



***2009 ISOE International ALARA Symposium on Occupational Exposure
Management in Nuclear Facilities
Vienna, Austria, 13–15 October 2009***

Global Nuclear Safety & Security Regime

K. Mrabit

**Head, Safety and Security Section
Department of Nuclear Safety & Security**

Contents

- **Background**
- **Global Nuclear Safety & Security Regime**
 - ✓ **Nuclear Safety Regime**
 - ✓ **Nuclear Security Framework**
- **Conclusion**



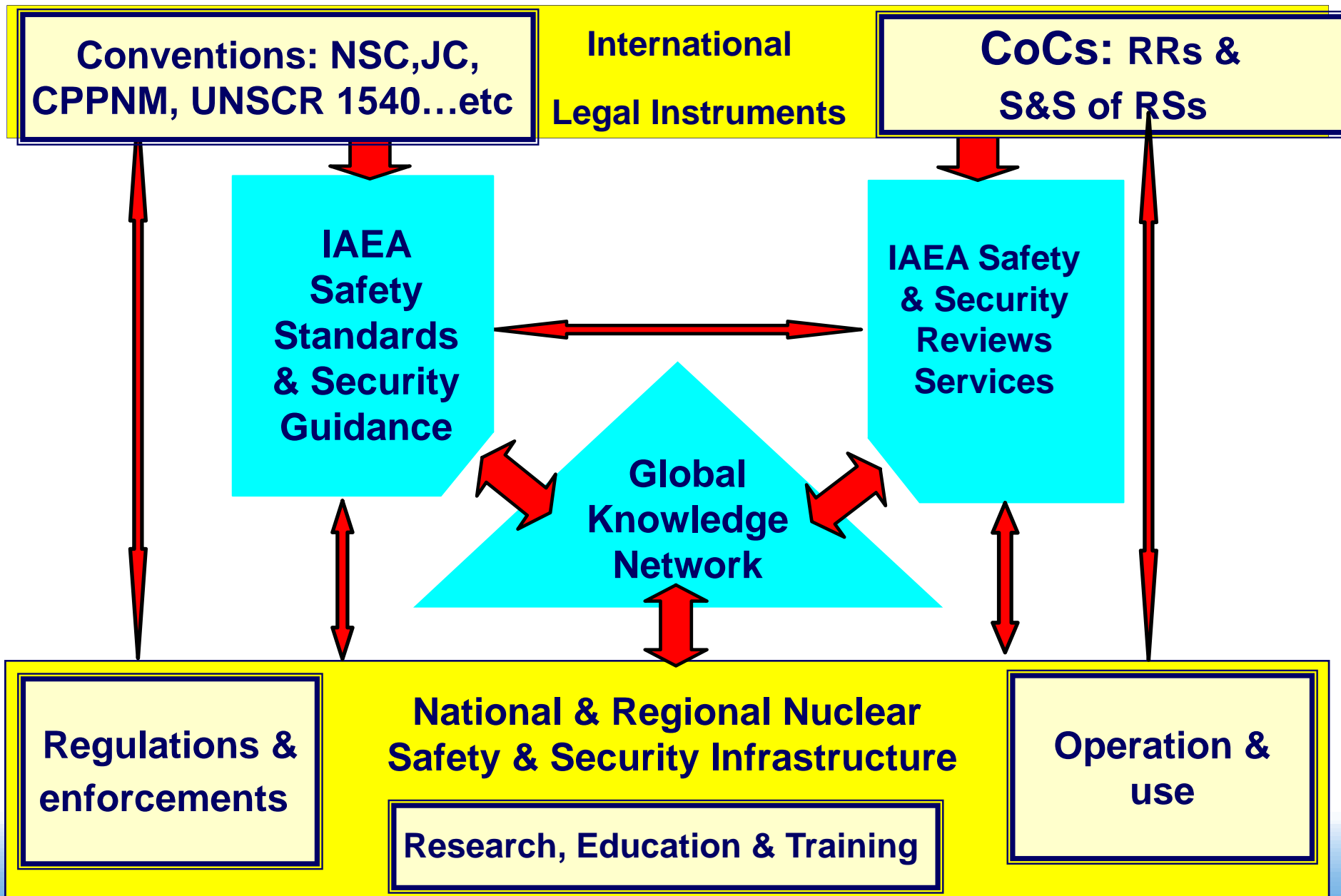
Global Nuclear Power Projections

- ✓ Projections of NPPs around the world show an upward trend
- ✓ About 80 countries are considering or planning a first NPP
- ✓ Most of the expansion is in the current 30 countries with NPPs

