



Ref. Ares (2020)2496502

A background image showing a magnifying glass held over a map of Europe. The magnifying glass is focused on a yellow area, possibly representing a specific region or data point. The map is in shades of blue and white.

# Radon Action Plans in European Member States and the UK Transposition, Accountability and Assessment

NORM X symposium & RICOMET conference, Utrecht, the Netherlands on May 9 – 13, 2022

**Robbe Geysmans SCK CEN**

*Meritxell Martell, Tanja Perko, Kateřina Rovenská, Ivana Fojtíková & Johan Paridaens*

## Governing radon through Radon Action Plans (RAPs)

“Exposure to radon gas can cause adverse health outcomes, including lung cancer” (WHO 2021)

- Radon’s adverse health effects require adequate governance
  - 2013 Basic Safety Standards (BSS) Directive as important European policy instrument
    - Extending radiation protection practices to contexts of radon, thoron and NORM
    - Focus on exposure of workers and members of the public to indoor radon
    - One of requirements for MS: establish **national radon action plans**

## Governing radon through Radon Action Plans (RAPs)

### Radon Action Plans:

Focus on addressing long-term risks from radon exposures in dwellings, buildings with public access and workplaces for any source of radon ingress, whether from soil, building materials or water

### To be considered:

- (1) Strategy for conducting surveys of indoor radon concentrations or soil gas concentrations
- (2) Approach, data and criteria used for the delineation of areas
- (3) Identification of types of workplaces and buildings with public access[...] where measurements are required
- (4) The basis for the establishment of reference levels for dwellings and workplaces
- (5) Assignment of responsibilities [...], coordination mechanisms and available resources for implementation of the action plan
- (6) Strategy for reducing radon exposure in dwellings
- (7) Strategies for facilitating post construction remedial action
- (8) Strategy, including methods and tools, for preventing radon ingress in new buildings
- (9) Schedules for reviews of the action plan.
- (10) Strategy for communication
- (11) Guidance on methods and tools for measurements and remedial measures
- (12) Where appropriate, provision of financial support for radon surveys and for remedial measures
- (13) Long-term goals in terms of reducing lung cancer risk attributable to radon exposure
- (14) Where appropriate, consideration of other related issues and corresponding programmes

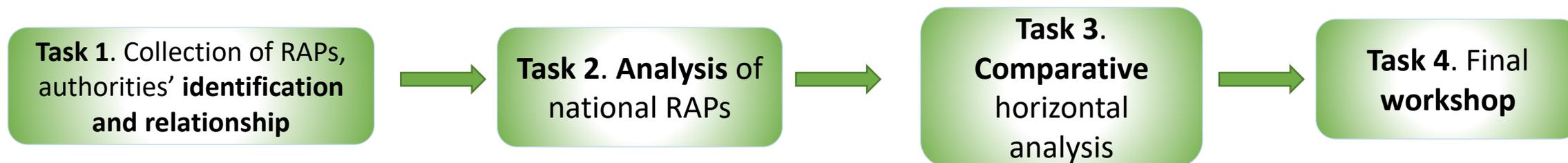
**→ (how) have Member States developed and implemented these elements in their national contexts?**

