



**IAEA**

International Atomic Energy Agency  
*Atoms for Peace and Development*

# **International Training Course on the IAEA Safety Standards at Tokai University, 11-14 March 2024**

## **Overview of the IAEA Safety Standards**

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Department of Nuclear Safety and Security**

**IAEA**



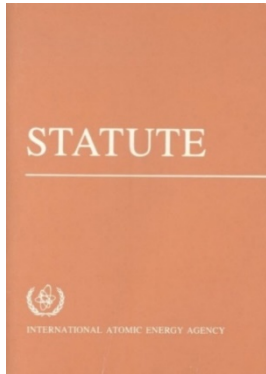
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# **The IAEA safety standards: origin, purpose, structure and scope**

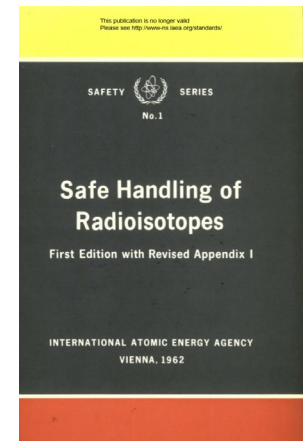
# Origin



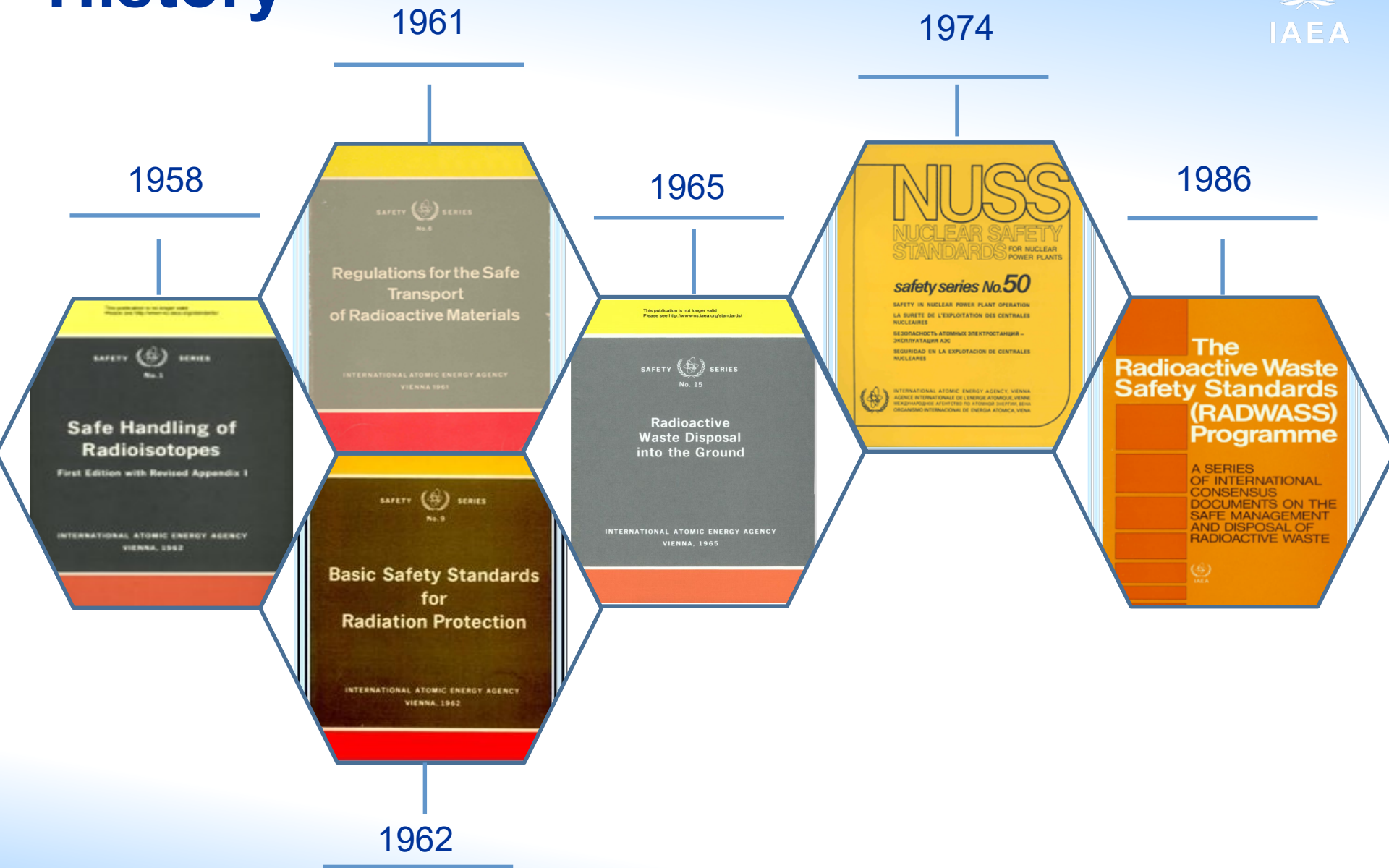
Under Article III.A.6, the IAEA is authorized:

*“To establish or adopt ... standards of safety for protection of health and minimization of danger to life and property... and to provide for the application of these standards...”*

The IAEA published its first safety standard, Safety Series No. 1, Safe Handling of Radioisotopes, in 1958, just one year after the Agency was established



# History

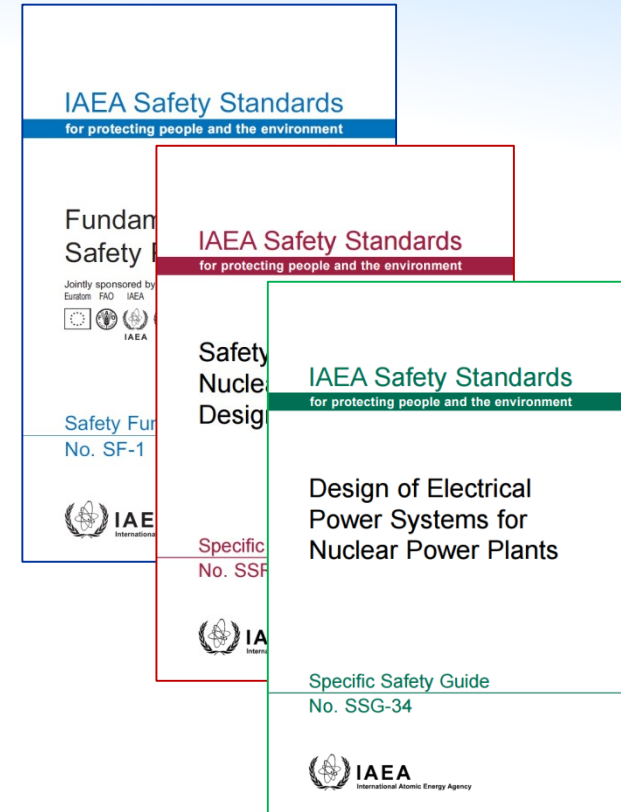


# History



# Purpose

- An integrated, comprehensive and consistent set of up-to-date, user friendly and fit-for-purpose safety standards of high quality
- They provide for a high level of protection for people and the environment from harmful effects of ionizing radiation
- They present international consensus on a level of safety





# Scope

IAEA safety standards are primarily addressed to national regulatory authorities and cover all regulatory and operational aspects of nuclear and radiation safety.