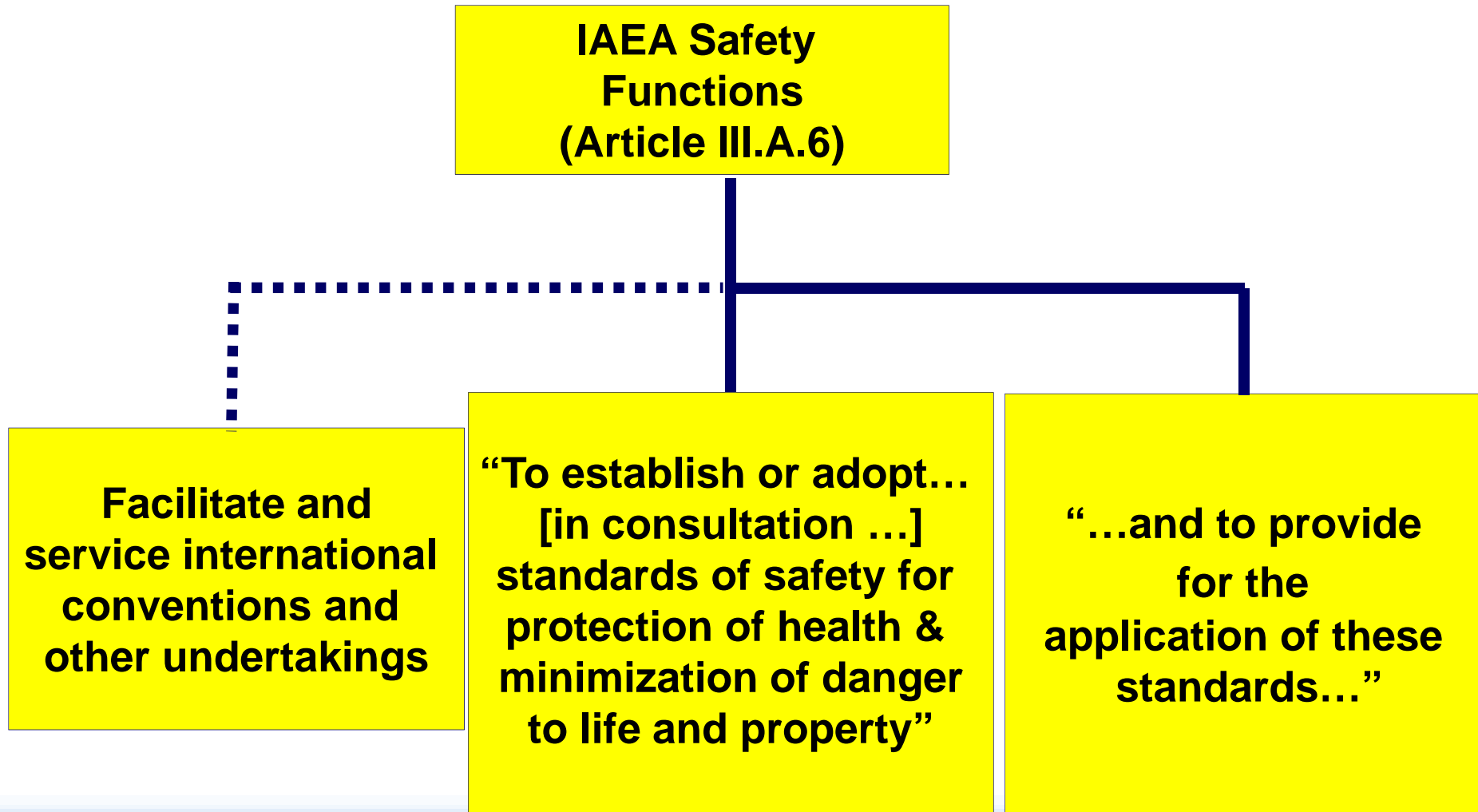
Nuclear Generating Capacity	
2009 Current	2030 Projected
~370 GW(e) in 30 Countries	High Estimate 810 GW(e) 20 New Countries
	Low Estimate 510 GW(e) 5 New Countries

Source: IAEA, Energy, Electricity and Nuclear Power Estimates for the Period up to 2030, August 2009

Global Nuclear Safety & Security Regime



Safety Functions



Safety Conventions and Codes

Convention on Early Notification of a Nuclear Accident

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

Convention on Nuclear Safety

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

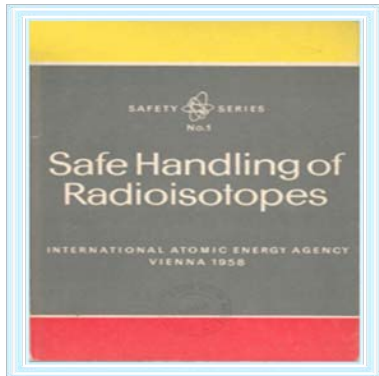
Code of Conduct on the Safety and Security of Radioactive Sources

Code of Conduct on the Safety of Research Reactors



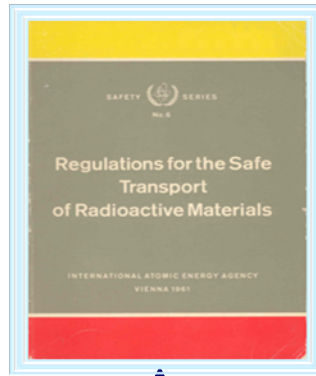
History

*Safe Handling
of Radioisotopes*



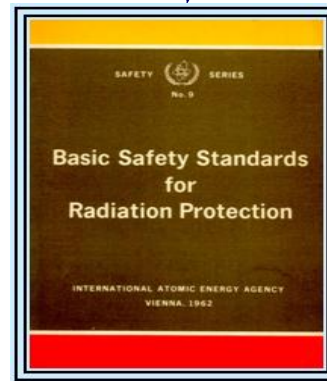
1958

*Safe Transport
of Radioactive
Material*



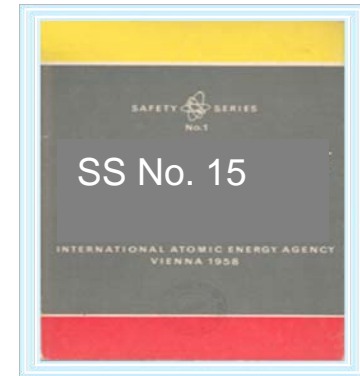
1961

*BSS for
Radiation
Protection*



1962

*Radioactive Waste
Disposal into the
Ground*



1965



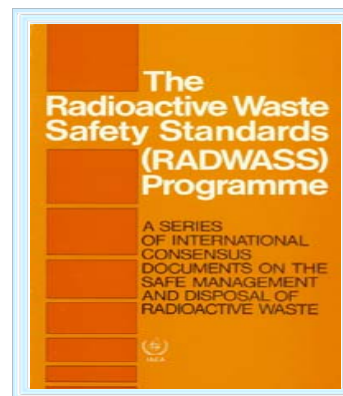
History (cont'd)

*NUSS
Programme*



1974

*RADWASS
Programme*



1988

*Basic Safety
Standards*



1996



History (cont'd)

1958 - 1996

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

History (cont'd)

*Nuclear Safety
Department*

*Commission and
Committees*

*Unified Safety
Fundamentals*



1996

1996

2006



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.”



