Radon: challenges, priorities, gaps the view of the stakeholder

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Welcome back !

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After hard times, Corona times

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Directive EURATOM BSS

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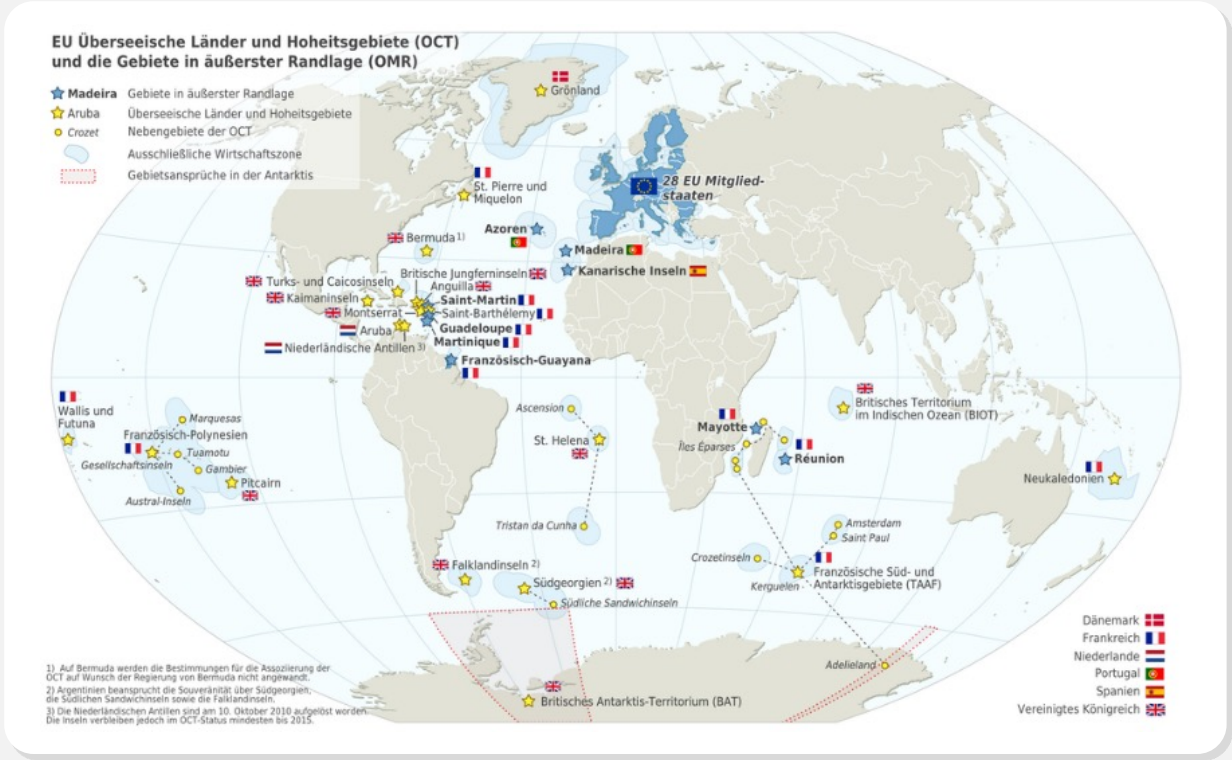
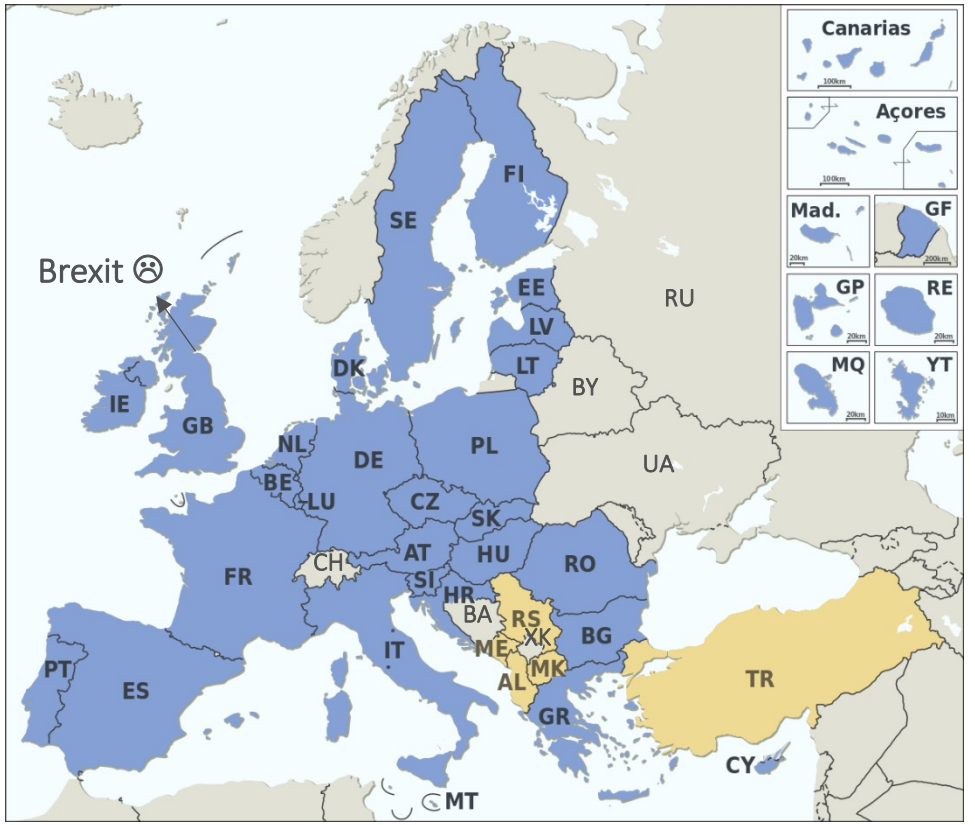
Euratom Basic Safety Standards: Implementation



