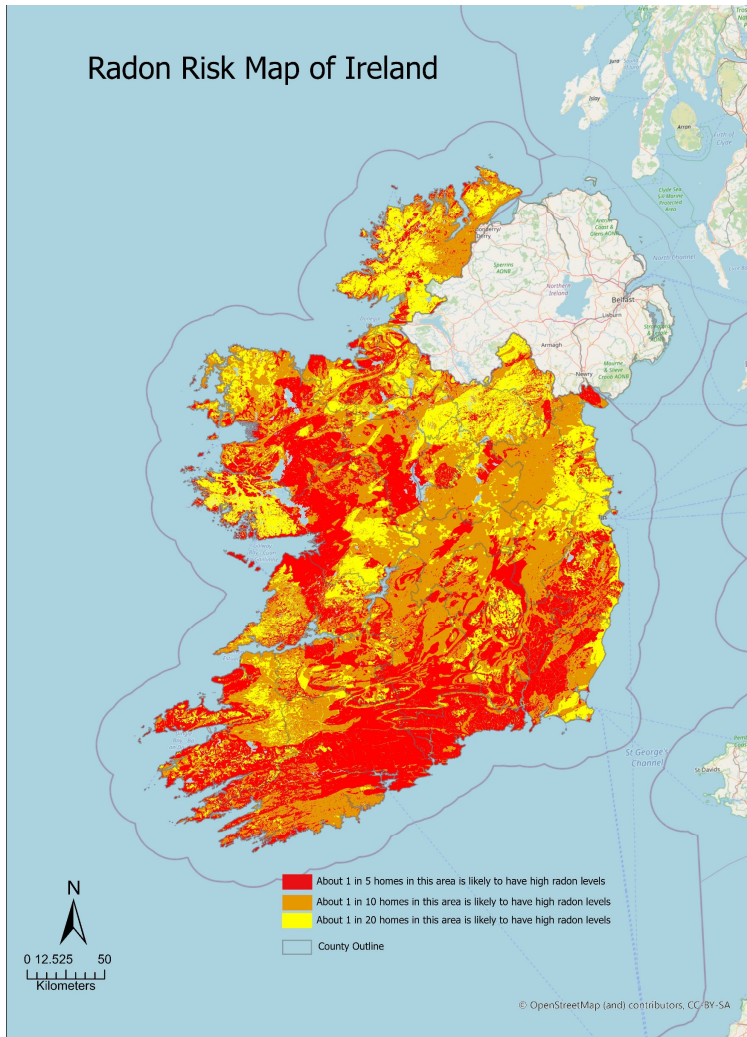


Looking Forward, EPA Radon Programme 2024

Andy Fanning
National Radon Forum
04 October 2023

New Map



Logistic regression model for detecting radon prone areas in Ireland

J. Elio^a, Q. Crowley^{a,b,1}, R. Scanlon^b, J. Hodgson^b, S. Long^c

^a Geology, School of Natural Sciences, Trinity College, Dublin 2, Ireland

^b Geological Survey Ireland, Ireland

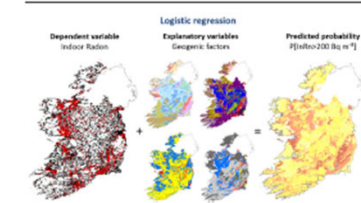
^c Environmental Protection Agency of Ireland, Ireland



HIGHLIGHTS

- A new high spatial resolution radon risk map of Ireland has been developed.
- Logistic regression models were evaluated for radon mapping.
- Indoor radon measurements and relevant geological information were used.
- Probabilities of having an indoor radon concentration above 200 Bq m^{-3} were predicted.
- About 10% of the total Irish population may be affected by high indoor radon levels.

GRAPHICAL ABSTRACT



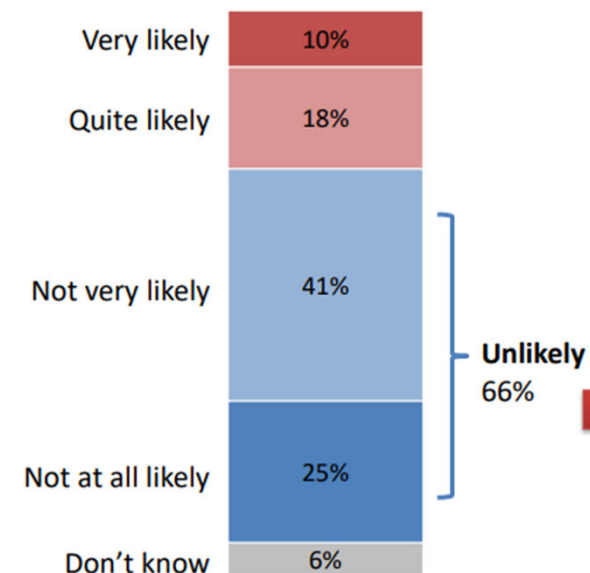
- Thanks to TCD, GSI, ESRI and EPA colleagues
- Implications :
 - 9% more High Radon Area in Ireland
 - Nearly Half a million citizens living in High Radon Area
 - Growing population in Ireland

Metrics: Are we making a difference?

