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Joint ICTP-IAEA School of Nuclear Energy Management

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The IAEA Safety Standards

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HISTORY, PROCESS AND CURRENT STATUS OF THE IAEA SAFETY STANDARDS

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IAEA
International Atomic Energy Agency

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- History of IAEA Safety Standards
- Current status of IAEA Safety Standards
- Vision and strategies for IAEA Safety Standards

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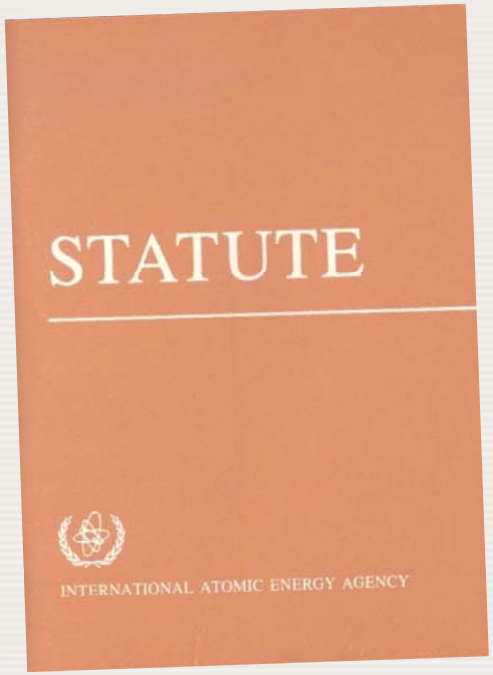
History of IAEA Safety Standards

History – IAEA Statute

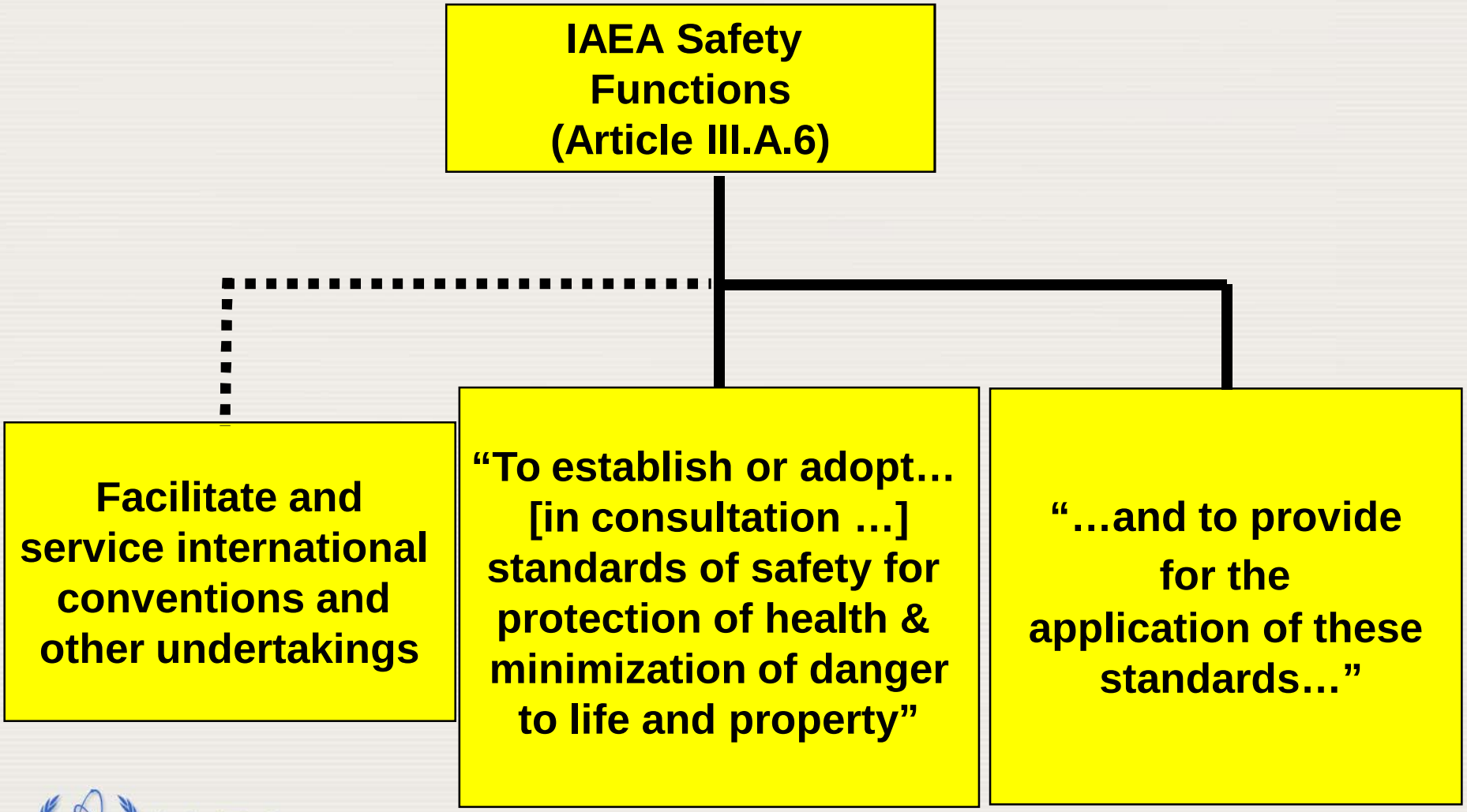
Under Article III.A.6 of its Statute, the IAEA is authorized:



"To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property."

In 1958, the IAEA published its first Safety Standard, Safety Series No. 1, ***Safe Handling of Radioisotopes***. Over the years, some 200 publications were issued in the Safety Series.

History – IAEA Safety Functions



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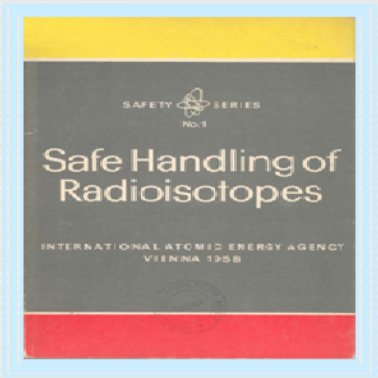
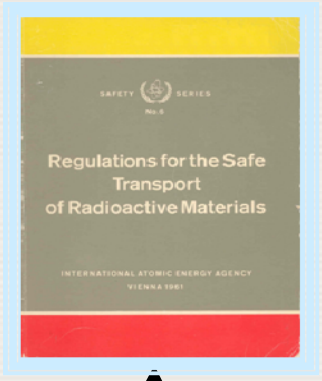
History

