Nuclear Security Infrastructure for a Nuclear Power Programme

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Overview of Paper

• Nuclear security in context
• Importance of effective nuclear security infrastructure in support of a nuclear power programme
• Nuclear Security Series key guidance for States when introducing nuclear power
• Key role of the regulatory body in the authorization, inspection and enforcement of nuclear security systems and measures
• Importance of recognizing the interface between safety and security in the management of risk
Nuclear Security

... to theft, sabotage, unauthorized access, illegal transfer or other criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities and associated activities.
Understanding the threat and risk

What is the threat?
criminals or terrorists acquiring and using for malicious purposes:
- Nuclear weapons
- Nuclear material to make IND
- Radioactive material for RDD or RED
- Sabotage of nuclear installations or transport

Who poses the risks?
- The State that does not recognize the threat of nuclear terrorism
- The State that does not take preventive action
- The State that is complacent
The Role of the IAEA

Nuclear security is a national responsibility.

The IAEA:
• Facilitates adherence to implementation of international legal instruments related to nuclear security
• Supports development of national legislative and regulatory framework for nuclear security
• Supports States, upon request, in their efforts to establish and maintain effective nuclear security through assistance in capacity building, guidance or standards, human resource development and risk reduction
Establishing a nuclear power programme

- Is a significant undertaking
- Requires consideration of many factors
- IAEA Milestones approach identifies key actions during 3 phases to achieve 3 key Milestones
- There are 19 issues in the Milestones approach
  - Nuclear security is one of them (Issue 15)
  - IAEA advocates a holistic approach to nuclear security
  - Nuclear security must be taken into account when considering National Position; Legislative Framework; Nuclear Safety (and the interface with nuclear security); Regulatory Framework
- IAEA can provide assistance in establishing nuclear infrastructure and in the area of nuclear safety (SSG-16) and nuclear security has published key guidance for States.
IAEA Nuclear Security Series

Supporting Foundation for the State’s Legislative and Regulatory Framework for Nuclear Security for a Nuclear Power Programme:

• Nuclear Security Fundamentals: Objectives and Essential Elements
• Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities
• Nuclear Security Recommendations on Radioactive Material and Associated Facilities
• Nuclear Security Recommendations on Nuclear and Other Radioactive Material out of Regulatory Control

http://www-pub.iaea.org/MTCD/publications
Implementing Guide: Implementing Nuclear Security Infrastructure for a Nuclear Power Programme – NSS 19

- Published March 2013
- Companion document to Milestones approach: Introduction of Nuclear Power Programme and Establishing the Safety Infrastructure for a NPP SSG 16
2.1. The Objective of a State’s *nuclear security regime* is to protect persons, property, society, and the environment from harmful consequences of a *nuclear security event*.

2.2. 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*.

2.3. 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* throughout their lifetimes, and it should reflect the risks of harm to persons, property, society, and the environment.
Nuclear Security: 1 Objective, 12 essential elements

- State responsibility;
- Identification and definition of nuclear security responsibilities;
- Legislative and Regulatory Framework;
- International Transport of Nuclear Material and Other Radioactive Material;
- Offences and Penalties including criminalization;
- International cooperation and assistance;
- Identification and assessment of nuclear security threats;
- Identification and assessment of targets and potential consequences;
- Use of risk informed approaches;
- Detection of nuclear security events;
- Planning for, preparedness for, and response to a nuclear security event;
- Sustaining a nuclear security regime.

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The Implementing Guide takes a holistic approach to nuclear security. The major topics covered that support the implementation of effective nuclear security infrastructure are:

• National nuclear security policy and strategy
• Legislative and regulatory framework
• Common nuclear security measures including nuclear security culture; protection of sensitive information; trustworthiness of personnel; human resource development
• Nuclear security measures for nuclear material and nuclear facilities
• Nuclear security measures for radioactive material and associated facilities and activities
• Nuclear security measures for nuclear and other radioactive material out of regulatory control
• International cooperation and assistance
Roles and Responsibilities for Nuclear Security (2 R’s)

- There are broad range of agencies within the State that have roles and responsibilities in relation to nuclear security. These include:
  - National security and intelligence agencies
  - Customs and border protection agencies
  - Law enforcement including specialized forensic laboratories
  - Emergency response agencies, including first responders
  - Transport competent authorities for land, sea and air
  - Foreign ministries and interior ministries
  - Public Health officials
  - Civil Defence
  - Military or armed forces
  - Regulatory Body

