



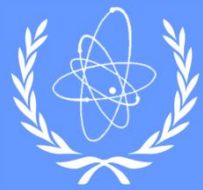
# ***L01.- International Safety Standards***

***International Atomic Energy Agency***



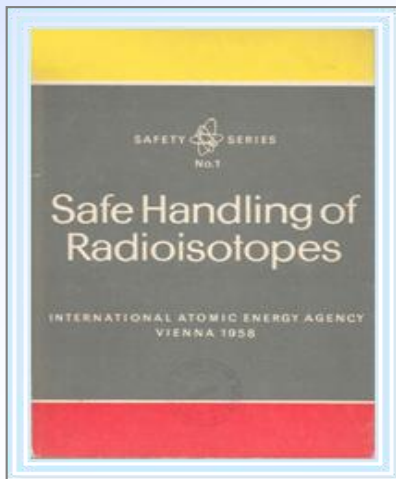
# OBJECTIVE

- 1. IAEA International Safety Standards**
- 2. Fundamental Safety Principles SF-1**



# History

## History of the IAEA Safety Standards



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

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

Jointly sponsored by  
EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO

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

The image shows the cover of the modern IAEA Safety Standards. It features a red header with the title 'IAEA Safety Standards for protecting people and the environment'. Below this is the main title 'Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards'. A list of joint sponsors is provided, including EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, and WHO, each with their respective logos. The title 'General Safety Requirements Part 3' and 'No. GSR Part 3' are also present. At the bottom is the IAEA logo and the text 'IAEA International Atomic Energy Agency'.



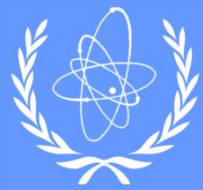
# History

## SAFETY STANDARDS DEVELOPMENT

- ✓ *NUCLEAR SAFETY*
- ✓ *RADIATION PROTECTION*
- ✓ *TRANSPORT*
- ✓ *WASTE SAFETY*

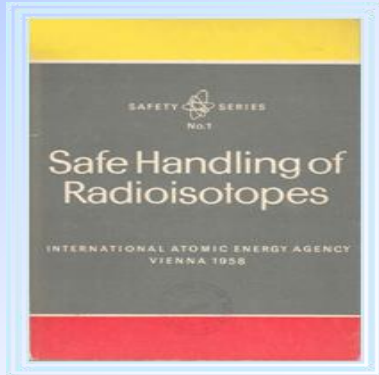
## SAFETY STANDARDS APPLICATION

- ✓ *CONVENTIONS*
- ✓ *EXCHANGE OF INFORMATION*
- ✓ *EDUCATION AND TRAINING*
- ✓ *COORDINATED RESEARCH*
- ✓ *TECHNICAL COOPERATION*
- ✓ *PEER REVIEWS*



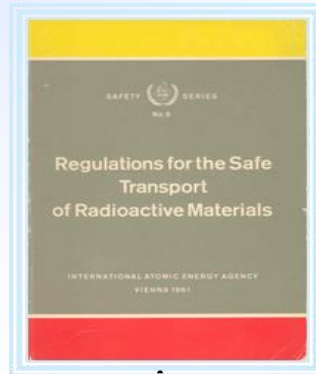
# History

*Safe Handling  
of Radioisotopes*



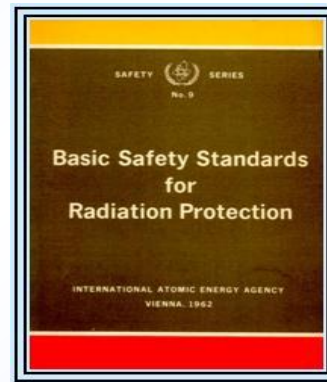
1958

*Safe Transport  
of Radioactive  
Material*



1961

*BSS for  
Radiation Protection*

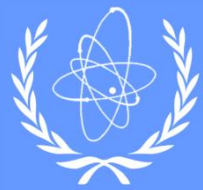


1962

*Radioactive Waste  
Disposal into the  
Ground*



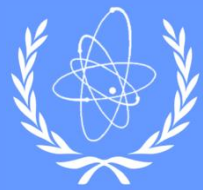
1965



# History (cont'd)

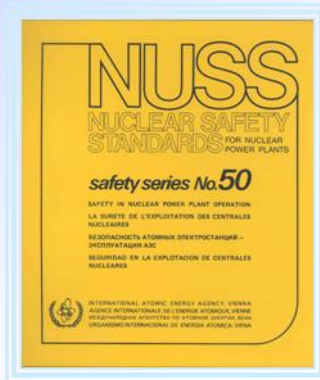
**1958 - 1973**

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



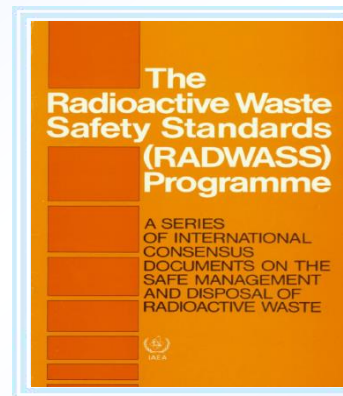
# History (cont'd)

**NUSS  
Programme**



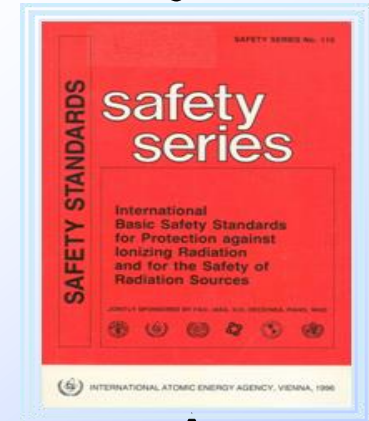
**1974**

**RADWASS  
Programme**

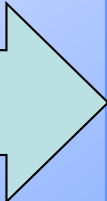


**1988**

**Basic Safety  
Standards**



**1996**





# History (cont'd)

**1974 - 1996**

- **Four structured programmes**
- **Bottom-up approach**
- **Issuance of three Safety Fundamentals (Nuclear Safety, Radiation Protection and Safety of Radioactive Waste)**



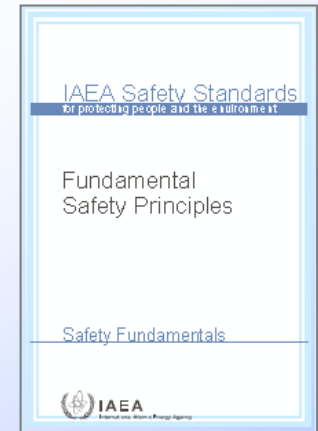
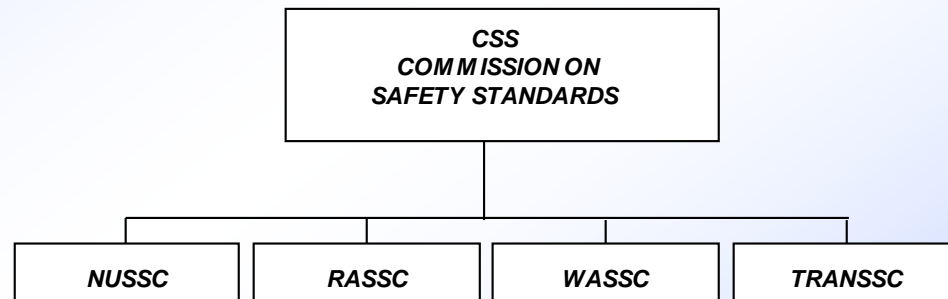