EU:
4,5 mill. km², 511 mill. pop, GDP $15 \cdot 10^{12}$ €
Source: Eurostats 2017



Yellow: candidate countries
Source: https://de.wikipedia.org/wiki/Europäische_Union; modified

The new directive

Euratom Basic Safety Standards

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English edition — Legislation — Volume 57, 17 January 2014

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DIRECTIVES

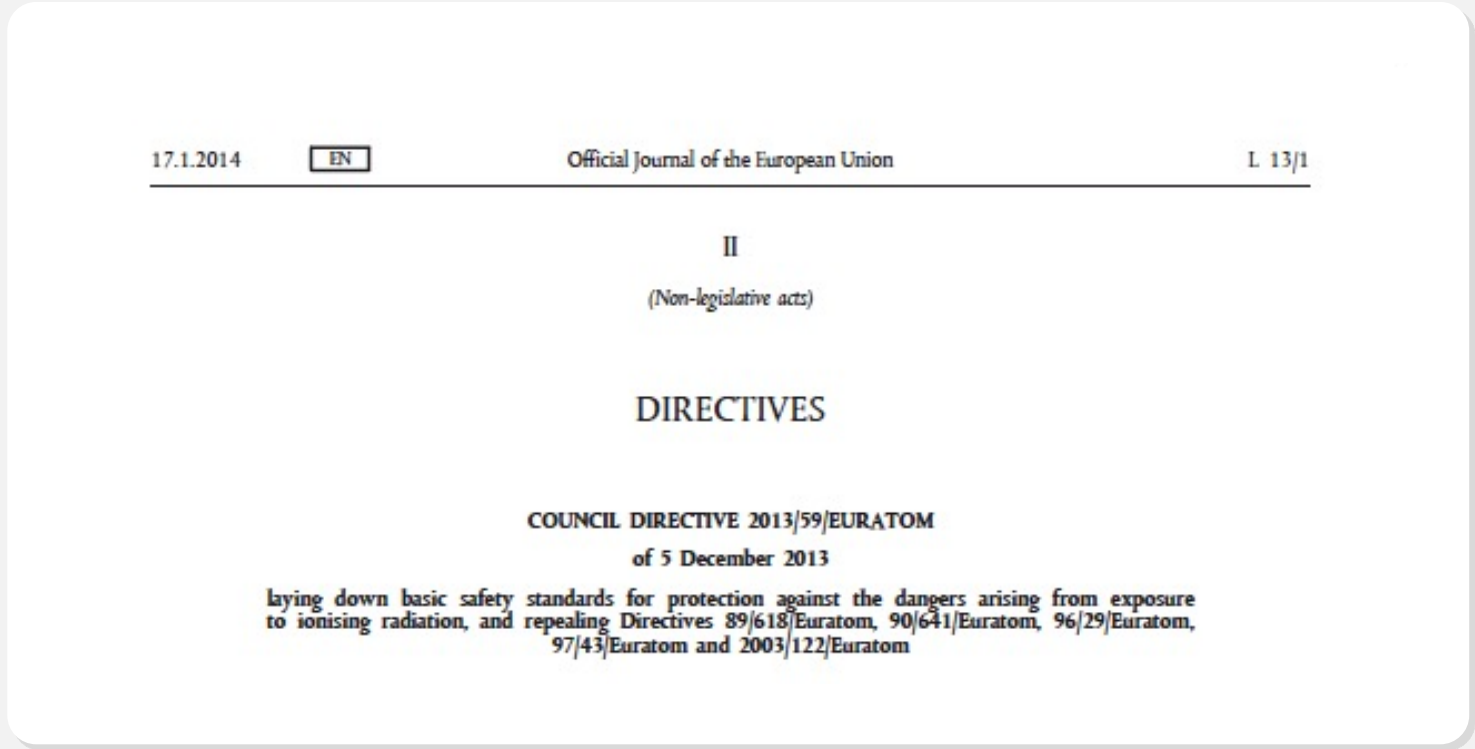
★ Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom 1