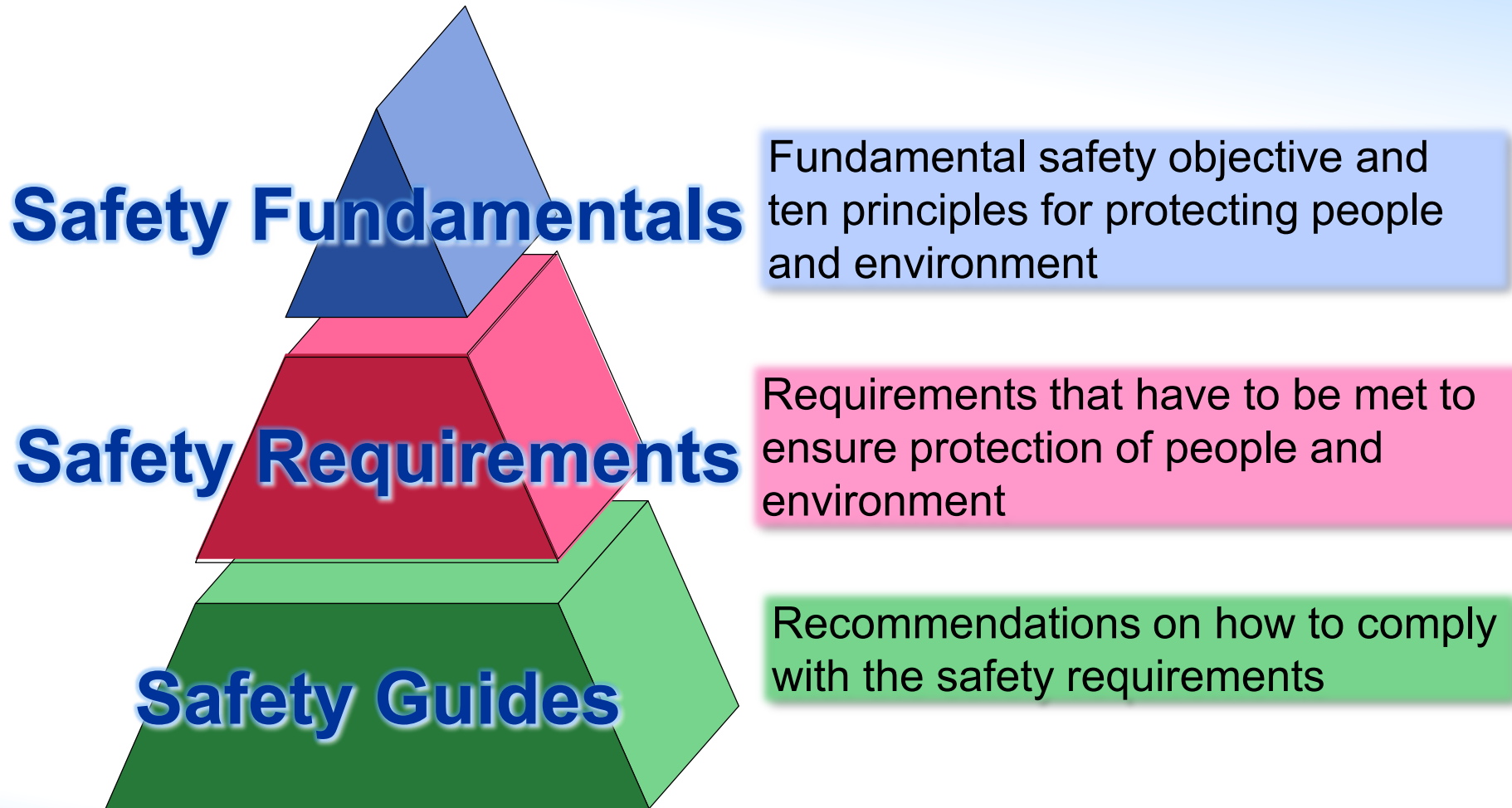
They cover all facilities and activities that can give rise to radiation exposure (only peaceful facilities and activities are covered)



Safety standards are:

- Non binding on IAEA Member States but may be adopted by them
- Binding for the IAEA's own activities
- Binding on States in relation to operations assisted by the IAEA or States wishing to enter into project agreements with IAEA

# The hierarchy





The fundamental  
safety objective is  
to protect people and  
the environment from  
harmful effects  
of ionizing radiation

Principle 1: Responsibility for safety

Principle 2: Role of government

Principle 3: Leadership and management  
for safety

Principle 4: Justification of facilities and activities

Principle 5: Optimization of protection

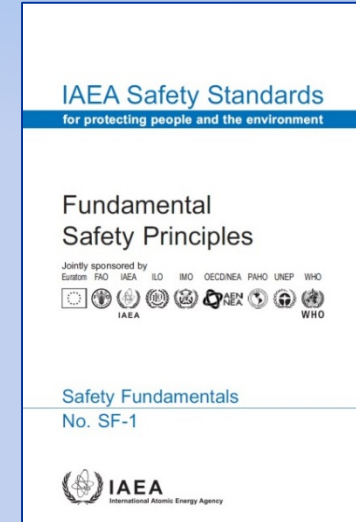
Principle 6: Limitation of risks to individuals

Principle 7: Protection of present and future generations

Principle 8: Prevention of accidents

Principle 9: Emergency preparedness and response

Principle 10: Protective actions to reduce existing or  
unregulated radiation risk



## General Safety Requirements



**All the General Safety Requirements are a single package divided in 7 parts:**

- Part 1. Governmental, Legal and Regulatory Framework for Safety
- Part 2. Leadership and Management for Safety
- Part 3. Radiation Protection and Safety of Radiation Sources
- Part 4. Safety Assessment for Facilities and Activities
- Part 5. Predisposal Management of Radioactive Waste
- Part 6. Decommissioning of Facilities
- Part 7. Preparedness and Response for a Nuclear or Radiological Emergency

## Specific Safety Requirements



**The Specific Safety Requirements complement the General Safety Requirements. They are individual publications setting out requirements for individual types of facility and activity.**

- 1. Site Evaluation for Nuclear Installations
- 2.1. Safety of Nuclear Power Plants: Design
- 2.2. Safety of Nuclear Power Plants: Commissioning and Operation
- 3. Safety of Research Reactors
- 4. Safety of Nuclear Fuel Cycle Facilities
- 5. Disposal of Radioactive Waste
- 6. Regulations for the Safe Transport of Radioactive Material