Safe Handling of Radioisotopes



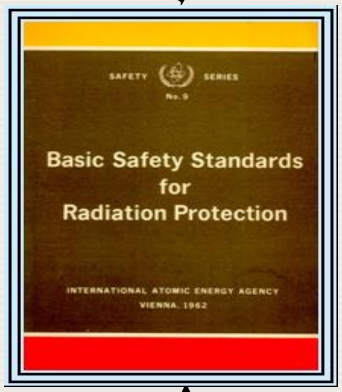
1958

Safe Transport of Radioactive Material



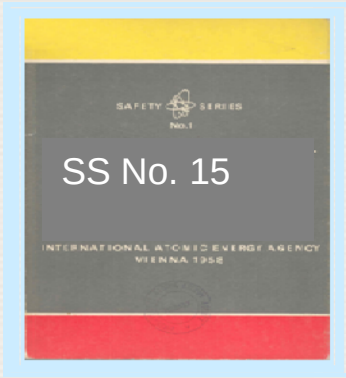
1961

BSS for Radiation Protection



1962

Radioactive Waste Disposal into the Ground



1965

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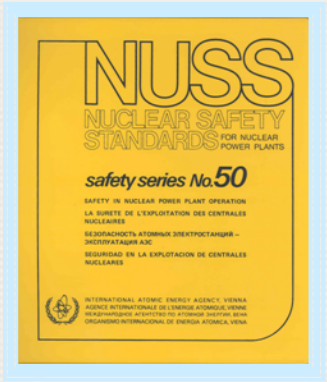
History

1958 - 1973

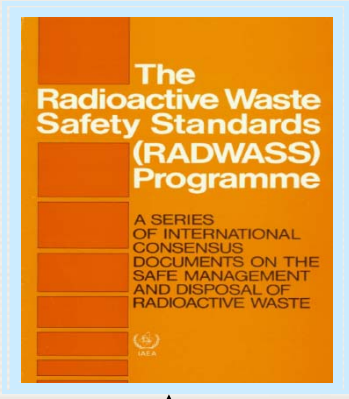
- Bottom-up approach
- Collection of experience in safety practices and guides
- Identification of the requirements

History

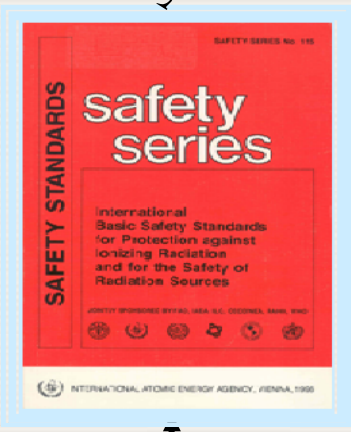
NUSS Programme



RADWASS Programme



Basic Safety Standards



1974

1988

1996

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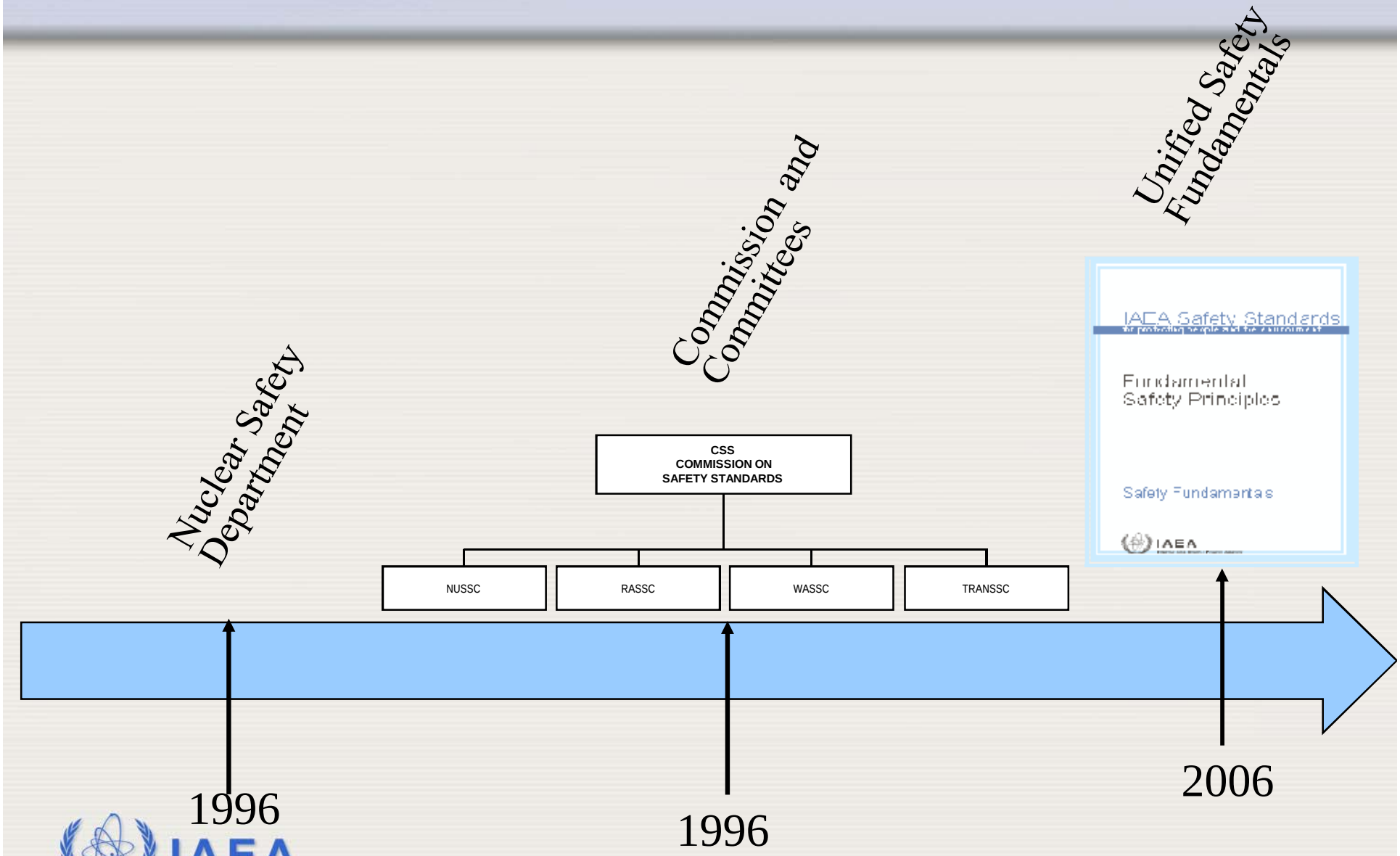
History

1974 - 1996

- Four structured programmes
- Bottom-up approach
- Issuance of three Safety Fundamentals

History


Nuclear Safety Department
Commission and Committees
Unified Safety Fundamentals
CSS
COMMISSION ON
SAFETY STANDARDS
NUSSC
RASSC
WASSC
TRANSSC
IAEA Safety Standards
Fundamental Safety Principles
Safety Fundamentals
IAEA
1996
1996
2006

History

1996 - 2011

1996 - Establishment of the Department of NS:

- ✓**Harmonized processes involving the Commission and the four Committees; and**
- ✓**Preparation of an overall structure of Safety Standards.**

2006 - Unified Safety Fundamentals: **beginning of a top-down approach**

2008 - Roadmap on the long term structure and format of SR approved by CSS: **integration and better user-friendliness**

2009-2011 – Joint Advisory Group on Nuclear Security – Commission on Safety Standards Task Force

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Peace Prize for 2005

"The... Committee has decided that the Nobel Peace Prize for 2005 is to be shared... between the IAEA and its Director General...