Price: EUR 4

EN

Acts whose titles are printed in light type are those relating to day-to-day management of agricultural matters, and are generally valid for a limited period.

The titles of all other acts are printed in bold type and preceded by an asterisk.



17.1.2014 EN Official Journal of the European Union L 13/1

II

(Non-legislative acts)

DIRECTIVES

COUNCIL DIRECTIVE 2013/59/EURATOM

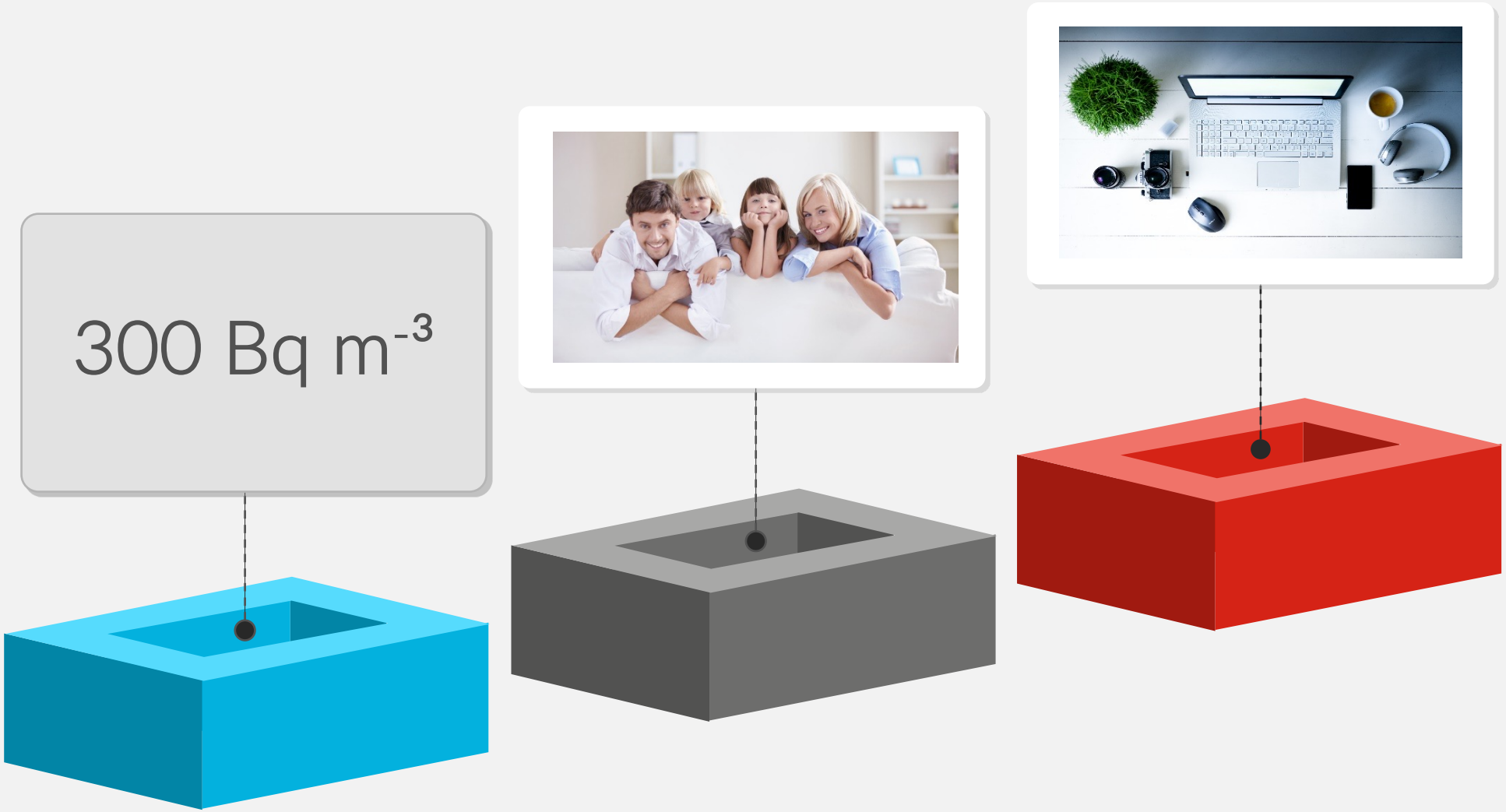
of 5 December 2013

laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom

The new directive

Euratom Basic Safety Standards

Better protection for public and workplaces



The new directive

Euratom Basic Safety Standards

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ANNEX XVIII

List of items to be considered in preparing the national action plan to address long-term risks from radon exposures as referred to in Articles 54, 74 and 103

(1) Strategy for conducting surveys of indoor radon concentrations or soil gas concentrations for the purpose of estimating the distribution of indoor radon concentrations, for the management of measurement data and for the establishment of other relevant parameters (such as soil and rock types, permeability and radium-226 content of rock or soil).

(2) Approach, data and criteria used for the delineation of areas or for the definition of other parameters that can be used as specific indicators of situations with potentially high exposure to radon.

(3) Identification of types of workplaces and buildings with public access, such as schools, underground workplaces, and those in certain areas, where measurements are required, on the basis of a risk assessment, considering for instance occupancy hours.

(4) The basis for the establishment of reference levels for dwellings and workplaces. If applicable, the basis for the establishment of different reference levels for different uses of buildings (dwellings, buildings with public access, workplaces) as well as for existing and for new buildings.

(5) Assignment of responsibilities (governmental and non-governmental), coordination mechanisms and available resources for implementation of the action plan.

(6) Strategy for reducing radon exposure in dwellings and for giving priority to addressing the situations identified under point 2.

(7) Strategies for facilitating post construction remedial action.

(8) Strategy, including methods and tools, for preventing radon ingress in new buildings, including identification of building materials with significant radon exhalation.

