Editorial Group: Nuclear Accidents, Radiation, and Health

https://pollution-diseases.org

The editorial group **Nuclear Accidents, Radiation, and Health** was established within the journal *Pollution & Diseases* to provide a dedicated scientific platform for the systematic study of nuclear accidents, radiation exposure, and their long-term environmental and public health consequences.

Nuclear technologies—both civilian and military—have produced some of the most persistent and scientifically complex environmental disturbances in modern history. Accidents at nuclear power plants, radiological releases, weapons-related exposures, and legacy contamination sites continue to affect ecosystems and human health across generations. Despite decades of research, many aspects of these processes remain insufficiently understood, contested, or fragmented across disciplines.

This editorial group addresses the need for an integrated, evidence-based framework capable of examining radiation-related impacts as **long-term environmental and biomedical phenomena**, rather than as isolated technical failures or historical anomalies.

Conceptual Orientation

The group proceeds from several foundational principles.

First, **radiation exposure represents a unique environmental stressor**. Unlike many chemical pollutants, ionizing radiation alters biological systems at cellular, genetic, and population levels, often with delayed, cumulative, and transgenerational effects. Environmental contamination by radionuclides affects soils, waters, food chains, and ecosystems over extended temporal scales.

Second, **nuclear accidents and radiological events cannot be understood solely as technical malfunctions**. Their consequences are shaped by institutional decision-making, emergency response strategies, information management, and long-term governance choices. Scientific analysis must therefore extend beyond engineering assessments to include environmental monitoring, epidemiology, and health risk evaluation.

Third, harm associated with **radiation is frequently marked by uncertainty, latency, and controversy**. Disagreements regarding dose assessment, exposure pathways, attribution of health outcomes, and acceptable risk thresholds continue to pose significant challenges. The editorial team offers a platform for thorough, clear, and methodologically varied research that tackles these uncertainties.

Thematic Scope

The **Nuclear Accidents, Radiation, and Health** editorial group welcomes research on topics including, but not limited to:

- environmental contamination following nuclear power plant accidents;
- dispersion and persistence of radionuclides in soils, water systems, and ecosystems;
- bioaccumulation and food-chain transfer of radioactive substances;
- acute and chronic health effects of radiation exposure;
- cancer risk, genetic damage, and non-cancer health outcomes;
- psychological and social health impacts of radiological disasters;

- post-accident environmental remediation and land-use management;
- long-term infectious studies and exposure assessment methodologies.

The group encourages interdisciplinary contributions integrating environmental science, radiobiology, epidemiology, infectious ecology, toxicology, ecology, public health, and risk analysis.

Historical and Contemporary Contexts

The editorial group's scope includes both **historical and contemporary radiological events**. This encompasses nuclear power plant incidents, exposures related to weapons, and various significant radiological releases.

Historical cases, including the atomic bombings of Hiroshima and Nagasaki, hold scientific significance not merely as historical accounts, but as essential datasets for comprehending the effects of radiation on human health. Recent nuclear incidents and sites of legacy contamination contribute to this empirical record and introduce new scientific inquiries within the context of current environmental and societal conditions.

The editorial group aims to enhance comparative and longitudinal understanding of radiation-related impacts by integrating historical and recent events into a unified analytical framework.

Editorial Responsibilities

As a distinct component of the journal’s editorial structure, the **Nuclear Accidents, Radiation, and Health** group is responsible for:

- overseeing peer review of radiation- and nuclear accident-related submissions;
- ensuring methodological rigor and transparency in exposure and risk assessments;
- advising on thematic issues and calls for papers;
- fostering interdisciplinary dialogue across traditionally separated research fields;
- supporting international collaboration on long-term environmental and health studies.

The group operates in accordance with the journal’s editorial and ethical standards and does not advance policy positions or advocacy agendas.

Scientific Responsibility

Radiation-related environmental and health research occupies a unique position in science, where uncertainty, ethical responsibility, and public concern intersect. The editorial team acknowledges that advancements in this area necessitate a willingness to embrace various methodological strategies, a thoughtful approach to uncertainty, and a commitment to avoiding both alarmist and dismissive attitudes.

The formation of this editorial group by Pollution & Diseases underscores the importance of ongoing, transparent, and diverse scientific investigation into the environmental and health impacts of nuclear accidents and radiological exposure.