History (cont'd)

1996 - 2009

- 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



Implementation of the roadmap: *Long Term Structure*

Safety Fundamentals

General Safety Requirements

Part 1. Governmental and Regulatory Framework

Part 2. Leadership and Management for Safety

Part 3. Radiation Protection and Safety of Radiation Sources

Part 4. Safety Assessment

Part 5. Predisposal Management of Radioactive Waste

Part 6. Decommissioning and Termination of Activities

Part 7. Emergency Preparedness and Response

Specific Safety Requirements

1. Site Evaluation for Nuclear Installations

2. Safety of Nuclear Power Plants

2.1 Design and Construction
2.2 Commissioning and Operation

3. Safety of Research Reactors

4. Safety of Nuclear Fuel Cycle Facilities

5. Safety of Radioactive Waste Disposal Facilities

6. Safe Transport of Radioactive Material

Collection of Safety Guides

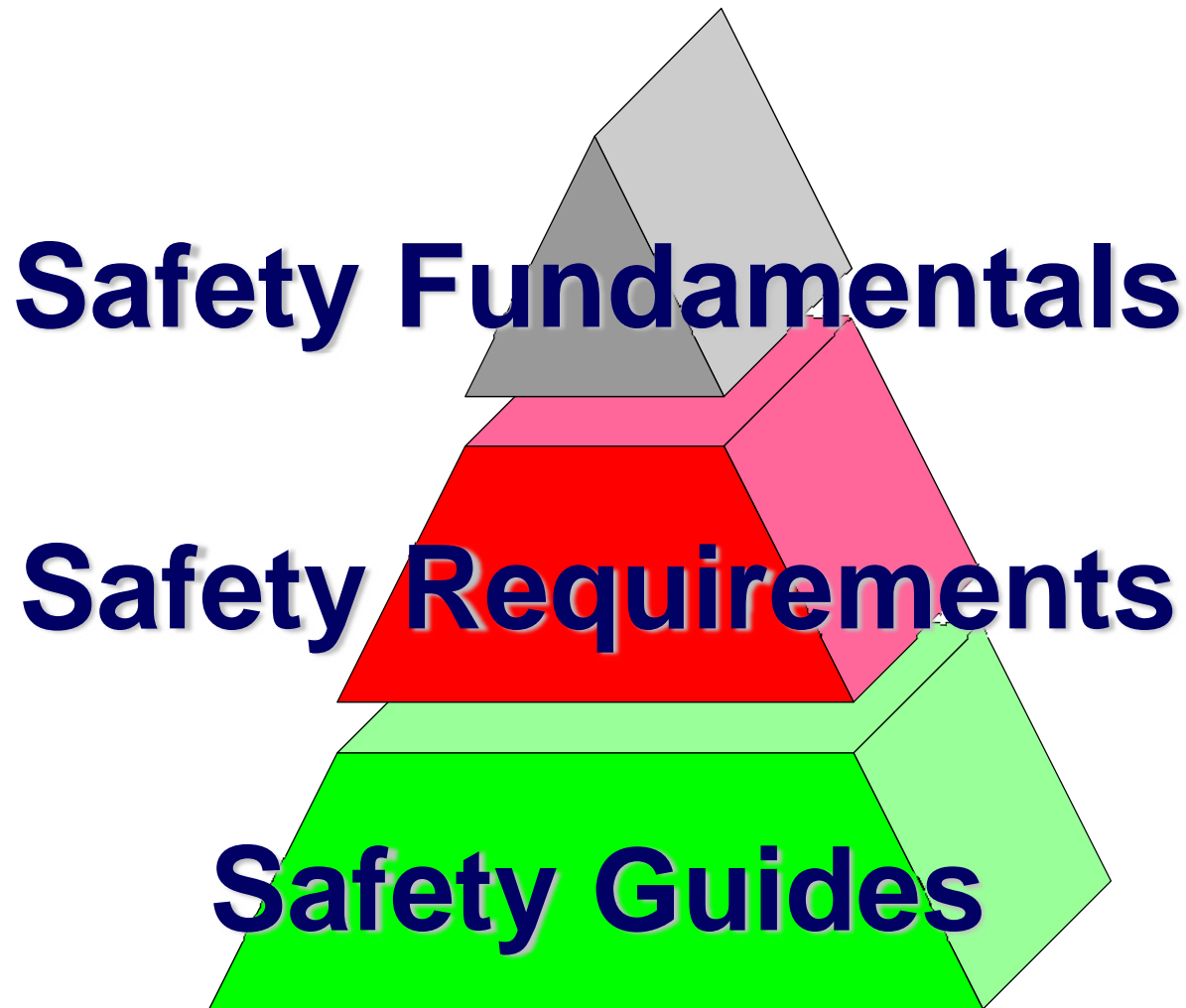


Status of the IAEA Safety Standards

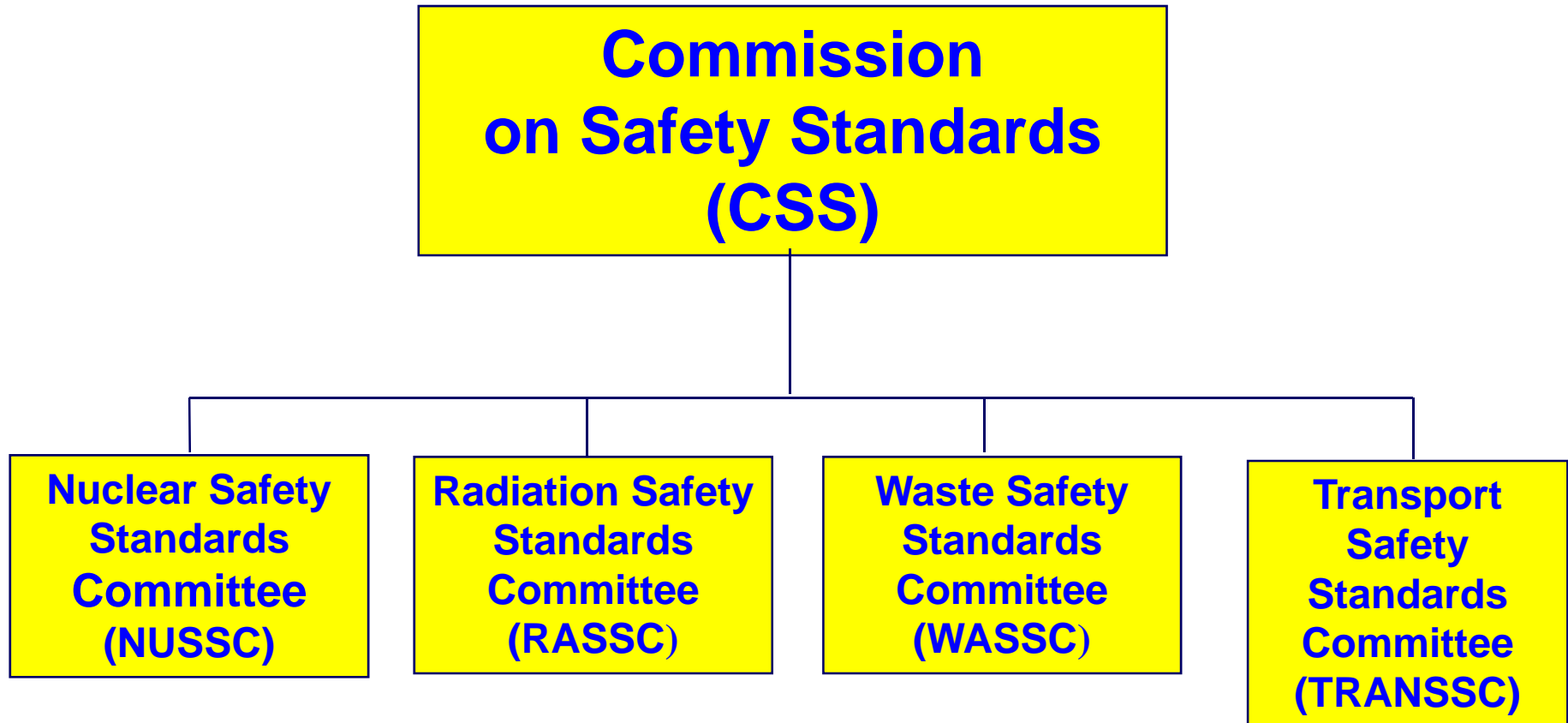
Safety Standards are:

