

# International and Regional Cooperation

Nuclear Security Detection Architecture  
Module J

## Nuclear Security Detection Architecture

### Foundational Concepts

*Pathway View*

*Competent Authorities*

*Detection Strategy*

*Legal Framework*

### Design & Development

*Capabilities & Needs*

*Design Attributes*

*Detection by Instrument Alarm*

*Detection by Information Alert*

### Operational Implementation

*Roles & Responsibilities*

*Instrument Deployment*

*Concept of Operations*

*Searches & Surveys*

### Initial Assessment of Alarms and Alerts

*Assessment Flowcharts*

*Operations & Analysis Center*

### Principles of Detection

### International & Regional Cooperation

*Role of Cooperation*

*Cooperation Options*

### Role of Information

*Information Management*

*Delivering Information to Users*

### Human Resources

*Nuclear Security Culture*

*Awareness, Training, and Exercise*

### Sustainability

### Architecture Evaluation

*Methodologies*

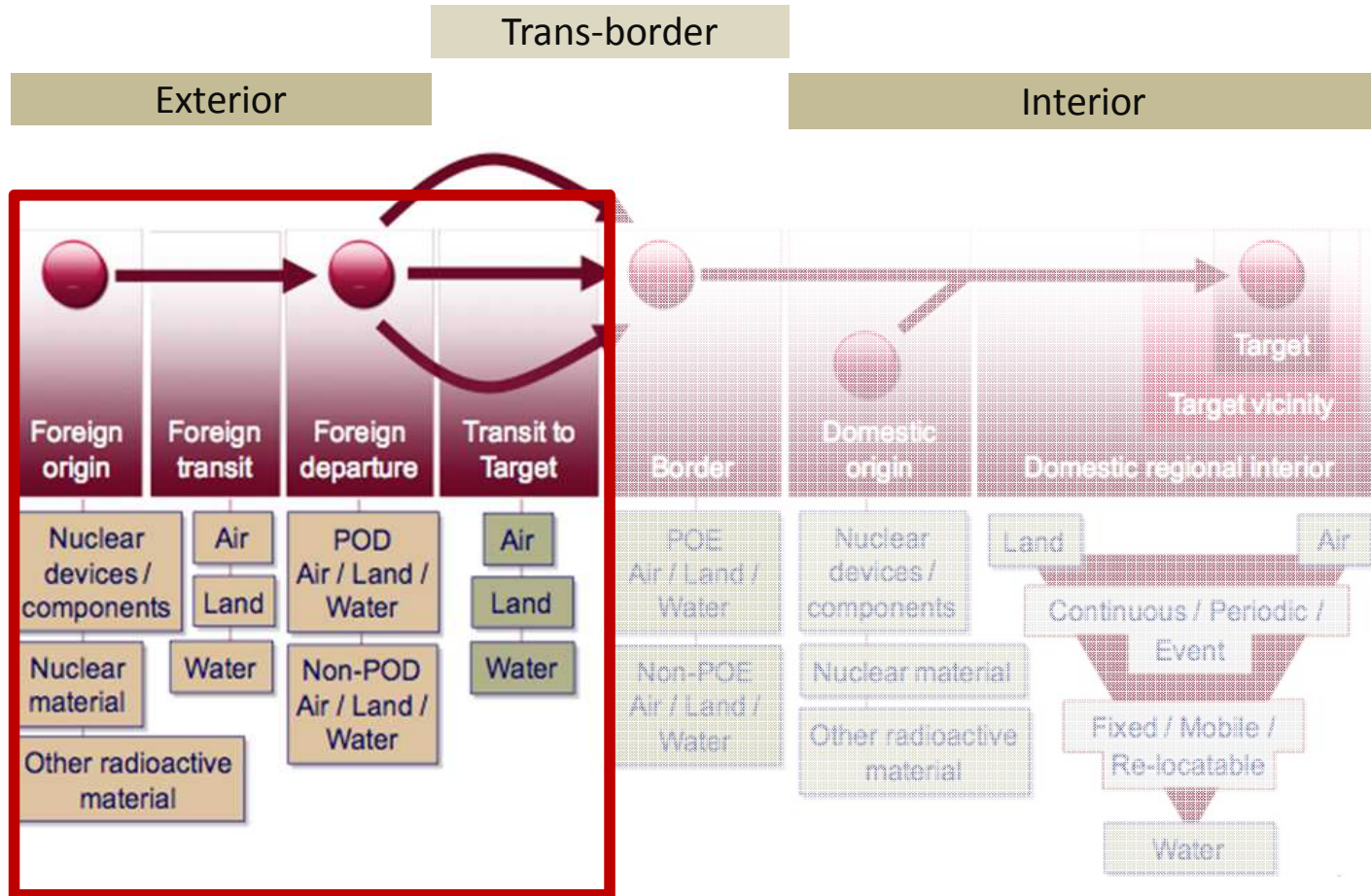
*Performance Criteria*

# Module Objectives

- This module will address the role of international and regional cooperation in a nuclear security detection architecture, including:
  - Role of cooperation
  - Cooperation options
  - International organizations, agreements, and frameworks
  - Regional and multilateral initiatives

The information presented in this module is relevant to checklist questions:  
**19, 20, 37, 71**

