

# International Conference on the Safety of Radioactive Waste Management, Decommissioning, Environmental Protection and Remediation: Ensuring Safety and Enabling Sustainability



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## Advancing the Integrated Management of Contaminated Sites: Frameworks and Tools

The importance of stakeholder participation, and the consideration of the broader social, environmental and economic sustainability aspects in decisions concerning decommissioning and environmental remediation (D&ER) is increasingly recognized. More encompassing and inclusive approaches to decision making are thus needed. While retaining a focus on safety, these should include also other elements of sustainability, eventually making use of innovative frameworks and tools.

The IAEA MAESTRI project (Management Systems Supporting Environmental Remediation Projects) aims at developing a structured decision framework that considers, in an integrated manner, the different dimensions and activities relevant to the proper management of sites contaminated by ongoing or past activities, or that hosted nuclear facilities. With the view of bringing these sites to sustainable end-states of beneficial use, MAESTRI will provide practical guidance for the integrated management of contaminated sites, including:

- considerations underlying decisions on D&ER (e.g. institutional, environmental, safety, technical, economic, social, ethical);
  - sustainability assessment of site management options (i.e. the social, economic and environmental aspects);
- and
- application of evaluation tools to support a transparent, consistent, comprehensive and inclusive decision-making process.

The project recognizes that participation of societal stakeholders should be an integral part of the site management process, leading to better decisions and enhanced human well-being.

A first step in MAESTRI was a review of frameworks, approaches and tools used in the decision-making processes related to environmental remediation. The aim was to identify the state-of-the-art and remaining gaps and articulate a series of proposals relevant to decision-making for D&ER projects.

Results show that social and ethical dimensions are underdeveloped in terms of clear frameworks and indicators that can be used in decision-support tools, partly due to the context-sensitive and complex operationalization of related aspects.

Furthermore, the sustainability frameworks developed for D&ER in non-nuclear fields, or for community development, provide insights and tools that should be applied to D&ER in the nuclear field.

Notwithstanding other contributions to the eventual decision, multi-criteria decision aid allows tackling the multidimensional nature of D&ER options in an effective way. Specifically, social multi-criteria evaluation is designed to support public policy processes where both quantitative evidence and qualitative data such as stakeholders' input, conclusions or evaluations, as well as scientific and expert advice, play important roles. It can integrate in a consistent way the various criteria (technical, social, environmental, economic), against which the D&ER options should be assessed and compared. However, clear and accessible guidance is needed on specific methodological aspects, as well as modalities for enhanced interaction with stakeholders.

MAESTRI also connects with circular economy principles. In the particular case of remediation, it implies re-thinking remediation from a limited perspective of harm reduction to one involving value creation, for instance by bringing land, to the extent possible, to recreational, industrial, agricultural, or nature conservation use.

Considering the path forward, MAESTRI holds a clear vision, stating that decision processes need to be more comprehensive and aligned with sustainability objectives. D&ER should be seen within the wider outreach

of environmental management, encompassing all the stages and dimensions relevant to this process.

**Primary author:** Ms TURCANU, Catrinel (Belgian Nuclear Research Centre SCK CEN)

**Co-authors:** Prof. MUNDA, Giuseppe (JRC-Ispra); Dr COLLIER, David (WhiteOx); Dr MÜLLER, Tim (KIT); Prof. OUGHTON, Deborah (NMBU); Dr ABELSHAUSEN, Bieke (VUB); Dr MONKEN-FERNANDES, Horst (IAEA)

**Presenter:** Ms TURCANU, Catrinel (Belgian Nuclear Research Centre SCK CEN)

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