- for their efforts to prevent nuclear energy from being used for military purposes, and
- to ensure that nuclear energy for peaceful purposes is used in the safest possible way."

" At a time ...when there is a danger that nuclear arms will spread both to states and to terrorists groups, and when nuclear power again appears to be playing an increasingly significant role, IAEA's work is of incalculable importance."

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Current Status of IAEA Safety Standards

Status of the IAEA Safety Standards

Safety Standards are:

- Non binding on Member States but may be adopted by them
- Binding for 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

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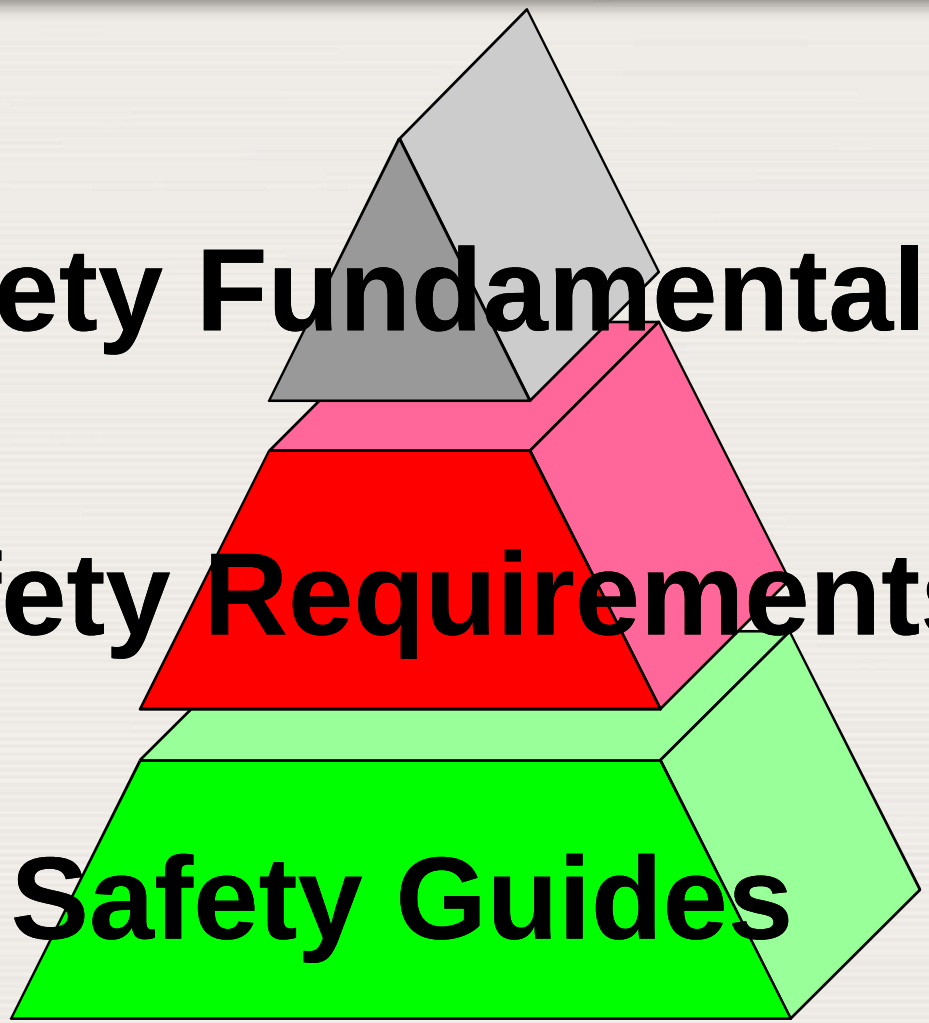
Safety Standards Categories



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Safety Standards Categories

Fundamental safety objective and principles for protecting people and environment

Requirements that must met to ensure protection of people and environment – 'shall'

Recommended ways of meeting the requirements

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Fundamental Safety Objective and Fundamental Safety Principles (1/2)

Unified Fundamental Safety Principles

Principle 1: Responsibility for safety

Principle 2: Role of government

Principle 3: Leadership and management of safety

Principle 4: Justification of facilities and activities

Principle 5: Optimization of Protection

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Fundamental Safety Objective and Fundamental Safety Principles (2/2)

Unified Fundamental Safety Principles

Principle 6: Limits on risks to individuals

Principle 7: Protection of present and future generations and the environment

Principle 8: Prevention of accidents

Principle 9: Emergency preparedness and response

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

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Commission & Committees

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Commission on Safety Standards

- Standing body of senior government officials holding national responsibilities for establishing standards and other regulatory documents relevant to nuclear, radiation, transport and waste safety

- Overview role with regard to the Agency's safety standards and provides advice to the Director General on the overall programme on regulatory aspects of safety

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Terms of Reference of the Commission on Safety Standards

The functions of the CSS are:

- **To provide guidance on the approach and strategy for establishing the Agency's SSs, particularly in order to ensure coherence and consistency between them;**
- **To resolve issues referred to it by the committees;**

Terms of Reference of the Commission on Safety Standards

The functions of the CSS are (Cont'd) :

- **To endorse the texts of the SF & SRs for the BoG approval and SGs to be issued under the authority of the DG; and**
- **To provide general advice and guidance on SSs issues, relevant regulatory issues and SSs and related programmes, including those for promoting the worldwide application of the standards.**

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Safety Standards Committees

- **Standing bodies of senior experts, established by the DDG-NS**
- **They advise the DDG-NS on the overall programme for the development, review and revision of standards and the programme for their application**

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Terms of Reference of the Safety Standards Committees

- To advise on the programme for the development of SSs, and to advise on priorities;
- To recommend activities and areas for improvement to enhance the overall programme and particularly to advise on the programme for the application of SSs
- To review reports on feedback from the application and use of SSs and to advise on enhancing their usefulness to achieve high levels of safety as well as on the timely review and the need for revision of published SSs
- To review proposals and to approve the DPPs prior to their submission to the CSS;

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Terms of Reference of the Safety Standards Committees

- To review draft SSs, considering the value of each draft standard and the needs of users of the standards;
- To approve the text of draft SSs prior to their submission to Member States for comments and again prior to their submission to the CSS;
- To advise on relevant regulatory issues and activities for supporting the use and application of SSs and, upon request, on related issues;
- To review upon request draft publications in the Nuclear Security Series, in the Nuclear Energy Series and in other IAEA series where there is an interface with the SSs.