# History (cont'd)

**Nuclear Safety  
Department**

**Commission and  
Committees**

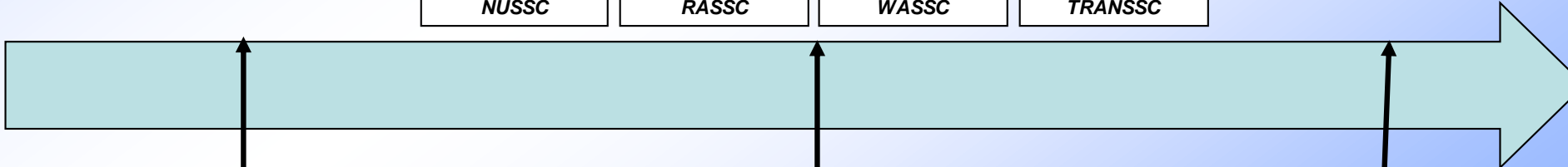
**Unified Safety  
Fundamentals**



1996

1996

2006

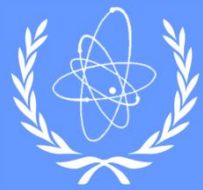




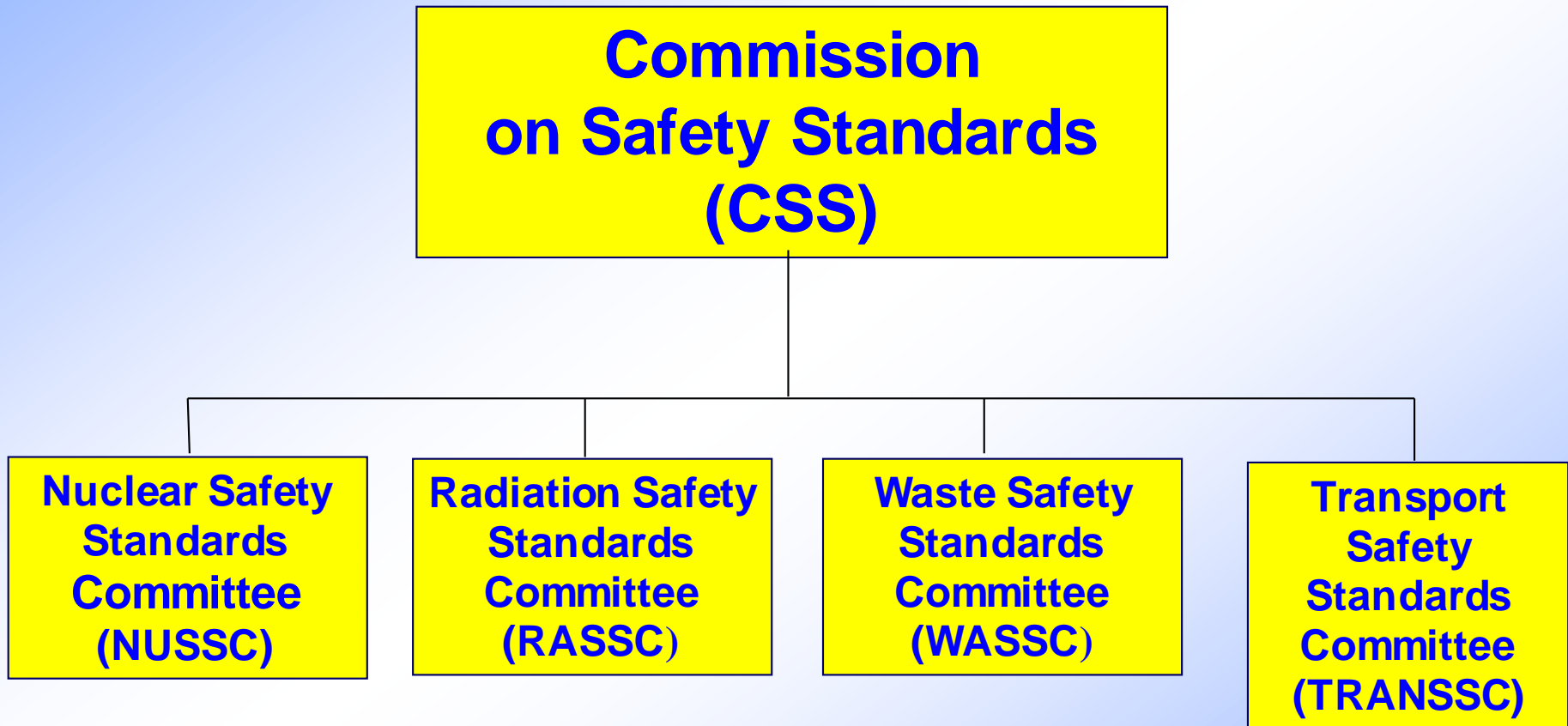
# History (cont'd)

**1996 - 2008**

- **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**

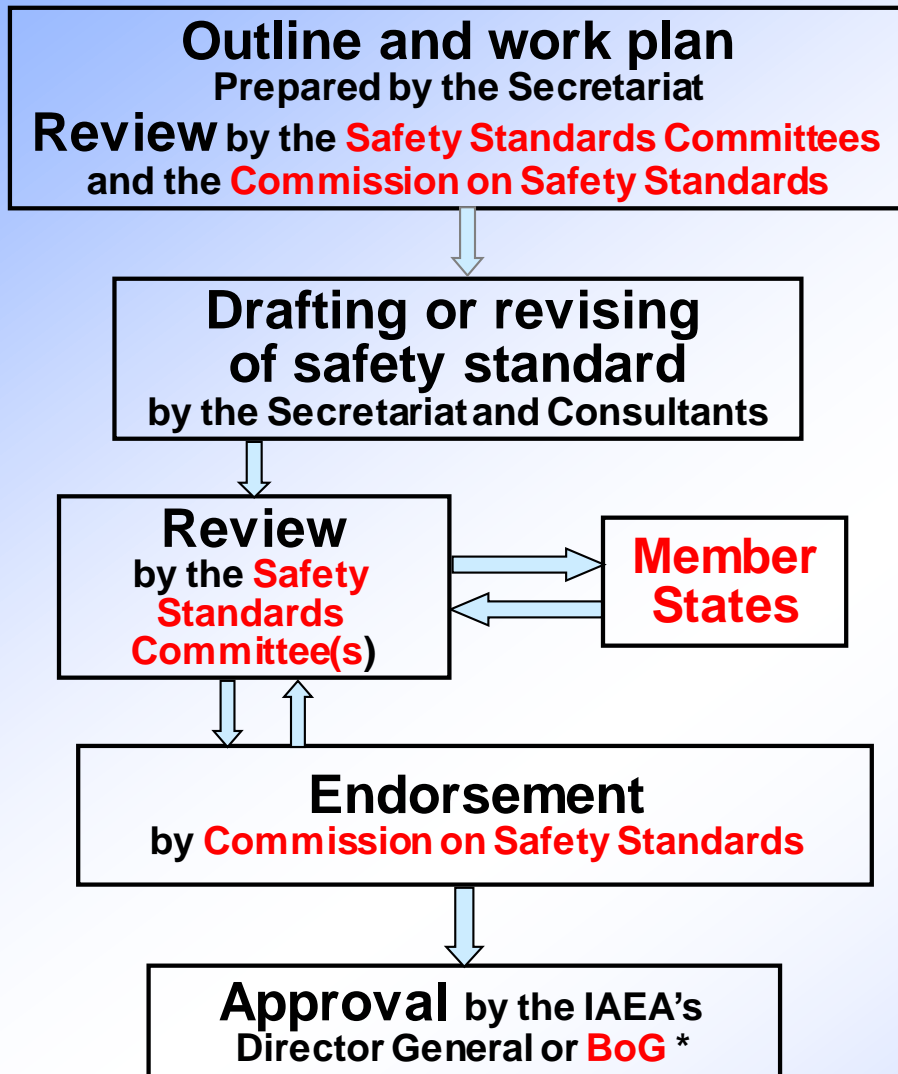


# Commission on Safety Standards





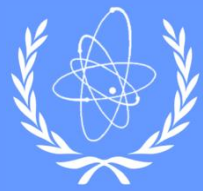
# Process flow for the development of IAEA Safety Standards



Process flow for the development of IAEA Safety Standards

**Member States  
= YOU !**

- \* **Safety Requirements** approved by BoG
- \* **Safety Guides** approved by DG



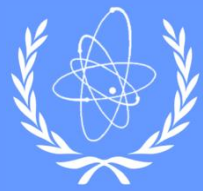
# **Current Status of the Safety Standards**



# Current Status of the Safety Standards

The IAEA Safety Standards are:

- Not binding on Member States but may be adopted by them;
- Binding on the IAEA activities;
- Binding on States in relation to operations performed under IAEA assistance or States wishing to receive Technical Cooperation Assistance;
- All safety requirements have the same status. **There are not some requirements more important than others.**



# Safety Standards Categories

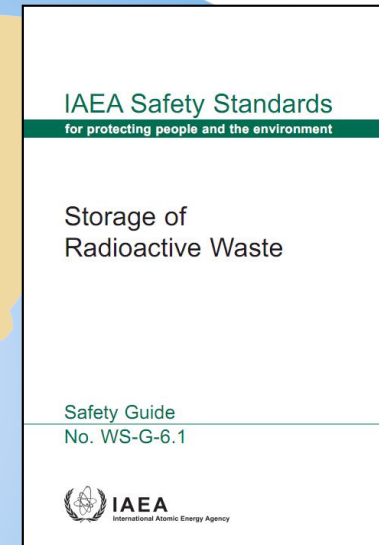
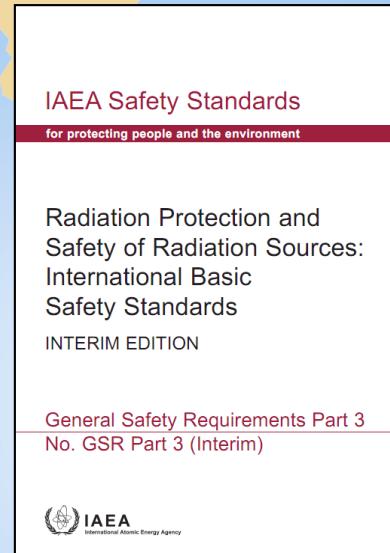
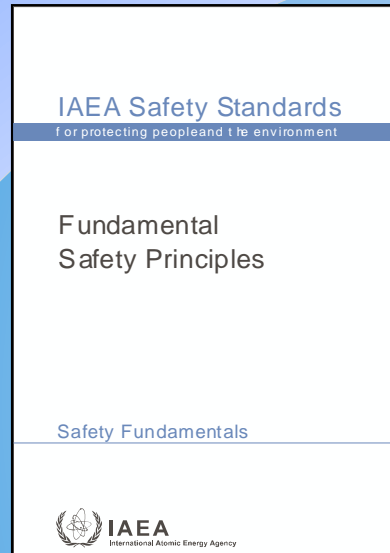
**Safety Fundamentals**

