Recommendation
【Summary】

Emergency Recommendation Regarding the Systematic Inspection against Rumors on Foods and Farming Stemming from the Nuclear Disaster

September 6, 2011

Science Council of Japan

Committee on Supporting Reconstruction
after the Great East Japan Earthquake

Subcommittee on Supporting
Reconstruction of Fukushima

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The objective of this recommendation is to compile and publish the results of the deliberation between the Subcommittee on Supporting Reconstruction of Fukushima, Committee on Supporting Reconstruction after the Great East Japan Earthquake, and Science Council of Japan.

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Summary

1. Background of Preparation

As a result of the Great East Japan Earthquake on March 11, 2011, Fukushima Prefecture has suffered a triple distress, ranging from the radioactive contamination as a result of the accident at the Fukushima Daiichi Nuclear Power Plant of the Tokyo Electric Power Co., Inc. (hereinafter referred to as "Nuclear Accident"), in addition to the damages incurred by the tsunami and earthquake.

In response to the Nuclear Accident, as an emergency measure, the Health, Labor and Welfare Ministry set up the "Benchmark for intake restriction for food and drinks" specified on March 17, 2011, followed by the "New standard value of radioactive contamination for food and drinks" enforced from April 1,2012.

Now the inspection of foods for radioactive contamination is executed based on these new criteria and foods which exceed these criteria regarding contamination must be recalled, disposed, or restricted for distribution. The situation regarding radioactive contamination of foods has improved over time; there are hardly any occasions where foods exceeding the criteria of contamination are seen at this moment.

And also, according to the examination done through measuring the amount of radioactivity contained in the meals for one person of a standard home, the so called "absentee meal research", the results show that while there are a few cases of meals made in a Fukushima Prefecture household that contains a small amount cesium, the degree were that of the same level in natural radioactivity. As a result, the evaluation concluded that there is no harmful impact on health under the research conducted.

To some extent we can say that we can see the effects of the current criteria and the risk controls being established against the radioactive contamination of agricultural products and foods arising from the Nuclear Accident.

Even though the countermeasures for the security of foods against radioactive material have been put in place to a certain degree, the agricultural foods made in Fukushima Prefecture are still facing "rumors". This is because there are still some matters to be overcome, such as thorough radioactive contamination countermeasure at the production phase.

2. Present conditions and problems

Shortly after the Nuclear Accident, it was clear that the agricultural products were contaminated by radioactivity. This was the result of foliar absorption, where foliar of agricultural products directly absorbed the radioactivity from the atmosphere and there being large amounts of water-soluble radioactive materials. As time passed, during the fiscal year 2012, contamination through root absorption from the soil was the main cause of radioactivity. The level of radioactivity for many products were N.D. (Not Detected) or substantially smaller than that of early stages.

However, looking at the price change of seven of the major agricultural products from Fukushima Prefecture sold at the Tokyo Central Wholesale Market, their prices which were previously above the national average before the Nuclear Accident went below the average in 2012. In 2012, the shipment timing of agricultural

products made in the Kanto Area coincided with that of the products from Fukushima Prefecture due to low temperatures in the early spring season. That caused an oversupply of agricultural products and was one of the reasons for the price decline. But nevertheless, the substantial price decline of the agricultural products from the Fukushima Prefecture, including cucumbers which were usually traded at a higher price due to their high quality perhaps showed that there was a trend where consumers and wholesalers were avoiding agricultural products from Fukushima Prefecture. Despite the level of radioactivity being constantly under the standard criteria for cucumbers and other major produces from Fukushima Prefecture, some products including edible wild plants showed a level of radioactivity over the criteria causing decline in consumption for agricultural products from Fukushima Prefecture causing the "rumors" to expand.

If price slump due to "rumors" continues for a long time, the efforts and the resources of farm families will dry up. This may cause the deterioration of intangible assets such as a social community represented by the agricultural cooperative which supports the regional agricultural system in addition to damage on flow of sales of agricultural products. At a more practical level, the problem where farm families are considering to shutdown their agricultural business due to lack of incentive for agriculture is coming to the surface. In order to stop the declination of agricultural business in Fukushima Prefecture, fundamental countermeasures against "rumors" must be established.

3. Contents of the Proposal

In order to solve the "rumors" in Fukushima, the subcommittee proposes to structure a measurement system to inspect radioactive substances and soil components in each farmland so that consumers can confirm the safety of agricultural produce from Fukushima Prefecture and become more comfortable. In addition, the committee would like to point out that it is critical not only to properly apply the current law and regulations but also to develop new regulations to promote these policies.

(1) The Drive to an Organized Measurement System

To secure the comfort of the consumer, it is necessary to structure an organized and systematical process to inspect radioactive substances. We should enhance the safety and secure consumer confidence by putting more emphasis on not only the current inspection at the downstream before shipping to consumers, but also preventing radioactive substances at the upstream level where agricultural products are produced. In particular, hygiene control process such as HACCP to continuously monitor and record important points to prevent contamination of radioactive substances in each process from production to shipment of food is necessary.

