

Radiological Protection
2022

Building a Framework for Post-Nuclear Accident Recovery Preparedness

National-Level Guidance



NEA Workshop on Preparedness for Post Nuclear Accident Recovery

Setting the scene/EGRM report findings: Remediation and Decontamination

Anne Nisbet

Radiation recovery Lead
UK Health Security Agency

Content

1. What is remediation?
2. What is at stake?
3. Key elements of remediation preparedness

What is remediation?

Definition

- The process of reducing radiation exposure from contamination through **remedial actions*** to remove the contamination itself (decontamination) or to affect the exposure pathways

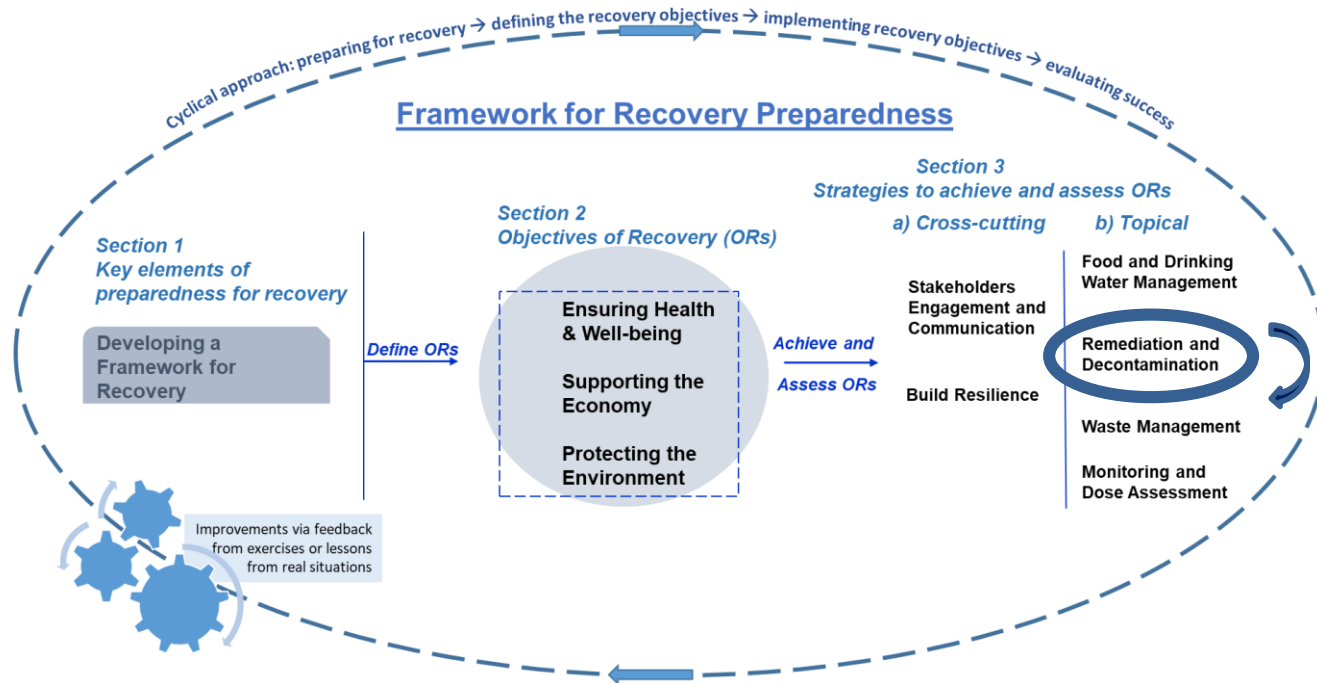
* A remedial action is the removal of a source or the reduction of its magnitude for the purposes of preventing or reducing exposures that might otherwise occur in an emergency exposure situation or in an existing exposure situation.

Remedial actions

Decontamination



Remediation & the framework for recovery preparedness



Remediation: what is at stake?

