

The Role of ICRP and the System of Radiological Protection in the UN sustainable development goals



WNA – ICRP Webinar

Enabling Sustainable Development through the System of Protection

03 October 2024

ICRP INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION
Registered with the Charity Commission for England and Wales (#1166304)



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UN Sustainable Development Goals (SDGs)

- Established in 2015 by the UN
- Part of the 2030 Agenda for Sustainable Development
- Each goal has specific targets and indicators to measure progress.
- These goals are often interrelated, actions taken to achieve one goal may have positive or negative impacts on other goals.



The System of Radiological Protection

Radiation and Environmental Biophysics
<https://doi.org/10.1007/s00411-024-01089-w>

REVIEW



The system of radiological protection and the UN sustainable development goals

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Received: 11 May 2024 / Accepted: 6 August 2024
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Abstract

In 2015 the United Nations adopted 17 Sustainable Development Goals (SDGs) to address a wide range of global social, economic, and environmental challenges. The main goal of the current System of Radiological Protection (SRP) is to ensure an understanding of how the current System of Radiological Protection relates to the SDGs. It is proposed that the current System of Radiological Protection is implicitly linked to the SDGs. This is substantiated by analysing the features of the SRP as set out by the International Commission on Radiological Protection (ICRP) in its publications. In the second part it is proposed that the SRP should be considered and more explicitly addressed in the next ICRP general recommendations, as well as in the review and revision of the current System. A few examples are given of how this could be achieved. It is concluded that this issue should be discussed and developed together with the international community on radiological protection.

Keywords Sustainable Development Goals · SDGs · System of Radiological Protection · International Commission on Radiological Protection

Open Access paper by the ICRP Main Commission
 About 5000 downloads during the first two weeks after publication

Major messages

- „... the current System of Radiological Protection **is implicitly linked to sustainable development**“
- „... it is proposed that sustainability **should be considered and more explicitly** addressed in the next ICRP general recommendations...“
- „... it is proposed that this issue **should be discussed and developed together with the international community** ...“

Examples of ICRP Activities and SDG 1

SDG 1: End poverty in all its forms everywhere



Subgoal 1.5 of SDG 1:

Build the **resilience of the poor** and those in vulnerable situations and **reduce their exposure** and vulnerability to climate-related extreme events and other economic, social and environmental shocks and **disasters**

ICRP Publication 109 (2009)

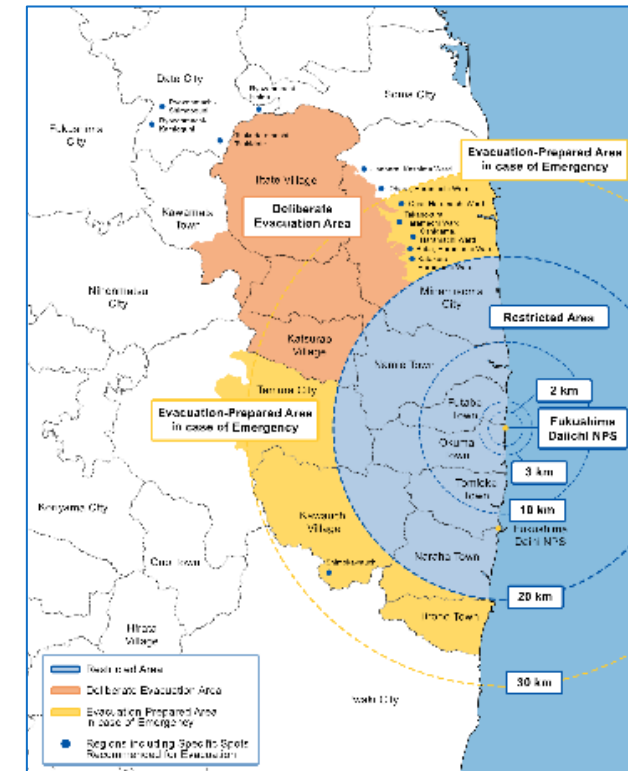
“Application of the Commission’s Recommendations to the Protection of People Living in Long-term Contaminated Areas after a Nuclear Accident or a Radiation Emergency”

Provides guidance for optimal protection of people living in long-term contaminated areas resulting from either a nuclear accident or a radiation emergency

ICRP Publication 146 (2020)

“Radiological protection of people and the environment in the event of a large nuclear accident”

Recommends optimal protection of people and the environment in a large nuclear accident, drawing on experience of the Chernobyl and Fukushima accidents