This kind of inspection system should be composed of four steps.

① Step One: Development of detailed map of the radioactive substances dispersion in farm land and designing of farm land certification system

As a necessary measurement to raise crops, we should make an elaborate zoning based on a detailed map of the radioactive substances dispersion by each farm in the area where it is identified as high risk based on air

dose rate, crop inspection, and soil sample survey. By using information such as the radioactive substances dispersion map as the basis for data, it is necessary to establish a farm land certification system (similar to the local certification system based on ‘‘Guideline to indicate specially cultivated agricultural products’’) targeting to establish agriculture cultivation preventing contamination of radioactive substances at the production level.

② Step Two: Develop a database of contamination level and measures to suppress absorption

Based on the map made in step one, it is necessary to make a database of crop radioactive contamination level and develop measures to suppress such absorption by using the database.

③ Step Three: Connect screening inspection conducted by the local community/Japan Agricultural Cooperatives and monitoring inspection conducted by the central and prefectural government

Rice crops produced in Fukushima Prefecture have been going through a double inspection systems, one which is a full inspection conducted by the producer or consumer community checking all bags of rice crops, and another which is a monitoring inspection by the central or prefectural government checking on rice crop samples with high contamination levels. We should make an arrangement to apply this system to crops other than rice also.

④ Step Four: Offer an opportunity for consumers to measure radioactivity by themselves

In addition, we should offer an opportunity for consumers to measure radioactivity by themselves.

Chart: Steps to inspect food safety

First step	**Develop a map of radioactive substances dispersion in farm land and designing a farm land certification system**
Second step	**Develop a database of contamination level and measures to suppress absorption**
Third step	**Connect screening inspection conducted by the local community/Japan Agricultural Cooperatives and monitoring inspection conducted by the central and prefectural government**
Fourth step	**Offer an opportunity for consumers to measure radioactivity by themselves**

This string of workflow should be applied from production level to consumption level as a four step inspection system. It is expected that establishing and conducting this inspection system should require additional cost on both personnel and physical equipment. Therefore, we should analyze the cost effectiveness of such inspection system.

(2) Support to Organize the Inspection System

Important issues in order to establish inspection system described in (1) as a suggestion are as follows;

① Develop unified regulations on food inspection

Currently, responsibility of countermeasures are separately divided among various administration agencies where food standard is controlled under the Ministry of Food, Health and Welfare, decontamination under the Ministry of the Environment, investigation on contamination of radioactive substances in the soil under the Ministry of Agriculture, Forestry and Fisheries, development of a nationwide map on air dose rate under Nuclear Regulation Commission (or Nuclear Regulation Agency), promotion of restoration plans and decontamination programs under the Reconstruction Agency. It is necessary to develop a system in order to eliminate these separately divided administrative functions and assign the leading role to the Reconstruction Agency so that other authorities can follow its directions. In order to do so, new regulation regarding food inspection including investigation on radioactive contamination, inspection system, prevention on absorption, and promotion of decontamination must be put under the same umbrella.

② Develop a radioactive decontamination system by contamination level in order to achieve higher safety

We should transform the food inspection system from conducting at current shipment level to production level. In order to transform the system, it is necessary to analyze the big data obtained through inspection as soon as possible, and develop the system at production level (measures to prevent contamination based on farm field management, crop selection, and soil analysis). In addition, this system should be applied not only to Fukushima Prefecture but also to other areas confronting radioactive contamination issues. This should be the responsibility of the government and led under it.

③ Establish a comprehensive research center and organization to restore the nuclear disaster

It is necessary to develop an organization with a ‘‘comprehensive research center function’’ to share and create a database of technical information obtained from each local research center. Existing research centers located in affected area of the nuclear disaster is required to provide information and cooperate with various organizations. However, in order to deal with these requests, establishment of a new organization focusing on radioactive contamination is necessary. In particular, it is urgently required to establish and enhance the function of agricultural education / research organizations.

Each university, organization, and corporation should not only compete on technological development but also cooperate on restoration from the nuclear disaster by ‘‘centralizing information possessed by each related research center’’.

Although levels of radioactive substances due to the nuclear accident will decrease, it will never be completely eliminated to ‘‘zero’’. Therefore, attempts to achieve food safety and security needs to be conducted on a long-term basis.

It is also critical to implement risk communication in order to solve the ‘‘rumors’’ issue, in addition to developing inspection systems we proposed in the above paragraphs. It is also necessary to conduct literacy education on radioactivity, cooperate with the mass media, and deal with social media, etc, in the long term and in an integrated manner.

From the perspective of risk communication, it is important to ‘‘develop an inspection system to secure further safety and apply that beyond specific prefectures’’ as we mentioned in this proposal. An approach to implement this sort of strict inspection system will lead to a solution to the ‘‘rumors’’ issues related to the mindset of consumers and distributors.