(9) Schedules for reviews of the action plan.

(10) Strategy for communication to increase public awareness and inform local decision makers, employers and employees of the risks of radon, including in relation to smoking.

(11) Guidance on methods and tools for measurements and remedial measures. Criteria for the accreditation of measurement and remediation services shall also be considered.

(12) Where appropriate, provision of financial support for radon surveys and for remedial measures, in particular for private dwellings with very high radon concentrations.

(13) Long-term goals in terms of reducing lung cancer risk attributable to radon exposure (for smokers and non-smokers).

(14) Where appropriate, consideration of other related issues and corresponding programmes such as programmes on energy saving and indoor air quality.

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- EU Directive 59/2013: 300 Bq m^{-3}
- Strong institutions – supervision – regulatory control: workplaces, rental apartments, public buildings
- Authorities need reliable and accredited measurement results: decisions that involve mitigations
- Some gaps

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Is the EURATOM BSS enough?

Gap 1: Dose

due to radon exposure

Page 5: *...Member States should ensure that these workplaces are notified and that, in cases where the exposure of workers is liable to exceed an effective dose of **6 mSv per year** ..., they are managed as a planned exposure situation*

Art 35 (2): *For **workplaces** specified in Article 54(3), and where the exposure of workers is liable to exceed an effective dose of 6 mSv per year*

Art 54 (3): *In areas within **workplaces**, where the radon concentration ... continues to exceed the national reference level, despite the action taken in accordance with the principle of optimisation as set out in Chapter III, Member States shall require this situation to be notified in accordance with Article 25(2) and Article 35(2) shall apply*

Dose

due to radon exposure

Dose Conversion Factors

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IACRS Overview on Managing Exposure to Radon

2020-08-28

The Inter-Agency Committee on Radiation Safety (IACRS) has issued an overview on Managing Exposure due to Radon at Home and at Work. Supporting this effort, ICRP and UNSCEAR prepared an Information Note for Participants at the IAEA Technical Meeting on the Implications of the New Dose Conversion Factors for Radon held 1-4 Oct 2019.

