

Abstract submission form

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Abstract information

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Ensuring robust and successful composition and implementation of recovery countermeasure strategies

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Abstract

For the recovery of large land areas contaminated by a nuclear or radiological release event, justified and optimized countermeasure strategies should be composed in accordance with ICRP recommendations. This is a highly complex task, as it involves consideration of a great number of very different factors, each of which may positively and/or negatively affect the outcome. These factors go far beyond the radiological impact and direct countermeasure implementation costs, and for example encompass other health issues and environmental, social, legal and ethical concerns, which can not be readily quantified or compared. The impact of each of these aspects should in an optimized evaluation assessment be projected into the future to obtain as clear a picture as possible of the consequences. Such a projection would obviously be associated with many considerable uncertainties, and so it is prudent to establish countermeasure strategies that are reasonably robust towards variation, i.e. that are believed to be associated with little risk of things going wrong.

Multi Criteria Decision Analysis (MCDA) with stakeholder participation is an option that has been suggested to reach mutually acceptable and robust decisions for such situations, and is often perceived positively by participants in the process. This involves identification of a number of criteria for the assessment of the consequences of the different alternative options. On the background of consideration of the possible impact under each criterion, the options are scored on the criteria. Finally, a relative weighting of the importance of each criterion is assigned. Obviously the whole process of MCDA is highly sensitive to the values assigned to scores and weights, and with a multitude of aspects to consider could hide a strongly undesirable feature (an example will be given). In the CONFIDENCE project, an effort was therefore made to provide an overview of such features (examples will be given) for each countermeasure in the European recovery handbooks that might preclude MCDA based decisions. The idea is that this information be looked at together with MCDA weighted scores to ensure that potentially crucial aspects are not overlooked when making the decision.

It should be stressed that alone selecting a good countermeasure strategy is by no means guarantee for a good result. Experience has shown that the actual effect of some countermeasures is considerably more robust towards often minute case/site/time specific variations than that of others, and adequate in situ measurement strategies to guide the countermeasure implementation will often be paramount in obtaining the desired effect. In spite of the negative experience in this context from clean-up effort following the Chernobyl and Fukushima accident, there are still no official guidance documents or descriptions available that explain the value and possible methods to conduct measurements and sampling to ascertain a good effect. Examples are presented of related existing documents on measurement strategies, pinpointing what is missing.