**Safety Requirements**

**Safety Guides**



# Safety Standards Categories (Cont'd)

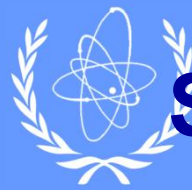


**Fundamental safety objective and principles for protecting people and environment**

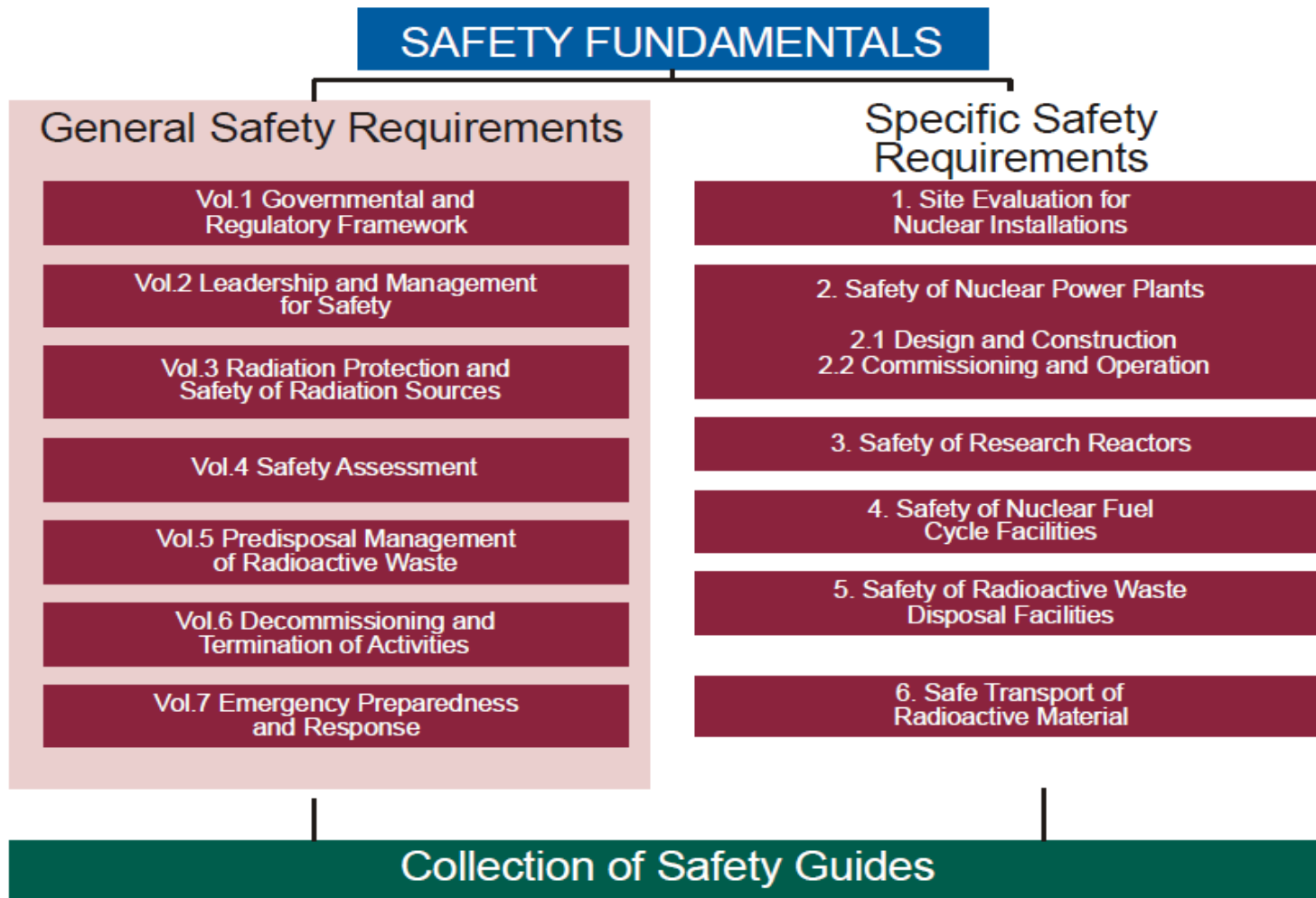
**Requirements that must be met to ensure protection of people and environment**

**Recommended ways of meeting the requirements and good practices**



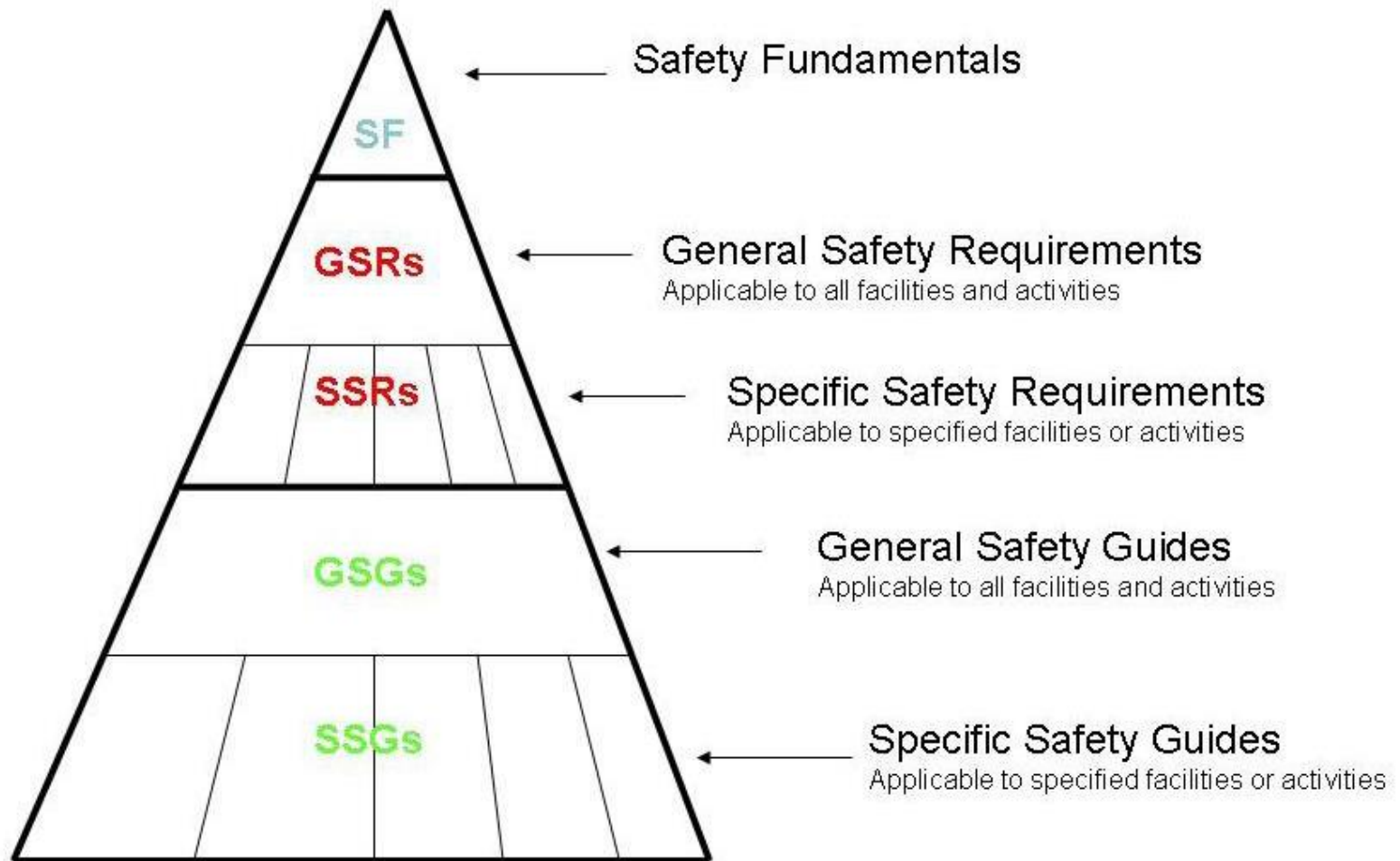


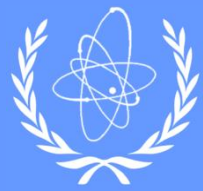
# Structure of the IAEA Safety Standards





# New Structure of the Safety Standards





# Fundamental Safety Principles

## Safety Objective

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

**Basis for IAEA Safety Requirements and Safety Guides**



# Fundamental Safety Principles

## Principle 1: Responsibility for safety

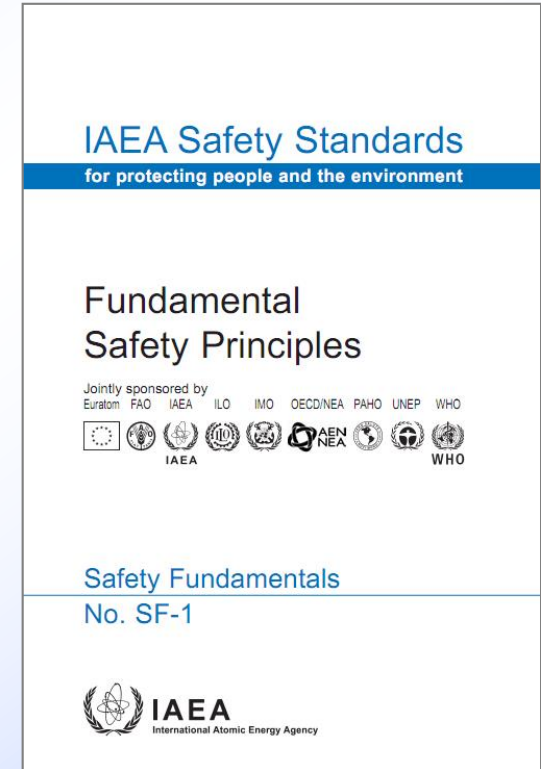
The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks.

