HARPERS WP4.2C – GUIDELINES FOR COMPARING CIRCULAR AND LINEAR ECONOMY APPROACHES TO NUCLEAR DECOMMISSIONING

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The 3-year Euratom HARPERS (HARmonised PracticEs, Regulations and Standards in waste management and decommissioning) project aims to establish and clarify the benefits and added value of more aligned practices, methodologies and approaches to decommissioning and radioactive waste management between EC Member States. Building upon the outcomes of Phase 1 of the project, Subtask 4.2c "Sustainability Assessment" established a framework to compare linear with circular economy approaches to nuclear decommissioning (ND). The framework relies on Multi-Criteria Analysis (MCA) as an underlying methodology, as it compares different alternatives, considering several dimensions and including different stakeholders' views. To reach a consensus on the definition of "Circular Economy" in the context of ND, and to provide a list of indicators and criteria (I&C) for the MCA, a Delphi study was conducted. This is a method commonly used in social science, as it allows when researchers to gather expert opinions and facilitate interactions on a specific topic. The method builds on a structured, iterative process, in which experts are asked for their input on a specific topic or question, after which the received feedback is incorporated, and an adapted list of topics or questions is sent out for novel feedback and/or validation. Results of the Delphi were further discussed in a series of stakeholder workshops to ensure the inclusion of perspectives from several collectives. The outcomes of Subtask 4.2c included the establishment of a list of I&C grouped under five categories ("environmental", "economic", "technical", "health and safety" and "legislation") for a total of 29 I&C. These may serve as a starting basis for comparing linear and circular economy approaches to ND, as well as radioactive waste management. Although the use of the proposed I&C is not mandatory, and promoters for each MCA can determine the relevant ones for each case study, they are encouraged to justify the exclusion or inclusion of part of them to maximise transparency and accountability. In this respect, the lessons learned from a practical MCA carried out in France on waste management issues will be shared.

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