

# Upcoming IAEA Safety Guides on Control of Exposures to the Public and the Environment

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**IAEA**

International Atomic Energy Agency

# Background

- Previously, to assess and control the level of radiological protection of public and the environment the IAEA Safety Standards adopted:
  - the principles of ‘justification’, ‘dose limitation’ and ‘optimization’ and;
  - the concepts and models of the ICRP ‘reference person’ and ‘representative person’ and the relevant criterion (1 mSv in a year; dose constraint).
  - The assumption that the standards to protect public provide protection to the environment.

# Background

- 2003 Stockholm Conference on protection of the Environment from Ionizing Radiation:
  - “the time is ripe for launching a number of international initiatives to consolidate the present approach to controlling radioactive discharges to the environment by taking explicit account of the protection of species other than humans.”

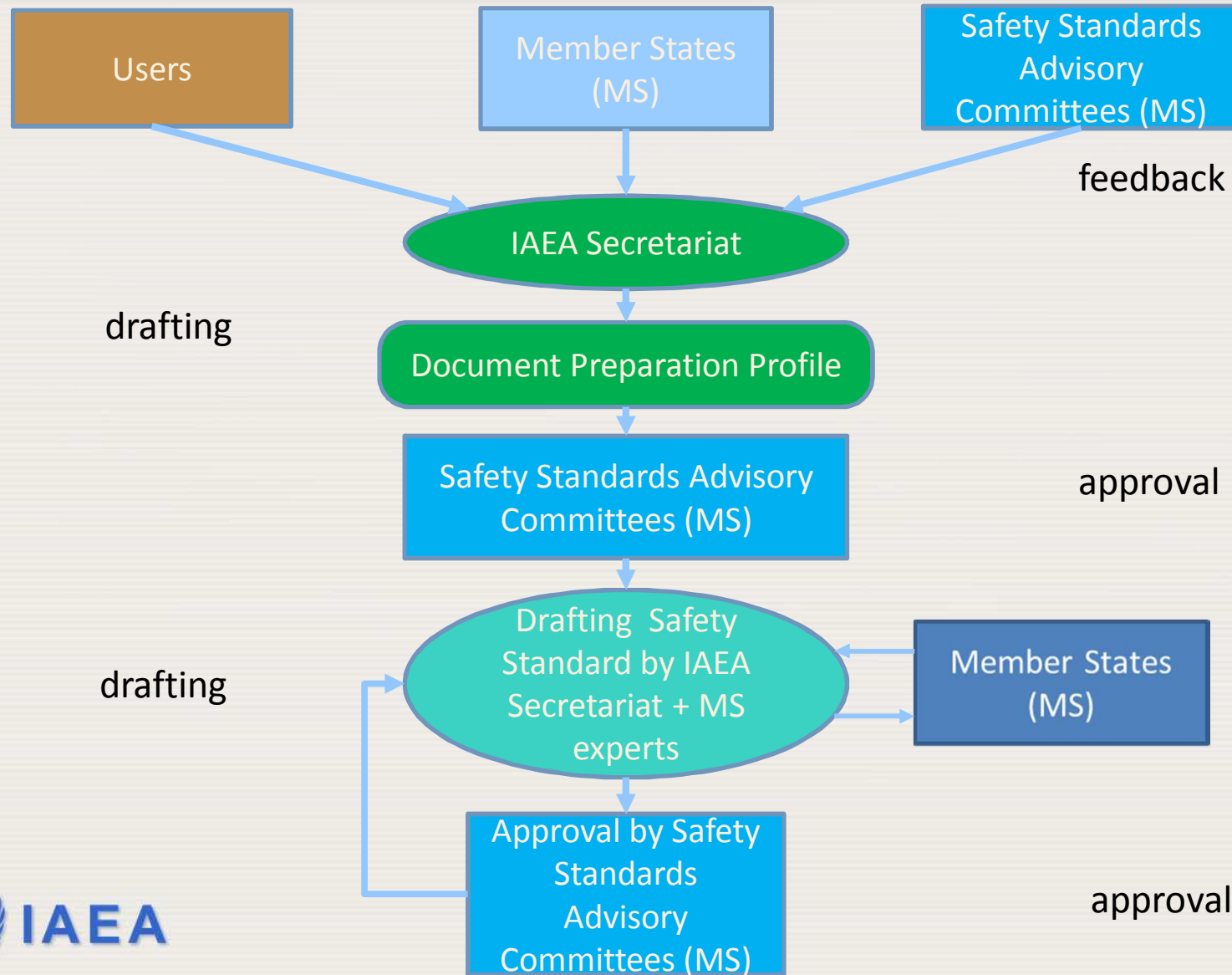
# Background

- 2005 IAEA Plan of Activities on Protection of the Environment (ICRP, UNSCEAR, IUR, NEA, EC, Member States):
  - A framework for environmental radiation protection needs to:
    - be based on the knowledge available,
    - be applicable in different contexts,
    - be practical and simple,
    - avoid undue burdens on regulators and operators,
    - allow for relevant stakeholder involvement,
    - allow for harmonization with analogous approaches for human and other pollutants.
    - considers ICRP developments.