## GSR Part 1: Governmental, Legal and Regulatory Framework for Safety

### **Requirement 3: Establishment of a regulatory body**

**The government, through the legal system, shall establish and maintain a regulatory body, and shall confer on it the legal authority and provide it with the competence and the resources necessary to fulfil its statutory obligation for the regulatory control of facilities and activities.**

### **Requirement 4: Independence of the regulatory body**

**The government shall ensure that the regulatory body is effectively independent in its safety related decision making and that it has functional separation from entities having responsibilities or interests that could unduly influence its decision making.**

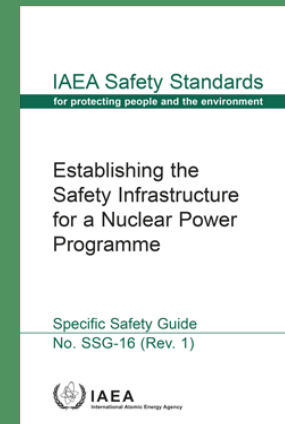
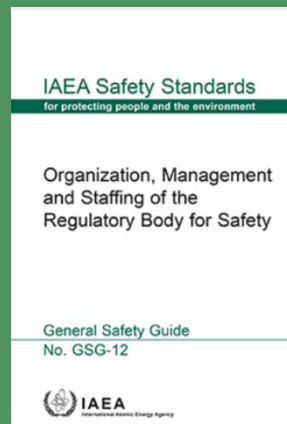
2.7. An independent regulatory body will not be entirely separate from other governmental bodies. The government has the ultimate responsibility for involving those with legitimate and recognized interests in its decision making. However, the government shall ensure that the regulatory body is able to make decisions under its statutory obligation for the regulatory control of facilities and activities, and that it is able to perform its functions without undue pressure or constraint.

Safety Guides provide recommendations and guidance on how to comply with the requirements

Safety Guides form a matrix structure:

General Safety Guides provide recommendations for a particular topic and can be applied to all types of facility or activity

Specific Safety Guides provide recommendations for a particular type of facility or activity



## Financial aspects

2.11. Adequate and stable financing for all regulatory activities is fundamental to independence. The financing mechanism should be clearly defined in the legal framework. The budget for the regulatory body may include the fees levied for regulatory activities, but should not depend on fines or other penalties arising from enforcement actions, nor should it be decided by or be subject to the approval of those parts of the government that are responsible for the development, promotion and operation of nuclear technologies.

2.12. Although the overall budget of the regulatory body may be fixed by the government, the regulatory body should have the authority to distribute financial resources to its various regulatory activities for the greatest effectiveness and efficiency.

2.13. Specific provisions to fund the regulatory body should be established in the national legal framework or through the national fiscal process. How this is best accomplished will depend on a number of considerations, including the following:

- Precedents for the funding of other national regulatory organizations;
- The types and scale of regulated facilities and activities, and the associated workload based on the application of a graded approach to the execution of the functions of the regulatory body;
- How the regulatory body is structured, including its use of in-house and outsourced competences.

IAEA Safety Standards  
for protecting people and the environment

Organization, Management  
and Staffing of the  
Regulatory Body for Safety

General Safety Guide  
No. GSG-12



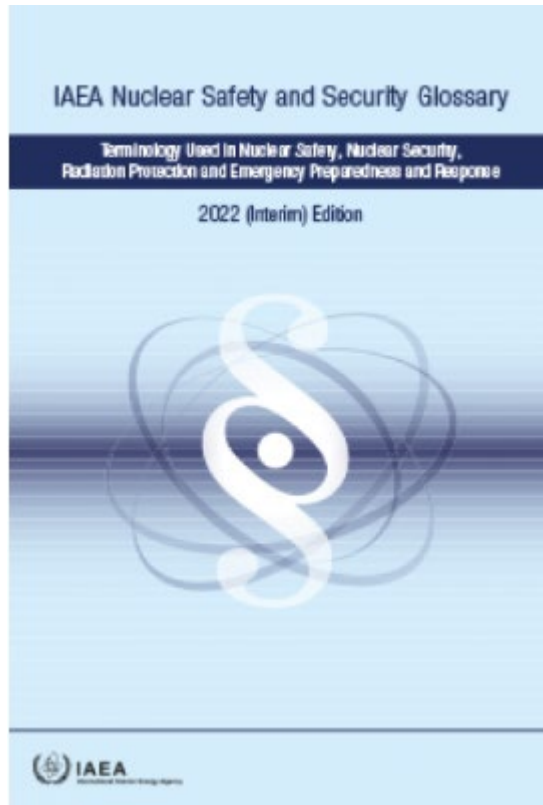
# The IAEA Safety Glossary



- To explain the meanings of technical terms that may be unfamiliar to the reader
- To explain any special meanings ascribed to common words or terms
- To explain the specific meanings of the same technical term in different contexts
- To recommend terms that should be used in IAEA publications and documents (and those that should not)
- To harmonize terminology and usage in the IAEA safety standards, and in their application



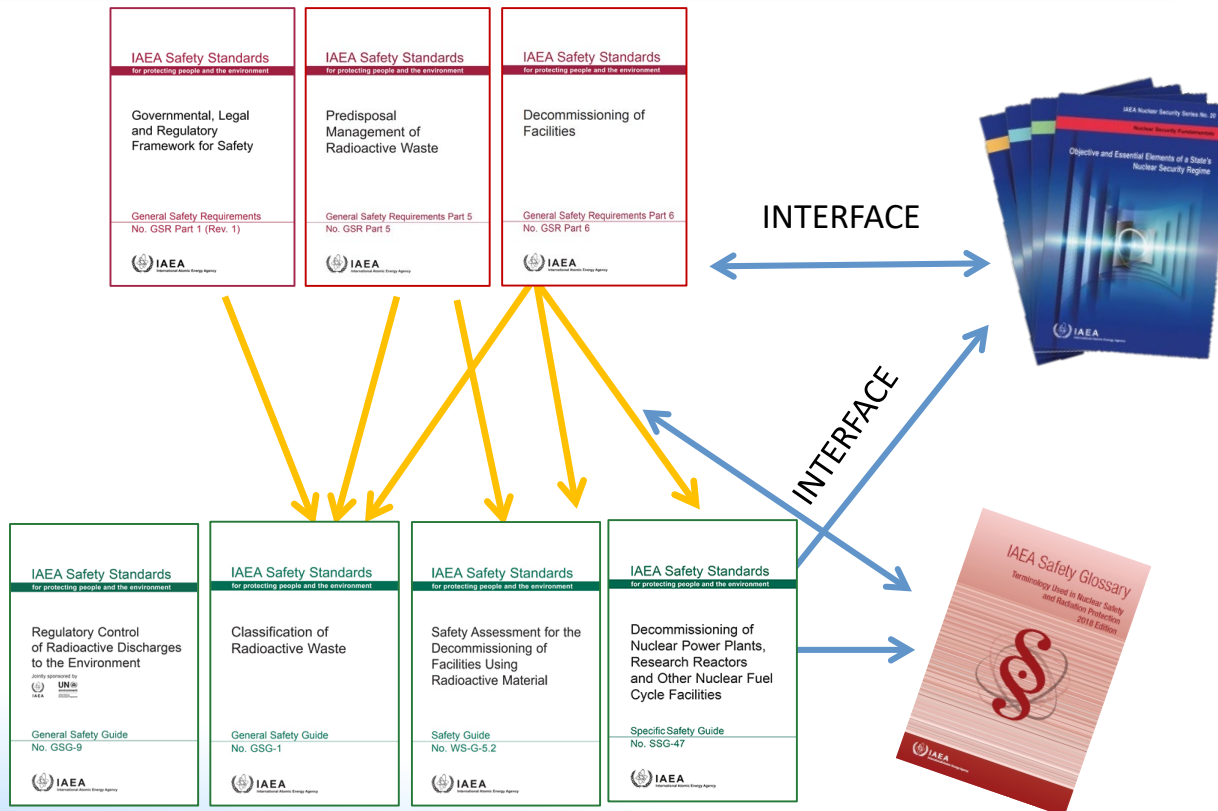
# The IAEA Nuclear Safety and Security Glossary, 2022 (Interim) Edition