- **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**

Safety Standards Categories



Commission & Committees



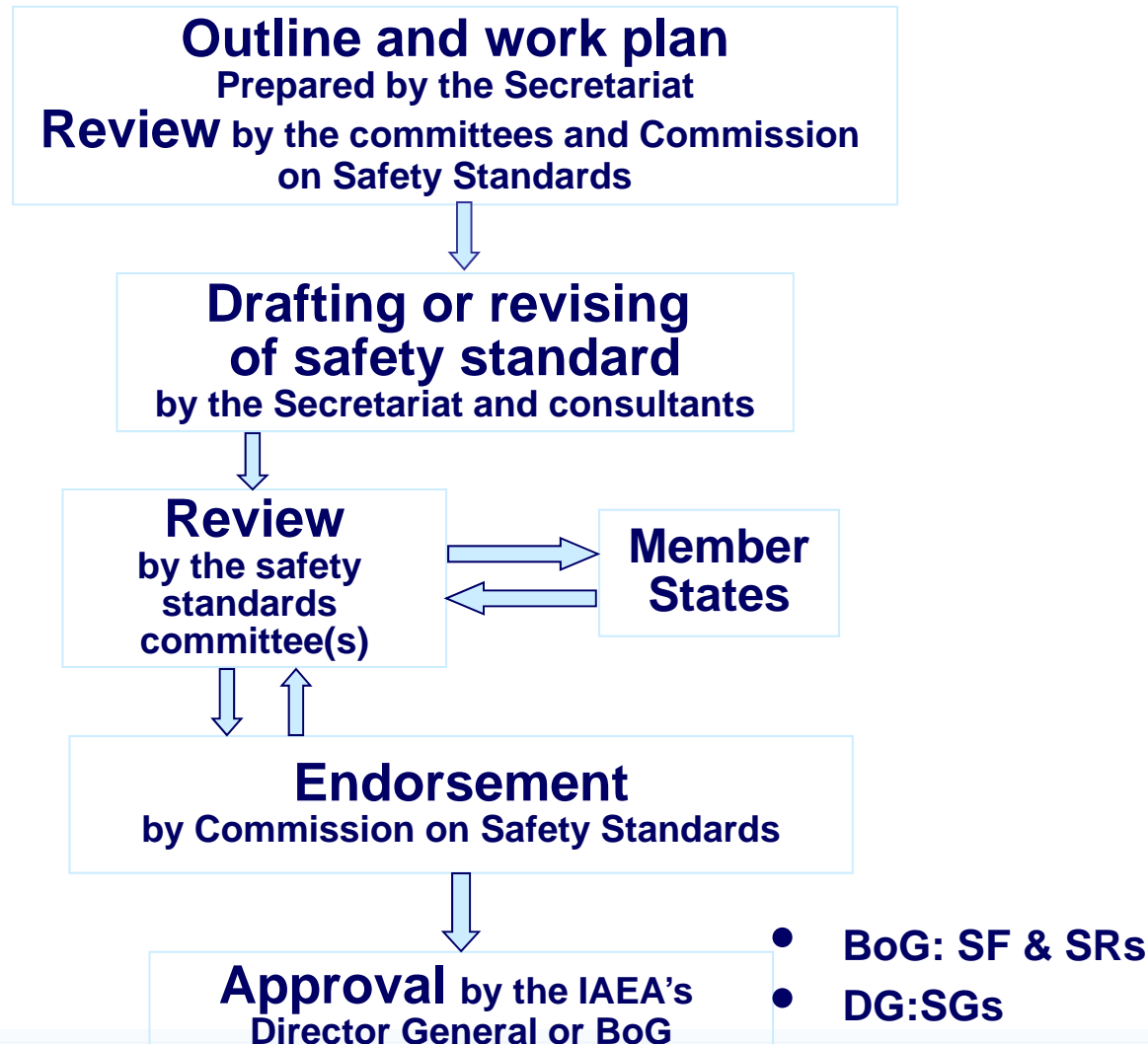
Commission on Safety Standards

- 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

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

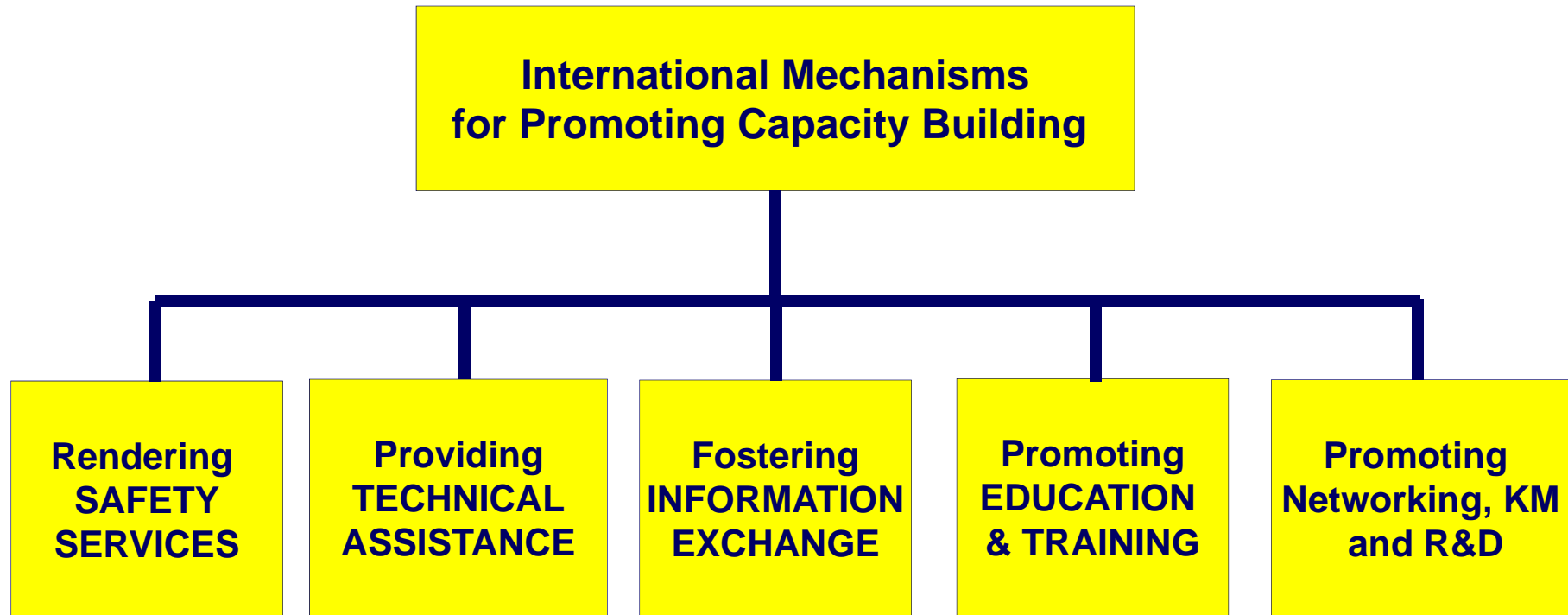
Process Flow for the Development of IAEA Safety Standards



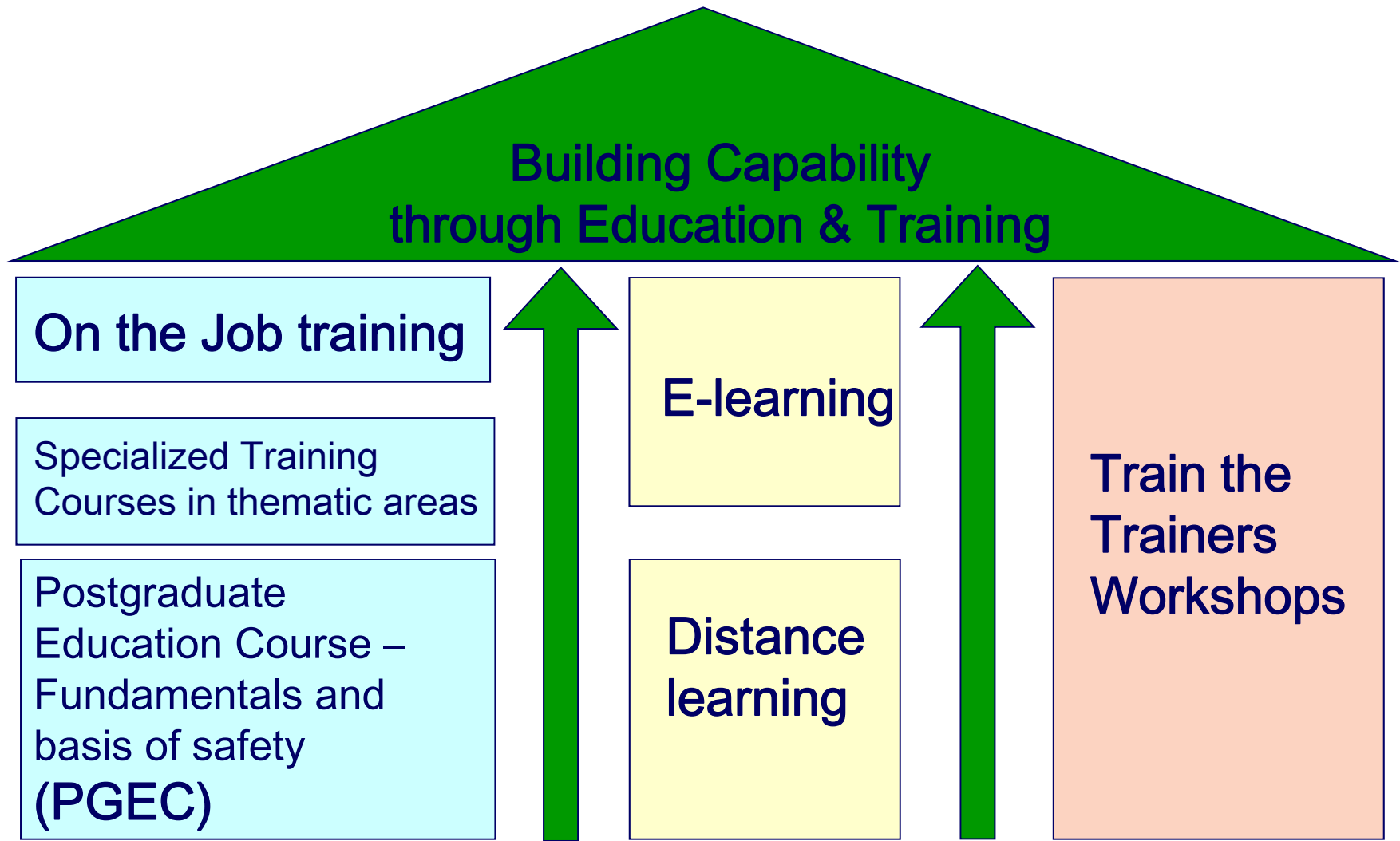
Vision

- Complete, consistent, coherent, integrated and user-friendly safety series with a manageable number of publications
- Sustainable continuous improvement system through effective feedback from application of SSs
- Global Reference used worldwide by Member States to deliver a harmonized high level of safety for protecting people and the environment from the harmful effects of ionizing radiation