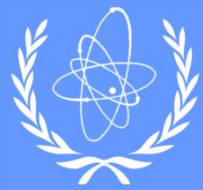
## Principle 2: Role of government

An effective legal and governmental framework for safety, including an independent regulatory body, must be established and sustained.

## Principle 3: Leadership and management for safety

Effective leadership and management for safety must be established and sustained in organizations concerned with, and facilities and activities that give rise to, radiation risks.





# Fundamental Safety Principles

## Principle 4: Justification of facilities and activities

Facilities and activities that give rise to radiation risks must yield an overall benefit.

## Principle 5: Optimization of protection

Protection must be optimized to provide the highest level of safety that can reasonably be achieved.

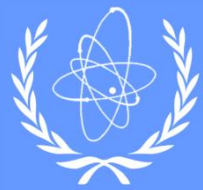
## Principle 6: Limitation of risks to individuals

Measures for controlling radiation risks must ensure that no individual bears an unacceptable risk of harm.

## Principle 7: Protection of present and future generations

People and the environment, present and future, must be protected against radiation risks





# Fundamental Safety Principles

## Principle 8: Prevention of accidents

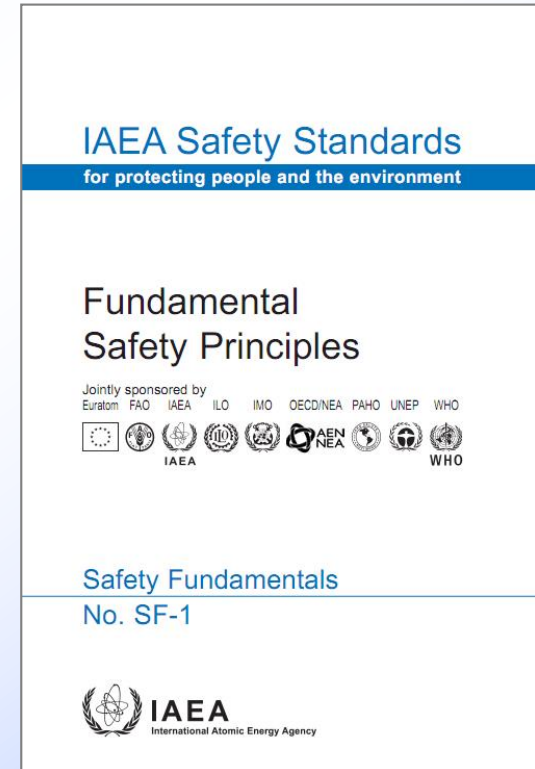
All practical efforts must be made to prevent and mitigate nuclear or radiation accidents.

## Principle 9: Emergency preparedness and response

Arrangements must be made for emergency preparedness and response for nuclear or radiation incidents.

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

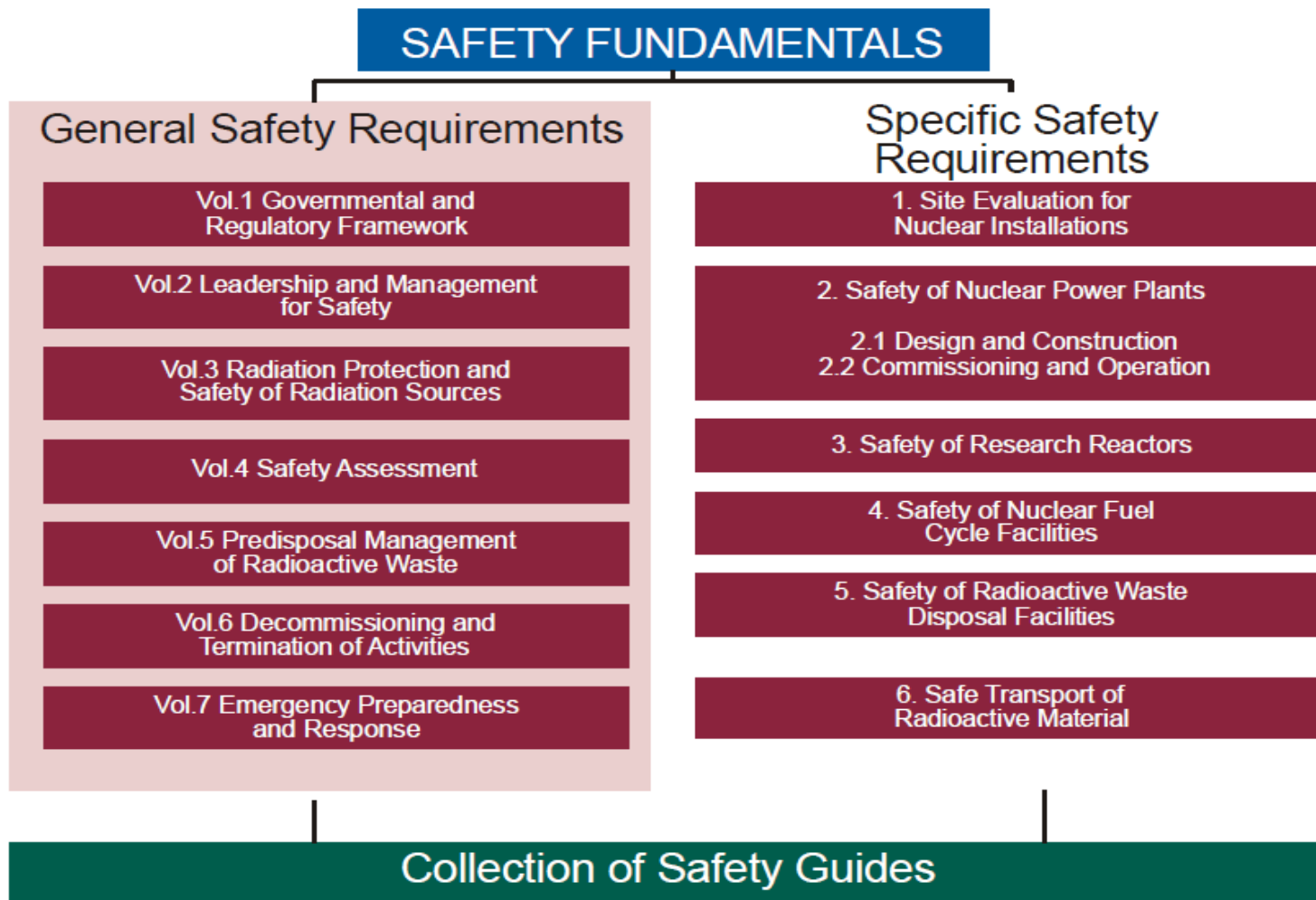
Protective actions to reduce existing or unregulated radiation risks must be justified and optimized.