IACRS echoed the recommendation from the participants of the Technical Meeting to use the dose coefficient for radon from ICRP *Publication 137* as the default for workplaces unless a different factor is justified by specific aerosol characteristics. This is in line with ICRP recommendations. ICRP has also indicated that the dose coefficient for workers given in ICRP *Publication 137* will be applicable to exposures of members of the public in homes.

ICRP
137

GAP 2: Mitigation

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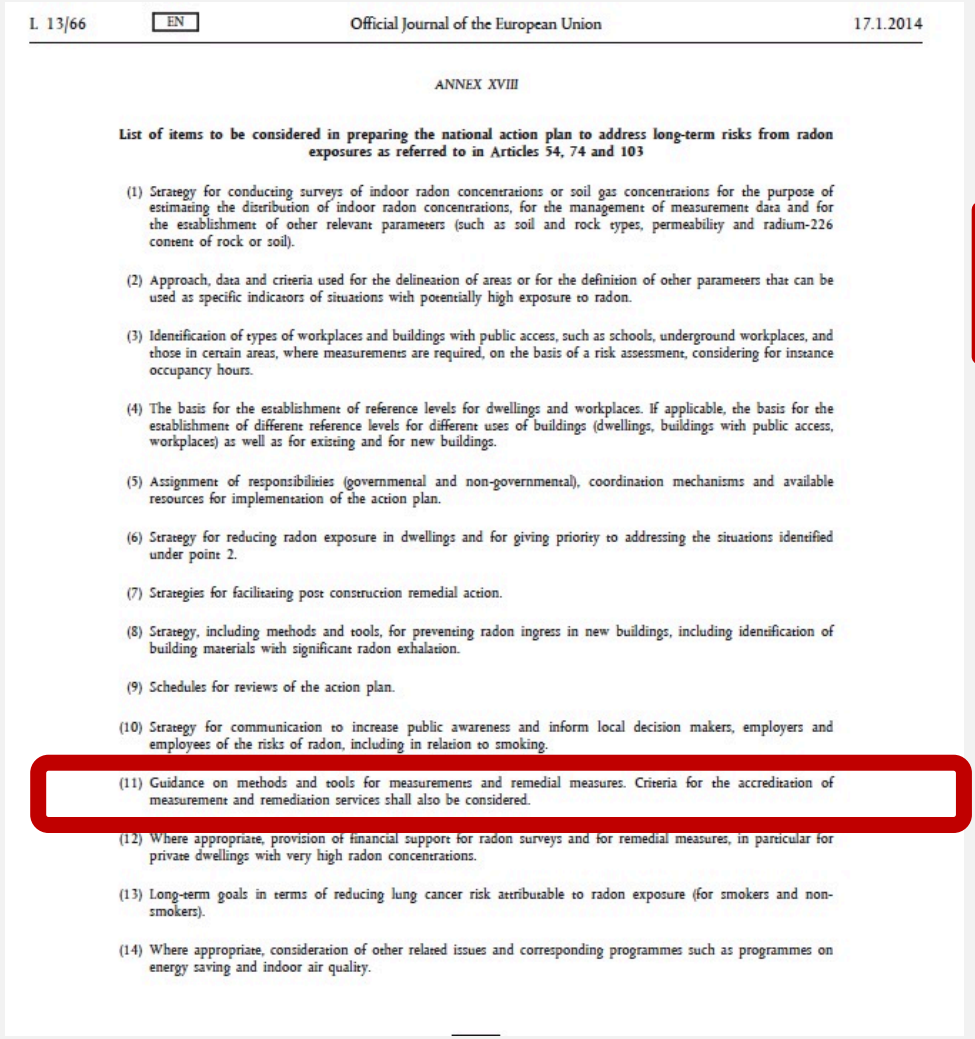

