

UNSCEAR 56 Session



United Nations

Report from the IUR representative Prof. R. Alexakhin, Vice-President of IUR

The 56 session of the United Nations Scientific Committee on the Effects of Atomic Radiation held in Vienna on July 10-18, 2008 was attended by 21 member-states and 9 international organizations, including the International Union of Radioecology.

Five reports were discussed:

1. Health effects due to radiation from the Chernobyl accident.
2. Effects of ionizing radiation on non-human biota.
3. Radiation exposures to accidents.
4. Medical radiation exposures.
5. Exposures to the public and workers from various sources of radiation.

Some reports discussed problems of radioecological relevance.

In the report "Health effects due to radiation from the Chernobyl accident" issues were discussed such as radionuclide release and deposition after the accident, environmental transfer of radionuclides and environmental countermeasures.

The major results of radioecological studies obtained after the publication of the basic Chernobyl document in 2000 are summarized in the following sections.

- I. Radionuclide release and deposition (radionuclide source term; physical and chemical form of released material, hot particles; meteorological conditions during the course of the accident; concentration of radionuclides in air; deposition of radionuclides on soil surfaces).
- II. Urban environment (migration of radionuclides in the urban environment, dynamics of exposure rate in urban environments).
- III. Agricultural environment (radionuclide transfer in the terrestrial environment, food-production systems affected by the accident, Physicochemistry of radionuclides in the soil-plant system, transfer of radionuclides to animals, current levels of radionuclides in foodstuffs and expected future trends).
- IV. Forest environment (radionuclides in European forests, dynamics of radionuclide levels during the early phase, the long-term dynamics of radiocesium levels in forests, uptake into edible plants, radionuclides in wood).
- V. Radionuclides in aquatic system (uptake of radionuclides by freshwater fish, radioactivity levels in marine ecosystems).
- VI. Countermeasures and remediation (urban decontamination, agricultural countermeasures, forest countermeasures, aquatic countermeasures).

Most extensively, radioecological problems were discussed in the report "Effects of ionizing radiation on non-human biota". When analyzing effects of ionizing radiation, these were considered separately at the individual and population levels, influences of multiple stressors were also discussed. When issues of ecological dosimetry were treated, reference organisms were indicated and radioecological models analyzed. Radionuclide transfer was described in terrestrial ecosystems (dry deposition, interception of wet deposited radionuclides, weathering, translocation, uptake of radionuclides from soil, migration in soil, resuspension and transfer to animals), as well as in freshwater and marine organisms.

Models were considered to estimate doses of external and internal radiation in plants and animals.

Since the basic UNSCEAR document on ionizing radiation effects on biota was published in 1996, the 2008 report contains quintessence of radiation effects from the 1996 UNSCEAR report.

Analyzed in detail was information on the dose-effect relationship for the Chernobyl affected region (for some groups of organisms – plants, invertebrates, farm animals, aquatic organisms, genetic effects).

Concerning individual projects and case studies, data were considered from U.S. DOE, from Canada, and from the EC-supported FASSET, ERICA projects.

In conclusion, estimates were discussed of the minimum dose rates of irradiation below which no injury is thought to be caused at the ecosystem level.

Prospects were outlined for further UNSCEAR activity that include a number of radioecological problems (effects of low doses of ionizing radiation, naturally occurring radioactive materials, radioactive discharges of radionuclides in the environment, uncertainties in radioecological models, etc.)