- defines and explains technical terms used in IAEA safety standards and IAEA nuclear security guidance and other safety and security related IAEA publications, and provides information on their usage.
- promotes consistency of terminology and usage in the safety standards and nuclear security guidance.
- provides guidance primarily for the drafters and reviewers of safety standards, nuclear security guidance and other publications.
- is a source of information for users of these publications being aware, however, that terminology and usage may differ in other contexts, such as in the publications of other organizations and in binding international legal instruments.

# Relationships in the Safety Standards

The safety standards are a set of publications.  
They are consistent with one another  
and are interrelated.



Publications in the IAEA Nuclear Security Series provide recommendations and guidance on nuclear security and are consistent with the safety standards



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# How the IAEA safety standards are developed, established and revised



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# History of SPESS B



International Atomic Energy Agency

## BOARD OF GOVERNORS

For official use only

**B**

GOV/INF/772  
17 August 1995

RESTRICTED Distr.  
Original: ENGLISH

### THE SAFETY STANDARDS PREPARATION AND REVIEW PROCESS

- Presented to the IAEA Board of Governors in August 1995
- Informed the Board of the new safety standards preparation and review process

- Previously, there had been different processes for the preparation and review of publications in different areas, with a resulting lack of compatibility between some Safety Series publications
- GOV/INF/772 introduced a uniform preparation and review process covering all areas:
  - Creating a set of advisory bodies with harmonized terms of reference to assist the Secretariat in preparing and reviewing all documents;
  - Assigning a Scientific Secretary from the Agency's staff to each of these bodies;
  - Appointing a Technical Officer from the Agency's staff for the preparation of each document



# Who is involved in the development of IAEA safety standards?



- ☐ The IAEA Secretariat
- ☐ Member States
- ☐ The Commission on Safety Standards
- ☐ The Safety Standards Committees and the Nuclear Security Guidance Committee
- ☐ The IAEA's Board of Governors
- ☐ The United Nations, its specialized agencies (such as the FAO, ICAO, ILO, IMO, WHO) and other intergovernmental organizations
- ☐ International experts

# Who is involved in the development of IAEA safety standards?



## MEMBER STATES

Member States have a formal opportunity to comment on draft standards during a 120 day commenting period.

# Who is involved in the development of IAEA safety standards?



## COMMISSION ON SAFETY STANDARDS

The Commission on Safety Standards comprises senior government officials with national responsibilities for safety; they provide guidance at the strategy and policy level and endorse proposals for new standards and new draft standards for publication.



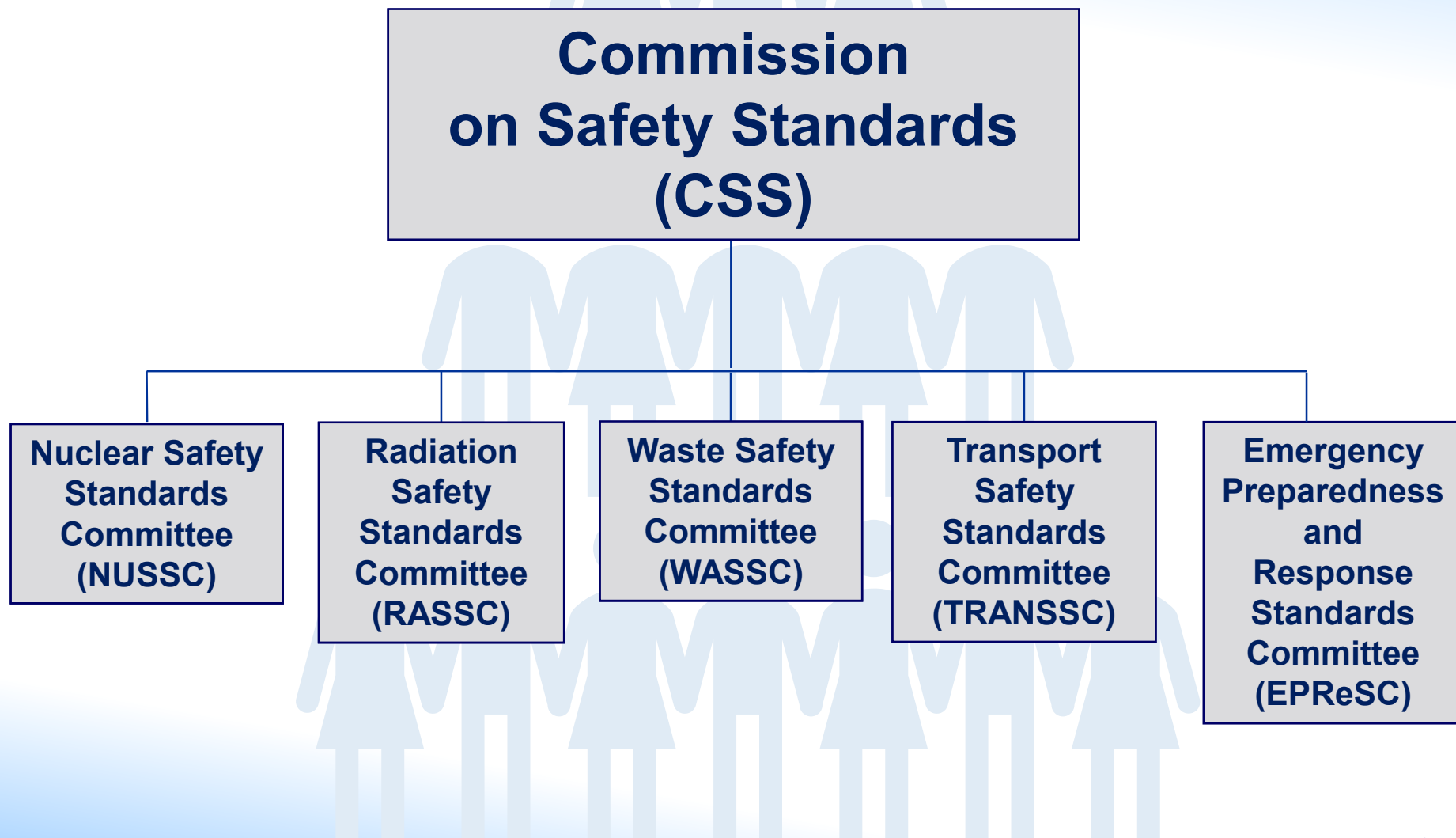
# Who is involved in the development of IAEA safety standards?