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MITIGATION STANDARDS

GAP 2: Mitigation

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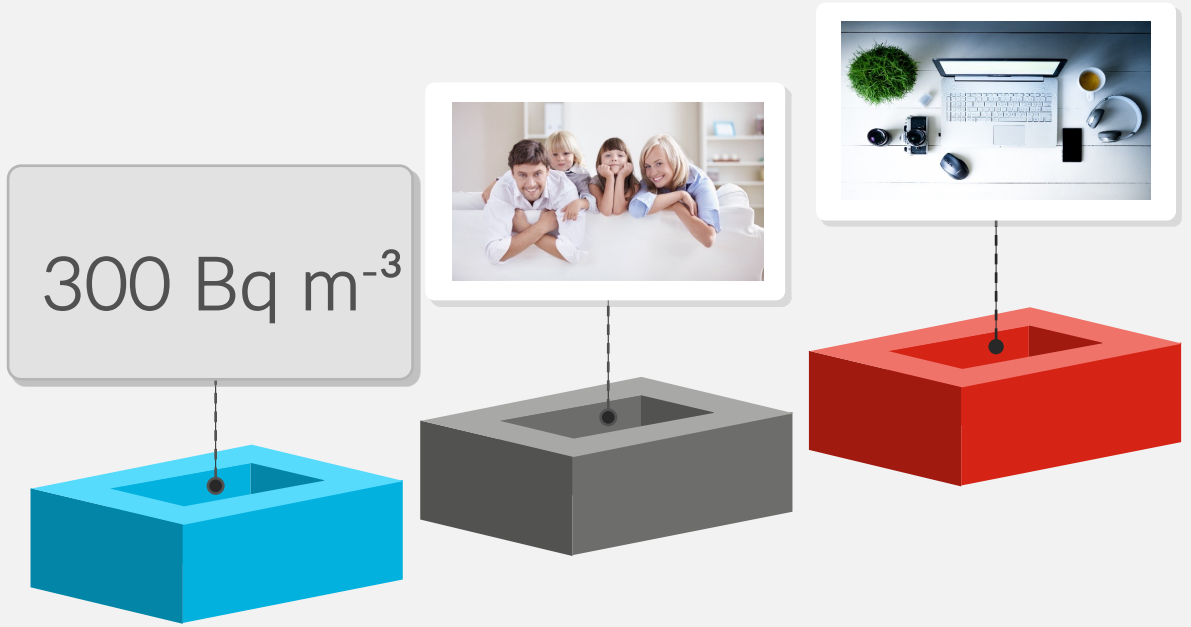
MEASUREMENTS ⟷ MITIGATIONS



GAP 3: Awareness

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By SiBr4 - Own work; background map from Blank political map Europe in 2006 WF.svg; national flags from SVG sovereign state flags, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=30352945

RADON AWARENESS

GAP 3: Awareness

Status of RAPs in EU Member States, the UK and Switzerland

As of 1 September 2021:

- RAP published (23): Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Luxembourg, Malta, Netherlands, Poland, Romania, Slovenia, Sweden, Switzerland, UK
- RAP under development/drafted (4): Italy, Portugal, Slovak Republic, Spain
- Not to be developed (2): Latvia, Lithuania

EU-RAP
Ref. Ares (2020)2496502

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.

From the presentation of Katerina Navatrilova Rovenska et al., RICOMET, 10/09/2021

GAP 4: Radon and covid

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GAP 4: Radon and covid

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International Experts Discuss: What can Radiation Protection Learn from the COVID-19 Pandemic?

Carley Willis, IAEA Office of Public Information and Communication

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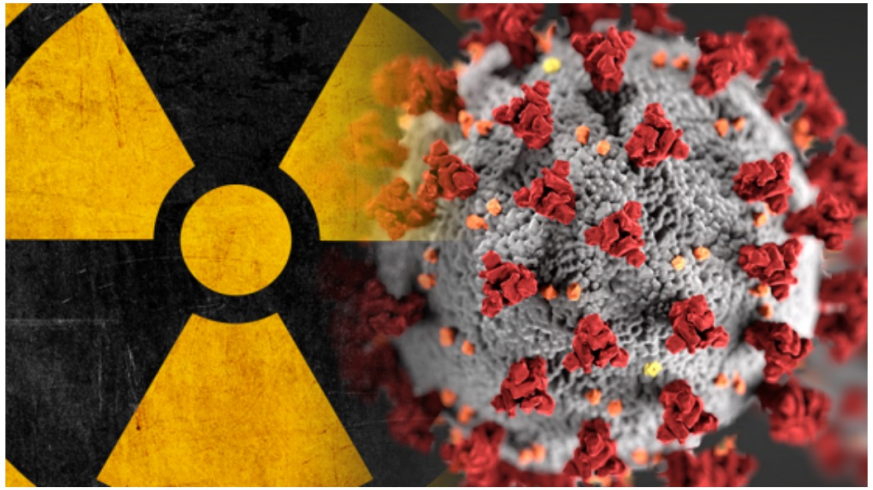
23
2020