# ICRP developments

- ICRP, 2003. *A Framework for Assessing the Impact of Ionising Radiation on non-human Species*. ICRP Publication 91. Ann. ICRP 33(3).
- ICRP, 2007. *The 2007 Recommendations of the International Commission on Radiological Protection*, ICRP Publication 103. Ann. ICRP 37(2-4).
- ICRP, 2008. *Environmental protection: the concept and use of Reference Animals and Plants*. ICRP Publication 108. Ann ICRP 38(4-6).
- ICRP 2014, *Protection of the Environment under Different Exposure Situations*, ICRP Publication 124, SAGE Publications.

# Scheme for development of IAEA Safety Standards and Guidance



# Safety Standards Categories





# IAEA Safety Standards

for protecting people and the environment

## Fundamental Safety Principles

Jointly sponsored by

Euratom FAO IAEA ILO IMO OECD/NEA PAHO UNEP WHO



Safety Fundamentals

No. SF-1



# IAEA Safety Standards

for protecting people and the environment

## Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

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EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO



General Safety Requirements Part 3

No. GSR Part 3





# Protection of public and the environment

- **2006 Fundamental Safety Principles, SF No 1, IAEA et al.**
  - The fundamental safety objective is to protect people and the environment from harmful effects of ionizing radiation
  - Principle 7: People and the environment, present and future, must be protected against radiation risks.
  - The general intent of the measures taken for the purposes of environmental protection has been to protect ecosystems against radiation exposure that would have adverse consequences for populations of a species (as distinct from individual organisms).

# Protection of public and the environment

- **2011-2014 Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, GSR Part 3, IAEA et al.**
  - Considerations on explicit demonstration on protection of the environment.
  - Definition of environment and protection of the environment (protection of humans, non-humans, goods, resources).
  - Requirement of radiological environmental impact assessment for planning and existing exposures situations (discharges and remediation).


# Upcoming Safety Guides (drafts)

**IAEA Safety Standards**  
for protecting people and the environment

**Fundamental Safety Principles**

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**Safety Fundamentals**  
No. SF-1




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**General Safety Requirements Part 3**  
No. GSR Part 3




**IAEA SAFETY STANDARDS SERIES**

**Radiation Protection of the Public and Protection of the Environment**

**SAFETY GUIDE**

No. DS432




**IAEA SAFETY STANDARDS SERIES**

**A general framework for prospective radiological environmental impact assessment and protection of the public**

**SAFETY GUIDE**

No. DS427




**IAEA SAFETY STANDARDS SERIES**

**Regulatory Control of Radioactive Discharges to the Environment**

**SAFETY GUIDE**

No. DS442



# Radiation Protection of the Public and Protection of the Environment: Safety Guide DS432

- Framework for the Protection of the Public and the Environment
  - Exposure situations
  - Radiation protection principles
  - Responsibilities
  - Graded approach
- Radiation Protection of the Public
  - Planned exposure situations
  - Emergency exposure situations
  - Existing exposure situations
- Protection of the Environment