## REVIEW COMMITTEES

The Safety Standards Committees and Nuclear Security Guidance Committee comprise senior representatives in the areas of emergency preparedness and response, nuclear safety, radiation safety, transport safety, waste safety and nuclear security. They make recommendations on the safety standards programme and provide feedback and recommendations on areas for improvement.

# Commission & Committees



# Who is involved in the development of IAEA safety standards?



## BOARD OF GOVERNORS

The IAEA's Board of Governors approves Safety Requirements and Safety Fundamentals.



# Who is involved in the development of IAEA safety standards?



## UNITED NATIONS AGENCIES

The United Nations, its specialized agencies (such as the FAO, ICAO, ILO, IMO, WHO) and other intergovernmental organizations are represented as observers on the Safety Standards Committees relevant to their area and may be invited to co-sponsor standards in their field of competence. By cosponsoring a standard, the organization commits to applying the standard in its work and in its advice to Member States. Co-sponsorship also ensures that the United Nations provides consistent advice and assistance to all its Member States.

# Who is involved in the development of IAEA safety standards?



## INTERNATIONAL EXPERTS

International experts are involved in the drafting of standards. Users are invited to provide feedback on the standards, thereby contributing to their review. The users of standards include regulatory bodies, operating organizations, State officials, governments, health sector, manufacturers, vendors, technical and scientific support organizations, designers, suppliers and relevant non-governmental international organizations such as ISO, ICRP.



# Who is involved in the development of IAEA safety standards?

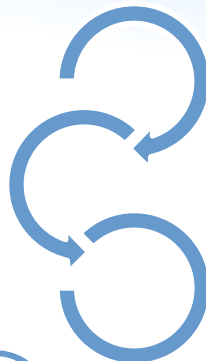


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# Strategies and Processes for the Establishment of IAEA Safety Standards

Prepared by Secretariat and experts  
Reviewed by the Committees and Commission on Safety Standards



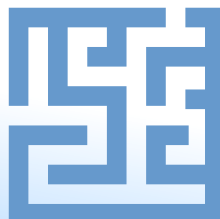
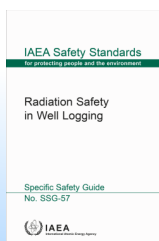
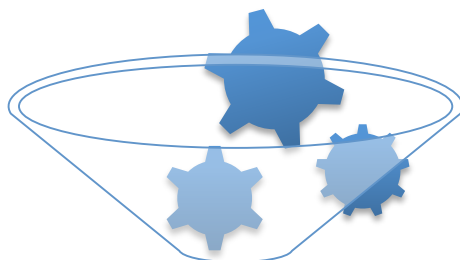
Reviewed by the Member States