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Regulators Use Innovative

IAEA International Conference on Radiation Safety , Nov 2020

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Calgary

U of C researchers look at home radon exposure before, during and after pandemic

Nearly 20,000 online surveys have been delivered so far, mostly in Alberta

Colleen Underwood · CBC News · Posted: Nov 13, 2020 3:23 PM MT | Last Updated: November 13, 2020

Dr. Aaron Goodarzi, assistant professor in the department of biochemistry and molecular biology at the University of Calgary, says cancer researchers are studying shifting radon exposure during the COVID-19 pandemic. (Weston Jacques/CBC)

GAP 4: Radon and covid

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EVICT RADON

Unpublished data provided by **Drs. Aaron Goodarzi and Cheryl Peters,** University of Calgary, September 2021. Contact A.Goodarzi@ucalgary.ca for details.

www.**evictradon**.org

Canada's national research study to
UNDERSTAND & ENGINEER OUT RADON

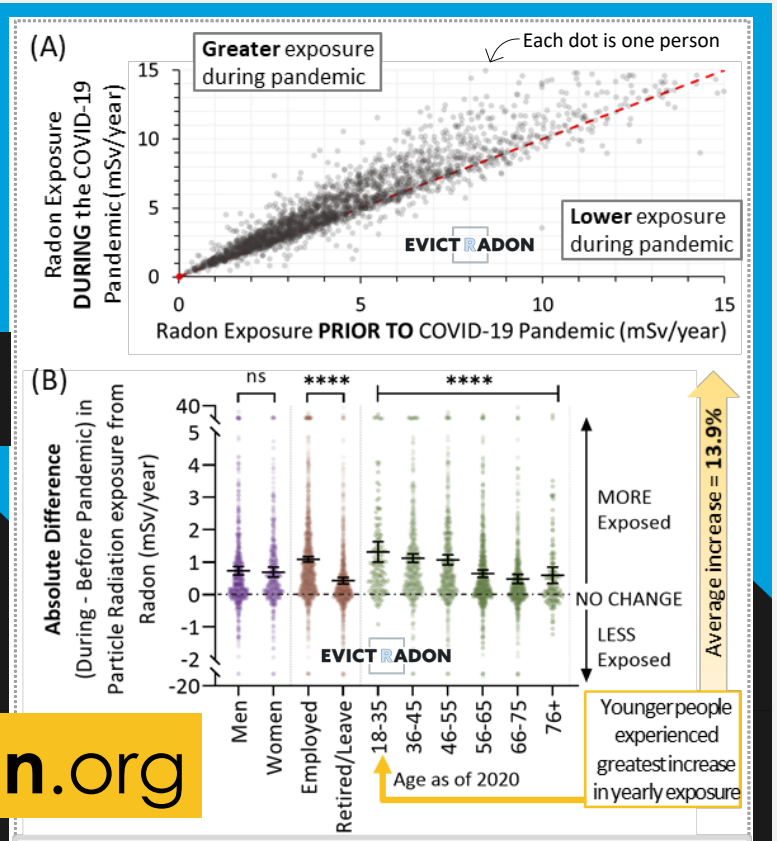

Figure: Canadian residential radon exposure increased during the COVID-19 pandemic. Panel A: Using residential occupancy data collected via the Evict Radon study (www.evictradon.org), annual doses of particle radiation to the lungs (milliSieverts (mSv)/year) were calculated for pre-March 2020 (before pandemic) and March-Nov 2020 (pandemic waves 1, 2). Panel B: The absolute difference in data from (A) were expressed for gender, occupational status and age demographics, as indicated.

