

AN INVENTORY OF TERRITORIAL APPROACHES FOR THE MANAGEMENT OF DOMESTIC RADON RISK IN FRANCE

Difficulties, key successes and first avenues

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CONTEXT OF THE STUDY

IRSN : Public institution for research and assessment of nuclear and radiological risks

- Provides assistance to public authorities in matters of protection of populations and environment, safety and security of nuclear facilities
- In the framework of its Openness to Society Strategy, more than a decade dedicated to development of local initiatives concerning radon risk management in private housing
 - **Co-pilot of 2 local multi-partner approaches for management of domestic radon risk in Bourgogne-Franche-Comté (East of France) and Haute-Vienne (Center)**



Relevant and innovative multi-partner projects to develop radon awareness, encourage radon measurement and implement remediation work with aim to include radon in **global approaches** like : Health& Indoor air quality, housing renovation & energy efficiency

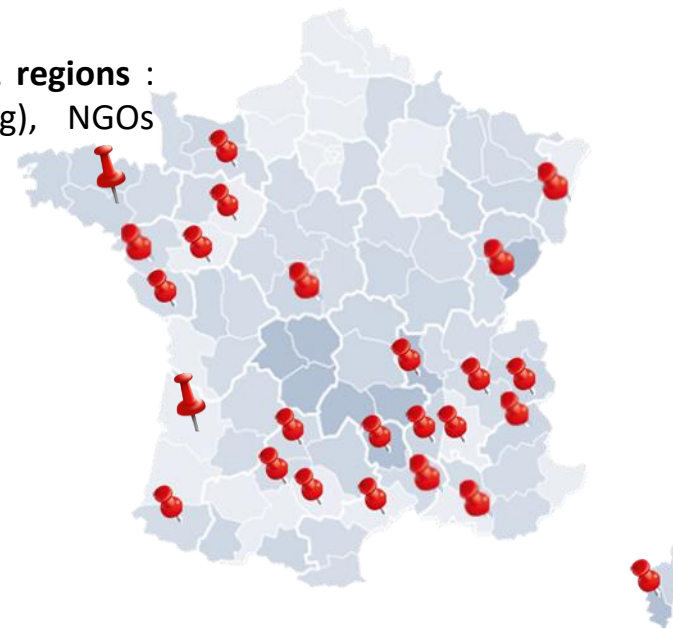


Despite these positive feedback, **recurring issue: Difficulty for inhabitants to go beyond the measurement step**

Necessity to obtain a global view of the territorial approaches carried out in France to identify difficulties and key successes

INVENTORY: METHODOLOGY AND TERRITORIES INVOLVED (1/2)

- Investigation to collect contacts: articles from regional daily press, website of regional public bodies (health, environment & housing), websites of communities located in prone areas...
- More than **30 interviews** with a **wide range of stakeholders** from **11 regions** : regional/territorial public bodies (health, environment & building), NGOs (environmental health, consumer association), communities
- Semi-directive framework (discussions voluntarily open):
 - The **approach undertaken** by the territories
 - The **partners** involved
 - The **funding** mechanisms
 - The **risk perception** of inhabitants and their level of involvement
 - **Key successes**
 - **Difficulties** encountered
 - **Ways forward**



