima Nuclear Plant is a problem to be addressed not only by a nation, but by the whole mankind

Summary

Unified management of measures against nuclear power plant accidents by single authority—Ministry of Emergency Situations

Health checks administered to100% of population

Ensured establishment of a recuperation center for children

Free school lunch provided in the contaminated districts

1,000 centers set up for detecting radiation in food

11 million laboratory tests conducted per year

70% of exposure comes from food—preventive measures should be made available

Farm produce with more than standard value prevented from distribution

No information at all on the accident as of April 26

Primary evacuation in the afternoon of April 27

Evacuation of residents within the 10km radius of ground zero between 3 and 5 May

Evacuation zone expanded to the 30km radius in later days

Dialogue with residents is important—what is to be feared and what not should be made clear

Soil with higher acidity is more likely to contaminate agricultural procude

80,000 ha of farmland should be ready for animal feed and alcohol production

(not to be consumed directly by men)

Regulation levels have been tightened in phase (the lower restriction the better, but the cost has to be considered)

Alternative product—hemp

40% of forests in Belarus is contaminated (1.5 million ha)

11% of that area is now designated as no-entry zone—regional fire prevention measures are important

Importance of information disclosure

Lack of information available from USSR

Adequate information should be made available to the residents

50 information centers are set up in Gomel Province

Collection of residents' witness statements (important in designing how to provide care)

Section meeting for those involved in agriculture and forestry industry (There are other participant parties: information and resident evacuation, health and medical treatment, and damages compensation)

Polluted soil shall not be removed—removal of soil exacerbates dilapidation

Parts of forests where 1 to 5m Sv of radioactivity is detected may be entered

Map of contaminated soil distribution drawn for

- Every 3 to 7 hectares of farmland (30 points on the average)
- Every 70 hectares of forest (mostly on flat land)
- Contaminant transport coefficient for farm produce is checked every 4 years

The number of monitoring routines for food is varied according to the degree of soil contamination

Contaminated area is marked out—this should be dealt on the independent basis except for cases where the national government is held responsible.

Diagram of contaminant transportation ratios by plant species by the Institute of Radiobiology, the National Academy of Sciences of Belarus

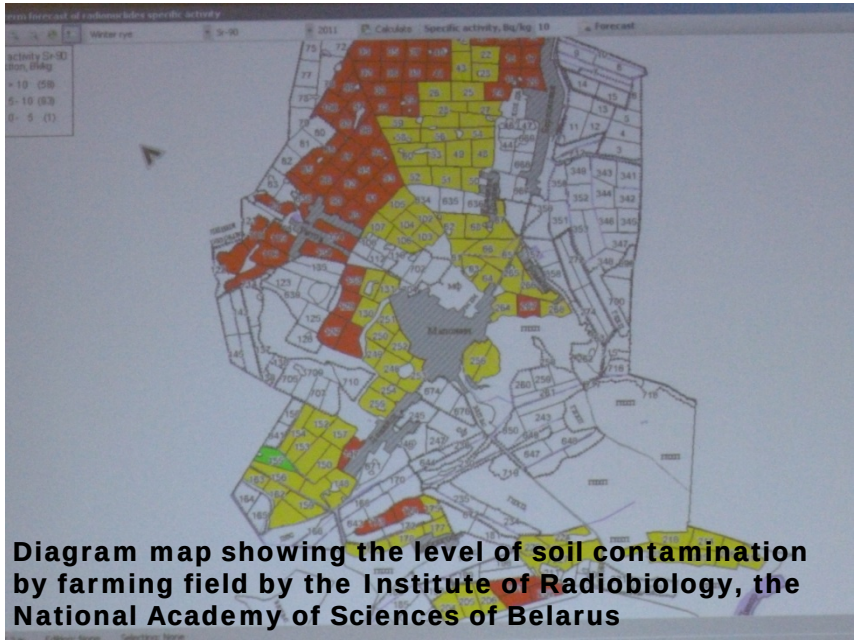


Diagram map showing the level of soil contamination by farming field by the Institute of Radiobiology, the National Academy of Sciences of Belarus

Presentation at the institute

Compound problems imposed on inhabitation in affected areas

Need for scientific solution by residents, the national government, and specialists

Responses—it is important that solution be dealt with by parties located in the vicinity of ground zero

Convergence of solution measures on Gomel by decree of the president

It is important that the scientific and political organizations work together

Scientific data and information of Chernobyl should be made as much available to Japan as possible

How JA Shin Fukushima should deal with protective measures for radioactive contamination

1. **National and prefectural analysis results (including milk, marine product, meat, eggs, etc.) as of November 30, 2011**