It is essential that the roles and responsibilities of each is clearly defined in legislation and where necessary supported by regulations.
Nuclear Security Coordination within a State

1. – Regulated Material

- Governmental Policy Authorities
  - Military Forces
  - Customs
  - Intelligence Services
  - Legislative Authorities
- Coordinating Body or Mechanism?
- DBT
- Regulators
  - Police
  - Border Guards
- Civil Defence
  - Emergency Services
  - Judiciary
  - Civil Defence
- IAEA
Nuclear Security Coordination within a State

2.- Material out of Regulatory Control

Coordinating Body or Mechanism

- Governmental Policy Authorities
- Military Forces
- Customs
- Intelligence Services
- Legislative Authorities
- Police
- Border Guards
- Regulators
- Civil Defence
- Emergency Services
- Judiciary

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Cooperation, communication and coordination (3C’s)

• Given the range of agencies involved in nuclear security it is essential that there is put in place a coordination body or mechanism to ensure that all are effectively cooperating, communicated and are well coordinated.

• It is essential that the State ensure that there is proper coordination among the responsible State authorities in relation including mechanisms to ensure the secure exchange of sensitive information.

• These mechanisms may also need to exist in the context of relations between States as well.

• Quotable quote:

“It is too late to hand out your business cards at the scene of a nuclear security event”

(Senior Law Enforcement Official explaining the importance of the 3C’s)
Nuclear security is intended to prevent, detect and respond to nuclear security events. The circumstances that give rise to these events as well as their consequences potentially cross State boundaries. This underscores the importance of international cooperation and assistance in key areas:
- Sharing of best practices in the areas of physical protection techniques
- Common understanding of key issues such as the interface between safety and security
- Sharing evidence in the context of an extradition or prosecution of an offence
- Recovery and return of seized material
- Reporting cases of unauthorized removal or sabotage, or credible threat
- Technical assistance and cooperation when applying measures to prevent, detect or respond to nuclear security events, including for example nuclear forensics.
There are a number of important commonalities between the regulatory oversight of security and that of safety. Significant ones include:

- Importance of an independent regulatory body;
- Adequate financial and human resources for the regulatory body;
- Complete legislative framework;
- Complete set of regulations;
- Complete set of regulatory guides;
- Clear regulatory expectations given to the applicant/operating organisation at relevant stages of licensing;
- Communication between the regulatory body and the operating organisation;
- Powers to undertake authorisation, inspection, compliance and enforcement;
- Management systems;
- Attention to culture;
- sustainability of systems.
Effective Regulation of Security

- Additional responsibilities in the context of nuclear security require the regulatory body to have close and cooperative working relationships with other key organs of the State who have responsibilities for nuclear security, to protect and secure material and facilities under regulatory control and to prevent, detect and respond to material out of regulatory control.
The presence of nuclear material and nuclear facilities in a State also has the potential to change the security environment and introduce a threat that is different from that previously assessed by the country prior to the introduction of nuclear power.

The threats to be managed are the threat to material and facilities whilst under regulatory control and the threat from material that becomes out of regulatory control.

Introduction of nuclear power into a country requires the management of both types of risk.
Conclusion

• Just as safety measures cannot lead us to the conclusion that there is zero risk of a nuclear accident, neither can security measures lead us to conclude that the material and the facilities are 100 percent secure.

• Appropriate nuclear security infrastructure, that provides for prevention, detection and response can however provide a high level of assurance that each type of potential threat (the threat to facilities and material under regulatory control and the threat from material out of regulatory control) is understood and the risk to persons, property society and the environment is being effectively managed.

• The importance of nuclear safety and nuclear security and the recognition of the interface between is that both safety and security contribute to the management of risk and provide a greater level of assurance of the protection of people, property, society and the environment.
For further information please visit the website:

Website: http://www-ns.iaea.org/security
Nuclear Security Conference 2013

• 1-5 July 2013 in Vienna

• A global forum for ministers, policymakers, senior officials, managers and experts from all areas of nuclear security to:

  1. Review experience and achievements to date;
  2. Enhance understanding of current approaches and identify trends & issues;
  3. Discuss policy, technical and regulatory developments and issues;
  4. Formulate views on the future directions and priorities for nuclear security;