Territorial framework approach generally adopted in France

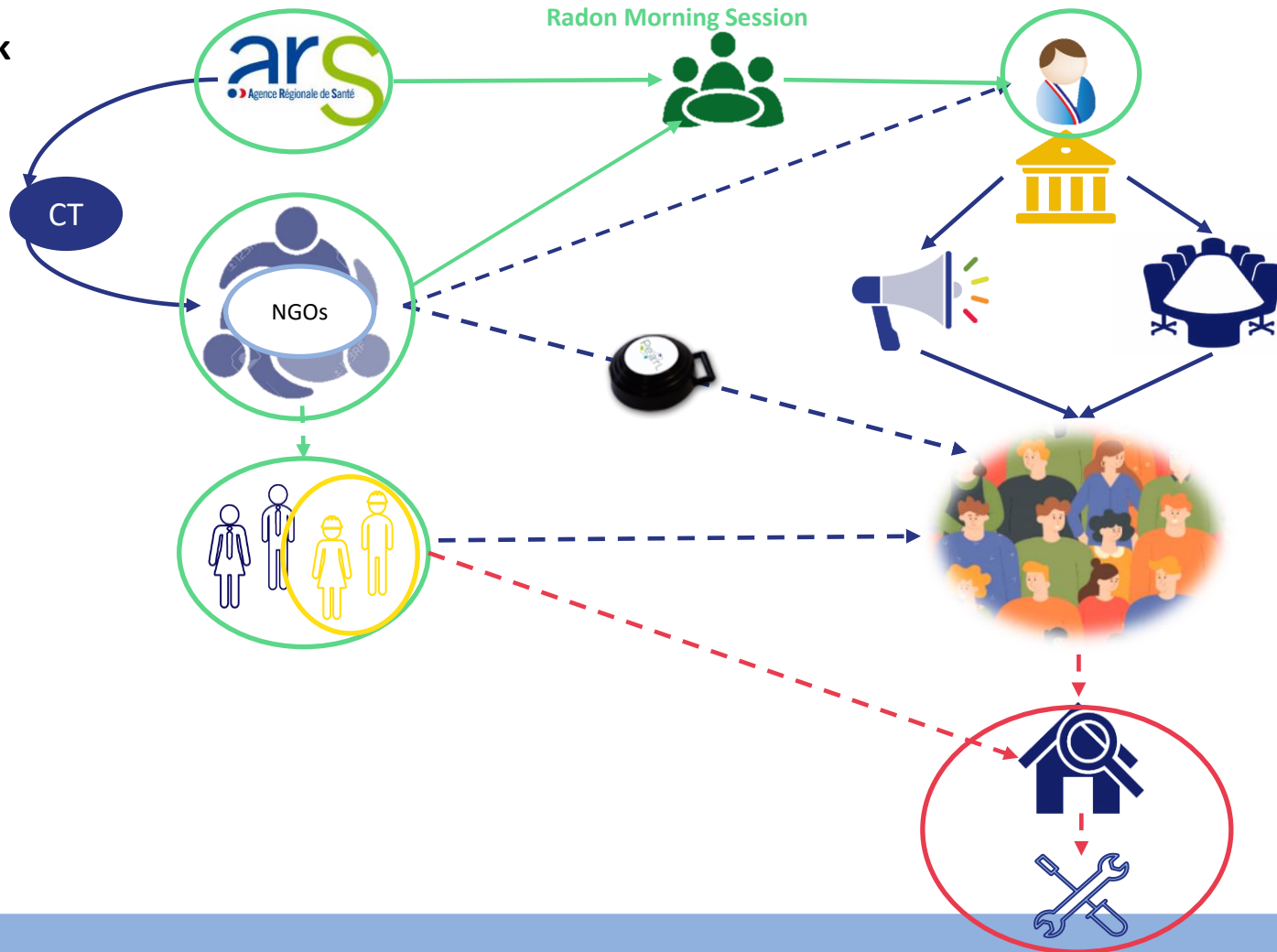


Included in global approach of IAQ

KEY SUCCESS:
EMPOWERMENT OF
LOCAL STAKEHOLDERS



VIGILANCE
POINTS



MORE ATYPICAL KIND OF APPROACHES

Corsica

- Rather than measurement campaign:
 - A major awareness campaign on IAQ (aeration, ventilation) targeting the entire island (not only radon prone areas)
 - A vast communication campaign on the link tobacco/radon (playful video)

Hautes-Alpes Department

- Radon operator = Scientific mediation association
 - Workshop on IAQ (including radon) in primary schools
 - In parallel, they develop fun learning tools as Escape-Game, Comic strip Exhibition (humorous police investigation)...
 - dosimeters proposed on each activities
- => Aim **play down the subject**, make it **less anxiety-provoking**



KEY SUCCESSES (1/2)

■ **Involvement of Regional health agencies (ARS)**

- **Financial support** of NGOs actions and dosimeters
- « **Radon Morning sessions** »: ½ times a year, elected representatives and members of communities invited
 - Foster relationship between NGOs & municipalities
 - **Testimonies** from joint action lead by a NGOs and a community: motivate elected officials to get involved

■ **Involvement of NGOS:** implementation, management and animation of initiatives

- Working in the field/ trustworthy partner
- Well perceived by communities (numerous sensitive issues to manage)

■ **Strong involvement of elected people = a mobilized population**

■ Including radon in a **global approach of indoor air quality**

- **More positive messages** as "healthy home" **much more motivating** than communication focused solely on the radon risk (too anxiety-provoking)