# Pathways View of the Architecture

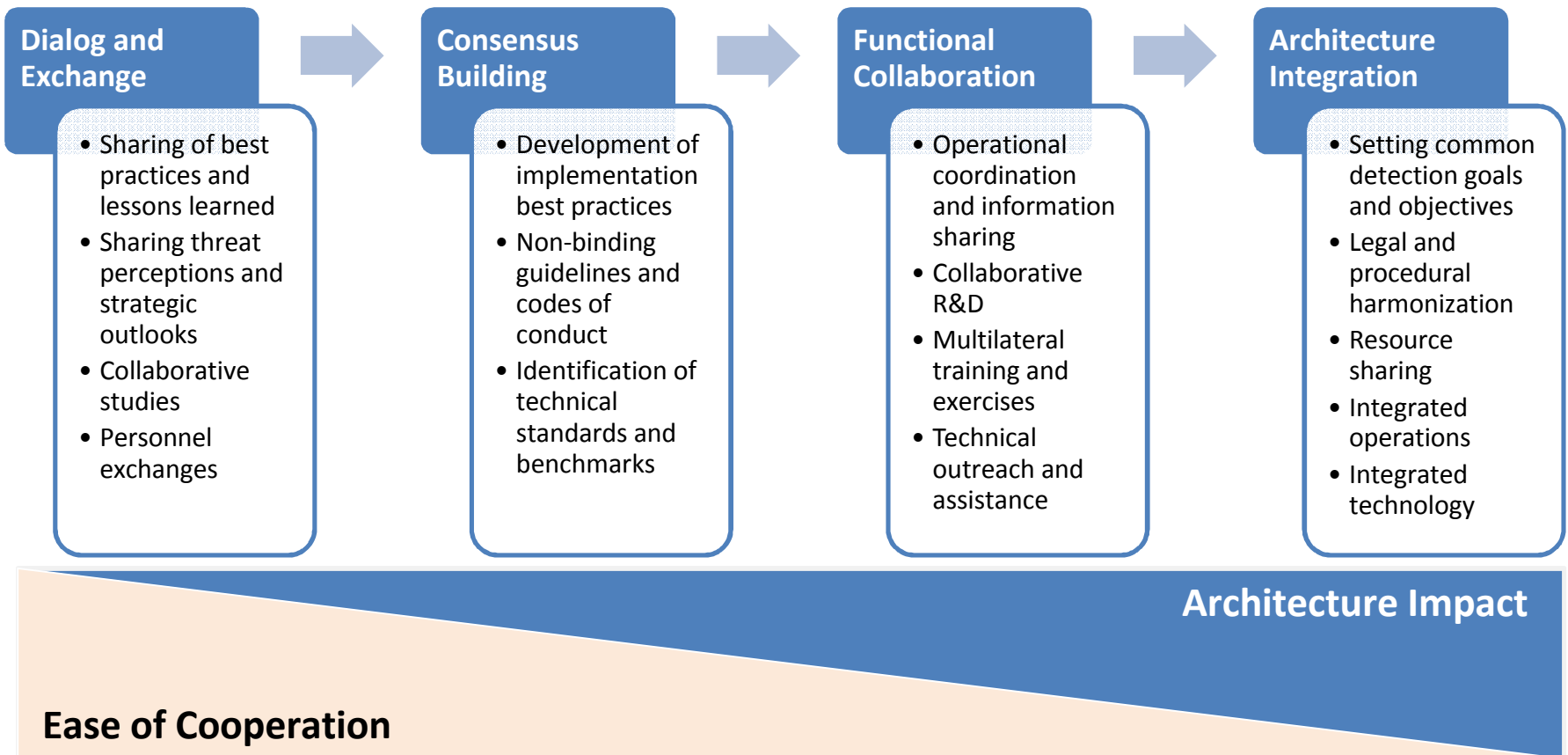


# Role of Cooperation

- Challenges and dangers presented by nuclear and radiological materials out of regulatory control are transnational
- International cooperation can strengthen a nuclear security detection architecture by expanding the reach of detection efforts, building defense in depth
- International partners can also provide useful experience and knowledge regarding architecture implementation



