NUCLEAR SECURITY FUNDAMENTALS

Division of Nuclear Security
Objectives

- Familiarize participants with the Nuclear Security Fundamentals (NSS 20)

- Provide an overview of the Essential Elements that a State’s nuclear security regime should cover
What is Nuclear Security

Nuclear security focuses on the prevention of, detection of, and response to, criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities.

IAEA Nuclear Security Series

**Fundamentals (PRINCIPLES)**
- Objectives and principles
- Basis for Nuclear Security Recommendations
- Essentials from international instruments

**Recommendations (WHAT)**
- General approaches, actions, concepts and strategies
- Applications of Fundamentals

**Implementing Guides (HOW)**
- Broad guides on how Recommendations to be applied
- Ways and means for how Recommendations implemented at systems level

**Technical Guidance (DETAILS)**
- Reference Manuals, Training Guides, Service Guides

Assists in the implementation of obligations contained in international legal instruments relevant to nuclear security
• Sets out the overall objective of a nuclear security regime.

• Establish a set of 12 Essential Elements of an appropriate and effective national nuclear security infrastructure
Objectives of a State’s Nuclear Security Regime

• The objective of a States nuclear security regime is to protect persons, property, society, and the environment from the harmful consequences of a nuclear security event.

• With the aim of achieving this objective, States should establish, implement, maintain and sustain an effective and appropriate nuclear security regime to prevent, detect and respond to such nuclear security events.

• The nuclear security regime is part of the State’s overall security regime. The nuclear security regime covers nuclear material and other radioactive material whether it is under or out of regulatory control and associated facilities and associated activities.
The Nuclear Security Regime is defined in NSS 20 as:

A regime comprising:

- The legislative and regulatory framework and administrative systems and measures governing the nuclear security of nuclear material, other radioactive material, associated facilities and associated activities;
- The institutions and organizations within the State responsible for ensuring the implementation of the legislative and regulatory framework and administrative systems of nuclear security;
- Nuclear security systems and measures for the prevention of, detection of, and response to nuclear security events.
Overview of the 12 Essential Elements

1. State responsibility
2. Identification and definition of nuclear security responsibilities
3. Legislative and regulatory framework
4. International transport of nuclear material and other radioactive material
5. Offences and penalties including criminalization
6. International cooperation and assistance
7. Identification and assessment of nuclear security threats
8. Identification and assessment of targets and potential consequences
9. Use of risk informed approach
10. Detection of nuclear security events
11. Planning for, preparedness for, and response to, a nuclear security event
12. Sustaining a nuclear security regime
Essential Element 1: State Responsibility

Responsibility rests with the State to establish, implement, maintain and sustain a nuclear security regime applicable to nuclear material, other radioactive material, associated facilities, and associated activities under a State’s jurisdiction.
Identification and definition of nuclear security responsibilities of competent authorities designated by the State, including regulatory bodies, border control and law enforcement, and responsibilities of all authorized persons:

- Integration and coordination of responsibilities
- State’s oversight to ensure continued appropriateness of the nuclear security responsibilities
Key Competent Authorities with Responsibilities for Nuclear Security

Coordinating Body or Mechanism

- Judiciary
- Policy Authorities
- Military Forces
- Customs
- Intelligence Services
- Legislative Authorities
- Police
- Regulators
- Border Guards
- Civil Defense
- Emergency Services
A legislative and regulatory framework, and associated administrative measures to govern the nuclear security regime, with a purpose to:

- Establish competent authorities, including regulatory bodies
- Assign nuclear security responsibilities and provide the authorities with sufficient financial, human and technical resources.
- Ensure proper coordination and communication among competent authorities and between competent authorities and authorized persons.
- Ensure regulatory bodies have appropriate independence in their nuclear security decision making, including functional and financial independence from the entities that they regulate.
- Establish regulations, requirements, and associated procedures for granting authorizations or licenses.
Essential Element 3: Legislative and Regulatory Framework

(Slide 11 continued) Legislative and regulatory framework to govern the nuclear security regime, with the purpose to:

- Ensure that there are procedures for the State to assume the prime responsibility for security in the absence of authorized persons
- Establish nuclear material and other radioactive material accounting or registering and ensure control and protection
- Establish law enforcement systems and measures relevant for nuclear security
- Measures for export, import and border control of nuclear material & other radioactive materials
- Security procedures for international transport
- Establish verification and enforcement measures to ensure compliance with applicable laws and regulations, including imposition of sanctions
The legal hierarchy in a State will influence the legislative and regulatory framework for nuclear security
The responsibility of a State for ensuring that nuclear material and other radioactive material are adequately protected extends to the international transport thereof, until that responsibility is properly transferred to another State.
A State should ensure that its penal or criminal legislation includes provisions that:

- Define criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities as offenses under domestic laws;
- Deal with other acts that have an adverse impact on nuclear security;
- Establish the jurisdiction of the State over such offences or violations;
- Provide for the prosecution/extradition of alleged offenders.
A national nuclear security regime provides for cooperation and assistance between and among States, either directly or through the IAEA or other international organizations, by:

- Making known designated point of contacts for notification, assistance & cooperation;
- Providing timely information to States concerned about events or credible threats;
- Providing timely response to requests for assistance (recovery, technical assistance, including nuclear forensics or mutual legal assistance);
- Cooperating and exchanging of experience & information
- Ensuring protection of exchanged sensitive information.
A nuclear security regime ensures that:

- nuclear threats are identified and assessed regardless of whether the targets of internal nuclear security threats are within or outside the jurisdiction of the State;

- State’s assessments of nuclear security threats are kept up-to-date and are used in implementing the State’s nuclear security regime.
A nuclear security regime ensures that:

- targets are identified and assessed to determine if they require protection from nuclear security threats;
- assessment is based on potential consequences should the targets be compromised;
- an up-to-date assessment of such targets is maintained.
Essential Element 9: Use of Risk Informed Approach

Use of risk-informed approaches, based on a **graded approach** and **defence in depth**, taking into account:

- State’s current assessment of the nuclear security threats;
- Relative attractiveness and vulnerability of identified targets to threats;
- Characteristics of the material, facilities and activities;
- Potential harmful consequences from criminal acts involving or directed at nuclear material, other radioactive material, associated facilities, associated activities, sensitive information or sensitive information assets;

*Graded approach*: The application of nuclear security measures proportional to the potential consequences of such acts.

**Defence in depth**: The combination of successive layers of systems & measures for the protection of targets from nuclear security threats.
Essential Element 10: Detection of Nuclear Security Events

A nuclear security regime ensures that nuclear security systems and measures are in place to:

- detect and assess *nuclear security events*;
- notify the relevant *competent authorities* for initiating appropriate response actions:
  - at facilities and during transport;
  - at major public events or strategic locations;
  - in searches for, recoveries of, or discoveries of such material that is missing or lost or otherwise out of regulatory control;
  - within the State’s territory or on board its ships or aircraft and at its international borders.
A nuclear security regime ensures that competent authorities are prepared to respond, at local, national & international levels to events by:

- developing arrangements and response plans to ensure:
  - rapid mobilization of resources to an event;
  - coordination and cooperation during response;
  - use of relevant international assistance and response systems;
  - investigation of any nuclear security event and prosecution/extradition of alleged offenders;

- exercising, testing and evaluating the plans for effectiveness:
  - to mitigate and minimize harmful consequences from nuclear security events,
  - to locate, recover, and secure nuclear material and other radioactive material that is out of regulatory control.
A nuclear security regime ensures that each organization with nuclear security responsibilities contributes to the sustainability of the regime by:

- developing, implementing and maintaining integrated management systems including quality management systems;
- demonstrating leadership in nuclear security matters at the highest levels;
- developing, fostering and maintaining a robust nuclear security culture;
- allocating sufficient human, financial and technical resources to carry out nuclear security responsibilities on a continuing basis using a risk informed approach;
- routinely conducting maintenance, training and evaluation to ensure effectiveness of the nuclear security systems;
- having in place processes for using best practices and lessons learned from experience;
- establishing and applying measures to minimize the possibility of insiders becoming nuclear security threats;
- routinely performing assurance activities to identify and address issues and factors that may affect capacity to provide adequate nuclear security, including cyber security at all times.
Questions?