■ **Institutional support:** need to **public national experts** (RP, building) **to legitimize local initiatives**

KEY SUCCESSES (2/2)

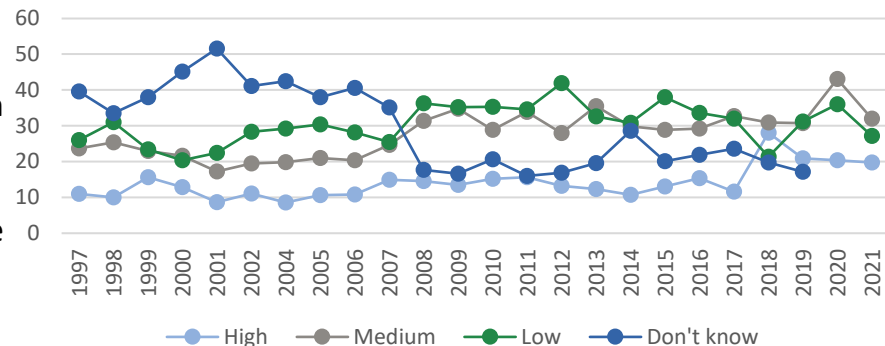
- **Public face-to-face meetings:** a resident who participates= **an « involved » resident**
 - **Particularly in small communities** where public meetings are seen as social events
- **Webinars:** a way to **attract a younger audience?**
 - May attract population that rarely attends public meeting (working people, residents with childcare issues...)
- **Promoting complementary actions** to public meetings: **fun and easy access tools for all audiences**
 - Fun awareness-raising materials in parallel with public meetings : Escape-Game, exhibition... to **play down the subject and make it less anxiety-provoking**
 - **In-class activities:** help children acquire **durable habits** (daily airing) + an indirect way of raising parents' & relatives' awareness that can lead to a positive response to home measurement
 - **Less formal places** to attract persons not used to participate to public meetings (markets...)

DIFFICULTIES (1/3)

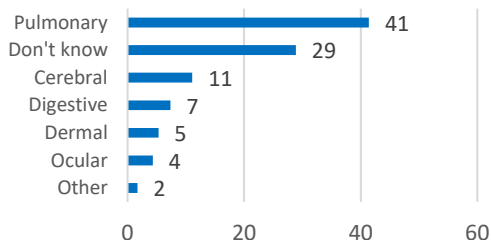
Unknown and neglected risk

- IRSN Barometer : regularly at the very end of classification risk situations
- In 2021: 20% of French people considers this risk as high
- For having more precise information of effective knowledge of radon risk: 2 additional questions asked in 2019

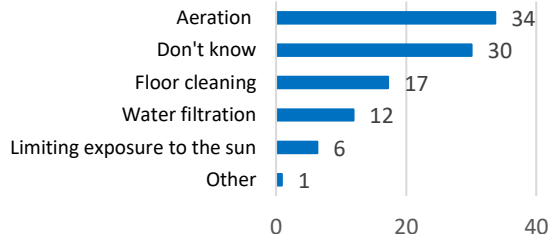
Risk perception of domestic radon (%)



What kind of risk do you think radon exposes you to? (%), 2019



What do you think is the best way to reduce the risk of radon? (%), 2019



Only 2 out of 10 French people have adequate knowledge of this risk: both its nature and a mean of protection



Regional Barometers (including radon prone areas) confirm this lack of knowledge among population

DIFFICULTIES (2/3)

- **Reluctance of some communities to raise awareness on the radon risk:** located on the coast, near former uranium mine
 - Potential degradation of the image of the area, land devaluation
 - Fear of disputes between owners and tenants/tenants & communities in cities with major unhealthy housing
- **Difficulty in involving certain audiences: younger public, tenants and residents of social housing**
- **Lack of awareness among healthcare professionals**
 - Globally unaware of this risk
 - Some attempts to involve healthcare professionals (as pharmacists) to relay of information to general public: not expected success (feel ill-informed, unable to answer questions asked by patients/customers)
- **Difficulty in assessing the effectiveness of the actions undertaken**
 - **Only very few residents follow the process through to the end**
 - Fear of **devaluing** their property;
 - Fear of the **cost of remediation work** (especially if they have already invested in energy renovation work);
 - They **not know which building professional** to contact,
 - They have **other priorities**;
 - **Apathy into managing a natural risk** to which no responsibility can be attached

 Potential danger over mid-term that radon risk management will no longer be considered a priority?