# Cooperation Spectrum



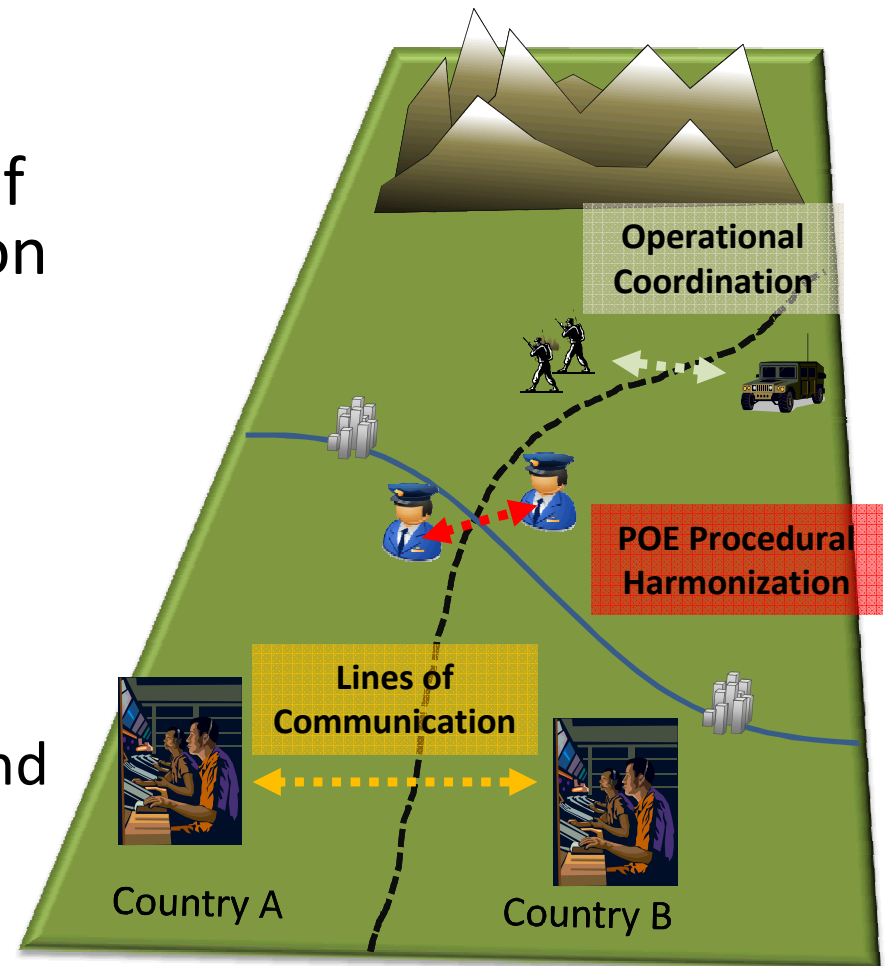
# Cooperation Factors

- Many factors can both enable and inhibit international cooperation, including:
  - National goals
  - Perceptions of threat
  - Culture
  - Diplomatic ties
  - Common borders
  - Concepts of regional or global security
  - Technical and non-technical capabilities
  - Historical cooperation on security matters
  - International commitments
  - Willingness to share information



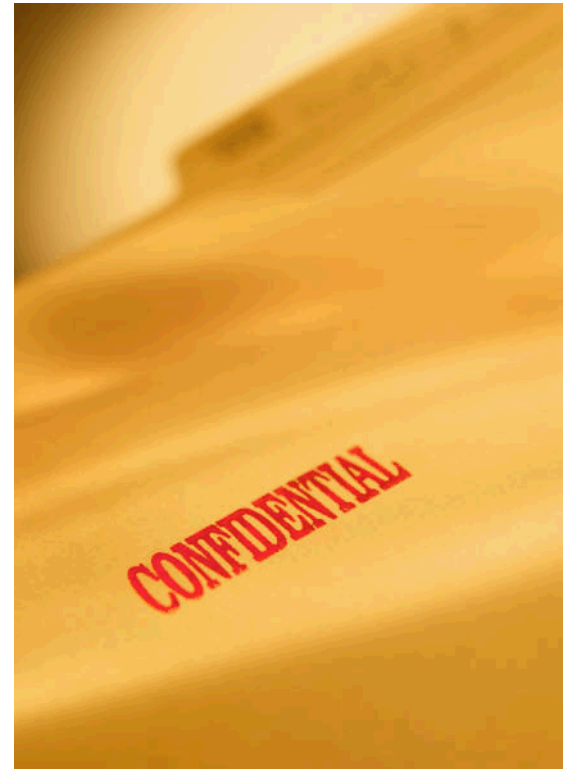
# Cross-border Cooperation

- Coordination between competent authorities at common borders or ports of entry can reinforce detection capabilities on both sides
- Examples might include:
  - Establishing lines of communication
  - Harmonizing operational protocols and procedures
  - Operational coordination and integration




# Information Sharing and Exchange

- Information sharing can provide partners with more complete situational awareness
- Information sharing might take place:
  - On a routine basis
  - In response to time-sensitive operational information
  - In preparation for special events
- Pre-established information exchange procedures and protocols can facilitate more timely sharing
- Information security protocols should be observed to prevent compromise of sensitive information



# Incident Reporting

- International reporting of detection incidents can be a useful tool for understanding:
  - Evolving threats
  - Illicit trafficking trends and patterns
  - Detection best practices
- The IAEA Illicit Trafficking Database provides an existing mechanism for reporting
- Regional and bilateral reporting mechanisms might also be beneficial



**IAEA Illicit Trafficking Database (ITDB)**  
*IAEA information system on illicit trafficking and other unauthorized activities involving nuclear and radioactive materials*

Status: (check one): IAEA ID#:

Initial Notification (Enter the IAEA ID# if this is an update. Otherwise, leave blank)

Update on Previous Incident Send to: IAEA Illicit Trafficking Database Office  
 FAX: +43-1-2600-29250  
 Email: trafficking@iaea.org

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**PART I: General information**  
*Information provided in this section will be disseminated by the IAEA to all Member States participating in the ITDB programme, IAEA Member States not participating in the ITDB programme and selected International Organizations.*

