

## **Countermeasure strategies preparedness for emergency and recovery situations**

### **Challenge**

Defining countermeasure strategies is an important task in the response and recovery phase of a nuclear or radiological emergency, in particular the management of contaminated territories in the aftermath of such an event. In past Framework Programmes several European projects (FARMING, SAGE, EURANOS, NERIS TP, PREPARE) have addressed countermeasure management options including the multiple dimensions such as the radiological effectiveness, technical feasibility, stakeholder involvement and societal aspects. The accident in Fukushima highlighted however the need for further work in the area of emergency and recovery preparedness and response as regards the development of countermeasure strategies. Radiological and societal aspects that are difficult to describe are e.g. vulnerabilities and resilience capabilities of a territory that should be taken into account when developing management strategies. It is also important to define appropriate strategies at different levels ranging from local to the national and European level. Finally, the aspect of optimisation of management measures is often expressed in publications but so far not fully investigated in terms of realisation and implementation. In this perspective the challenge is to ensure that parameters governing the radiological consequences can be identified in time to enable optimised countermeasures and remediation. All these aspects require the further development of impact assessment capabilities such as adequate monitoring and modelling techniques, insight in the societal dimension of countermeasures and the improvement of the decision making processes for the selection of the “optimal” strategies.

### **Scope**

Proposals should focus on one or more of the following elements: 1/ the in-depth analyses of the implementation of management strategies in the emergency and/or recovery phase of the Fukushima nuclear event; 2/ the investigation of local differences and how they can be reflected in the countermeasure simulation models; 3/ the development of novel and adequate tools (including monitoring and modelling tools) for assisting countermeasure emergency and/or recovery strategies; 4/ the improvement of the decision making tools and/or processes.

To contribute to preparedness, there is a need to characterise and improve the adequacy of existing tools and decision making processes at the local and national level combining radiological, societal and cultural dimensions in the evaluation of the effectiveness of the countermeasure strategies. This should be accompanied by approaches allowing to effectively optimise management strategies once the basic strategy has been implemented. As preparedness is crucial in managing contaminated territories, it should be investigated to which extent approaches can be developed to identify vulnerabilities and resiliencies allowing tailoring appropriate management strategies in the preparedness phase and contributing to the development of sustainable approaches for the engagement of local stakeholders in emergency and recovery preparedness and response. Inputs from social sciences and humanities are required concerning the social, economic and ethical dimensions of vulnerability and resilience, including countermeasure strategies.

### **Expected Impact**

Improved management strategies in the aftermath of a nuclear or radiological emergency will surely strengthen the preparedness and response capabilities in Europe and beyond. Developing integrated approaches taking into account radiological, human, economic, ethical and societal aspects will

improve the decision making capacities of authorities and relevant stakeholders and contribute to improved preparedness for emergency and recovery situations. Important in this aspect is the integration of these approaches in existing widely used decision support systems in Europe. In addition, by contributing to the validation of models and tools, the developments will favour harmonization of emergency and recovery countermeasures across Europe and will largely contribute to the implementation of the Basic Safety Standards.

draft proposal