



An overview of the activities of the RADPAR (Radon Prevention and Remediation) Project.

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THE PARTNERSHIP



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12. Joint Research Centre (JRC), Italy





THE ADVISORY GROUP

i.e. The Collaborating Partners

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Background

- Radon is a major contributor to the ionizing radiation dose received by the general population
- Soil gas infiltration is recognized as the most important source of residential radon
- Epidemiological studies confirm that radon in homes increases the risk of lung cancer in the general population. The proportion of all lung cancers linked to radon is estimated to lie between 3% and 14%
- The majority of radon-induced lung cancers are caused by low and moderate radon concentrations rather than by high radon concentrations , because in general less people are exposed to high indoor radon concentrations

SOURCE: **WHO HANDBOOK ON INDOOR RADON, A PUBLIC HEALTH PERSPECTIVE (2009)**





Radon levels and Remediation in EU Countries



a/a	Country	Indoor Radon concentrations (Bq/m ³) (WHO, IAQ)	Action Level (Bq/m ³)	Est. number of dwellings exceeding the national Action level	Est. number of buildings already remediated
1	Austria	99	400	89 000 (2.4%)	25
2	Belgium	48	400	20 000 (0.39%)	< 1000
3	Czech Republic	140	400	76 440 (2.08%)	4000
4	Finland	120	400	59 000 (2.4%)	4500
5	France	89	300 (proposed)	> 1 000 000 (3%)	no data
6	Germany	49	100 (voluntary)	> 2 000 000 (5%)	no data
7	Greece	55	400	no data	no data
8	Ireland	89	200	91 000 (4.7%)	Low
9	Italy	70	none	902 000 (4.1%) (exceeding 200 Bq/m ³)	450
10	Norway	89	200 (recommended)	162 503 (7.15%)	no data
11	Portugal	62	400	2.6%	no data
12	Spain	90	none	4 % (exceeding 400 Bq/m ³)	no data
13	Switzerland	78	1000	50 000-100 000 (1.25-2.5%) (exceeding 400 Bq/m ³)	~ 500
14	United Kingdom	20	200	100 000 (0.43%)	15 000

Source: RADPAR
Deliverable 13.1





Aim of the RADPAR Project

The RADPAR project aims to assist in reducing the significant public health burden of radon related lung cancers in EU Member States (MS).





Project Specific Objectives

- Help improve the strategies that are currently in place and reduce the health burden from radon to the EU population;
- Develop radon risk communication strategies and approaches for different population target groups in the EU;
- Establish measurement procedures for radon control technologies and sources;
- Assess the cost-effectiveness of existing and potential radon prevention and remediation strategies in the EU;
- Design training courses for radon measurement, prevention, remediation, and cost effectiveness analysis;
- Assess the potential conflicts between energy conservation in buildings and radon exposure reduction.





RADPAR Master Questionnaire(MQ)



- A MQ was designed and distributed to a wide range of radiation protection authorities and other relevant bodies. Its purpose was to gather information on existing strategies and policies in EU MS;
- The MQ, which is a most important information gathering tool, has primarily been sent to relevant contact persons in all 27 EU MS;
- In order to compare EU approaches with international approaches to radon control, the MQ was also distributed to authorities outside of Europe;
- The IAEA collaboration also used the RADPAR MQ to gather radon information from a number of non EU countries.





Contents of the MQ

- Indoor Radon Surveys
- National Policies on Indoor Radon Control
- Radon Risk Communication Strategies
- Training and Education
- References, Contacts and Any Other Comments





RADPAR Website(1)

Creation of an EU Radon information web site at JRC linked to the DGSANCO Indoor Air Quality web site

that will include a database consisting of radon concentrations, health burden on population, existing standards and control policies

<http://web.jrc.ec.europa.eu/radpar/>





RADPAR website(2)



Radon Prevention and Remediation - RADPAR - European Commission - Mozilla Firefox

Αρχείο Επεξεργασία Προβολή Ιστορικό Σελιδοδείκτες Εργαλεία Βοήθεια

http://web.jrc.ec.europa.eu/radpar/index.cfm

Radon Prevention and Remediation - ...

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Radon Prevention and Remediation

Overview and Background

The general objective of this project is to assist in reducing the significant public health burden of radon related lung cancers in EU Member States (MS). The effectiveness of the various existing radon prevention and remediation strategies in the MS will be assessed with the objective of improving them. The assessment of potential conflicts between EU energy conservation objectives in buildings and radon control technologies will be an important objective of this project.

Existing radon control strategies in EU Member States will be critically reviewed. A model of sufficient flexibility to permit different Member States to evaluate the cost-effectiveness of a range of possible radon prevention and remediation strategies will be developed in the project. Radon risk communication strategies targeted at policy/decision makers, the general public and high risk groups such as people in high-radon areas, smokers and former smokers will also be developed.