GAP 4

EVICT RA

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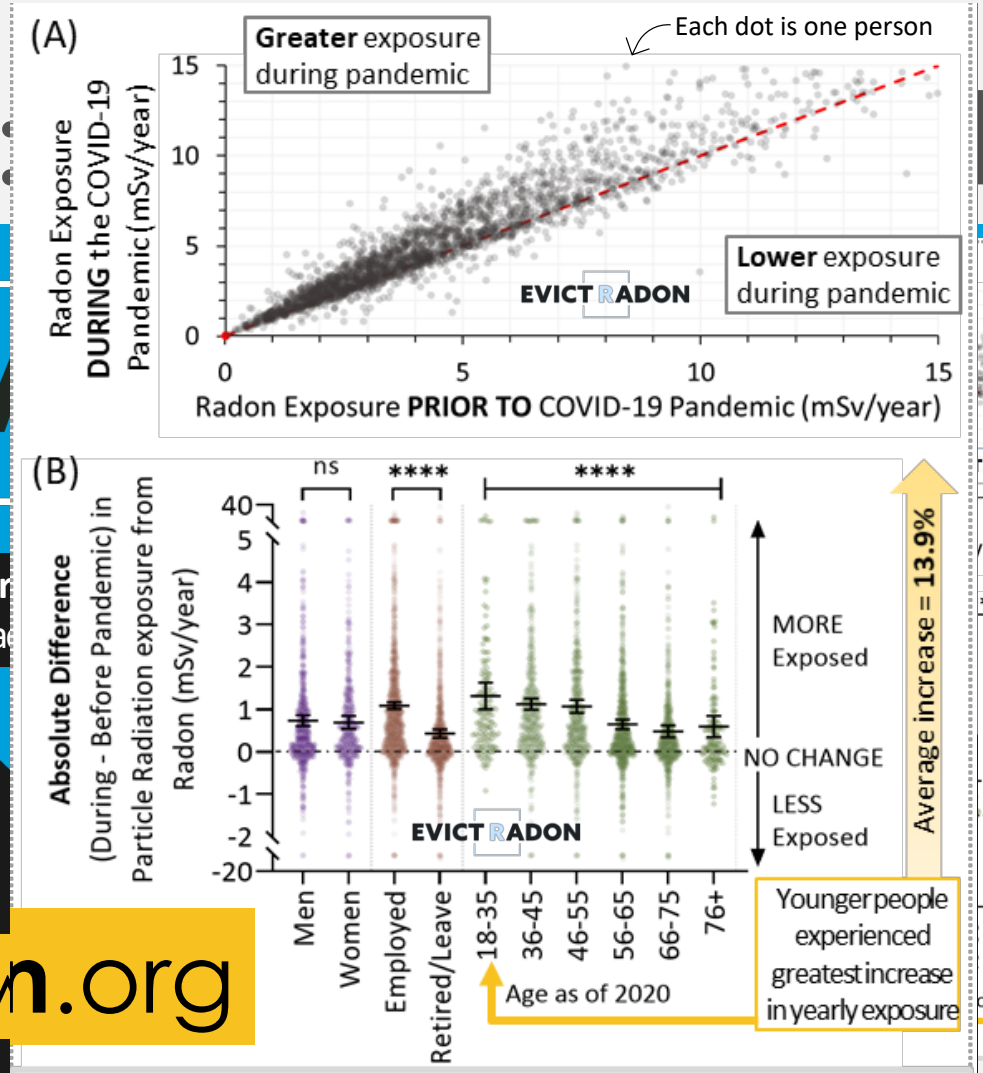

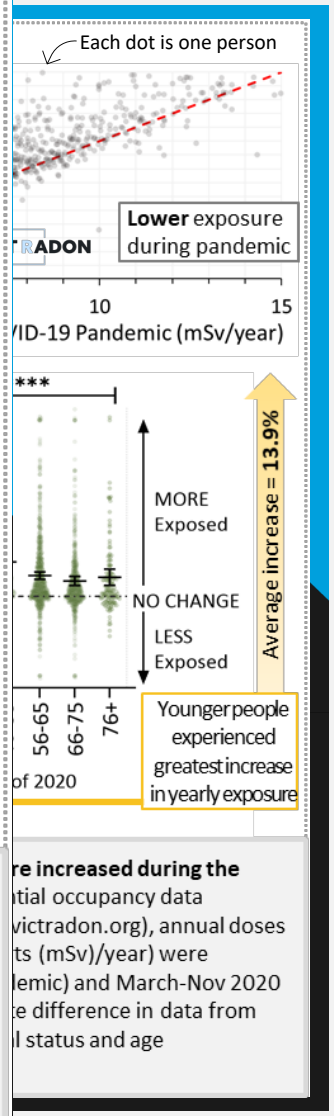

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Goal

TO REDUCE THE NUMBER OF LUNG CANCER CASES ATTRIBUTABLE TO RADON EXPOSURE

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Thank you very much

SCAN ME

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