Awareness and Activity Levels

Subset	Metric Value(s)	Year measured	Repeat frequency	Proposed year
Radon awareness levels	75%	2017	3-5 years	2020-2022
Likely to test their homes	21%	2017	3-5 years	2020-2022

- 8 out of 10 Irish adults (82%) have heard of radon BUT
- Only 1 in 4 (25%) are concerned about radon gas in their homes
- 28% Likely to Test
- Still Two thirds unlikely to test because they are thinking their home is 'unaffected by radon gas'



Metrics: Are we making a difference?

- First National Radon Survey was carried out during the 1990s estimated 7% of the housing stock > reference level and average radon concentrations of 89 Bq/m³.
- Second National Radon Survey - **Geographic** weighted national average radon concentration (2015) 77 Bq/m³ (13% reduction)
- Second National Radon Survey - **Population** weighted national average radon concentration (2015) 98 Bq/m³

Metrics: Are we making a difference?

National Average Indoor Radon Concentration

Metric	Metric Value(s)	Year measured	Repeat frequency	Proposed year
Population weighted	98 Bq/m ³	2017	8 years	2025
Geographic weighted	77 Bq/ m ³	2015	8 years	2023

Mean Concentration for Subsets of Geographic weighted National Average Radon Concentration

Subset	Metric Value(s)	Year measured	Repeat frequency	Proposed year
Mean for homes built pre-1998	86 Bq/m ³	2015	8 years	2023
Mean for homes built post-1998	64 Bq/m ³	2015	8 years	2023

- EPA plans to update Geographic Weighted Average via a National Survey in 2024

Metrics: Are we making a difference?

Complicated Bit!

Journal of Environmental Radioactivity 169-170 (2017) 1-8

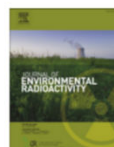


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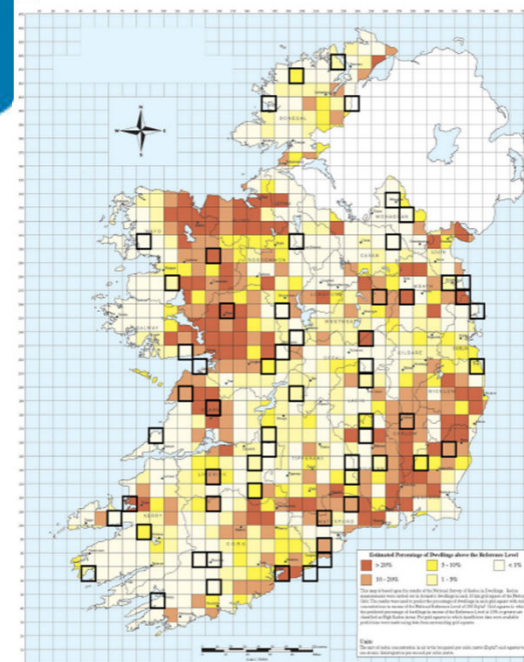
Update of Ireland's national average indoor radon concentration –
Application of a new survey protocol



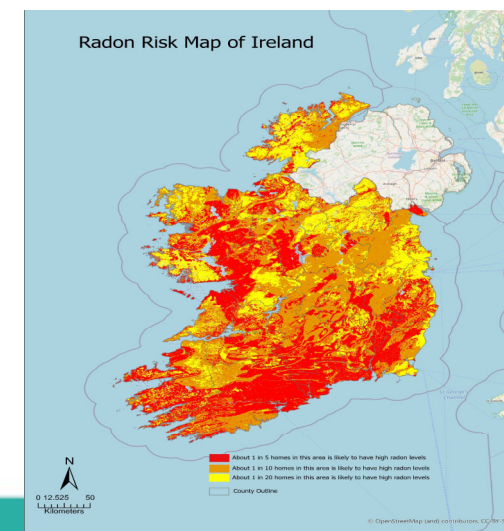
A. Dowdall ^{a,*}, P. Murphy ^b, D. Pollard ^a, D. Fenton ^a