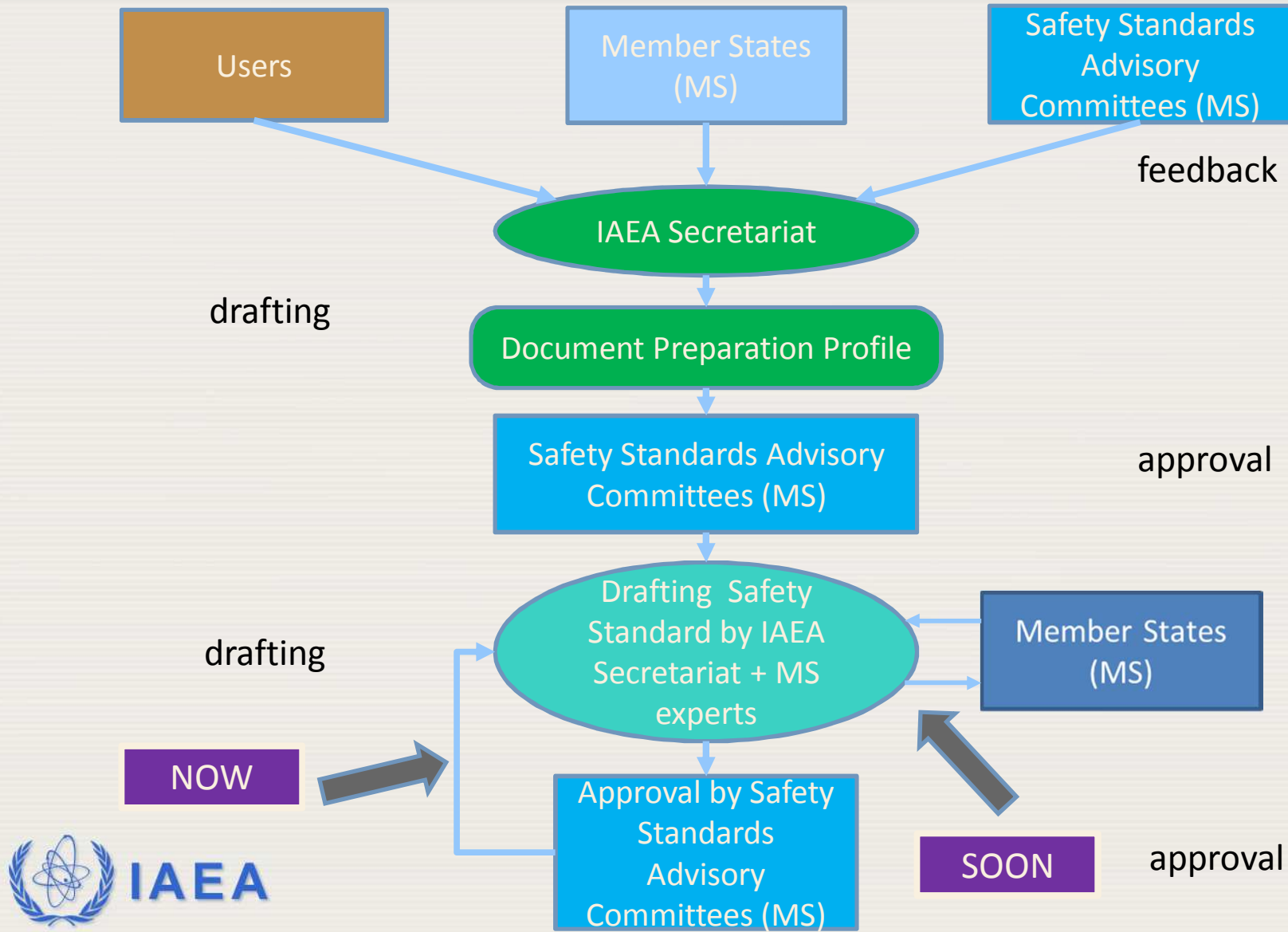
# A general framework for prospective radiological environmental impact assessment and protection of the public: Safety Guide DS427

- Framework of Assessment of Facilities and Activities for Protection of the Public and Protection of the Environment
  - Assessment for the Authorization Process
  - Assessment as part of a Decision Process (EIA)
  - Assessments for Other Purposes
  - Communication of Results
- Methodology for Assessment of Facilities and Activities for Protection of the Public and Protection of the Environment
  - Assessment for protection of the public for normal operation
  - Assessment for Protection of Flora and Fauna for Normal Operation
  - Assessment Protection of the Public against Potential Exposures
  - Comparison of dose/risk with criteria
- ANNEX I: Considerations on Assessments for Protection of the Environment
- ANNEX II: Considerations in the Assessment of Potential Exposure of the Public

# Regulatory Control of Radioactive Discharges to the Environment: Safety Guide DS442

- Principles of Protection to Control Discharges
- Establishing the need for a Discharge Authorization
- Authorization Process
  - Development of a discharge authorization
  - Characterisation of discharges and exposure scenarios
  - Consideration of optimization of protection
  - Assessments of doses to representative person
  - Authorization of discharge and conditions
  - Demonstration of compliance
  - Inspection and enforcement
  - Involvement of interested parties
- Facilities with Naturally Occurring Radioactive Material
- Discharge Control during Decommissioning
- Previously unregulated practices
- Annex: Practical Considerations Setting Discharge Authorizations

# Scheme for development of IAEA Safety Standards and Guidance





# Supporting documents

- Technical Reports (TRS 422, 472, 479)
- Safety Reports (Update SRS 19)
- TECDOCS with applications for different installations (in preparation)

*Thanks!  
We appreciate your  
continuous support*



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