	Area	Sample	Detected	Undetected
Fruits	Fukushima city	281	216	65
	Kawamata machi	12	12	0
Vegetables	Fukushima city	133	24	109
	Kawamata machi	59	16	43
Rice	Fukushima city	64	29	3
	Kawamata machi	16	3	1
Total samples	Fukushima city	448	269	20
	Kawamata machi	87	31	5
Analysis results in Fukushima City (as of November 30, 20				
Fruits		226	162	1
Grains		3	1	
Grass		2	2	
Vegetables		165	23	1
Rice		434	99	3
Total analyzed		830	287	5
Number of samples within the business district of JA Shin Fukushima		1, 365	587	8

2. Establishing a thoughtful system of farm product analysis

Making assurance of safety to be felt visible

Soil analyzer – Introduction of two analytical instruments (now being in use for tests)

Farm product analyzers	One analytical instrument (on loan from Fukushima City) Another (installed on December 6) It is scheduled to disclose results of as detailed tests as possible according to a test plan.
Soil analyzer	Plans to introduce several analytical instruments (cylindrical easy-to-use type with GPS capability) Implementation of soil survey for each lot of land – measures are being taken in phase, determined in accordance with classified results of survey by each of the farmland development association

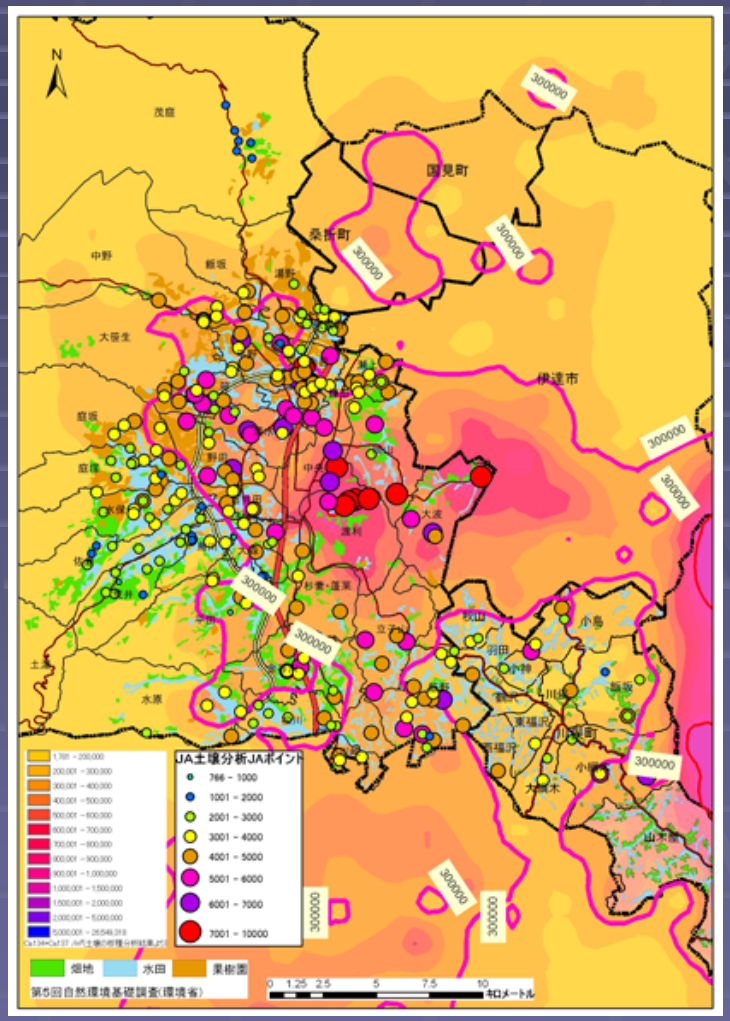
Analytic instrument (with GPS capability) by Atomtex

3. Decontamination of trees-Experiments and implementation (Decontamination Conference was founded)

A total of 50,000 people took part in decontamination of 2,408 hectares of harvesting land for perennial crops

Experimental decontamination by shaving off of tree bark

Experimental decontamination by a high pressure washer



Map of soil contamination within the business district of JA Shin Fukushima

For the restoration of New Fukushima

○ Decontamination and development of natural renewable energy by production

① Area where planting is restricted – Exploitation of 8,500 hectares of rice paddies and other farming fields

Paddy fields...production of natural renewal energy from wet-field rice

Farming fields…production of natural renewable energy from sunflowers, rape, corn, etc.

High yield and high quality products (alcohol, oil), crops and species with decontamination effect

Specimens are obtained from all over the world

② Target area for December — 500 Bq/kg (area of planting restriction?)
Area — 100 Bq/kg (isolated area)
*Isolation is possible due to testing of all bags of rice conducted by Fukushima Prefecture

③ Concurrent implementation of decontamination measures such as use of soil improvement additive etc.