DIFFICULTIES (3/3)

■ Lack of building professionals

- Subject of **atmospheric pollutant (including radon)** and control of **IAQ not included in initial trainings**
- **Obstacles generally mentioned:**
 - Absence of regulation to undertake remediation work = no market
 - Too numerous building standards and diagnoses
 - Fear of legal proceedings if remediation undertaken fails to reduce radon concentrations
 - No time for awareness/training sessions
- Field of **ventilation/energy renovation** works **managed by different trades (electricians, plumbers...)**
 - => **lack of coordination = risk of generating high radon concentration**
- Even if awareness is raised, in practice little change takes place: **work habits are difficult to change**
 - => **Need radon-aware stakeholders with oversight: project manager or architects (but few in number)**

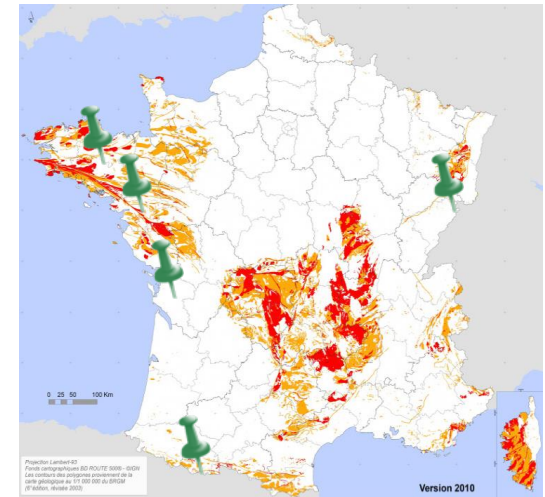
■ Lack of professionals in some areas **even in the earlier step** of *building diagnosis*

- **Essential step** in advising/recommending on **remediation work** to carry out
- This **deficit** has led some territories **to stop their actions and others to adapt (through training of new relay stakeholders)**



COMPLEMENTARY INVESTIGATION: METHODOLOGY AND FEEDBACK

- Essential to **further investigate the areas that have succeeded** in overcoming this building diagnosis obstacle
- Additional investigation with support **CEPN** (Nuclear Protection Evaluation Centre in France)
- **Wide range of stakeholders** interviewed in **5 regions**: local/regional public bodies (health and, ecological transition the national expert for building diagnosis), *relay associations*, communities and building trade federations.
- Gain a clearer view of:
 - **Difficulties** encountered in the *building diagnoses*
 - Experience of *relay stakeholders*
 - **Networks** created or used
 - **Issue of transferability** or not of these experiences to other areas



Adaptation of some areas: from work arounds to training actions of relay stakeholders in carrying out building diagnoses

■ To **avoid deadlocked situations** some **work arounds**, such as:

- On line self-assessment tools (for *building diagnosis*)
- “collective workshops” dedicated to *building diagnosis*

 **BUT :**

- Actions considered **insufficient and inefficient** by local stakeholders in **providing quality building diagnosis**
- **Visit to their home** by a **qualified professional** is **essential** for the residents to **feel confident in their remediation actions**

 More **sustainable and effective solutions** implemented in some areas

- *Pays de Loire & Nouvelle-Aquitaine Region*: Short-term training by a public expert
- Who?: **associations specializing in buildings energy efficiency management**
 - How?: ½ day of theory and ½ day of practice (visit to a house with high radon concentrations)

Difficulties: Short-term training does not necessarily ensure building diagnosis quality

- Radon remains a **complex issue**
- Diagnoses need to **be regularly carried out to improve skills and maintain them over time**
- Relay associations often unaware of the actions carried out by their counterparts, **feeling sometimes isolated**

FEEDBACK: DIFFICULTIES, KEY SUCCESSES & NEEDS

- **Bretagne region: training by radon operator NGO specialized in radon and eco-building**
 - Who?: building professionals (architects, project managers, etc.)
 - How? : a theoretical module 1 day a month for a year and a practical module including **several visits in the form of mentoring**
 - The trained *building diagnosis experts* meet regularly in a **radon WG** to **collectively draw up** the diagnosis reports
- **Key successes** to note :
 - Practical training with a **mentoring format**
 - Implementation of a **building diagnosis experts network**

EARLY PERSPECTIVES FOR ACTION (1/2)