Examples of ICRP Activities and SDG 3

SDG 3: Ensure healthy lives and promote well-being for all at all ages



Subgoal 3.4 of SDG 3:

Reduce by one third premature mortality from **non-communicable diseases** through **prevention and treatment** and promote mental health and well-being

Subgoal 3.9 of SDG 3:

Reduce the number of **deaths and illness from** hazardous chemicals and air, water and soil pollution and **contamination**

ICRP Publication 135 (2017)

“Diagnostic reference levels in medical imaging”

Recommends quantities for use as diagnostic reference level (DRLs) for various imaging modalities and provides information on the use of DRLs for interventional procedures and in paediatric imaging

ICRP Publication 140 (2019)

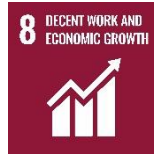
“Radiological protection in therapy with radio-pharmaceuticals”

Provides an overview of therapeutic procedures and a framework for calculating radiation doses for various treatment approaches to ensure optimal treatment outcome.



Examples of ICRP Activities and SDG 8

SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Subgoal 8.2 of SDG 8:

Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

ICRP Publication 123 (2013)

“Assessment of Radiation Exposure of Astronauts in Space”

Describes the terms and methods used to assess the radiation exposure of astronauts and provides data for the assessment of organ doses to optimise health protection.

ICRP Publication 132 (2016)

“Radiological protection from cosmic radiation in aviation”

Describes the basic radiological protection principles that apply to passengers and aircraft crew and the available protective actions.



Examples of ICRP Activities and SDG 15

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



Subgoal 15.1 of SDG 15:

Ensure the **conservation, restoration and sustainable use of terrestrial ... ecosystems** and their services, in particular forests, wetlands, mountains and drylands, ...

ICRP Publication 91 (2003)

“A Framework for Assessing the Impact of Ionising Radiation on Non-human Species”

Provides guidelines for measuring the impact of radiation on the environment to optimise protection

ICRP Publication 108 (2008)

“Environmental Protection - the Concept and Use of Reference Animals and Plants”

Provides a methodological framework for terrestrial reference plants



Examples of ICRP Activities and SDG 17

SDG 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development



Subgoal 17.6 of SDG 17:

Enhance ... international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms ...

Rühm et al. (2023)

“ICRP workshop on the review and revision of the system of radiological protection: a focus on research priorities—feedback from the international community”

Summarizes views and ideas from the international RP community on future research needs proposed by ICRP.

Organisation of meetings with organisations in formal relationships with ICRP (every year)

Discussion with international organisations on the development and enhancement of radiological protection in various exposure situations.

ICRP-SLO-Meeting Bristol, UK, 2023




The Lauriston S. Taylor Lecture Series
in Radiation Protection and Measurements

Lecture No. 7

The Human Environment-
Past, Present and Future

by Merrill Eisenbud



Presented April 6, 1983
Issued June 1, 1983

NCRP

NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS

Merril Eisenbud, one of the leading scientists in radiation research during the second half of the last century

- “At the present time, it is forecast that the global temperature could be increased by 3 ± 1.5 °C sometime in the next century.”
- “No one country could solve the problem alone: international cooperation, to an extent unprecedented at least up to the present time, would be required to develop the ameliorative programs.”
- “... **those of us who are trained to think about the environment in professional terms** must begin to contemplate aspects that are more fundamental than control over pollution, preservation of wildlife, and the relatively few other facets of contemporary environmentalism.”

- “... **it is our responsibility to future generations** to achieve the most fundamental of all environmental goals – a world in which people live in peace, and in which our numbers subsist in a **comfortable equilibrium with the energy and other resources available to us.**” (Merril Eisenbud 1983)



Sustainable development and the UN SDGs



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W Rühm, K Applegate, F Bochud, D Laurier, T Schneider, S Bouffler, K Cho, C Clement, O German, G Hirth, M Kai, S Liu, A Mayall, S Romanov, A Wojcik (2024) Radiological Protection and the UN Sustainable Development Goals. Radiat Environ Biophys
<https://link.springer.com/article/10.1007/s00411-024-01089-w>

ICRP

THANK YOU!

www.icrp.org

SUSTAINABLE
DEVELOPMENT
GOALS

The logo for the Sustainable Development Goals, featuring a circular emblem with 17 colored segments representing the goals, positioned between the words 'GOALS' and 'DEVELOPMENT'.