④ Introducing a system for providing jobs and maintaining good-health for workers affected by the disaster engaged in the farming and forestry industries

○ Bases of natural renewable energy production — Iidate and Yamakiya are designated

① Alcohol production factory

② Oil production factory

③ Contaminated waste (rice straw, hulls, stems and leaves, pruned branches, stems and leaves from forests, etc.) Bases of waste disposal by special incinerator and production of natural renewal energy

④ Operation of factories — conducted by national, prefectural, and municipal governments, local businesses, National Federation of Agricultural Cooperative Associations, Tokyo Electric Power Company, etc.
Mainly implemented by Tokyo Electric Power Company, which should be held socially responsible and therefore make contribute to community
Heat energy generated from waste disposal process can be utilized as power source
Protected horticulture such as greenhouse cultivation

○ Creation of 10,000 Jobs

○ Laying out of road network — placing roads in radial convergence on a factory
the roads laid to have highway access

○ Establishment of a Center for Research and Development of Protection from Nuclear Power Disasters

① Research of crop species that do not cause contaminant transport

② Research and development of efficient machinery for production, cultivation, harvesting etc.

③ Research and development center for health, welfare, medical treatment, industry etc.

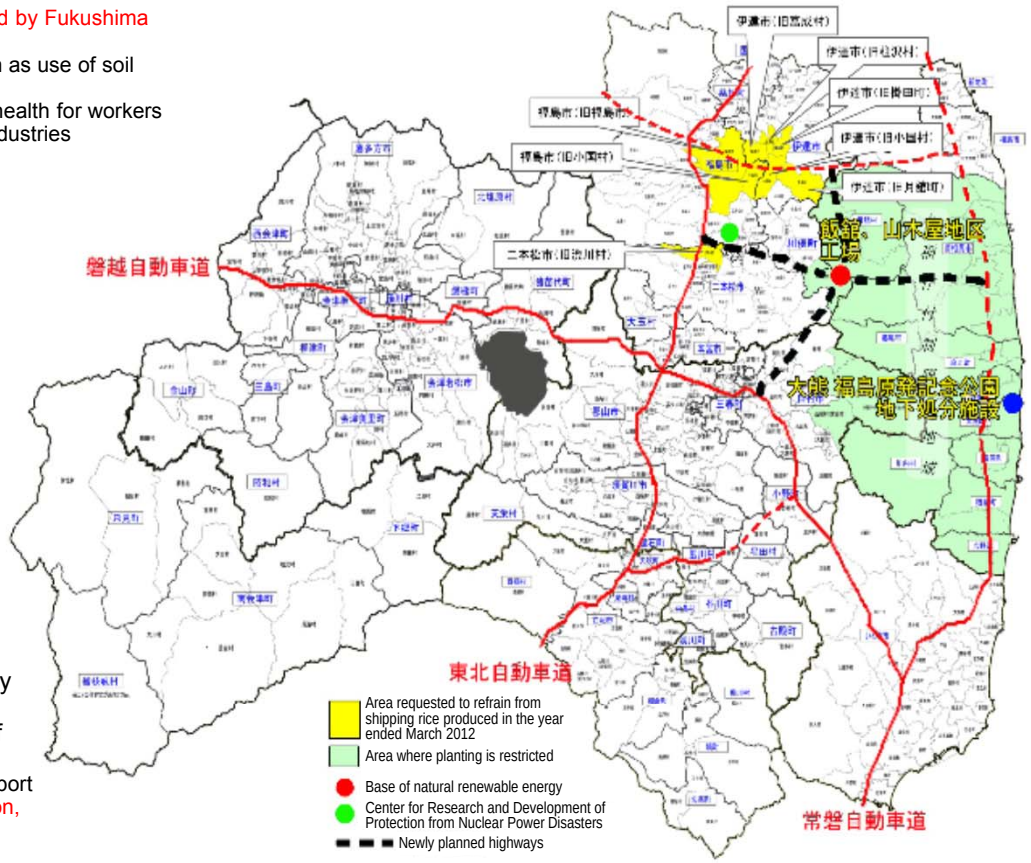
JA Shin Fukushima

→In the case of rice paddy
Setting up of decontamination facility in areas of water intake, cultivation and drainage

Cultivation area

minimization of expenditure/facility
(reduction of waste processing costs)

Prevention of marine contamination
Preparation of forestry roads – for forest conservation



Drawing up of the first (and second) 10-year plan for rebirth as a nation, and preparation of relevant laws