- **Sharing experiences** and good practices between the different areas, departments, and regions
 - Results of this inventory could be integrated into **inter-regional seminars** during which the ***good practices, needs and first perspectives for action*** could be **collectively discussed**
 - **Set up different national or local networks** (NGOs, trained building experts, ...)
- **Raising information level and knowledge of specific audiences:**
 - **Elected representatives**
 - **Extending *Radon meeting session* to all radon prone areas** with **testimonials of elected representatives** who participated in the implementation of measurement campaigns in their areas => **encourage other elected representatives** to implement radon initiatives in their communities
 - Targeting *Association of Mayors of France* or other associations gathering elected representatives on environmental health issues to develop these awareness-raising actions (awareness webinars ...)
 - **Healthcare professionals**
 - **Target associations** of family doctors/pharmacists : **awareness webinars**
 - **Younger generation**
 - **Target scientific mediation associations** working with young people to raise their awareness of the risk
 - Support them in the framework of their activities (propose awareness webinars with people from these associations, jointly create fun tools, etc.).
 - **Future “Radon Operators” (NGOs)**

EARLY PERSPECTIVES FOR ACTION (2/2)

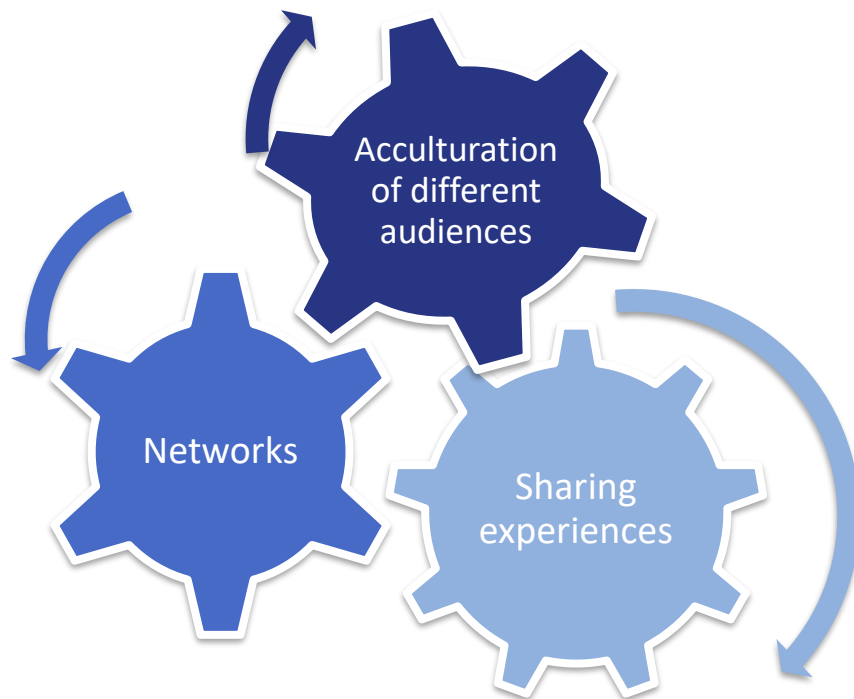
Encourage building professionals

- **Link communication actions on measurement campaigns with communication on training** for building professionals: to *"feel a market"*
- Propose **more casual events such as "radon after-works"** : also useful for them to network
- For **relay associations** /building diagnosis : **dedicated networks or communities of practices** at local/regional level
 - **Share best practices** (for example, the **principle of mentoring** for diagnoses) and to carry out **collective thinking on complex cases** taking into account good practices.
 - National public experts, including IRSN, could be involved **in dedicated webinars to deepen discussions** on more targeted topics.

Encourage the population to undertake remediation work

- In the vast majority of cases, **simple corrective actions** could be easily managed by a resident if they know what actions to implement
 - Develop a fun Educational DIY- kit : jointly created with national partners involved in radon risk management
 - Virtual, offering tutorials, ideally presenting individuals carrying out these simple actions in their home (for "identification")
- For **more complex remediation work** : **reinforce financial assistance**
 - At that time: subsidy for radon reduction very difficult to achieve, amounts too low

CONCLUSION





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FRANÇAISE

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Égalité
Fraternité*

IRSN

INSTITUT DE RADIOPROTECTION
ET DE SÛRETÉ NUCLÉAIRE

THANK YOU FOR YOUR ATTENTION