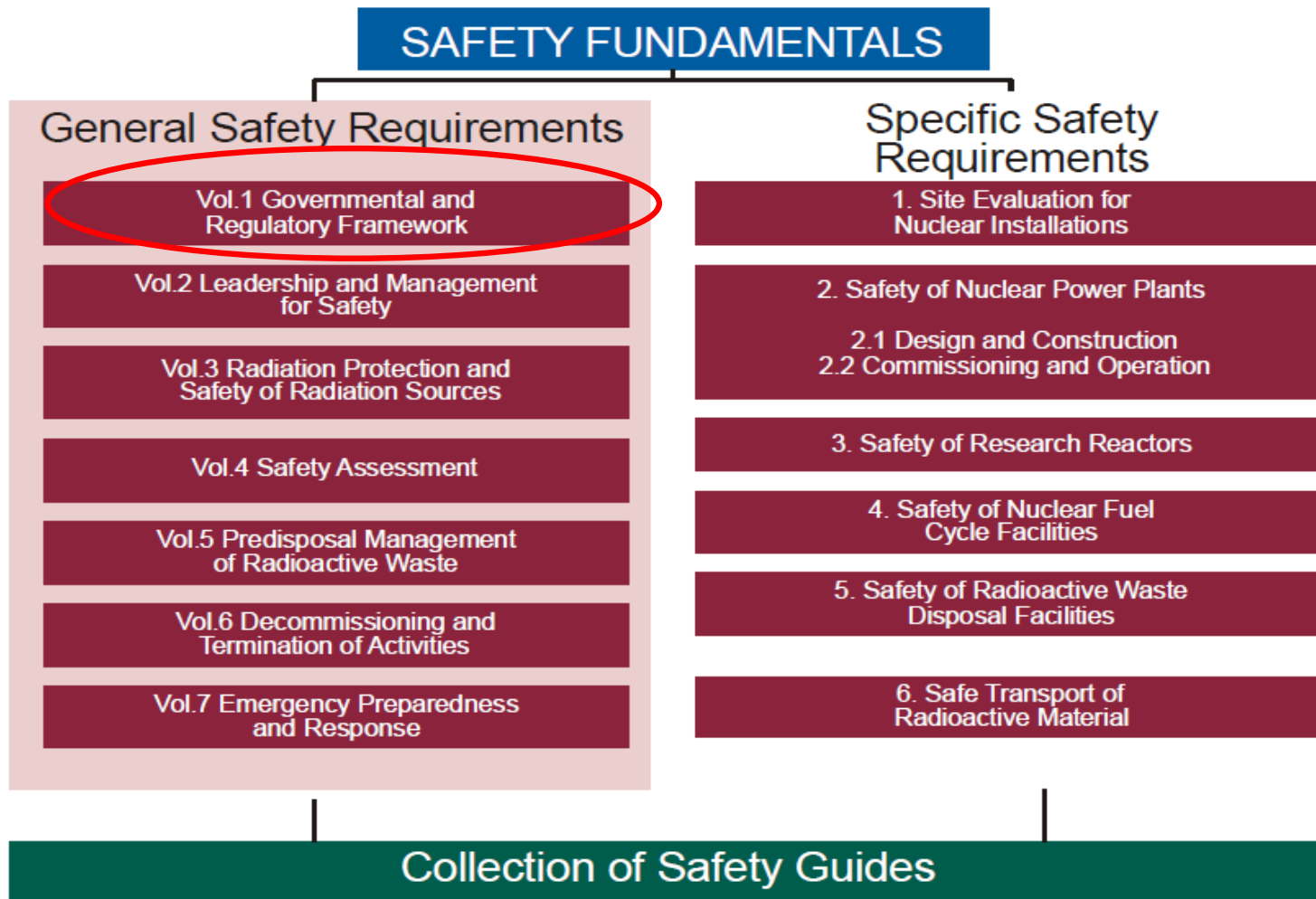


# Structure of the Safety Standards





# Structure of the Safety Standards







# Part 1 Governmental, Legal and Regulatory Framework for Safety

IAEA Safety Standards  
for protecting people and the environment

Governmental, Legal  
and Regulatory  
Framework for Safety

General Safety Requirements Part 1  
No. GSR Part 1



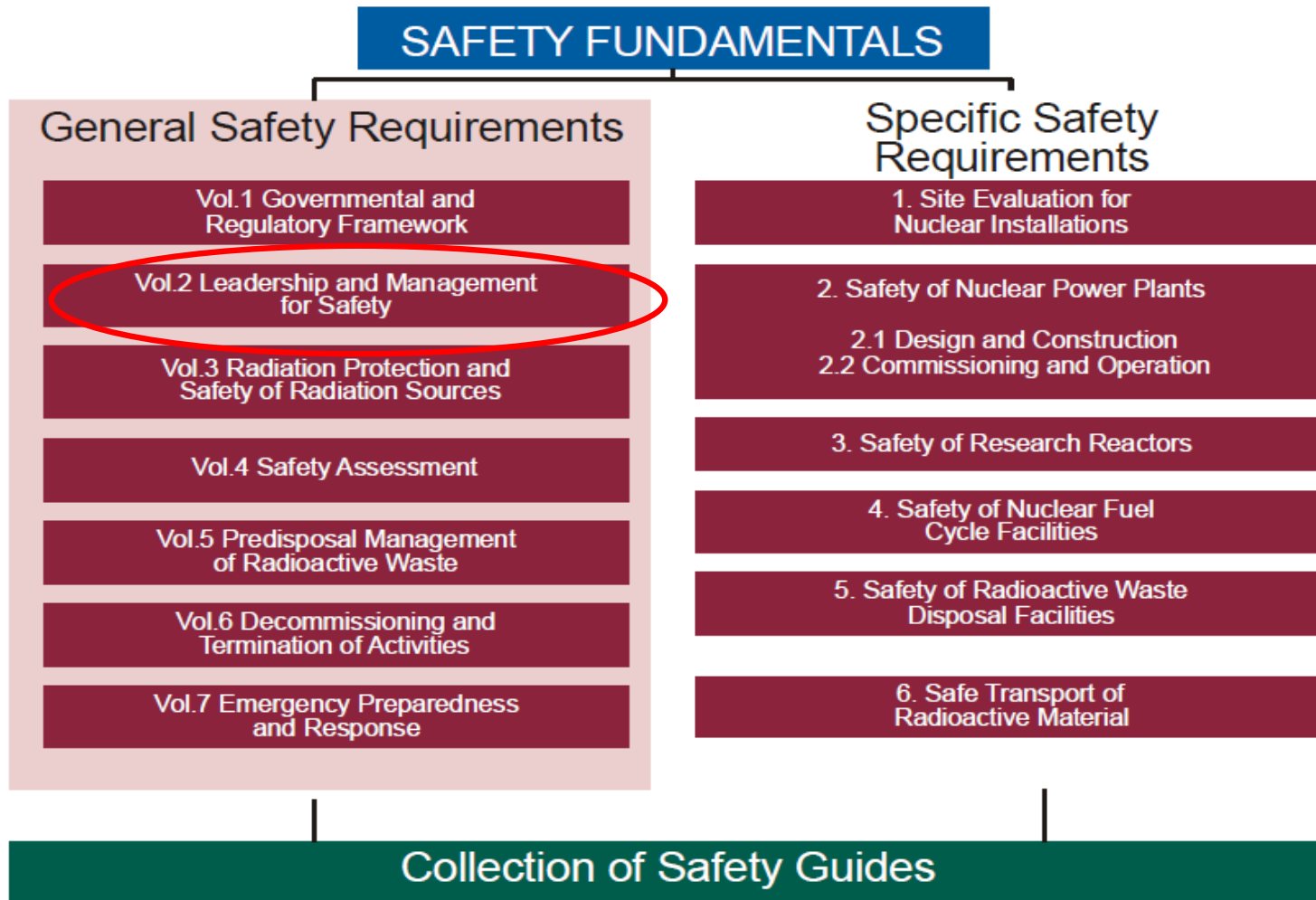
## Objectives

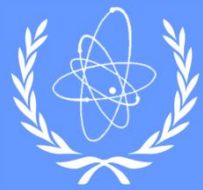
GSR Part 1 establishes requirements in respect of the governmental, legal and regulatory framework for safety and specifies the responsibility and functions of the Regulatory Body. The framework for safety is to be established for the entire range of facilities and activities, from the use of a limited number of radiation sources to a nuclear power programme.