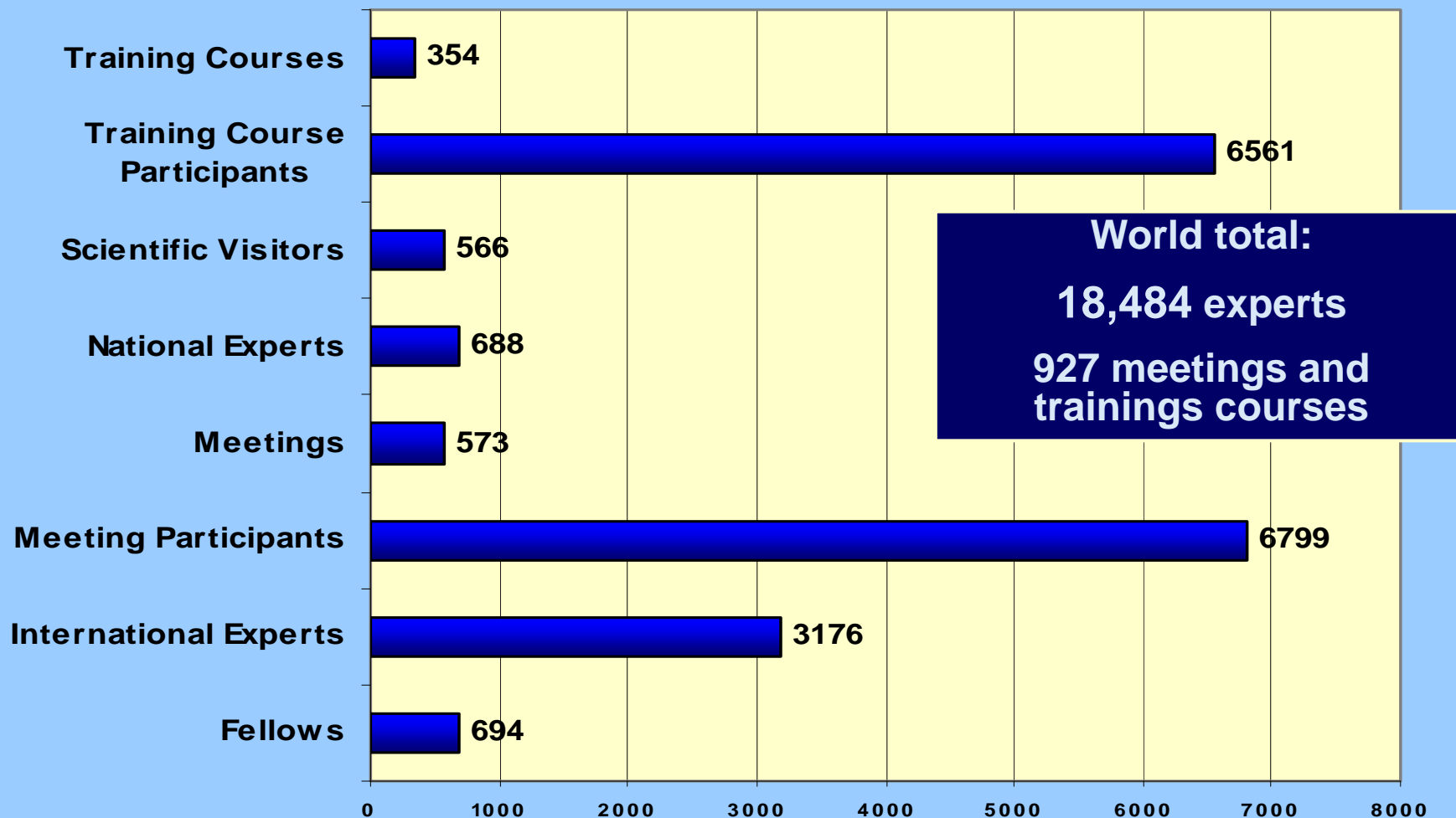
Provisions for the application of standards