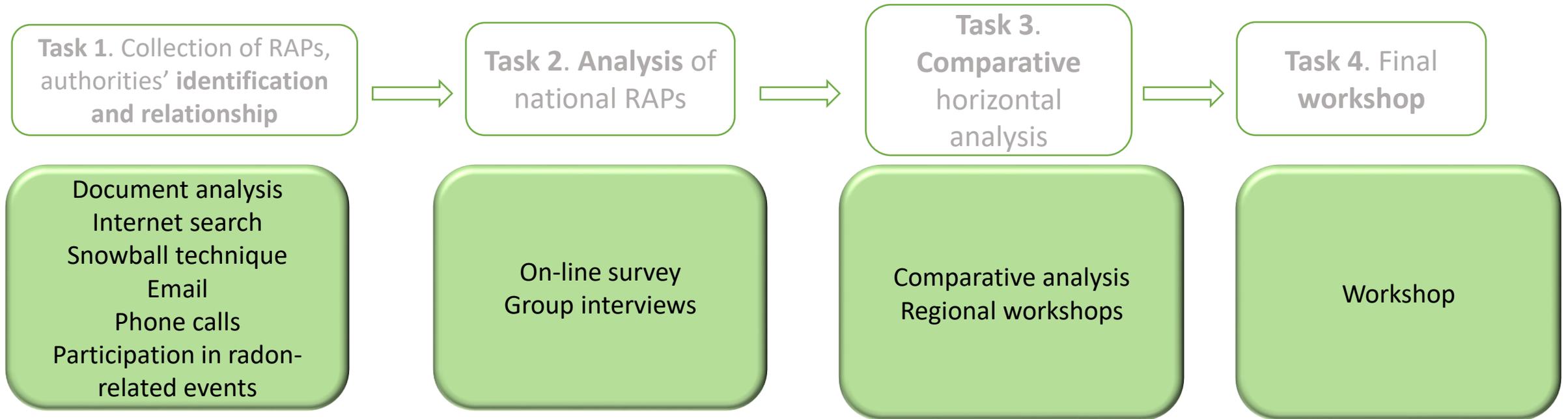
## Assessing the development and implementation of national RAPs

### Objectives:

- To collect, review and **assess national radon action plans** in all EU MS and the UK according to the requirements laid down in the BSS Directive with a particular **focus on the practical implementation** of the actions defined in these action plans
- To identify **good practices** to address radon related issues together with experts, regulators, local authorities and other stakeholders from EU MS and the UK

### Four complementary tasks:





**Key: Continuous feedback and interaction with (inter)national stakeholders and experts**

- Group interviews with individual countries
- Regional workshops
- Final Workshop
- Reference Group (with members from IAEA, HERCA, UNSCEAR, Lung Cancer Europe, ...)

Radon action plans (like any other program or project) require:

-Assignment of **responsibilities, roles** and relations of **cooperation**

-**Resources**

-**Review** of the plan and its objectives

BSS Directive ANNEX XVIII:

§5 Assignment of responsibilities [...], coordination mechanisms and available resources for implementation of the action plan

§9 Schedules for reviews of the action plan

§12 Provision of financial support for radon surveys and for remedial measures



**RQ: Whether and how responsibilities, coordination mechanisms, resources and review processes are incorporated and implemented in/through the radon action plans of EU Members States + the UK**



## Responsibilities and coordination (I)



Who 'owns' the RAP? Who has final responsibility?

- Nuclear safety authorities (e.g. in Belgium, France, Croatia, ...)
- Specific ministries (e.g. Ministry of Labour, Welfare and Social Insurance in Cyprus, Ministry of Social Affairs and Health in Finland, Ministry of Health in Italy)

In most countries, radon relates to activities/responsibilities of many institutional actors

→ Range of mechanisms for collaboration, e.g.:

- In small amount of countries (<5) no mechanism described in RAP
- Regular meeting with particular stakeholders (e.g. meeting with local employers in Belgium)
- Groups or committees, bringing together representatives from different ministries, radiation protection institutes/authorities, regional authorities, radon professionals, etc.

*Good practice: formalizing collaborations between ministries through signed agreements (cfr. Ireland)*

## Responsibilities and coordination (II)

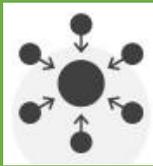
- Often missing in coordinating mechanisms: local actors → arguably key in radon governance
- Trans/inter-national coordination? → e.g. collaboration of Nordic countries
- Timing of collaboration: ad hoc or fixed moments?
- Importance of key department/person in coordinating RAP → potential benefits, but also adds to vulnerability
- Collaboration sometimes perceived as challenging due to
  - lack of resources
  - complexity of identifying/maintaining right contacts, dispersion of competences and expertise
  - shifting priorities (e.g. impact of COVID on authorities' agendas)