^a Environmental Protection Agency, 3 Clonskeagh Square, Clonskeagh Road, Dublin 14, Ireland

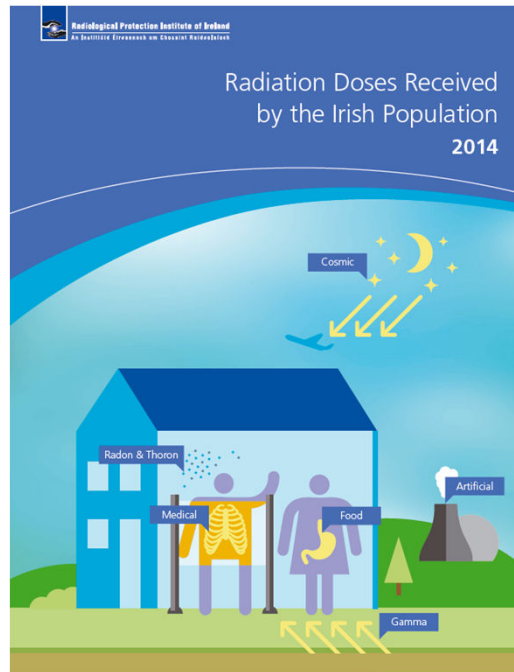
^b School of Mathematical Sciences, University College Dublin, Belfield, Dublin 4, Ireland



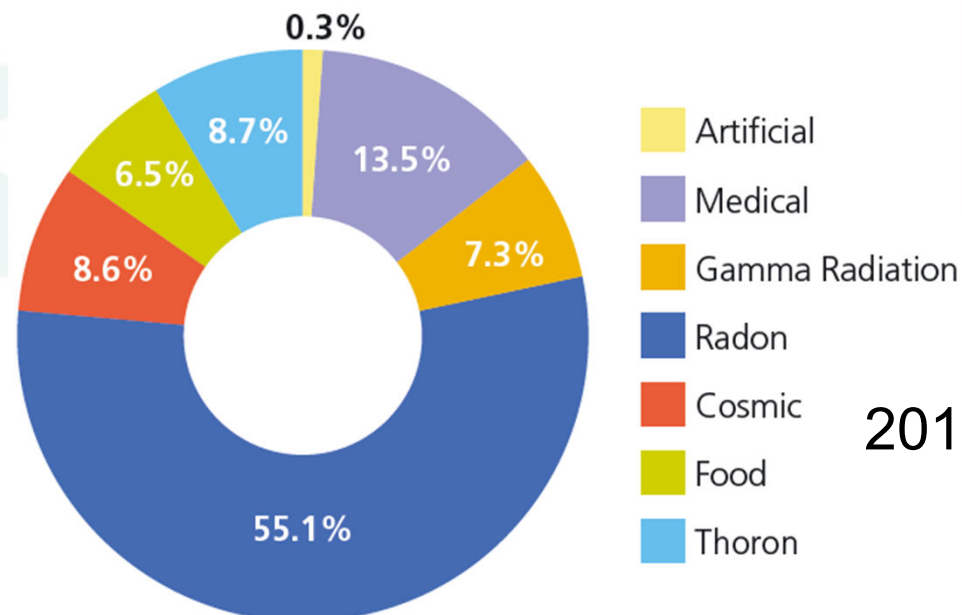
- 2024 Survey will need
 - to look to update the 2015 Survey: and
 - Reflect the work done to update the Radon Risk Map
- 2 surveys in 1



Radiation Dose to Irish Population



- EPA is preparing an update of the 2014 Radiation Doses Received by the Irish Population for publication.
- Based on work to date Radon remains the highest dose.



