

# **Emergency management applied after the Fukushima Dai-ichi nuclear power plant accident to radioactive contaminated milk: A comparison of an agricultural countermeasure for radioactive contaminated foodstuffs in the UK**

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## **1. INTRODUCTION**

Due to an accidental radioactive release from the Fukushima Dai-ichi nuclear power plant which was caused by the Tohoku earthquake and tsunami in March 2011, dairy farmers in Fukushima prefecture disposed of their produced milk for more than one month under the food restrictions. The Investigation Committee on the Accident at the Fukushima Nuclear Power Stations reported that food safety authorities in Japan had not recognized radionuclide as a food hazard before the incident at the Fukushima power plant and had not developed suitable management systems<sup>2</sup>. However, it is clear that radionuclide is now regarded as a food hazard in Japan, and developing food crisis management systems are desired. On the other hand, the UK began developing their food crisis management systems against nuclear accident after the Chernobyl accident in 1986. Therefore, the developmental process of the UK will be useful for Japan to construct our response and recovery strategies after this nuclear crisis. The aim of this research is to acquire information about the countermeasures used for contaminated milk among local participants of the milk producers' group and administrators of Fukushima prefecture during the emergency situation and reveal their challenges in implementing the countermeasures. Additionally, the research proposed some methodologies to overcome these challenges based on previous researches and the UK's experiences.

## **2. APPROACH**

An analytical sheet was developed based on the UK Recovery Handbook for Radiation Incident: Food Production Systems which introduces 20 agricultural countermeasures for radioactively contaminated milk. The analytical sheet included 14 countermeasures adopted from the handbook in order to compare the agricultural countermeasures for contaminated milk in Fukushima with the UK. The field work was carried out between July to December 2011 and interviews using the analytical sheet were conducted among dairy farmers, the milk producers group and administrators of Fukushima prefecture.

## **3. RESULTS AND DISCUSSION**

From the analytical sheet, 11 challenges to the countermeasures implemented in Fukushima were found. Challenges and issues included: delay of emergency responses, communication difficulties between organizations (e.g. the governmental office and the milk producer's group) during an emergency situation, etc., were written with their causes which were found from field work. In the discussion, three approaches to conquer the challenges and their factors in the view of food safety were considered. First, enhancing existing food safety programs especially risk management systems can be useful. Second, developing crisis management systems including emergency preparedness for nuclear emergency should be required. Finally, as the basis of constructing the systems for the first and second methods, it is strongly recommended to establish the stakeholder working groups for agriculture countermeasures against a nuclear accident similar to the UK's experiences.

## **4. SIGNIFICANCE OF THESIS**

This research revealed challenges of implementing countermeasures from field work promptly after the accident, which will be important to establish food safety crisis management systems for nuclear accidents based on experiences in Japan.

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<sup>2</sup> The Investigation Committee on the Accident at the Fukushima Nuclear Power Stations (2011) Interim Report, p. 312