**2010**

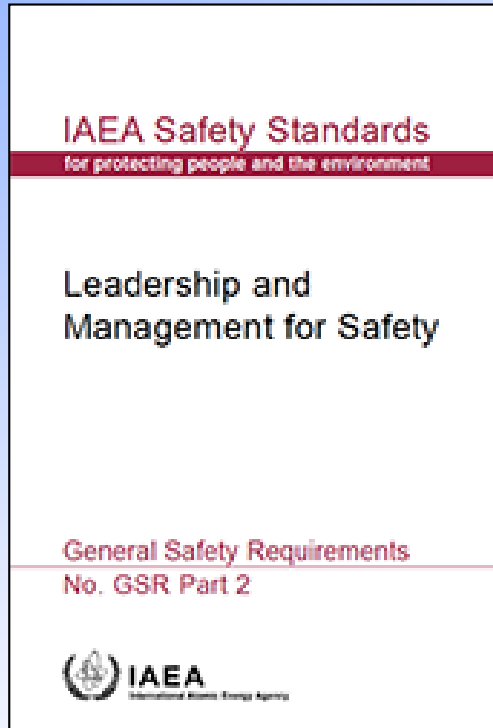


# Structure of the Safety Standards





# Part 2 Leadership and Management for Safety



**2016**

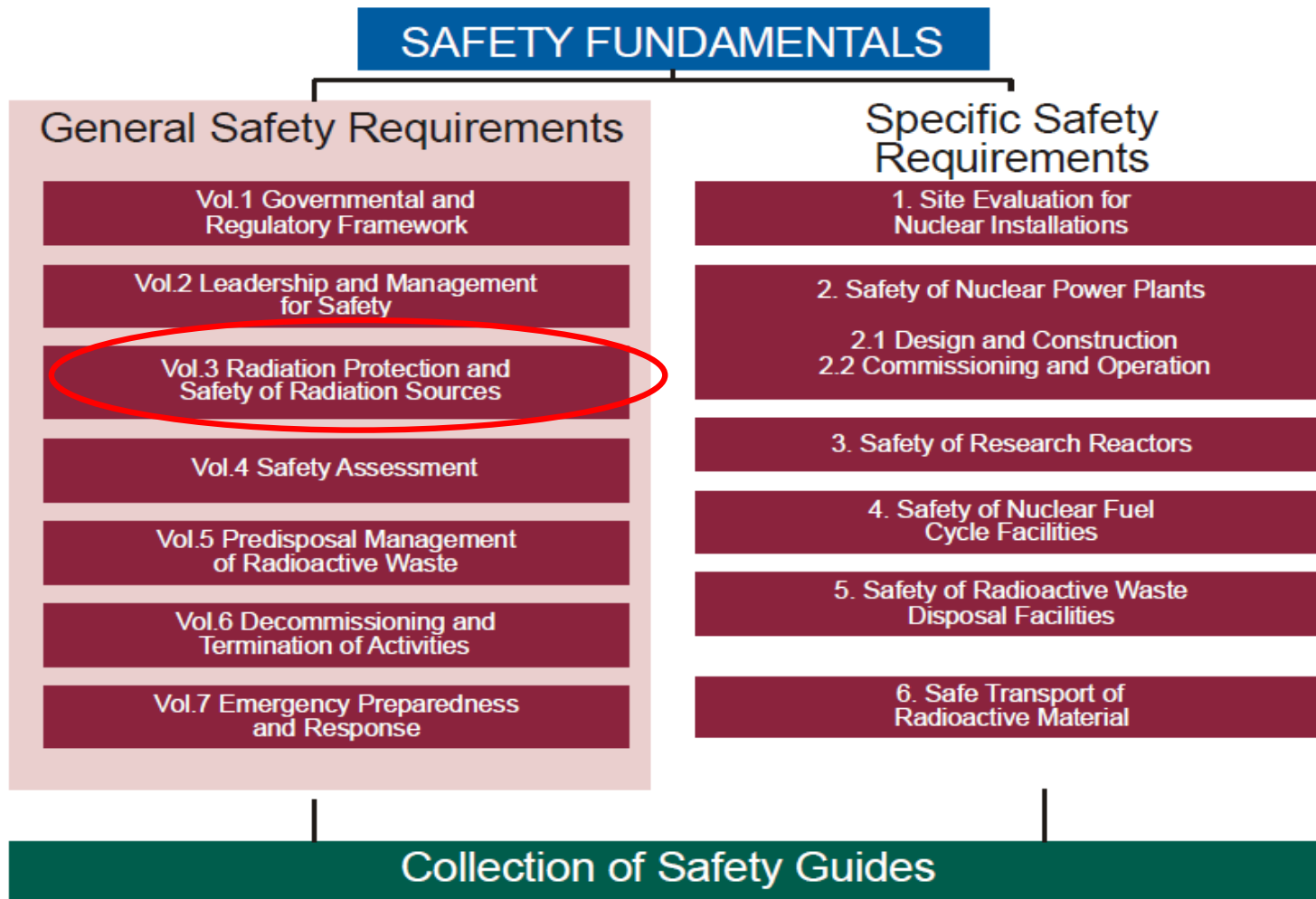
## Objectives

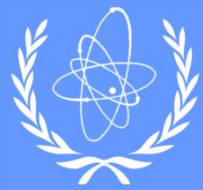
### GSR Part 2

- 1) define requirements for establishing, implementing, assessing and continually improving a management system that integrates safety, health, environmental, security, quality and economic elements to ensure that safety is properly taken into account in all the activities of an organization
- 2) to ensure, by considering the implications of all actions not within separate management systems but with regard to safety as a whole, that safety is not compromised.



# Structure of the Safety Standards





# Part 3 Radiation Protection and Safety of Radiation Sources.

IAEA Safety Standards

for protecting people and the environment

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

Jointly sponsored by  
EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO



General Safety Requirements Part 3

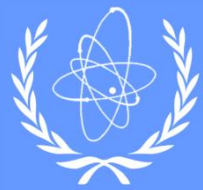
No. GSR Part 3



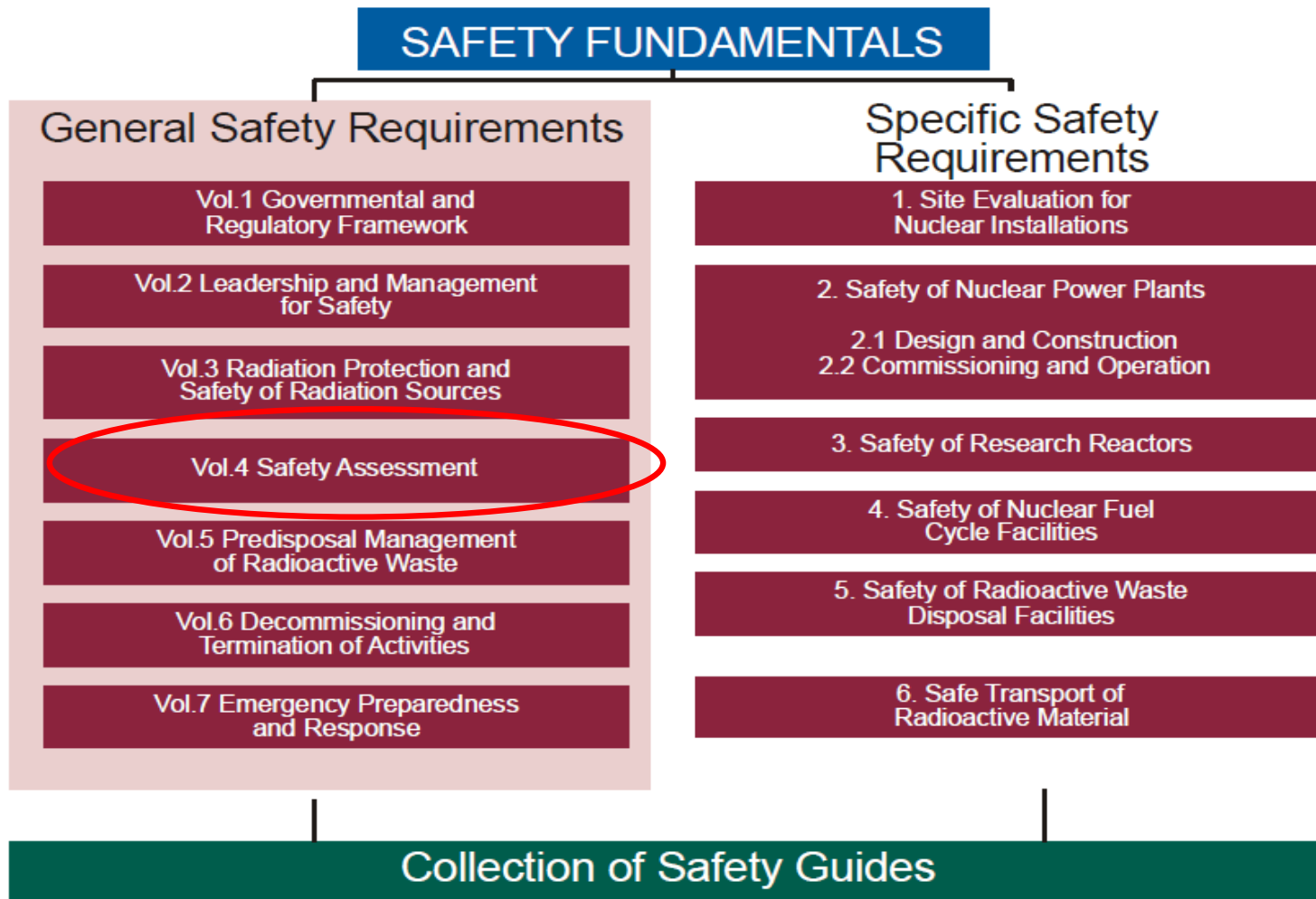
## Objectives

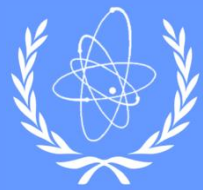
GSR Part 3 establishes requirements for the protection of people and the environment from harmful effects of ionizing radiation and for the safety of radiation sources. It prescribes the roles and responsibilities of government, Regulatory Body and Registrant or Licensee