There are 3 “what is at stake” questions!

What is at stake ...

1. If you don't plan and prepare for remediation?
2. If you don't carry out remediation?
3. If you do carry out remediation?

What is at stake: if you DON'T prepare & plan for remediation?

- Human, technical and financial resources may not be available in time, resulting in reduced levels of protection and increased financial costs

What is at stake: if you DON'T remediate?

Harms/costs

- Contamination remains in the environment, giving rise to
 - External exposures
 - Inhalation of resuspended material
 - Ingestion of food/water
- Population may feel neglected
- Requirement for risk communication
- Requirement for long-term monitoring

Benefits

- Avoids stigmatising the area
- Avoids waste management issues

What is at stake: if you DO remediate?

Harms/costs

- Waste management
- Doses to implementers
- Cost of remedial actions
- *Potential disruption to lifestyle*
- *Potential disruption to food supply*
- *Potential for stigma*
- *Potential environmental harm*

Benefits

- Reduced exposures
- Public reassurance (land, food)
- Reinstatement of businesses & trade

Remediation preparedness will reduce negative impacts

Radiation protection principles

Remedial actions and strategy must be justified and optimised

Benefits

Dose reduction

Reassurance

Public confidence



Harms

Dose to implementers

Waste

Cost

Other environmental impacts

Disruption to economy, food supply & lifestyle

➤ Non-rad health impacts

Decision making for remediation

- Radionuclides & hazards
- Exposure pathways
- Soil type
- Land use
- Time of year
- Size of affected area
- Endpoints
- Feasibility of remedial actions
- Technical resources
- Financial resources
- Human resources
- Waste management routes
- Public acceptance

It's complicated and needs careful preparedness & planning

Key elements of Remediation Preparedness

1. Anticipate infrastructure and resource requirements
2. Establish a process to deliver remediation
3. Collect and compile relevant data and information

Risk-based, proportionate, flexible, scalable, open to lessons from previous events, inclusive, and co-ordinated

1. Anticipate infrastructure and resource requirements

Preparedness includes

- Identifying services, businesses & a procurement system
- Maintaining critical level of remediation expertise/ decontamination specialists
- Understanding surge capacity
- Engaging community and others to develop remediation plans

2. Establish process to deliver remediation:

1. Define situation
2. Assess impacts
3. Identify goals & actions
4. Evaluate options
5. Make decisions
6. Implement
7. Monitor and evaluate

Preparedness includes:

1. Develop monitoring and sampling programme
1. Procedure for sharing information
1. Database on designated sites (conservation)
2. Access to habit data, dose assessment models
2. Application of radiological criteria
2. Plans for assessing non-rad health impacts
3. Process to engage communities (goals)
3. Radiological risk & environ. activity concentrations
3. Access to information on remedial actions
4. Process to engage communities (local knowledge)
4. Access to decision aiding tools i.e. models (RODOS, ERMIN, WEST) & handbooks
4. Access to waste management plans

2. Establish process to deliver remediation:

1. Define situation
2. Assess impacts
3. Identify goals & actions
4. Evaluate options
5. Make decisions
6. Implement
7. Monitor and evaluate

Preparedness includes:

5. Process to engage communities
5. Presentation of information (risks & benefits)
5. Guidance on how to select endpoints
6. The 'who', 'what', 'when' and 'how'
6. Outline communication strategy on rationale
7. Long-term monitoring programme
7. Measurable milestones for remediation
7. Mechanisms for adapting strategies
7. Exit strategy

3. Collect relevant data and information

Preparedness includes

- Preparation of templates for compiling local information to prioritise remediation needs e.g.
 - Population
 - Businesses
 - Types of buildings
 - Critical infrastructure
 - Waste storage and disposal
 - Sensitive habitats
 - Food production
 - Drinking water sources
 - Existing sampling & measurement resources



Thank you for listening!