2014 Figures

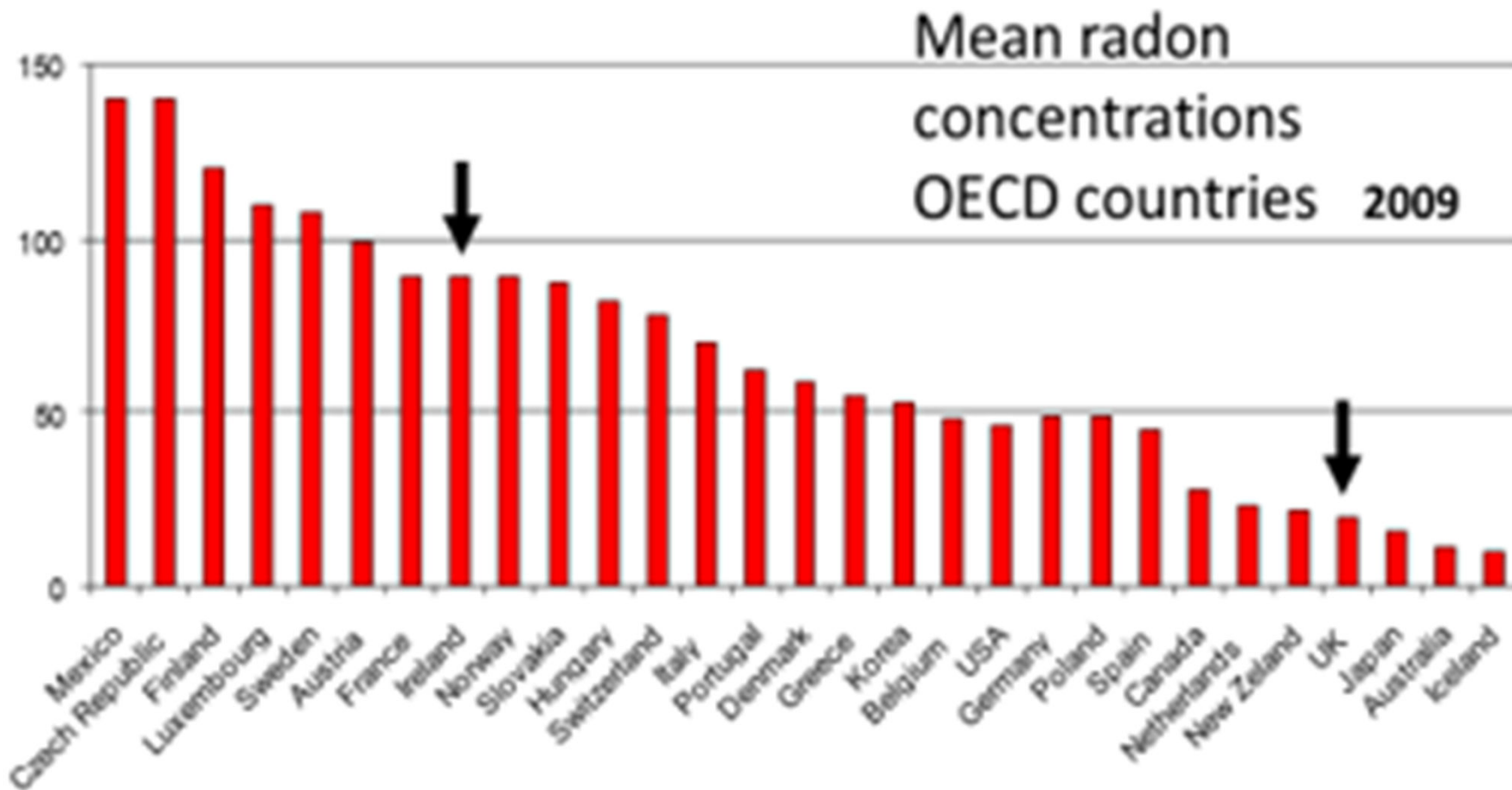
Other Actions

- **Review and Refresh engagement:** e.g. RTB, NSAI, SEAI, HSE, TUSLA, Radon Service Providers, Construction, Legal, Architectural stakeholders etc..
- Work like that launched today Healthy Ireland (Wx & C) & Library Services
- Continue to communicate, promote and seek action on Radon
- Support Department in the Development of Next Phase of Strategy
- Continue to support Radon Research (currently research being done on Deep Retrofits)

Last Slide 2022 and Last Slide 2023

- Impact of the maps and other actions is dependent on all of us in this room and all parties to the National Radon Control Strategy Coordination Group
- So, Please please please...
 - **engage with your own audiences,**
 - **circulate social media and**
 - **advocate for testing and remediation.**

Radon, Ireland and the International Context



Change

	Estimated no. of homes above reference level	Estimated population in homes above reference level
Pre-existing map	126,000	349,000
Updated map	170,000	470,000

Impact of the new Maps

- More people living and working in High Radon Areas
- Growing population = increasing population at high risk
- EPA will continually promote with all audiences
 - use of map “Much better functionality and resolution”.
 - testing for radon in all areas
 - for remediation where needed

Nationally and more locally (with a focus on change map)



epa

Environmental Protection Agency
An tAonlathas um Chaomhán Comhaltait