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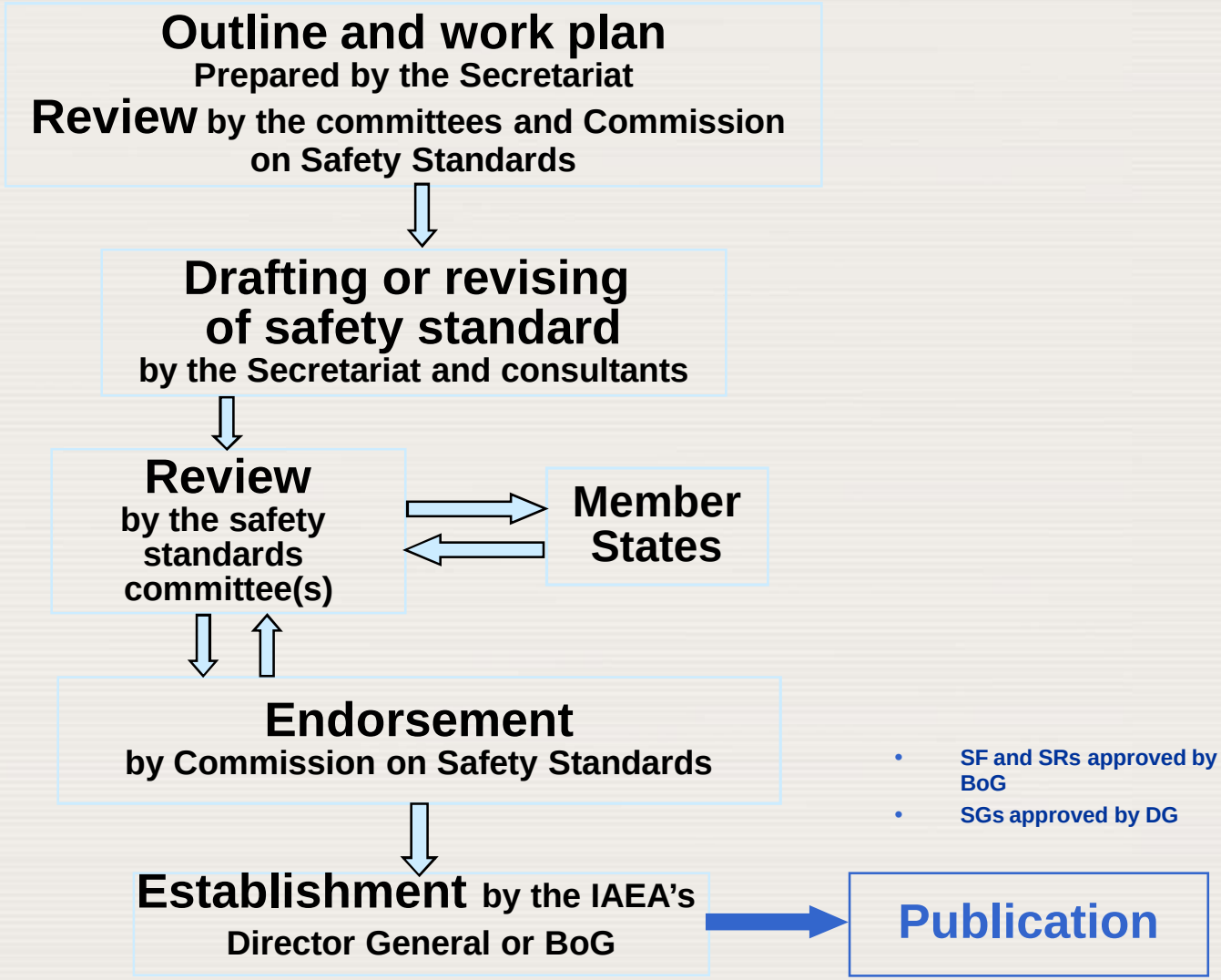
Process Flow for the Development of IAEA Safety Standards



