AEC
UGANDA

ATOMIC ENERGY COUNCIL

What is radon?

Radon is a radioactive gas that's found naturally in the environment, including in rocks, soil, and groundwater. It can enter buildings through their foundations and become trapped.

- Radon is colorless and odorless, so you can breathe it without knowing it — in your home, school, workplace and other indoor locations. Breathing in radon consistently over time can increase your risk of developing lung cancer

Where does it come from and where is it found?

- Naturally occurring uranium in the ground constantly decays and breaks down. Through this long process, it transforms into radium, which eventually turns into radon gas.
- This process occurs continuously over thousands to billions of years. Because uranium is present almost everywhere in the earth's crust, radon production happens constantly.

How does radon enter our homes?

Radon gas moves upward through the ground and leaks into the home through cracks in the foundation, construction joints, gaps around plumbing pipes, and sump pumps.

Figure 1: Cracked wall

How is radon measured?

It is measured using specialized radon test kits. These kits are placed in the lowest lived-in level of the house for a specified period (ranging from a few days to several months) and then sent to a certified laboratory for analysis

What are the health effects of exposure to radon gas?

When you inhale radon, it decays into radioactive elements that get trapped in your lungs and release alpha particles. Over time, this damages lung tissue and is the second leading cause of lung cancer worldwide (after smoking)

Could radon cause other illnesses apart from lung Cancer?

The primary and most heavily documented health effect is lung cancer. While it primarily affects the respiratory tract, long-term chronic exposure is a significant risk factor for lung-related health issues, especially in individuals who also smoke

Where are people most at risk of being exposed to radon?

For most people, the most likely place you're at risk of being exposed to radon is in your home. People who work in mines or caverns may also be at higher risk, depending on how many hours a day they're exposed to elevated radon levels. If you smoke and are also exposed to radon, it increases your risk even more. Radon levels are usually higher in places that are: Closer to the ground, such as basements or underground mines, near soil that contains radioactive materials, poorly ventilated, Processing or storing certain products, such as phosphate fertilizers or uranium, very tightly sealed and very well-insulated

What is the role of Atomic Energy Council (AEC) in radon monitoring?

As Uganda's regulatory body, AEC protects the public and workers from radon exposure by setting and enforcing safety standards. The AEC actively conducts environmental surveillance through nationwide radon gas surveys in homes, caves, and mines to assess risk. To maintain compliance, the council mandates continuous occupational dosimetry monitoring for individuals working with naturally occurring radioactive materials. Finally, whenever radon concentrations exceed recommended guidelines, the AEC enforces safety interventions and mitigation remedies to eliminate the radiation hazard.

What is your role as a Ugandan?

Your role is to safeguard public health by staying aware of radiation risks, reporting any radiation incidents to the Atomic Energy Council (AEC), and advocating for safe indoor air quality testing in your community. You should encourage your household, workplace, or building management to allow AEC inspectors to enter so they can measure radon levels. In addition, individuals working in confined environments such as underground mines should ensure they use proper ventilation and wear appropriate gas masks.

What are the prevention /mitigation measures?

Radon exposure can be reduced by;

- sealing of all possible empty routes
- installing soil gas retardant plastic membranes on foundations and below floor slabs during construction
- installing radon sumps beneath the foundations
- Improving ventilation of the building

Figure 2: Radon exposure pathways

CONCLUSION

Effective radon management requires a proactive, multi-sectoral approach to shield both the public and workforce from invisible radioactive hazards. By strictly enforcing safety limits, expanding nationwide surveys, and mandating workplace dosimetry, regulatory authorities can successfully minimize the long-term health risks associated with ionizing radiation.

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