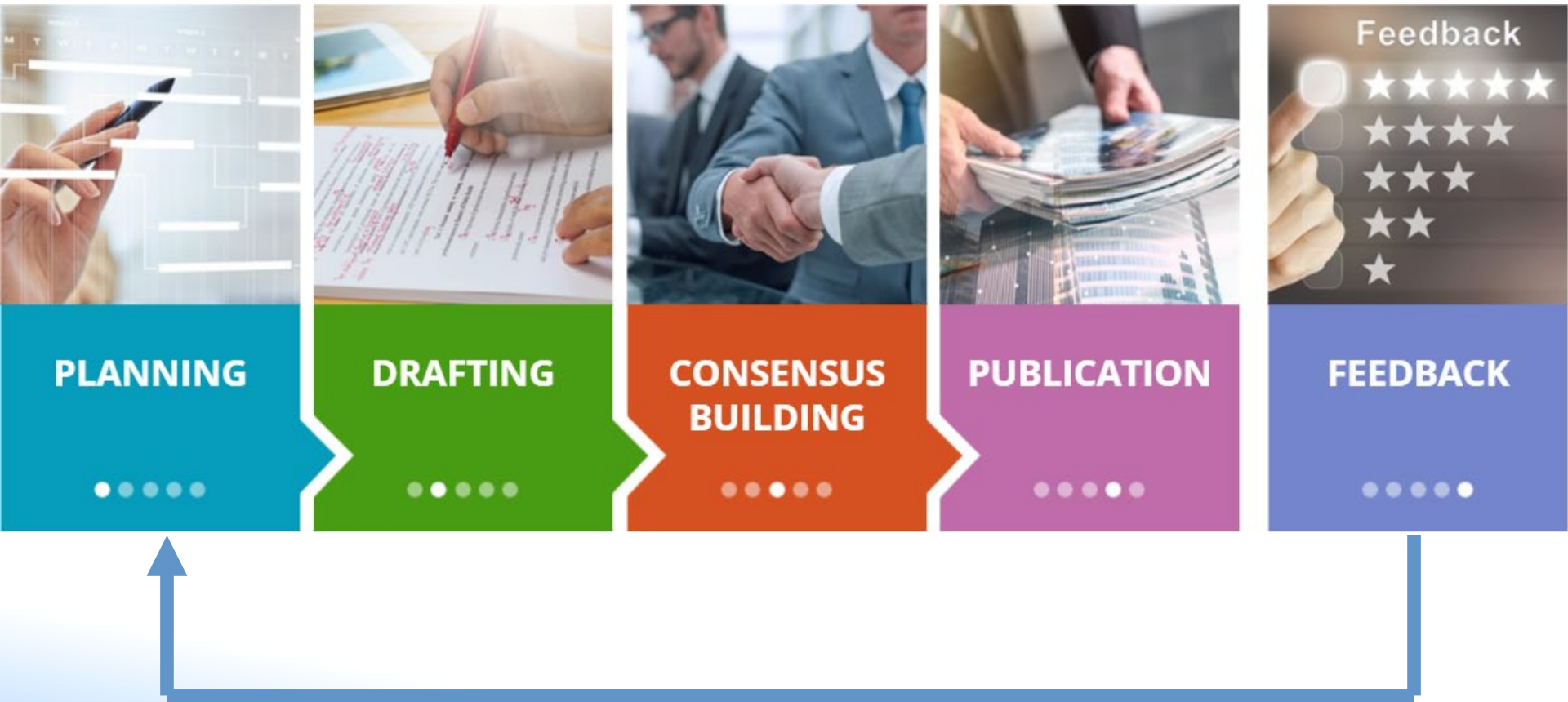
Reviewed for consistency

Reviewed by the Committees and Commission on Safety Standards

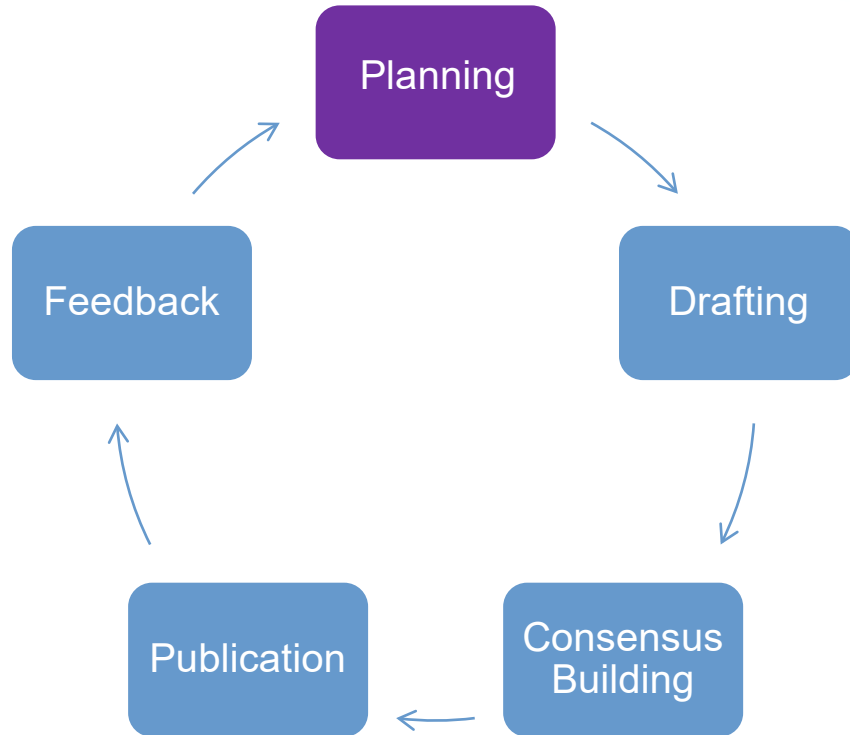
Endorsement by the IAEA's Director General or BoG



# The process for developing safety standards



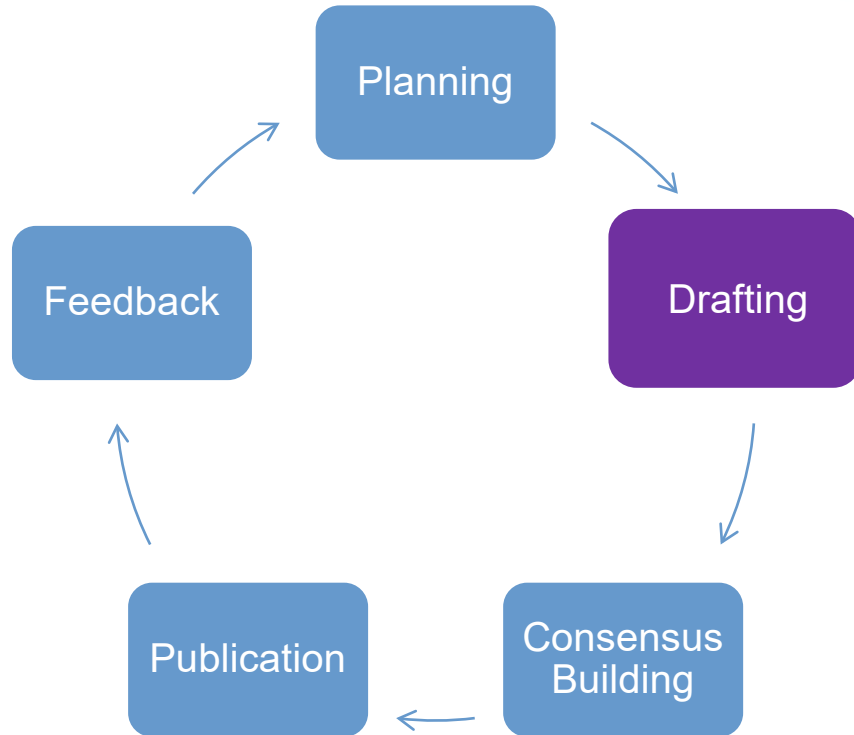
# The process



- ✓ The need for a new or revised standard is identified
- ✓ A Document Preparation Profile (DPP) is prepared
- ✓ The relevant Committees review the DPP
- ✓ The CSS reviews the DPP and confirms its place in the Safety Standards Series

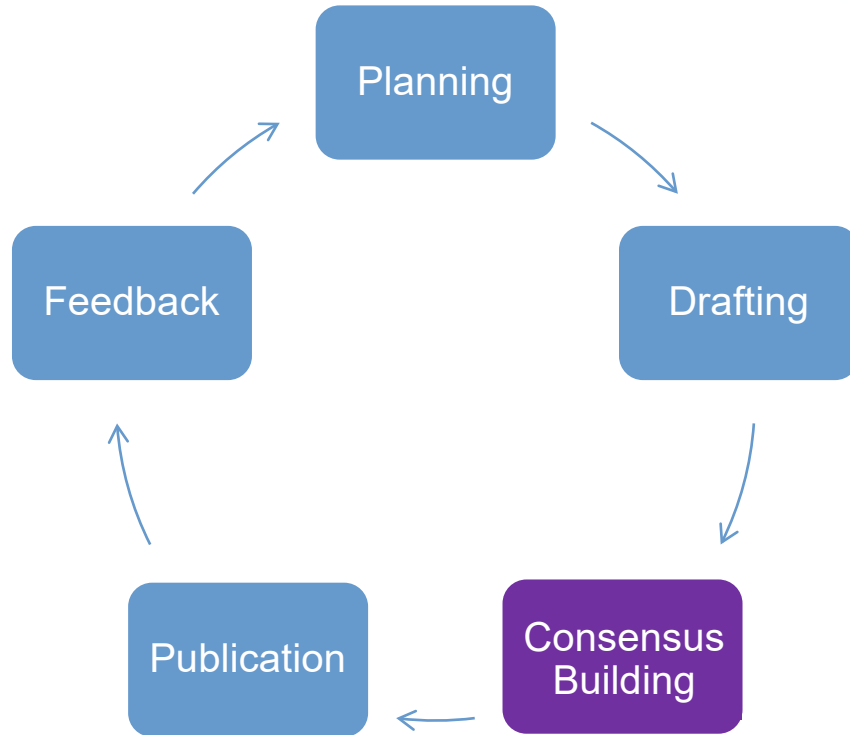


# The process



- ✓ IAEA staff and experts from regulatory bodies, industry and other interested parties in Member States draft the standard
- ✓ The Safety Standards Committees review the draft standard to ensure it meets the specifications of the DPP and that it is of sufficient quality to be sent to Member States for comment