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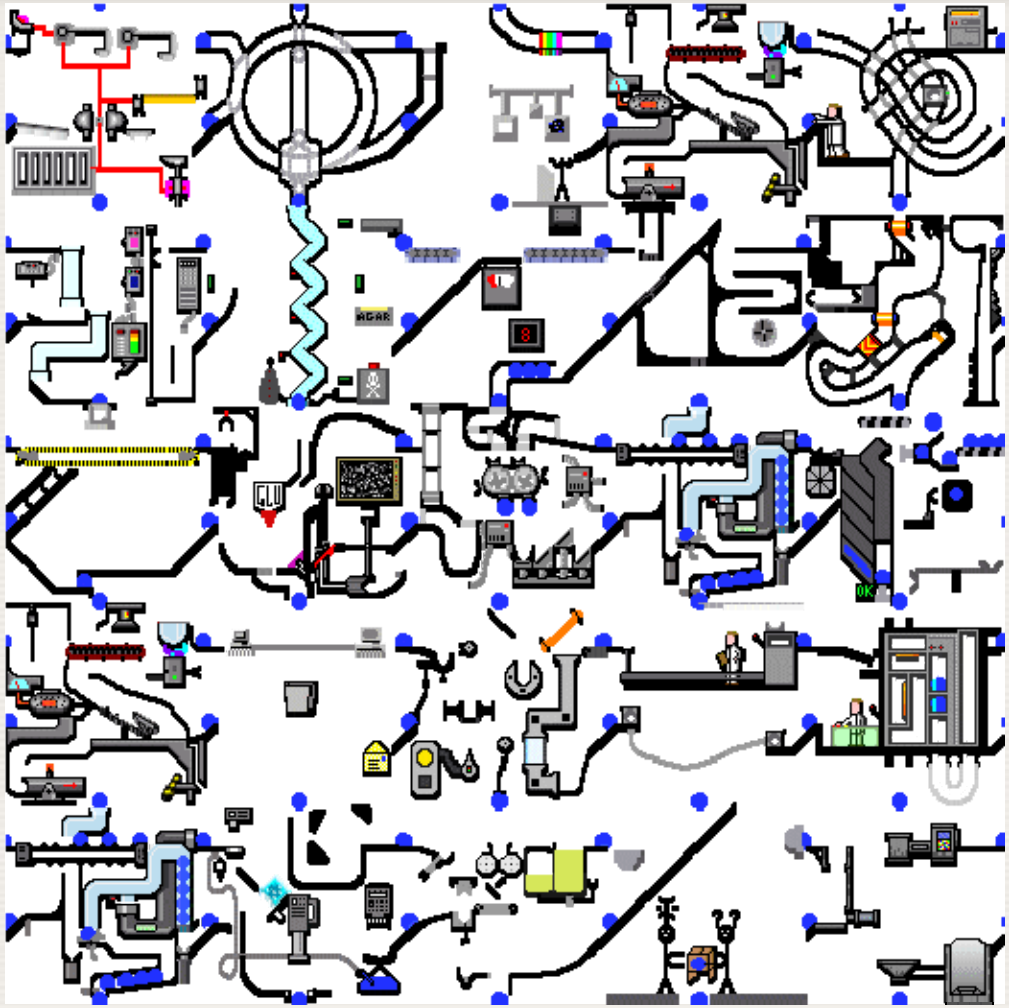
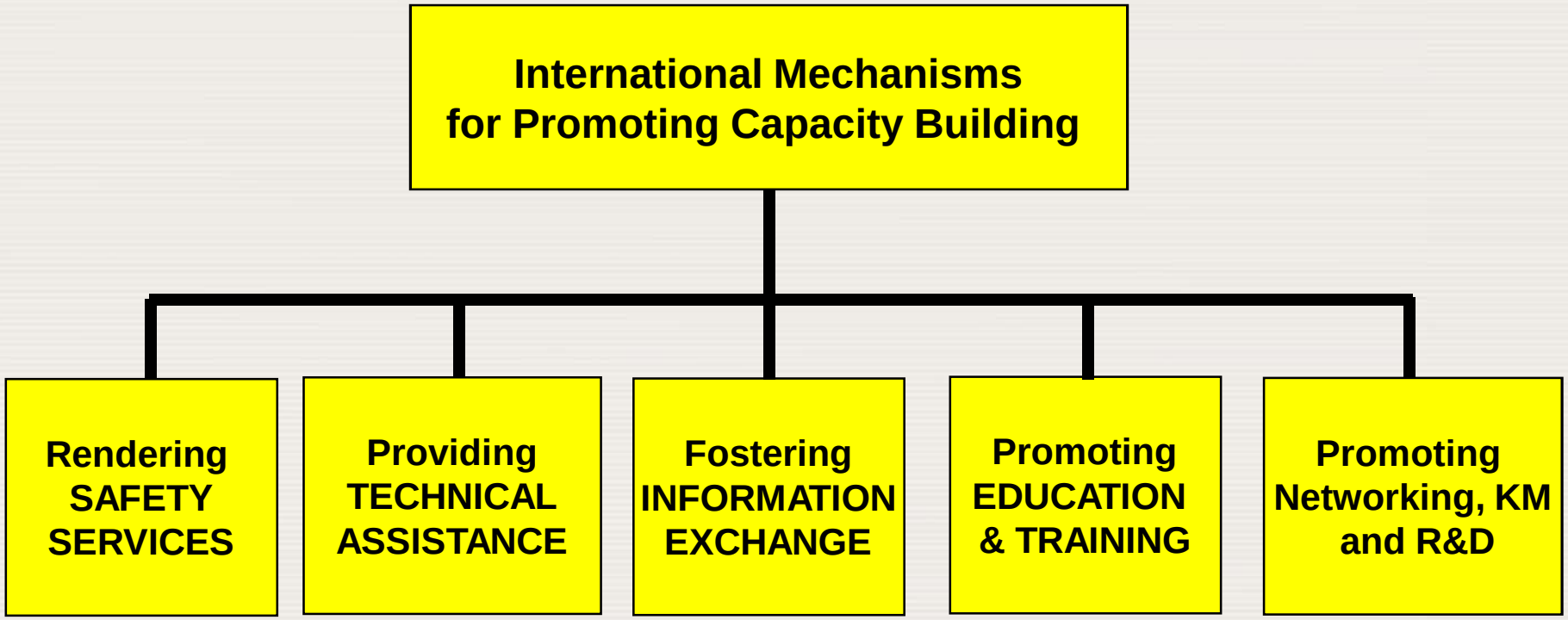
Step-by-step process



Provisions for the application of standards



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Application of Safety Standards

A crucial element now is to enhance the effectiveness & efficiency of the feedback mechanisms in place to collect and use feedback from the application of the SSs

Application of Safety Standards

Notable use by MS:

- Formally adopted
- Direct use of standards
- Used as reference for review of national standards and as benchmark for harmonization

Vision and Strategies for the IAEA Safety Standards

IAEA SAFETY STANDARDS – THE VISION

THE IAEA SAFETY STANDARDS: A GLOBAL REFERENCE FOR PROTECTING PEOPLE AND THE ENVIRONMENT

An integrated, comprehensive and consistent set of up-to-date, user friendly and fit-for-purpose IAEA safety standards of a high quality.

Using and applying the IAEA safety standards will provide for a worldwide harmonized high level of protection for people and the environment from harmful effects of ionizing radiation.

BASIC STRATEGIES IN ACHIEVING THE VISION

Outlined by the CSS and Senior Regulators' Meeting in 2008

A. Clear categories

B. Clear, logical and integrated structure

C. Clear scope

D. Consensus at the highest level

E. User friendliness

F. Manageable number of safety standards

G. Clarity, rigour and efficiency of the processes

H. Involvement of stakeholders

I. Effective feedback mechanisms

J. Harmonized terminology

K. Promotion of the IAEA safety standards

BASIC STRATEGIES IN ACHIEVING THE VISION

A. Clear categories

The structure of the safety standards reflects the ten Fundamental Safety Principles and the "Roadmap on the long-term structure of the safety standards" of May 2008.

SAFETY REQUIREMENTS. General Safety Requirements are complemented by a series of facility and activity specific Safety Requirements.

The Requirements address what must be done while the Guides will address how this may be achieved.

SAFETY GUIDES. Safety Guides implement several requirements and thus allow for the optimization of the whole set of guides.

There should be one Safety Guide for each important theme, unless a justification is provided for the need for a separate Guide or if combining too many topics for a single theme would not be practicable.

