

Current status of decontaminated soils and wastes and challenges for their sustainable management

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Seven years have passed since the Tokyo Electric Power Company Fukushima Daiichi nuclear power plant (FDNPP) accident in 2001. In order to recover the environment decontamination work for removing radio-Cs contaminated soil, particularly in the Fukushima prefecture, was carried out from 2012 to 2017. Decontamination of radioactive soil and waste has been finished except within the difficult-to-return zone and almost all soil and waste were moved to interim storage facilities. The amount of decontaminated soil and waste to be stored in the interim storage facility is approximately 14 million m³. By law, these materials must be disposed outside of Fukushima Prefecture by 2045.

However, the selection of final disposal sites is expected to be an difficult process. Therefore, to reduce the volume of decontaminated soil to be relocated to the final disposal site, the Ministry of Environment (MOE) has intended reusing low-level contaminated soil, ensuring environmental safety and applying volume reduction technologies, such as soil washing and incineration.

To comply with sustainable management of the decontaminated soil and waste, direct environmental aspects, such as management of human and ecological risks, need to be considered, as well as external environmental aspects, such as CO₂ emissions; “**Economic aspects**”, such as direct costs (estimated cost of decontamination and interim storage facilities are 5.0¹⁾-5.8²⁾ trillion yen, not including final disposal) and indirect cost; and “**Social aspects**”, such as stakeholder-wide consensus and procedural fairness³⁾. Given the time frame for disposal, it is necessary to involve the next generation as well as the current generation in this decision-making process.

This presentation will review the decontamination process from the time of the accident to the present, and discuss important factors on how to manage the removed soil and waste in the future from the perspective of sustainability, taking into account environmental, social, and economic aspects.

Reference

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- 2) Ministry of environment (2018), Current states of decontamination. https://www.env.go.jp/jishin/rmp/conf/law-jokyo06/lj06_mat02.pdf, in Japanese.
- 3) Yasutaka, T. (2019) Awareness and Issues surrounding Stakeholder Consensus for Limited Reuse and Final Disposal of Radiocesium-contaminated Soil, Material cycles and waste management research, 30(1), Pp.49-55. in Japanese.