<b>1. Date of incident:</b> <small>(e.g. 10 November 98, do not use number to designate month)</small>	<b>2. Country:</b> <small>(where incident occurred)</small>
<b>3. Nature of incident:</b> <small>(See instructions to select the appropriate category)</small>	<b>4. Location:</b> <small>(Location within the country: i.e., city, airport, highway, rail station, etc.)</small>

**Materials involved in the incident:**

5. Nuclear Material		6. Radioactive Sources		
<input type="checkbox"/> Natural Uranium	<input type="checkbox"/> LEU (<20% <sup>235</sup> U)	<b>Nuclide</b>	<b>Sealed/ unsealed</b>	<b>Activity</b> ( <input type="checkbox"/> Bq or <input type="checkbox"/> Ci)
<input type="checkbox"/> Depleted Uranium	<input type="checkbox"/> HEU (≥ 20% <sup>235</sup> U)			<b>Category</b> (SG-R-1.9) <small>To be filled by IAEA)</small>
<input type="checkbox"/> Thorium	<input type="checkbox"/> U-233			
<input type="checkbox"/> Other (specify)	<input type="checkbox"/> Plutonium			

Isotopic content: (% <sup>235</sup>U, <sup>238</sup>U, <sup>232</sup>Th content)

Quantity:  g /  kg

7. Other materials	
Radioactively Contaminated Material (specify):	
Naturally Occurring Radioactive Material (specify):	
Other or Unknown (see instructions):	

**8. Chemical description:** (e.g. U<sub>3</sub>O<sub>8</sub>, Oxide, Metal, UF<sub>6</sub>, KI, mixed waste, etc.)

**9. Physical description** (e.g. pallet, powder, fuel element, dimensions, etc.) and application (see instructions)

**10. Comments:**

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# Technical Assistance

- Countries possess unique detection resources, technical capacities, and experience
- Technical cooperation and assistance can be used to:
  - Address gaps in detection capability
  - Share best practices and lessons learned
  - Leverage unique capabilities for common detection objectives
  - Bring partners up to a common detection capability “baseline”
- Technical assistance might also include support in response to nuclear security events



# Cooperative Research and Development

- Countries might also cooperate on research and development of detection technologies and techniques
- Resources and expertise can be combined to achieve common technical objectives
- Cooperative R&D might include:
  - Developing new detection technologies/techniques
  - Refining existing detection technologies/techniques
  - Identifying common detection requirements and specifications
  - Collaborative testing and evaluation of new or existing technologies

# Exercises

- International exercises allow countries to practice the cooperative application of detection approaches
- Can range in complexity, from logistically simple tabletop exercises to more complex field exercises
- Exercises can help participants:
  - Better understand commonalities and differences in operating protocols and procedures
  - Evaluate detection technologies and techniques in a simulated real-world environment
  - Identify and share best practices
  - Develop working relationships with international peers

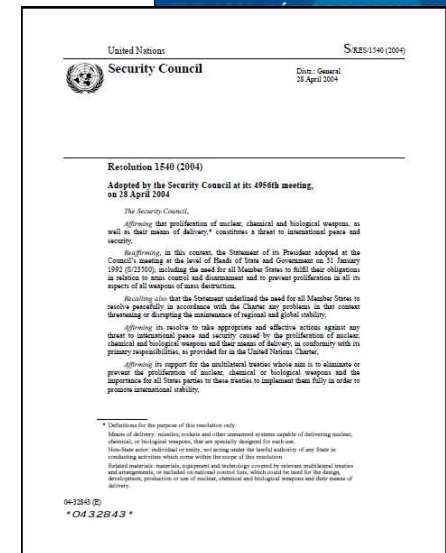


# Regional Harmonization and Integration

- Detection approaches can be regionally harmonized and integrated to:
  - Maximize detection coverage
  - Reduce duplication of effort, where appropriate
  - Minimize conflicting regulation and procedures
  - Facilitate efficient movement of commerce
- It may be possible to incorporate detection harmonization and integration into existing regional agreements (e.g. trade facilitation agreements)