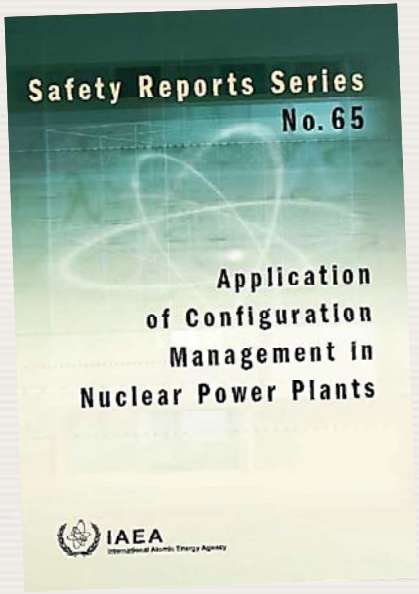
BASIC STRATEGIES IN ACHIEVING THE VISION

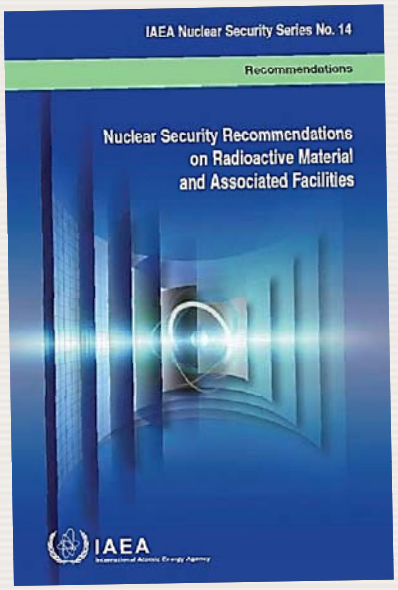
B. Clear, logical and integrated structure

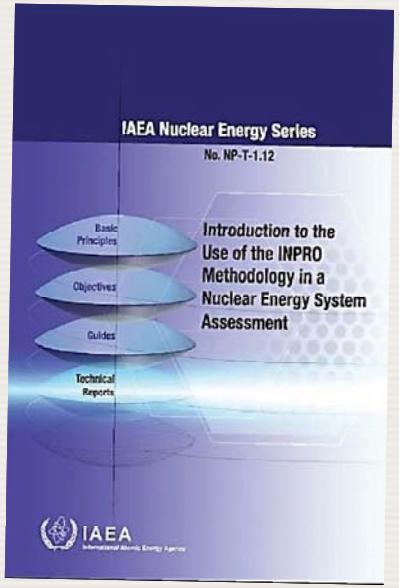
BASIC STRATEGIES IN ACHIEVING THE VISION

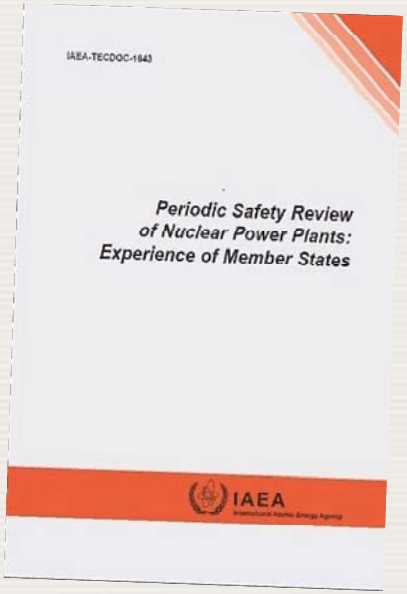
C. Clear scope

Beyond Safety Standards Series publications, the IAEA publishes *Safety Reports*, books in the *Nuclear Security Series* and in the *Nuclear Energy Series* and *TECDOCs*; each series has its scope.









BASIC STRATEGIES IN ACHIEVING THE VISION

D. Consensus at the highest level

The Commission on Safety Standards and the Committees were established with the objective of achieving consensus, quality, coherence and consistency in the development of international standards for safety.

IAEA safety standards are developed in close consultation with Member States and with representatives of relevant international organizations.

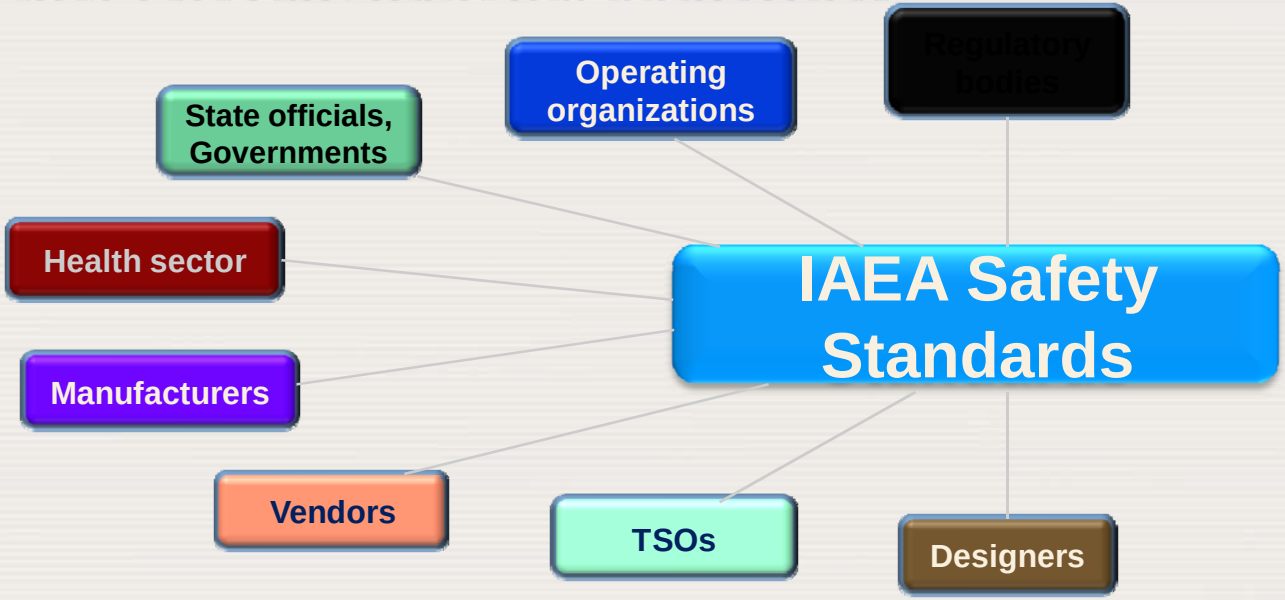
Approval by the Board of Governors is required for Safety Fundamentals and Safety Requirements.

The authority to establish Safety Guides has been delegated to the IAEA Director General.

BASIC STRATEGIES IN ACHIEVING THE VISION

E. User friendliness

The principal users of safety standards are regulatory bodies and other relevant national authorities.



The safety standards are also used by individuals, co-sponsoring organizations, organizations that design, manufacture and operate nuclear facilities, and organizations involved in the use of radiation related technologies.

BASIC STRATEGIES IN ACHIEVING THE VISION

F. Manageable number of safety standards

OVER THE PAST TEN YEARS, *85* SAFETY STANDARDS HAVE BEEN PUBLISHED

⇨ *8-9* SAFETY STANDARDS CAN BE COMPLETED *IN ANY YEAR*[3] ⇦

There is typically a ten year cycle for the revision of standards: it is important to keep this factor in mind when deciding on a manageable number of Safety Guides.

SPESS sets out the conditions under which new Safety guides may be started or existing Safety Guides may be revised.

