



## CRPA-CARST Symposium on Radon and Radiation Protection

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### Title

UNSCEAR New Evaluation of Public Exposure to Ionizing Radiation

### Abstract

The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) was established by the UN General Assembly resolution in 1955. Exposure of public to ionizing radiation from natural and human-made sources is an important topic that the Committee has evaluated since 1958. In 2024, the Committee approved the updated new evaluation on public exposure to ionizing radiation. In the new report, the range of average annual effective dose to the public from natural radiation sources was estimated to be 1–14 mSv, and the annual average worldwide effective dose from natural sources was estimated to be around 3.0 mSv. As in previous UNSCEAR reports, the major contribution to the total annual dose is by inhalation of radon, thoron and their decay products (1.8 mSv). The worldwide indoor radon activity concentrations follows a log-normal distribution with GM of 33 Bq/m<sup>3</sup> and GSD of 2.7 Bq/m<sup>3</sup>. The population-weighted AM is 50 Bq/m<sup>3</sup> higher than previously evaluated value of 40 Bq/m<sup>3</sup>. The higher doses from inhalation of radon and thoron compared to the Committee's previous estimate are mainly due to more extensive datasets and the availability of higher quality data.

Compared to natural sources, exposure of the public from human-made sources is generally lower, except in the rare situation of major accidents. Estimated annual doses to members of the public from nuclear power production facilities generally do not exceed a few tens of µSv. Annual doses to characteristic individuals in the vicinity of uranium mines and mills were found to be less than 1 µSv. Public exposures from fuel manufacture are low with annual characteristic individual effective doses at a fraction of 1 µSv.

The Committee updates its reports periodically in response to the changes in sources, circumstances for public exposures and as new data become available.