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Environmental remediation and waste management following a nuclear accident

In the context of the French Steering Committee for the management of post-accidental situations (CODIRPA), IRSN studied environmental remediation strategies and waste management options following a major nuclear accident, in order to allow a sustainable living environment in affected zones.
The work consisted in (i) modeling a major accident impacting urbans territories, agricultural land, and forests (Figure 1), (ii) simulating several remediations strategies and (iii) estimating waste volumes, efficiency and workforce associated with the strategies, using tools developed by IRSN and based on feedbacks from Chernobyl and Fukushima accidents. It also capitalized knowledge on a typology of environments, which might require differentiated remediation approaches. Its main outcomes are to underline the impact of the choice of a remediation strategy on waste volume and nature, as well as to identify the main difficulties associated with waste management in the event of a major nuclear accident in France. Overall reflections on possible evolutions of the French waste management system are finally given. One of the main perspectives of the work is to include other factors, such as social acceptability, in order to lead multi-stakeholder and multi-criteria analysis to support decision-making.

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