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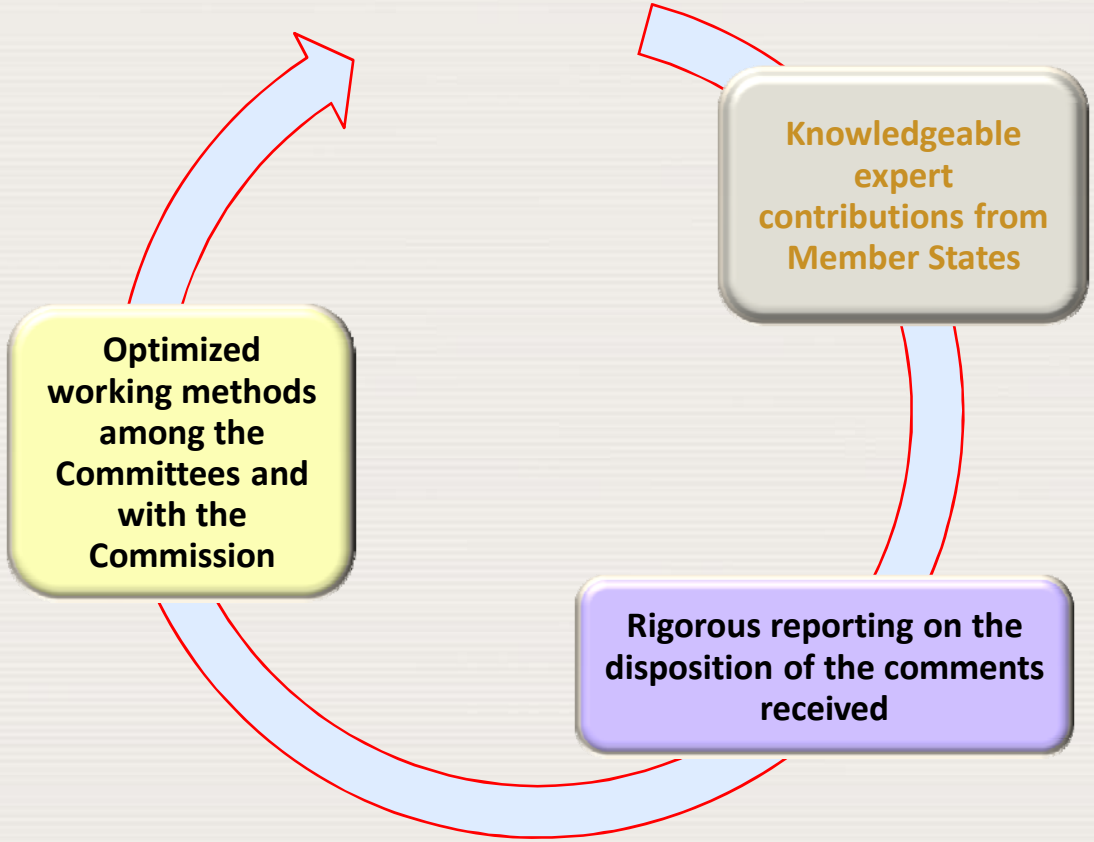
[3] Given the current resources in the IAEA Secretariat and Member States.

BASIC STRATEGIES IN ACHIEVING THE VISION

G. Clarity, rigour and efficient processes



BASIC STRATEGIES IN ACHIEVING THE VISION

H. INVOLVEMENT OF STAKEHOLDERS

Participation by the different stakeholders (for example, users, regulators and co-sponsors) during the drafting and review phase is a long established practice of the IAEA.

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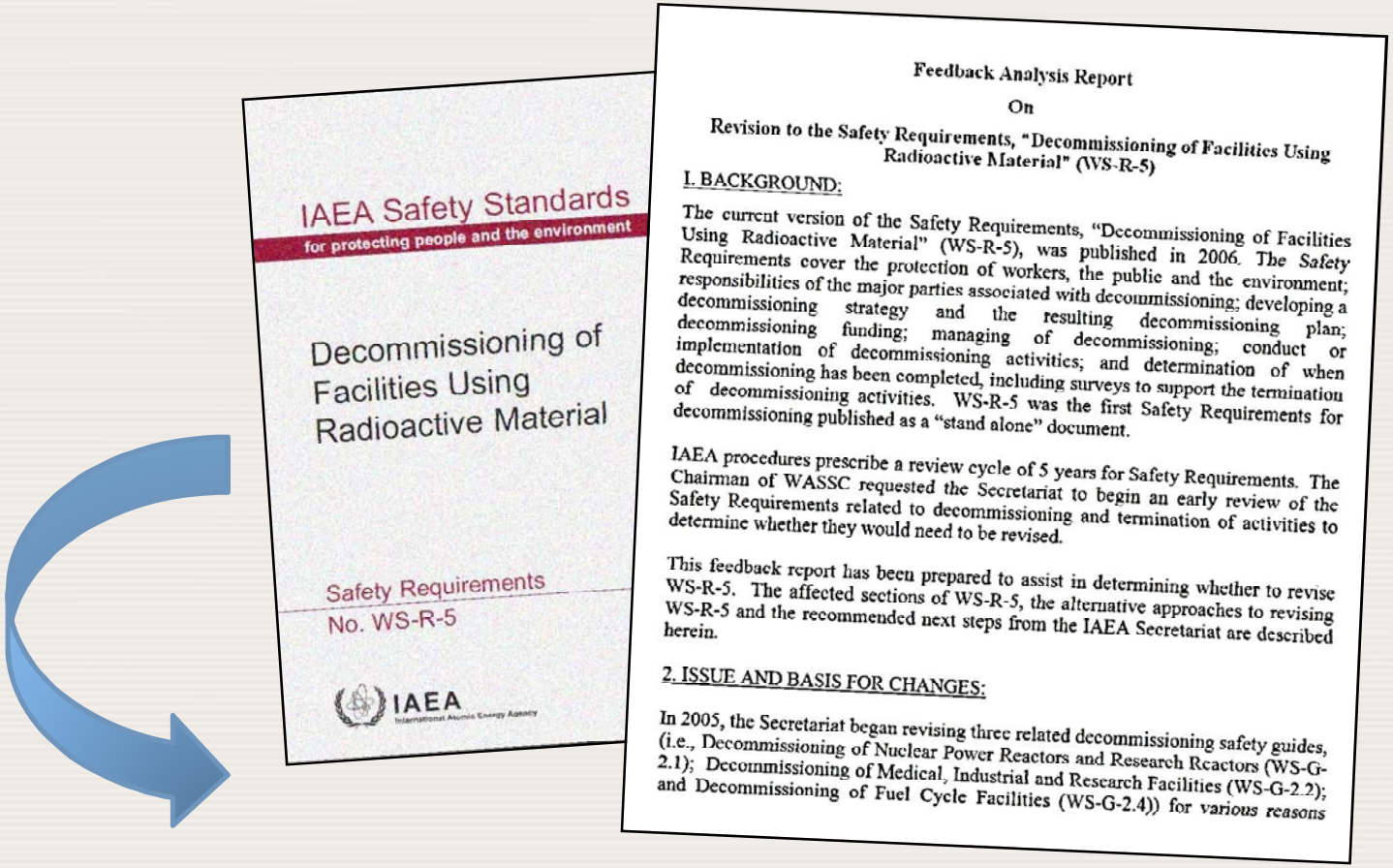
BASIC STRATEGIES IN ACHIEVING THE VISION

I. EFFECTIVE FEEDBACK



Feedback is one of the main inputs for the revision of the safety standards.