# International Agreements

- A number of agreements already exist providing guidance and standards for nuclear security
- Governments should consider all relevant agreements, as appropriate, and implement provisions as fully as possible
- Examples include:
  - IAEA agreements and guidelines
  - UN Security Council Resolution 1540
  - UN legal conventions on terrorism
  - Export control regimes



# International Organizations

- International organizations exist to support existing agreements, provide assistance in detection-relevant areas, and facilitate relevant cooperation
- Some organizations can also facilitate and support new cooperation initiatives
- Examples include:
  - IAEA
  - INTERPOL
  - WCO, ICAO, and IMO
  - UN 1540 Committee



# Multilateral and Regional Initiatives

- Cooperation can be pursued among groups of countries to achieve common nuclear security objectives
- Regional and sub-regional cooperation can address common challenges and reinforce defense in depth
- Examples include:
  - Global Initiative to Combat Nuclear Terrorism (GICNT)
  - Nuclear Security Summit
  - European Security Training Centre (EUSECTRA)
  - INTERREG

# International and Regional Cooperation Summary

## Nuclear Security Detection Architecture

**BASIS FOR ARCHITECTURE**

National Nuclear  
Security Detection  
Strategy

Threat/Risk Based

Scope and Priority

Coordinating Body

Legal and  
Regulatory  
Framework

Criminal Acts

Assign Authority

Define Functions

National  
Capabilities

Already Exist

Can be Leveraged

Forms Baseline

**International and  
Regional  
Cooperation**

Sharing Information

Technical Assistance

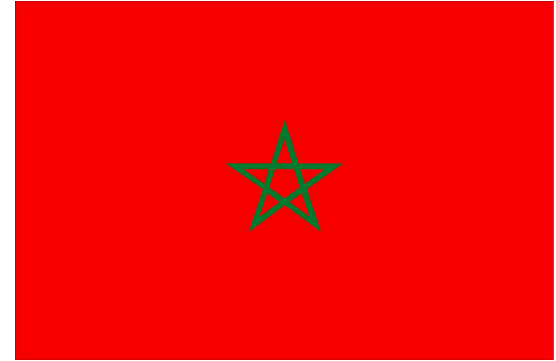
Joint Operations

Case Study

# **GICNT RABAT EXERCISE**

# Exercise Case Study: GICNT Rabat Exercise

- Supporting GICNT, the government of Morocco hosted an international detection exercise in 2011
- Intended to enhance Moroccan and international capabilities for detecting and responding to malicious uses of radiological and nuclear materials
- Participants included representatives from five countries and the IAEA
- Tabletop and field exercises based around a fictional scenario



# Exercise Case Study: GICNT Rabat Exercise

- The exercise addressed various dimensions of both Moroccan and international response to the scenario, including:
  - Threat assessment
  - Information sharing
  - Border control
  - Operational cooperation and coordination
  - Policies and procedures
  - Technical response
- Insights and lessons learned have been incorporated into Moroccan planning and shared with the GICNT community. These include the need for further national and international cooperation on:
  - Interoperability in information exchange
  - Protocols and agreements for incident notification and assistance requests
  - Understanding national response structures
  - The role of the media
  - Mechanisms for national coordination/cooperation

Module J

# **DISCUSSION QUESTIONS**

# Discussion Questions

1. What are the potential benefits to be gained from international cooperation on detection? What might be gained that would be otherwise difficult to achieve without cooperation?
2. What are some of the potential problems or difficulties that might be encountered through international cooperation? How can these problems be overcome?
3. What are some potential examples of cooperative mechanisms for information sharing and reporting with international and regional partners? What types of information might be shared, and how can partners ensure that sensitive information is protected?