# Engagement with stakeholders in development and implementation of RAP

INCREASING IMPACT ON THE DECISION 

	<b>INFORM</b> 	<b>CONSULT</b> 	<b>INVOLVE</b> 	<b>COLLABORATE</b> 	<b>EMPOWER</b> 
<b>STRATEGY DEVELOPMENT</b>	<p>Most authorities provide stakeholders with information on the RAP</p> <p>e.g. Austria, Slovenia, Cyprus</p>	<p>Some countries consult and obtain stakeholder feedback on the RAP</p> <p>e.g. Hungary</p>	<p>A few countries work directly with stakeholders or partner with them (associations of professionals, experts, regions, provinces, etc) throughout the development of RAP.</p> <p>e.g. France, Italy, United Kingdom</p>	<p>EPA provides secretariat of an Inter-Agency Group to empower stakeholders for decision-making.</p> <p>e.g. Ireland</p>	
<b>IMPLEMENTATION</b>	<p>Many awareness raising activities</p>	<p>Development of measurement or remediation protocols with stakeholders</p> <p>e.g. Portugal</p>	<p>Some countries define in the RAP stakeholders responsible for implementation – mostly regional/local level (e.g. Spain).</p> <p>These higher levels of engagement will be necessary for an efficient implementation, as radon actions touch many different spheres of society.</p>		

- RAP human resources: depending on size of country and relevance of radon issue, ranging from 2 or 3 people, to 15+ (scattered across departments and organizations, often part-time)
- Most countries provide some form of financial support for radon testing and/or remediation:
  - Free radon testing (in radon prone areas)
  - % of remediation cost (e.g. Luxembourg)
  - Tax deductions (e.g. Finland)



## Resources (II)



- Budget allocated through national, regional or local authorities, sometimes in context of other programs (e.g. energy saving)
- Quite wide range in prices/costs: e.g. from 0 up to 100 euros for testing, or from rather low (1000-3000 euros) estimated remediation costs of dwellings, up to 7000-8000 euros
- Does financial support increase behavior change? Several countries are conducting studies on effectiveness (e.g. Germany)



- Review schedule?
  - mostly every 5 years, although some set shorter (e.g. Estonia – 2 years) or longer periods (e.g. Netherlands - 10 years)
  - First review(s) coming this/next year (e.g. Bulgaria)
  - Some add ‘when needed’ (but what is considered as need, and who signals this?)
- Who reviews?
  - often, the ‘owner’ of the RAP also acts as reviewer: benefits (in-depth knowledge) and drawbacks (sufficient distance?)
  - External review needed/desirable?

**(How) are responsibilities, coordination mechanisms, resources and review processes incorporated and implemented in/through the radon action plans of EU Members States + the UK?**

- Coordinating mechanisms mostly in place, but confronted with several challenges (e.g. resource and agenda prioritization, bottlenecks, timing)
- Engagement with stakeholders is key during the development of RAP for an efficient implementation
- Funding foreseen in context of RAP implementation, but mechanisms and costs vary
- Review mechanisms partly defined, but who decides?



Ref. Ares (2020)2496502

**sck cen**

Belgian Nuclear Research Centre

**merience**  
Strategic thinking

A large magnifying glass is positioned over a Euro coin. The coin is yellow and features the word "Radon" and the number "222" in a stylized font. The background of the slide is a light blue and white pattern of topographic lines and architectural elements.

# THANK YOU!

[rgeysman@sckcen.be](mailto:rgeysman@sckcen.be)

[meritxell.martell@merience.eu](mailto:meritxell.martell@merience.eu)

[tperko@sckcen.be](mailto:tperko@sckcen.be)

[katerina.rovenska@suro.cz](mailto:katerina.rovenska@suro.cz)

[ivana.fojtikova@suro.cz](mailto:ivana.fojtikova@suro.cz)

[johan.paridaens@sckcen.be](mailto:johan.paridaens@sckcen.be)

**Disclaimer:** This presentation has been produced by the consortium SCK-CEN/MERIENCE/SURO under a contract funded by the European Commission. The views, conclusions and positions contained therein are those of its authors and do not represent the views or the official position of the European Commission. The European Commission does not guarantee the accuracy of the data included in this report, nor does it accept responsibility for any use made thereof.

The EU-RAP study: "Review and evaluation of national radon action plans established in EU Member States according to the requirements in Council Directive 2013/59/Euratom –the BSS Directive – focusing on the practical implementation of the actions defined in these action plans" receives support by EC, DG Energy. Ref. Ares (2020)2496502