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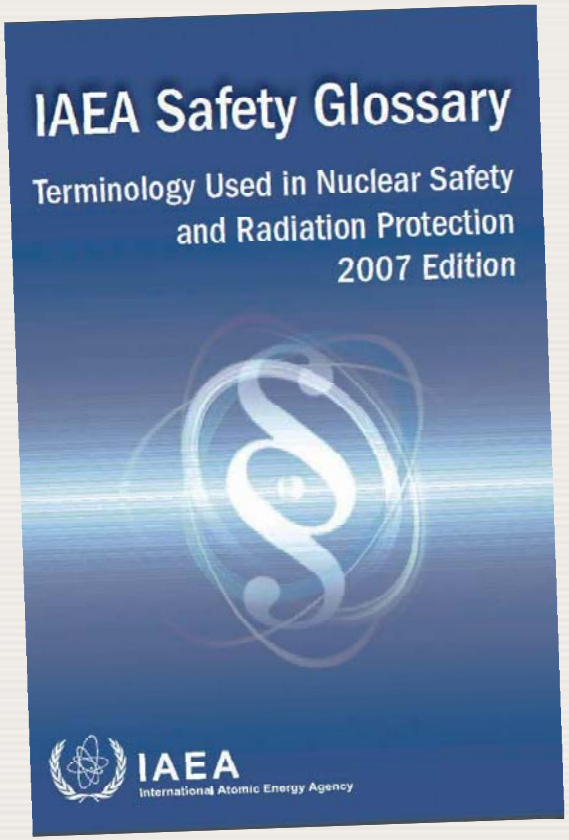
BASIC STRATEGIES IN ACHIEVING THE VISION

J. HARMONIZED TERMINOLOGY



Drafters of safety and security related IAEA publications — particularly safety standards — should use terms as recommended by the IAEA Safety Glossary.

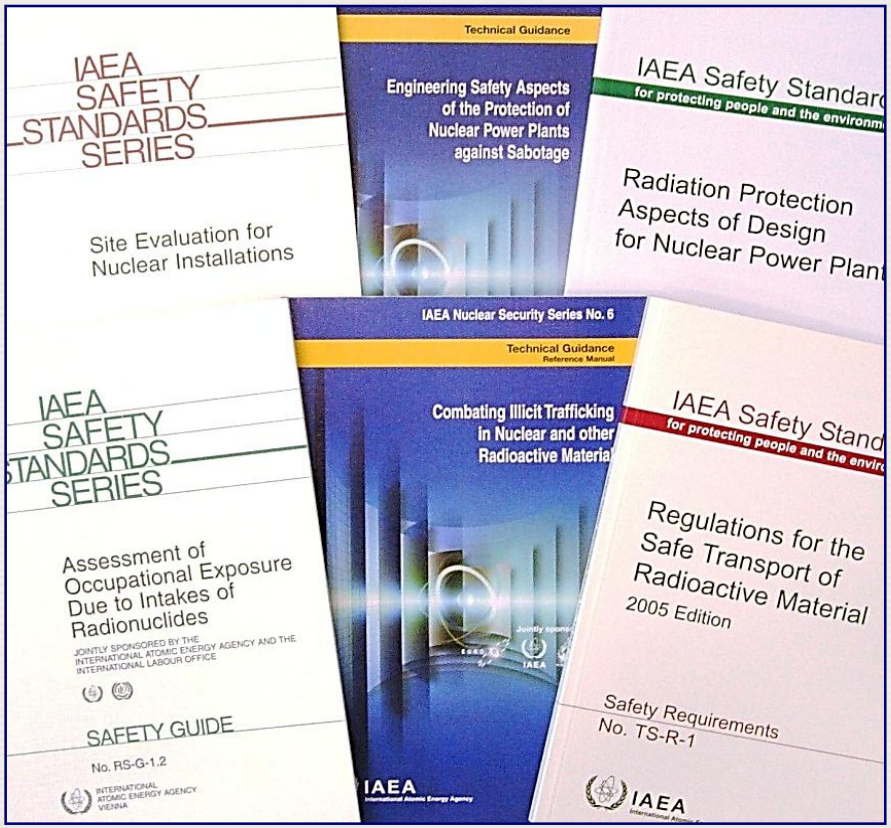
Unless otherwise justified and accepted through the review process, there should be no individual glossary in individual publications.

If a need to add or revise a definition of the IAEA Safety Glossary is identified through the development or revision of a safety standard, the proposal will be submitted to the review process and to the meeting of the four Chairs and if agreed, the Safety Glossary will be updated accordingly.

BASIC STRATEGIES IN ACHIEVING THE VISION

K. PROMOTION OF THE IAEA SAFETY STANDARDS

Any IAEA officer or committee member involved in the planning, development, review, revision, approval and establishment process for the IAEA safety standards should actively promote their use and application worldwide and the dissemination of feedback from this use.



Current Status of the Safety Standards

Since the establishment of the Safety Standards Series

- Safety Fundamentals issued in 2006
- Safety Requirements established from 1996 to 2010
- In total 108 safety standards published

Updated “Status of Safety Standards” on the web site
http://www-ns.iaea.org/standards/status.pdf

- Includes hyperlinks to the published safety standards in official languages

- Includes general information and a link to the IAEA Safety Glossary

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SPESS

- SPESS: Strategies and Processes for the Establishment of the IAEA Safety Standards

  http://www-ns.iaea.org/downloads/standards/spess.pdf
- The objective of this document is to describe the strategies, the processes and associated responsibilities for the planning, development, review and revision, approval and establishment of the IAEA safety standards.
- The intent is to document and strengthen the process which started with the establishment of the Commission on Safety Standards and the Safety Standards Committees in 1996, in order to achieve by the end of 2015 and maintain beyond this time:
  - A genuine integration of all areas in the Safety Standards Series, using a top-down approach based on the unified Safety Fundamentals;
  - A rationalization of the Series with a reasonable and manageable number of Safety Guides;
  - A significant improvement in ‘user-friendliness’; and
  - A rigorous and efficient process for the establishment of additional standards and the revision of existing ones.
- It is expected that these factors cumulatively will result in a major change in the use and application of the safety standards in the Member States.

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...Thank you for your attention

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