By means of its deliverables it is expected that this project will heighten awareness both of the public and of decision makers of the health burden of radon in the EU and of the technical means available to control radon. An important aspect of this project will be the transfer of this information to new and accession Member States where radon control strategies are presently almost non-existent.

Previous studies on the response to dealing with the radon problem have shown the great complexity of the issue. Their findings suggest the need for a new and bigger effort to understand this subject. It is clear that only a joint European effort can provide the necessary experience and diversity of circumstances to provide an insight into this complex problem and in how to deal effectively with it.

Reserved Area

Username:

Password:

Latest documents

WHO Handbook on Indoor Radon (2009)

An overview of radon surveys in Europe

[more >](#)

Latest news

no news available!

[more >](#)

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Radon Prevention a...

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RADPAR Key Findings/Achievements(1)



- The identification of key points on the prevention and remediation policies on radon and the development of corresponding recommendations to improve such policies;
- In some MS coherent national radon control policies were well developed and long established while in others they were either non-existent or at a very embryonic stage;
- In many MS radon control policies were not very effective. The biggest problems facing the authorities were (1) to encourage the public to test their homes for radon and (2) to remediate their homes if the radon level was found to exceed the national radon . For future dwellings in the EU the situation was more promising;





RADPAR Key Findings/Achievements(2)



- Exhaustive state of the art on building protections against radon and their impact on the energy consumption;
- State of the art of new building characteristics and systems associated with an analysis on their impact on indoor radon exposure;
- Definition of the protocol for the characterisation of materials used on building protection (membranes, sealants);
- Establishment of measurement protocols for radon control technologies;
- Analysis of cost effectiveness and health benefits of radon control strategies.





RADPAR : Radon Awareness



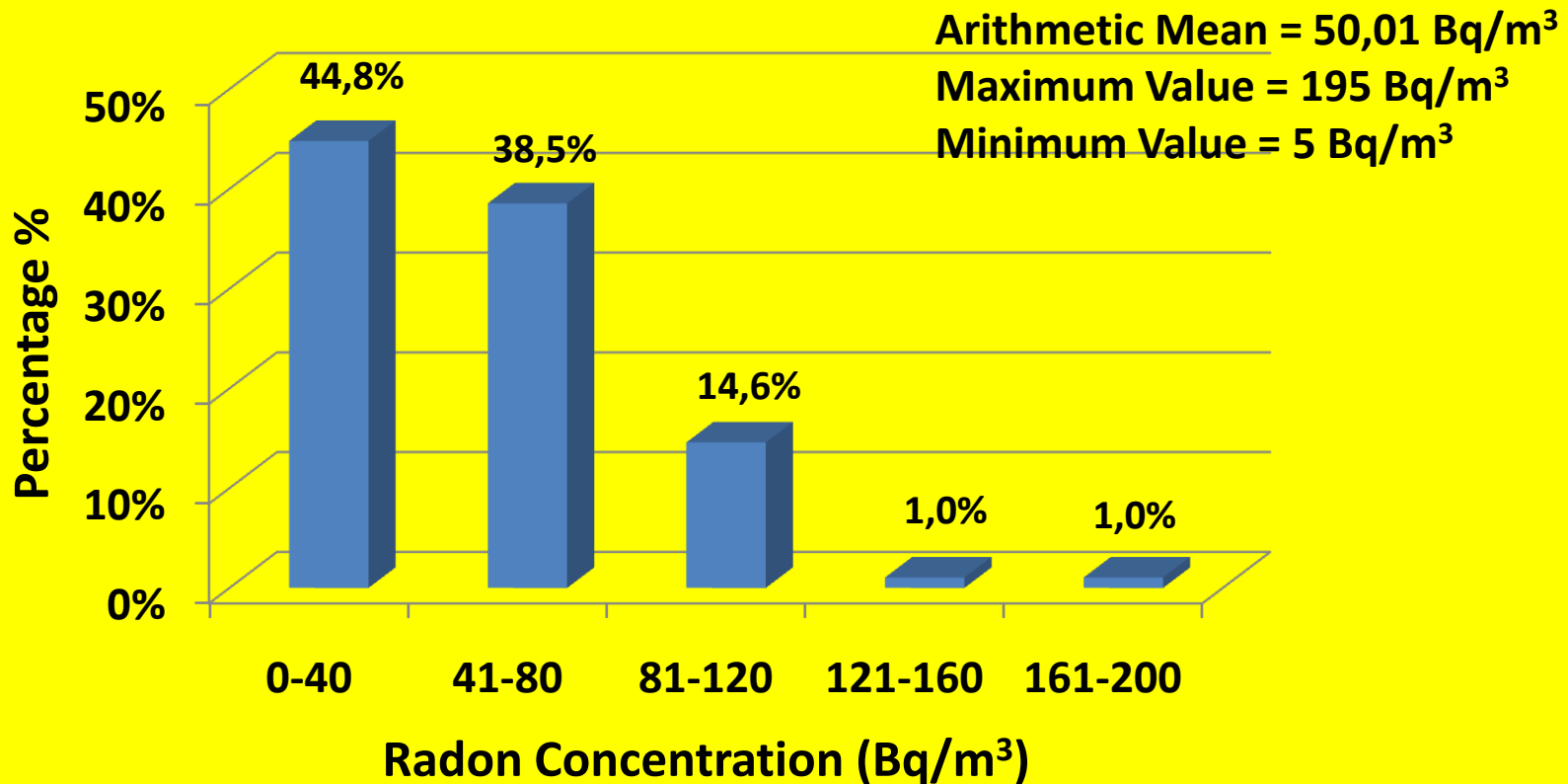
Country	National Survey Status	Mean Radon Bq/m ³	Risk Communication Campaigns	Linked to other Public Health Actions	Radon Awareness Surveys	Estimated Percent Aware of Radon and its Effects
Austria	C,PW	102	Y,GP	N	P	0-25%
Belgium	C,GE+GL	52	Y,GP,D,PG	N	Y,NA,R,M	0-25%
Bulgaria	P	--	P for GP,D,PG	--	N	--
Czech Rep	C, GE	118	Y, GP,D,PG	N	Y,NA	50-75%
Denmark	C,GE,PW	77	Y,GP,PG,NA,R,M	N	N	-----
Estonia	C,GE	102	Y,GP,D,M	N	Y,M	0-25%
Finland	C,PW	96	Y,GP,D,PG,NA,R,M	N	P	50-75%
France	C	90	Y,GP,D,PG,R	N	---	---
Germany	C,GE,GL,P W	50	Y,GP,D,PG,NA	N	IP	0-25%
Greece	IP,GE	80	Y,GP,PG,NA	N	Y,M	25-50 %
Hungary	IP,GE,GL	93	N	---	N	0-25%
Ireland	C, GE	89	Y, NA,R, GP,D	Y	Y, NA, R	75-100%
Lithuania	C,GL,PW	55	Y,GP,D,PG,NA,R,M	N	N	0-25%
Malta	P	---	N	---	N	---
Norway	C,GE,GL,P W	88	Y,GP,D,PG,NA	N	Y,NA	75-100%
Portugal	C,GE	62	IP,GP,R,M	N	N	0-25%
Spain	C,GE	82	Y,GP,D,PG,NA,R,M	N	P	0-25%
Switzerland	C,GE,GL,P W	75	Y,GP,D,PG,NA,R	N	Y,NA	25-50%
United Kingdom	C,R	21	Y,GP,D,PG,NA,M	Y	N	----