# The process



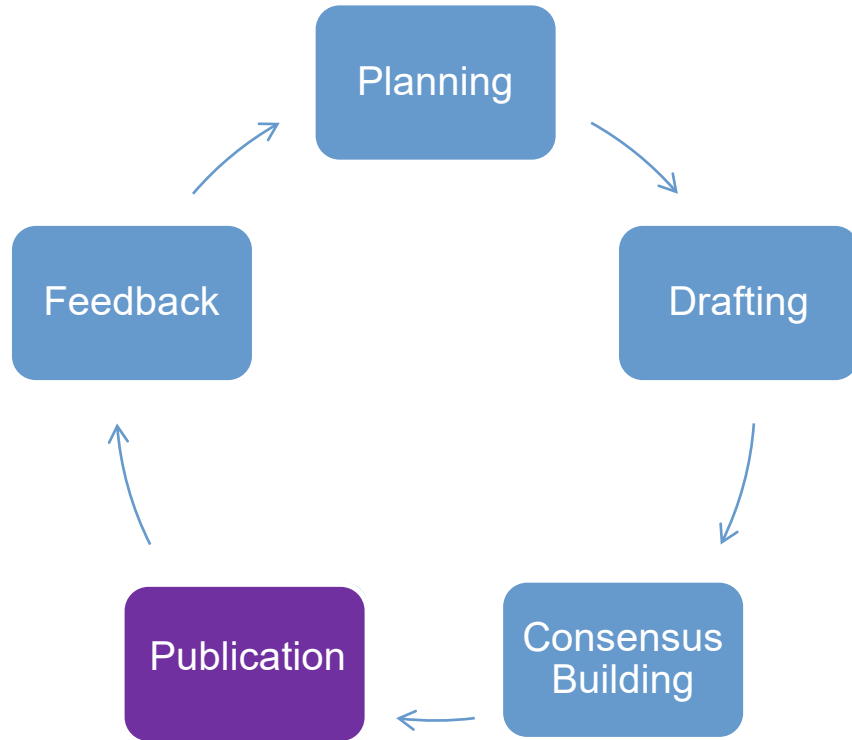
## Member States Review

- ✓ Member States have 120 days to review the draft standard and provide comments

## Standardization and refining

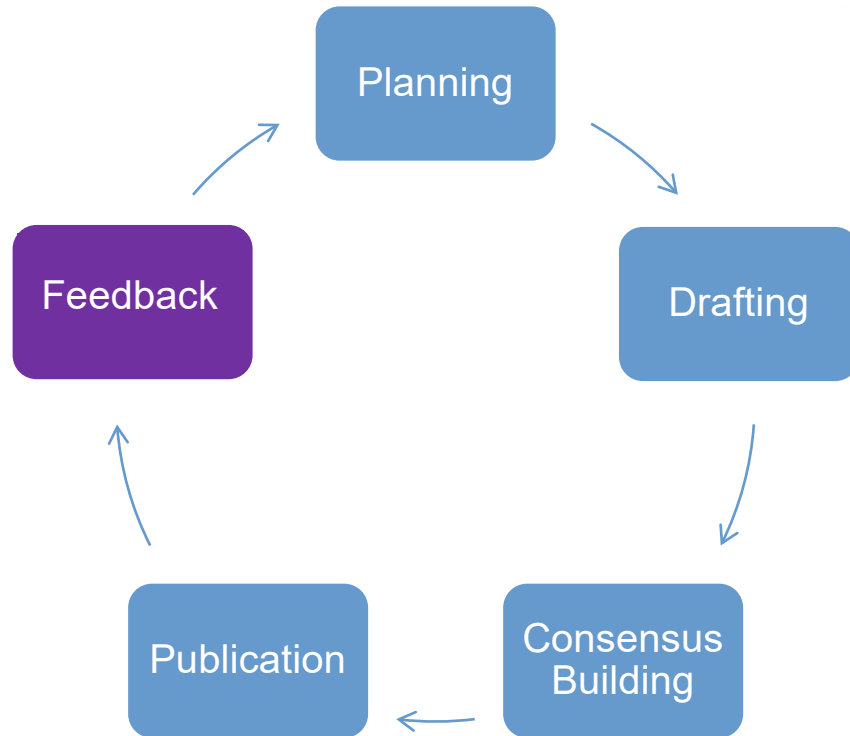
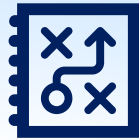
- ✓ The Secretariat carries out a comprehensive review of the text of the draft standard
- ✓ The Safety Standards Committees review the resolution of Member State comments and the revised draft
- ✓ The IAEA's professional editors edit the draft
- ✓ The final edited draft is presented to the CSS for their endorsement for publication

# The process



- ✓ The IAEA Board of Governors approves Safety Requirements and Safety Fundamentals for publication
- ✓ The IAEA Director General approves Safety Guides for publication
- ✓ New standards are published online and in printed format
- ✓ New standards are included in the online user interface NSS-OUI

# The process



- ✓ Feedback is used to identify areas where new standards need to be developed or where improvements are needed
- ✓ The IAEA Secretariat collects feedback from safety review missions, lessons learned from events, and experience in the use and application of the safety standards
- ✓ The NSS-OUI tool enables users to easily and quickly provide feedback



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# **Publications in the IAEA Safety Standards Series**



# Current Status of the Safety Standards



134 safety standards published



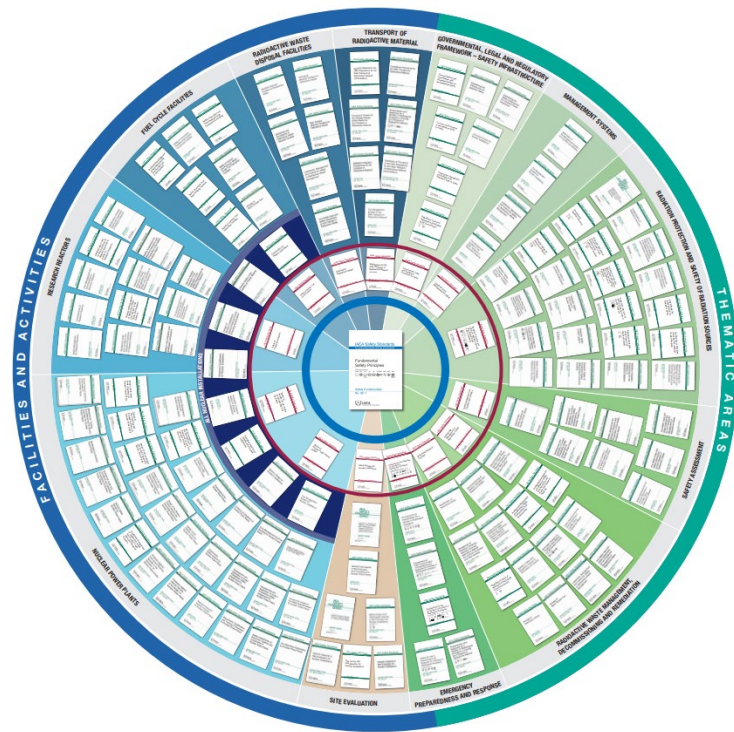
Fundamentals and Requirements issued in all official languages