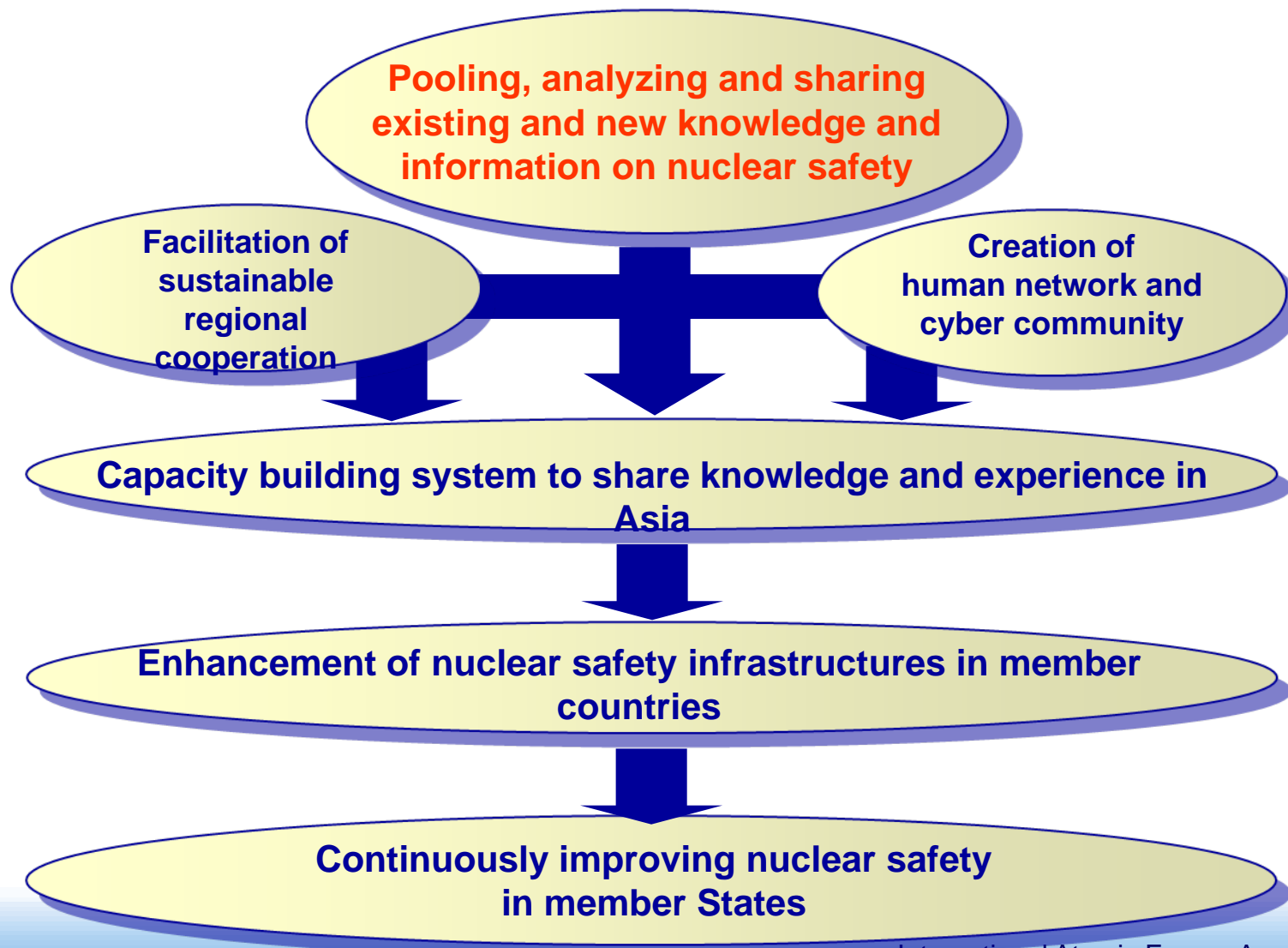
Education & Training Modalities



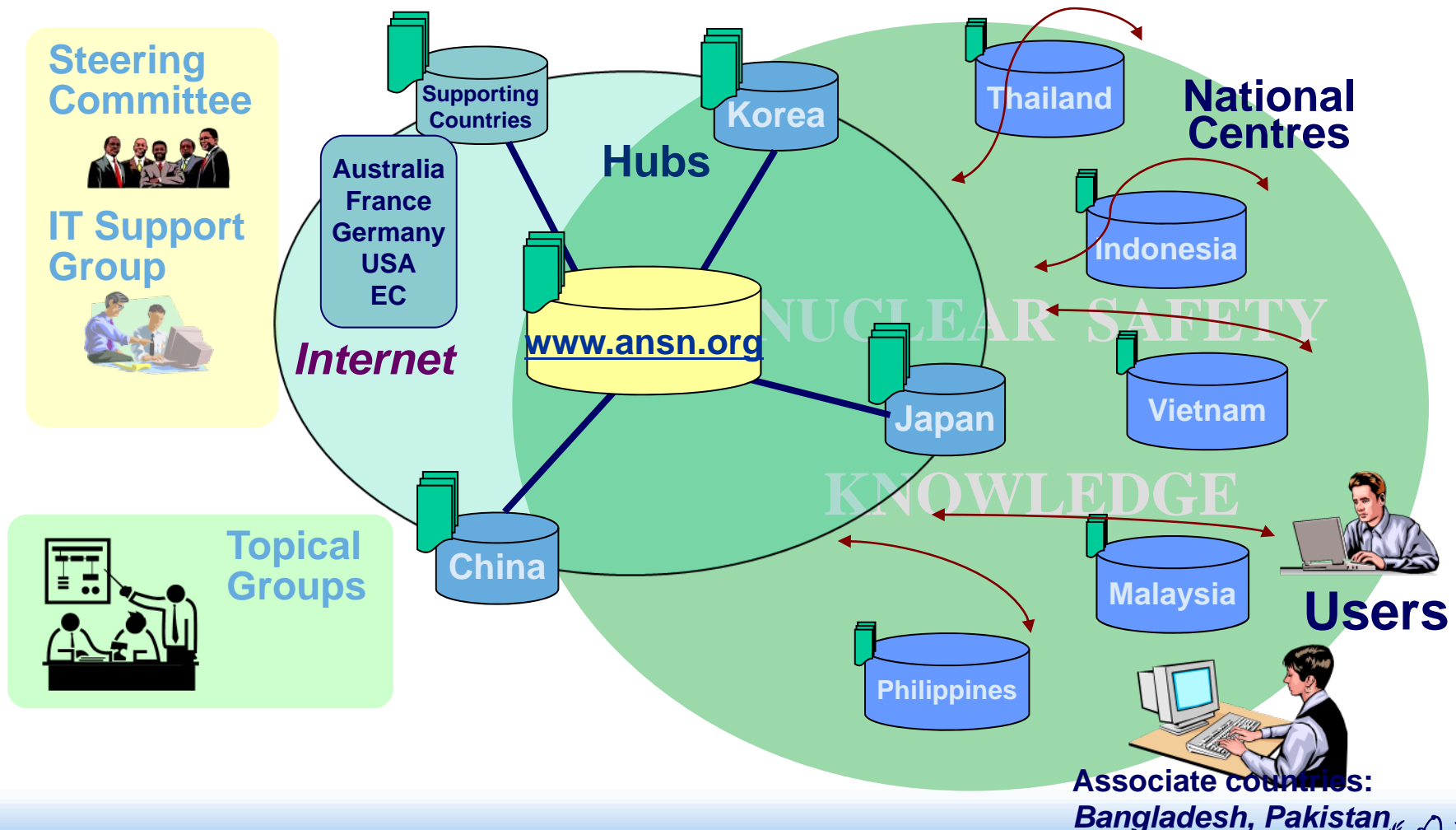
Capacity building on Nuclear and Radiation Safety in Numbers (2004-2008)