**2014**



# Structure of the Safety Standards





# Part 4 Safety Assessment for Facilities and Activities

IAEA Safety Standards

for protecting people and the environment

Safety Assessment for  
Facilities and Activities

General Safety Requirements Part 4

No. GSR Part 4



**2010**

## Objectives

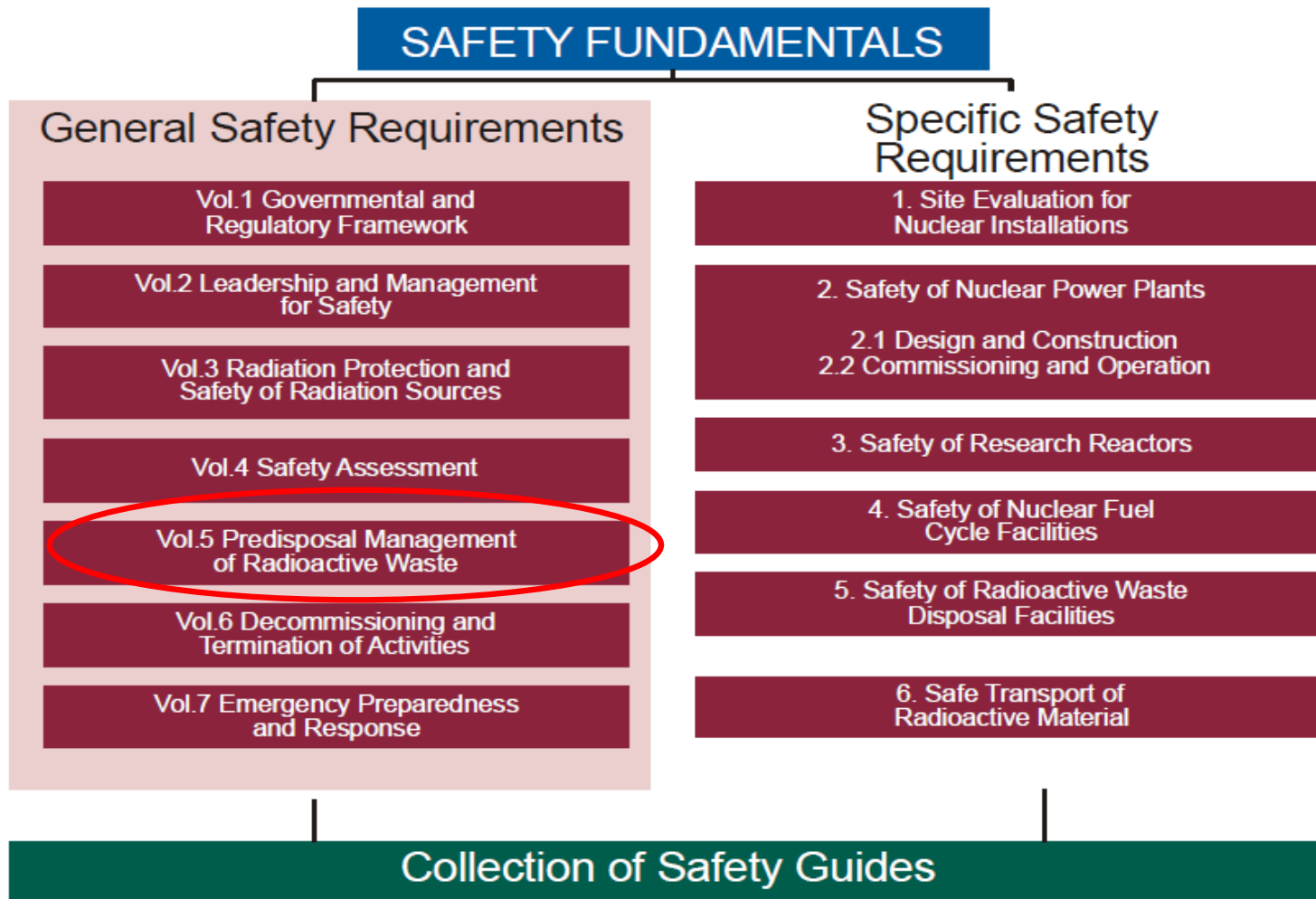
### GSR Part 4

- 1) establishes the generally applicable requirements to be fulfilled in safety assessment for facilities and activities, with special attention paid to defence in depth, quantitative analyses and the application of a graded approach to the ranges of facilities and of activities that are addressed.
- 2) addresses the independent verification of the safety assessment that needs to be carried out by the originators and users of the safety assessment.





# Structure of the Safety Standards







# Part 5 Predisposal Management of Radioactive Waste

IAEA Safety Standards

for protecting people and the environment

Predisposal  
Management of  
Radioactive Waste

General Safety Requirements Part 5

No. GSR Part 5



**2010**

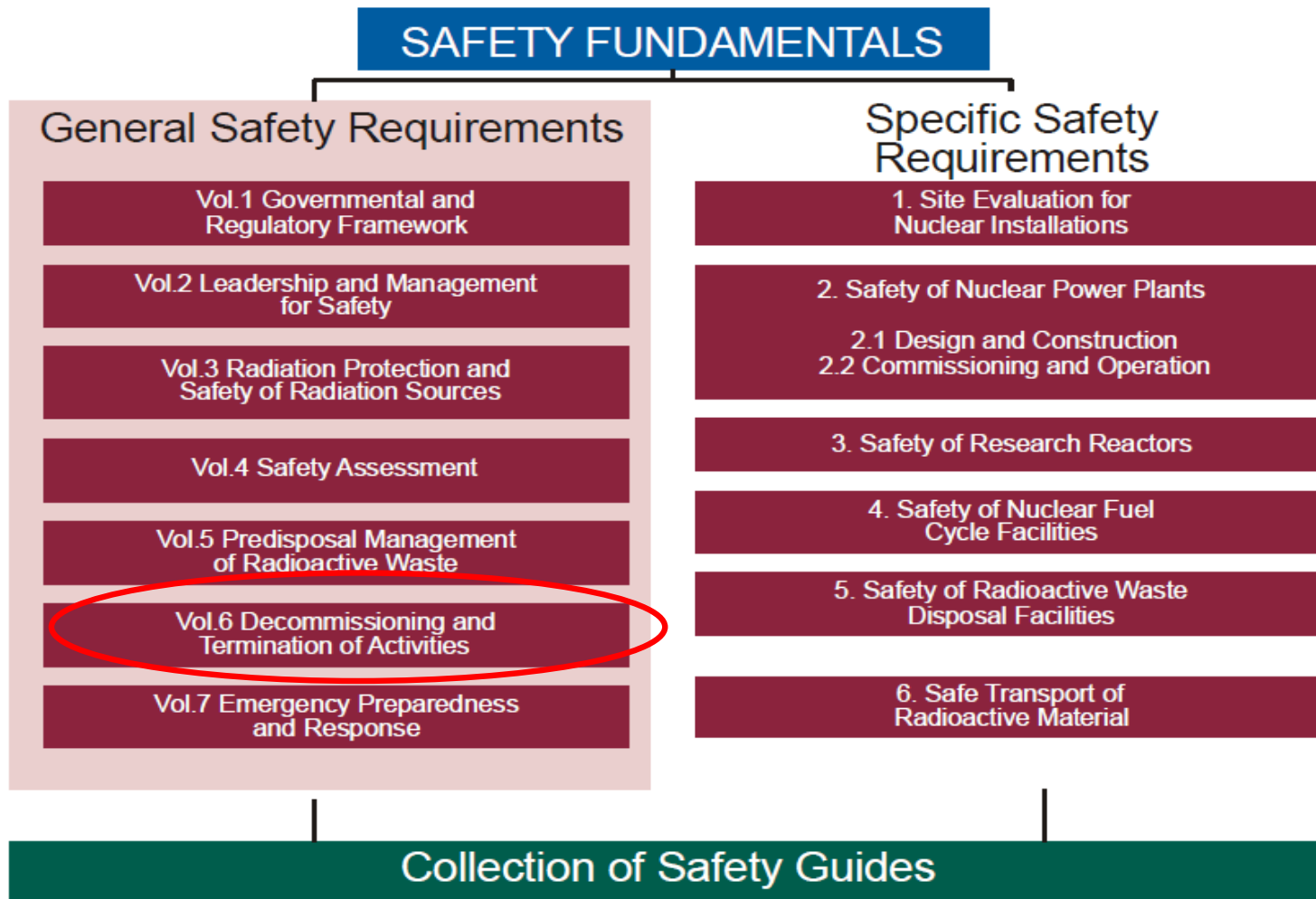
## Objectives

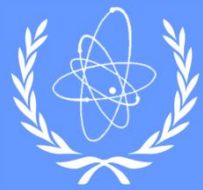
### GSR Part 5

- 1) establishes the requirements that must be satisfied in the predisposal management of radioactive waste.
- 2) sets out the objectives, criteria and requirements for the protection of human health and the environment that apply to the siting, design, construction, commissioning, operation and shutdown of facilities for the predisposal management of radioactive waste, and the requirements that must be met to ensure the safety of such facilities and activities.