About 20% of standards are under revision



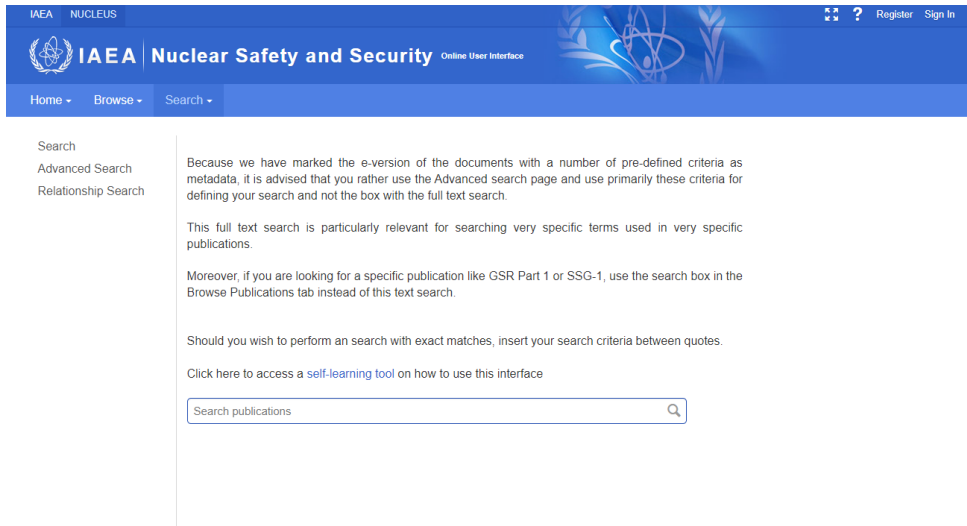
The expected total number of standards is 145



# Where to get more information

NSS-OUI

IAEA.org



The screenshot shows the IAEA Nuclear Safety and Security Online User Interface (NSS-OUI) search page. The header includes the IAEA logo, the text "Nuclear Safety and Security", and "Online User Interface". Below the header, there are navigation links: "Home", "Browse", and "Search". The main content area is titled "Search" and contains a search box with the placeholder text "Search publications". To the left of the search box, there are links for "Search", "Advanced Search", and "Relationship Search". To the right of the search box, there is a list of search criteria: "Because we have marked the e-version of the documents with a number of pre-defined criteria as metadata, it is advised that you rather use the Advanced search page and use primarily these criteria for defining your search and not the box with the full text search.", "This full text search is particularly relevant for searching very specific terms used in very specific publications.", "Moreover, if you are looking for a specific publication like GSR Part 1 or SSG-1, use the search box in the Browse Publications tab instead of this text search.", "Should you wish to perform an search with exact matches, insert your search criteria between quotes.", and "Click here to access a self-learning tool on how to use this interface".

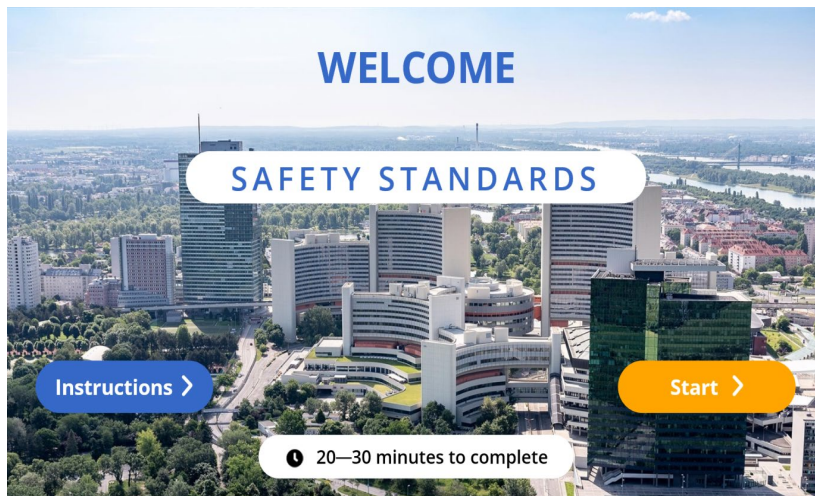


The screenshot shows the IAEA Safety Standards page. The header includes the IAEA logo, the text "International Atomic Energy Agency", and "Press centre Employment Contact". Below the header, there are navigation links: "TOPICS", "SERVICES", "RESOURCES", "NEWS & EVENTS", and "ABOUT US". The main content area is titled "IAEA Safety Standards protecting people and the environment". It features a large image of the IAEA logo and a circular diagram. Below the image, there is a section titled "Safety standards" with a list of links: "Scientific and technical publications", "Draft standards posted for official comment by Member States", "Recently published safety standards", "Safety Glossary", "Safety standards under development", and "Search safety standards". To the right of the list, there is a paragraph of text: "Among the IAEA's key publications are its Safety Standards, which provide the fundamental principles, requirements and recommendations to ensure nuclear safety. They serve as a global reference for protecting people and the environment and contribute to a harmonized high level of safety worldwide." Below the paragraph, there is a section titled "Activities such as the medical uses of radiation, the operation of nuclear installations, the production, transport and use of radioactive material, and the management of radioactive waste must be subject to standards of safety." and another paragraph: "The prime responsibility for nuclear safety must rest with the person or organization responsible for these activities. Regulating safety is a national responsibility. However, radiation risks may transcend national borders, and international cooperation serves to promote and enhance safety globally by exchanging experience and by improving capabilities to control hazards, to prevent accidents, to respond to emergencies and to mitigate any harmful consequences." Below the paragraph, there is a section titled "The IAEA is required by its Statute to promote international cooperation. Its Statute authorizes it to establish or adopt safety standards for the protection of health and to minimize the danger to life and property. The Agency develops such standards on the basis of an open and transparent". To the right of the text, there is a search box with the placeholder text "Search Safety Standards (NSS-OUI)". Below the search box, there is a section titled "Related resources" with a list of links: "Strategies and processes", "Status of Safety Standards", "Superseded Safety Standards", "Safety Standards poster", "IAEA Safety Standards and Nuclear Security Guidance Online User Interface (NSS-OUI)", "E-learning Guidance for Consultants and Invited Experts on the Drafting of the IAEA Safety Standards", and "Review committees". Below the list, there is a section titled "Languages" with the text "All safety standards in one file:".

# E-learning

**IAEA Safety Standards Overview**  
**<https://elearning.iaea.org/m2/enrol/index.php?id=691>**

**Guidance for External Contributors  
on Drafting IAEA Safety Standards**  
**<https://elearning.iaea.org/m2/course/view.php?id=689>**



Welcome ...

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*e-learning*  
Guidance for  
Consultants and  
Invited Experts  
on the Drafting of  
IAEA Safety  
Standards



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International Atomic Energy Agency

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# How to contact us

**[Safety.Standards@iaea.org](mailto:Safety.Standards@iaea.org)**



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International Atomic Energy Agency

*Atoms for Peace and Development*

*Thank you!*