Asian Nuclear Safety Network



Sharing knowledge: IT & Human networks

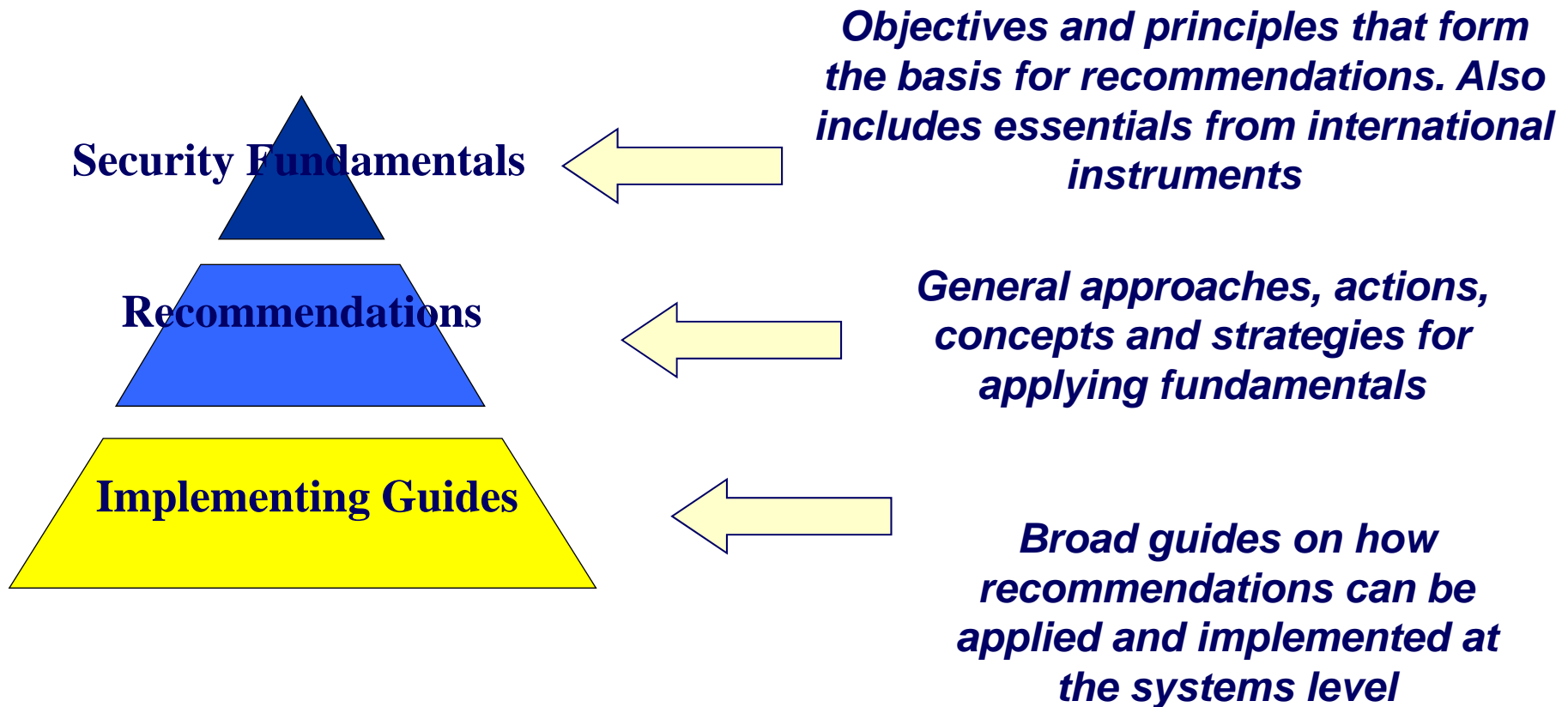


Nuclear Security Series

- **Prevention, detection and response**
 - Theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities
- **At initial stage of development**
 - 11 publications to date, 10 under development
- **Improvement initiative to achieve better synergy and integration with safety standards**



Nuclear Security Series (cont'd)



Nuclear Security Series – Development Process

- **Need for new document or revision identified**
- **Document Preparation Profile (DPP) prepared**
 - **Scope, objectives, relationship with other IAEA documents, and schedule**
- **DPP review by the Advisory Committee on Nuclear Security (AdSec)**
- **Document drafting with international experts at consultancy and open-ended technical meetings**
 - **Member State and relevant international organization participation**
- **Final review by AdSec**
- **Member State review period of 120 days**
- **Final editing and submittal to Publications Committee**



Nuclear Security Series – Vision

- **Completion of the Nuclear Security Fundamentals**
- **Priority to facilitating revision of INFCIRC/225**
- **Nuclear Security Series documents to be published in 2010/2011**
 - **Protecting and confidentiality of nuclear security information**
 - **Protection Against Sabotage**
 - **Nuclear Security Glossary**
 - **Model regulations**
 - **Physical protection of research reactors**
 - **Procedures for examining legal shipments or radioactive material**
 - **Security of fissile material in transport**
 - **Nuclear Security of New Nuclear Power Plants**
 - **Accounting and control at facilities for nuclear security**
 - **Risk assessment and State management of nuclear security regime**

Conclusions

- **The development of international safety standards and security guidelines helps to achieve a high level of nuclear safety and security worldwide and to promote effective coordination and cooperation for sustainable capacity building**
- **IAEA safety standards and security guidelines are particularly useful for self-assessment and peer review of new and expanding nuclear & non nuclear power programmes**



Conclusions (Cont'd)

- **Feedback from the application of safety standards and security guidelines should be promoted and used to continuously improve their quality**
- **Linkages between the elements of the Global Nuclear Safety and Security Regime should be strengthened to complement and support global capacity building efforts**

Conclusion (Cont'd)

- Changes in world markets and technology are having an impact on both nuclear industry and regulators as never before. A key challenge now is to properly assess and address the safety and security implications of these changes
- The Global Nuclear Safety and Security Regime provides the mechanisms for safety and security excellence in all nuclear activities

...Thank you for your attention
K.mrabit@iaea.org