# Structure of the Safety Standards





# Part 6 Decommissioning of Facilities

IAEA Safety Standards

for protecting people and the environment

Decommissioning of  
Facilities

General Safety Requirements Part 6

No. GSR Part 6



## Objectives

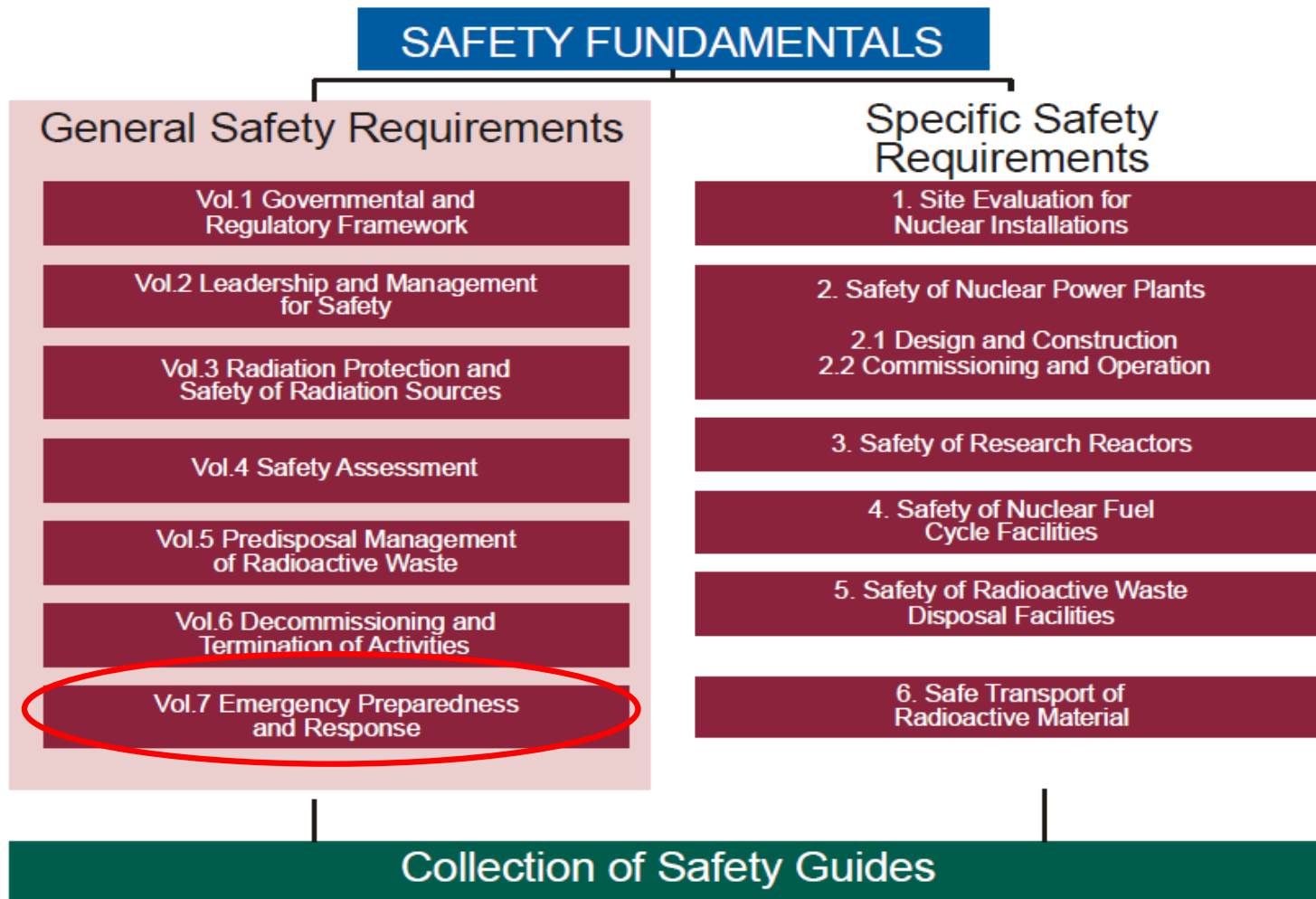
### GSR Part 6

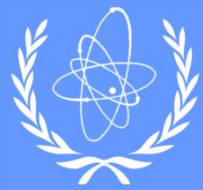
- 1) establish the general safety requirements to be met during planning for decommissioning, during conduct of decommissioning actions and during termination of the authorization for decommissioning.
- 2) establishes the safety requirements for all aspects of decommissioning from the siting and design of a facility to the termination of the authorization for decommissioning

**2014**



# Structure of the Safety Standards





# Part 7 Emergency Preparedness and Response

## Objectives

### GSR Part 7

- 1) establishes the requirements for an adequate level of preparedness and response for a nuclear or radiological emergency in any State.
- 2) these requirements are intended to be applied by authorities at the national level by means of adopting legislation, establishing regulations and assigning responsibilities

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

#### Preparedness and Response for a Nuclear or Radiological Emergency

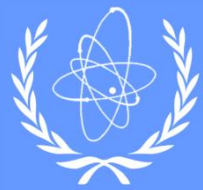
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FAO, IAEA, ICAO, ILO, IMO, INTERPOL,  
OECD/NEA, PAHO, CTBTO, UNEP, OCHA, WHO, WMO



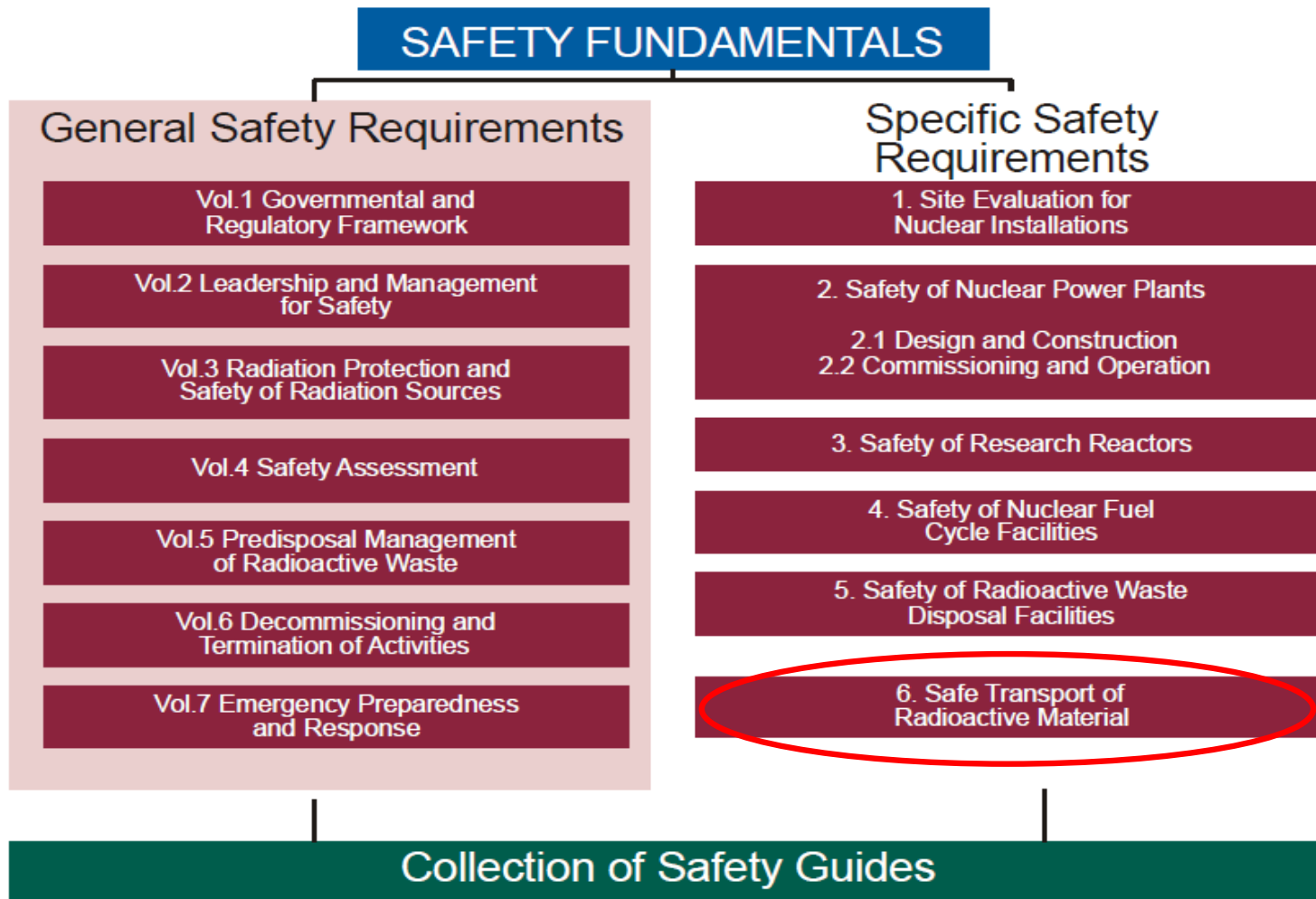
#### General Safety Requirements No. GSR Part 7



2015



# Structure of the Safety Standards







# Specific Safety Requirements. Regulations for the safe Transport of Radioactive Material

IAEA Safety Standards  
for protecting people and the environment

Regulations for the  
Safe Transport of  
Radioactive Material  
2012 Edition

Specific Safety Requirements  
No. SSR-6



**2012**

## Objectives

The objective of SSR-6 is to establish requirements that must be satisfied to ensure safety and to protect persons, property and the environment from the effects of radiation in the transport of radioactive material. This protection is achieved by requiring:

- (a) Containment of the radioactive contents;
- (b) Control of external radiation levels;
- (c) Prevention of criticality;
- (d) Prevention of damage caused by heat.



***Thank you!***