Radon School Measurements in Kozani, Greece within RADPAR

A radon measurement campaign was organized in the 56 public schools of Kozani. In October 2010 a total of 96 passive alpha track diffusion radon detectors (Gammadata type) were installed in these schools and remained there for almost 80 days. Measurement period: October 2010 – December 2010.





RADPAR Recommendations



Recommendations on:

1. Radon Policy and Strategy
2. Protocols for Indoor Radon Concentration Measurements
3. Improving Radon Risk Communication
4. Assessment of potential conflicts between energy conservation in buildings and radon exposure reduction
5. Establishment of measurement protocols for radon control technologies
6. Design of training courses for radon measurement, prevention, remediation
7. Analysis of cost effectiveness and health benefits of radon control strategies





Some Recommendations(1)



- A comprehensive strategy (developed with all stakeholders) has to be implemented and coordination with other related programs/activities (cigarette smoking, IAQ, energy saving) should be promoted.
- Unless it is shown to be not cost-effective, the installation of basic radon prevention measures in all new homes should be incorporated into the relevant building codes.
- For existing homes, the cost-effectiveness of radon remediation is strongly influenced by the average radon levels in the target areas, and by the reference level being used.
- Verification of preventive measure effectiveness should be done, by means of long-term (e.g. 1 year) radon concentration measurements, preferably 1–2 years after construction and when the building is normally occupied.





Some Recommendations(2)



- Surveys should be generally designed to be representative of population exposure, and checks of representativeness should be done on the actual sample included in the survey.
- Evaluations of radon distributions and maps should be based on representative data only.
- Radon-prone area can be a useful tool to optimize/prioritize the search for radon levels to be reduced.
- Protection from radon should not be restricted to Rn-prone areas only, especially if they contain a small fraction of the overall population.





Concluding Remarks

- Radon Prevention and Remediation is quite limited in the European scale
- There is a need to reduce the overall population risk as well as the individual risk for people living with high radon concentrations.
- It is clear that only a joint European effort can provide the necessary experience and diversity of circumstances to provide an insight into the complex radon problem and in how to deal effectively with it.
- By means of its deliverables and Recommendations it is expected that the RADPAR project will:
 - heighten awareness both of the public and of decision makers of the health burden of radon in the EU and of the technical means available to control radon.
 - transfer information to new and accession MS where radon control strategies are presently almost non-existent.





Thank you for your attention

