**Assessment of averted doses for the verification of seafood distribution/consumption restrictions imposed after the FDNPP accident**

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Radionuclides released due to the Fukushima Daiichi Nuclear Power Plant accident in March 2011 were deposited from the atmosphere onto land and into the sea, contaminating agricultural and marine products in the areas affected by the accident. To reduce internal exposure from consuming contaminated food, the Government of Japan imposed restrictions of distribution and/or consumption of food. The standard limit for radiocesium concentration in general food for the imposition of restrictions was 500 Bq/kg from the accident to March 2012, and has been 100 Bq/kg from April 2012 to the present. The current standard was determined based on assumptions that the annual committed effective dose to a consumer group with the highest food intake is less than 1 mSv. This standard was introduced as a measure to ensure safety and security during the high social anxiety after the accident, and it was exceptionally strict in comparison with the standards in other countries and regions. This strict restriction may have contributed to overcome a great disruption at the time of the accident.

More than 14 years after the accident, radionuclide concentrations in food have decreased significantly, and fewer types of food exceed the standard. At the same time, a large number of costs are still required to maintain the restrictions and food monitoring, and to provide financial support to farmers and fishermen. As well as ensuring that radiation exposures are reduced by the restrictions, we should also pay attention to economic and social impacts caused by prolonged restrictions. Considering these facts, it is necessary to review whether the current standard set shortly after the accident was reasonable in terms of the radiation protection and of economic and social impacts. Therefore, this study aims to conduct assessments of current restrictions by the following three steps:

1. Assessments of averted doses due to the imposition of restrictions.

2. Evaluations of costs for the imposition of restrictions.

3. Assessment of the reasonableness of restrictions based on the above.

This presentation focuses on step 1. Previous studies of post-accident ingestion doses have revealed that even with conservative assumptions, the ingestion dose does not exceed the target annual additional dose of 1 mSv. This study assesses how much ingestion dose was reduced by the restrictions. It requires more realistic assessments that accurately reproduce the restrictions actually applied.

This study first focused on seafood, which has been most affected by restrictions in terms of the domestic distribution volume. The 95th percentile values of the annual committed effective doses to general Japanese adults were 19 µSv in the first year after the accident and 12 µSv in 1–3 years after the accident, respectively. In contrast, when assuming that restrictions were not imposed, 95th percentile doses were 25 µSv and 15 µSv, respectively, and averted doses by the imposition of restrictions were 5.5 µSv and 3.2 µSv, respectively.

We will focus on steps 2 and 3 as future work. This study will provide important information for optimizing radiological protection measures for ingestion doses.