



60 Years

IAEA

Atoms for Peace and Development

Developing a National Framework for Managing the Response to a Nuclear Security Event



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Overall presentation objective

The objective of this presentation is to provide you with an overview of how an effective national response framework can support States in managing their response to nuclear security events* involving Material Out of Regulatory Control (MORC).

*Criminal or other intentional unauthorised acts involving nuclear or other radioactive MORC

Outline

- **The Threat**
- **The Global Nuclear Security Regime**
- **The National Response Framework**
- **IAEA National Framework development**
- **Common Challenges, Lessons and Recommendations**

Is there a Threat?



Boston Marathon



Bataclan Theatre



Manchester Arena



Berlin Market

Is There a Threat?

Europe's footballing genius
Johan Cruyff 1947-2016
News, page 3 | *Obituaries*, pages 63-64 | *Sport*, pages 76-80

It's not over for buy to let
Bricks&Mortar

Children aged 7 are victims of school sexting epidemic

Greg Mervin Education Editor
Six-year-olds are being sent explicit photos and messages over school mobile devices and are being bullied for it, says a former head of a primary school in London.
Another unnamed 'vulnerable girl' had been sent explicit photos and messages for several years, says the head of the school, which claims messages are routinely deleted.
The head of the school, which claims messages are routinely deleted, says that she has received a similar message from a child in the past few years. She says she has received a similar message from a child in the past few years. She says she has received a similar message from a child in the past few years.

Brussels cell 'was plotting radioactive bomb attack'

Terrorists had nuclear expert under surveillance
A former Belgian nuclear expert was secretly being monitored by the Belgian authorities, according to a report by the International Atomic Energy Agency (IAEA).
The report, which was published in the IAEA's journal, says that the expert was being monitored because of his involvement in a project to build a dirty bomb.
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Artificial intelligence fails to beat retail stupidity

Two-Way Science Editor
A leading artificial intelligence (AI) system failed to beat human experts at a retail task, according to a study by researchers at the University of Cambridge.
The study, which was published in the journal *Nature*, found that the AI system was unable to identify the most profitable products in a store.
The researchers say that this is because the AI system is unable to understand the context of the retail environment, such as the behavior of customers and the actions of staff.

INDONESIAN POLICE FOIL DIRTY BOMB PLOT

Experts, however, are sceptical of their expertise, equipment and chances of success
New Straits Times, 27 Aug 2017 | 155 pages

INDONESIAN militants planned to detonate a radioactive dirty bomb, security sources said. But, experts have cast doubt on their expertise, equipment and chances of success.
The plot was foiled when police raided homes and arrested five suspects in Bandung, west Java, last week, sources with direct knowledge of the plot said. After the raids, police spoke of a plan to explode a 'chemical' bomb.
The plot comes as Indonesia grapples with an influx of militants deported from other countries and the fallout from the Islamic State-led siege in the southern Philippine city of Marawi that regional leaders and analysts worry has energised militants across Southeast Asia.
The three counter-terrorism sources, speaking on condition of anonymity, said the militants had hoped to transport low-grade radioactive thorium 232 (Th-232) into deadly uranium 233 (U-233).
The highly-radioactive uranium would be combined with the powerful home-made explosive trisacetone niperoxide (TATP) to create a 'nuclear bomb', according to an instruction manual, used by the militants.
In fact, the device would be, at best, a radiological dispersal device or dirty bomb that could spray radioactive material and make any, as was occurring in the case of the conventional bomb exploded.
National police spokesman Inspector-General Setyo Wasisito declined to confirm or deny the plot to construct the device, but said it would have been more potent than the two bombs made of TATP that killed three policemen here in May.
"If this bomb was finished, it would have had a more destructive impact than the bomb made from 'Mother of Satan'. It could burn anything and make it hard for people to breathe," he said, using the nickname for TATP.
Th-232 can be transformed into U-233 but requires the thorium to absorb a neutron, a process that needs powerful irradiation, generally from a nuclear reactor, according to three analysts and the website of the World Nuclear Association, which represents reactor vendors and nuclear engineers, and other industry stakeholders.
The militants' manual advised an X-ray machine or microwave be used instead.
"And, no, you can't cook Th232 to make U-233 in a microwave and, if you could, you would have a painful and rapid death from the radioactive nature of the co-product U-232, produced alongside U-233."
A counter-terrorism source said the Bandung-based cell had bought a large amount of a household item and had begun to extract thorium.
"They needed three weeks. It was still only one week (into the process when police raided their homes)," the source said.
Terrorism analyst Rakyam Adibrata said: "They don't have the ability to occupy a city like what has happened in Marawi, but they want to do something big that pleases their boss in Islamic State."
A radiological bombing could fit the bill, but he said it was highly unlikely that the Bandung cell had either the equipment or the knowledge" to succeed.
Most of Indonesia's recent attacks have involved members of Jemaah Ansharut Daulah (JAD), a pro-ISIS alliance of Indonesian militants. Many have been directed from Syria by leader Bahrain Naim, said police.
He is identified as the author on the front page of the 47-page Indonesian-language bomb instruction manual, *Nuclear for Dummies*, and posted on a blog that has been taken down.
"Mastering weaponry is essentially every Muslim's duty. This paper, we hope, also can motivate the Muslim population to learn nuclear science easily and apply it," it said.
The plotters were members of JAD and were considering targets like the presidential palace here and police headquarters in Bandung and here, Reuters.

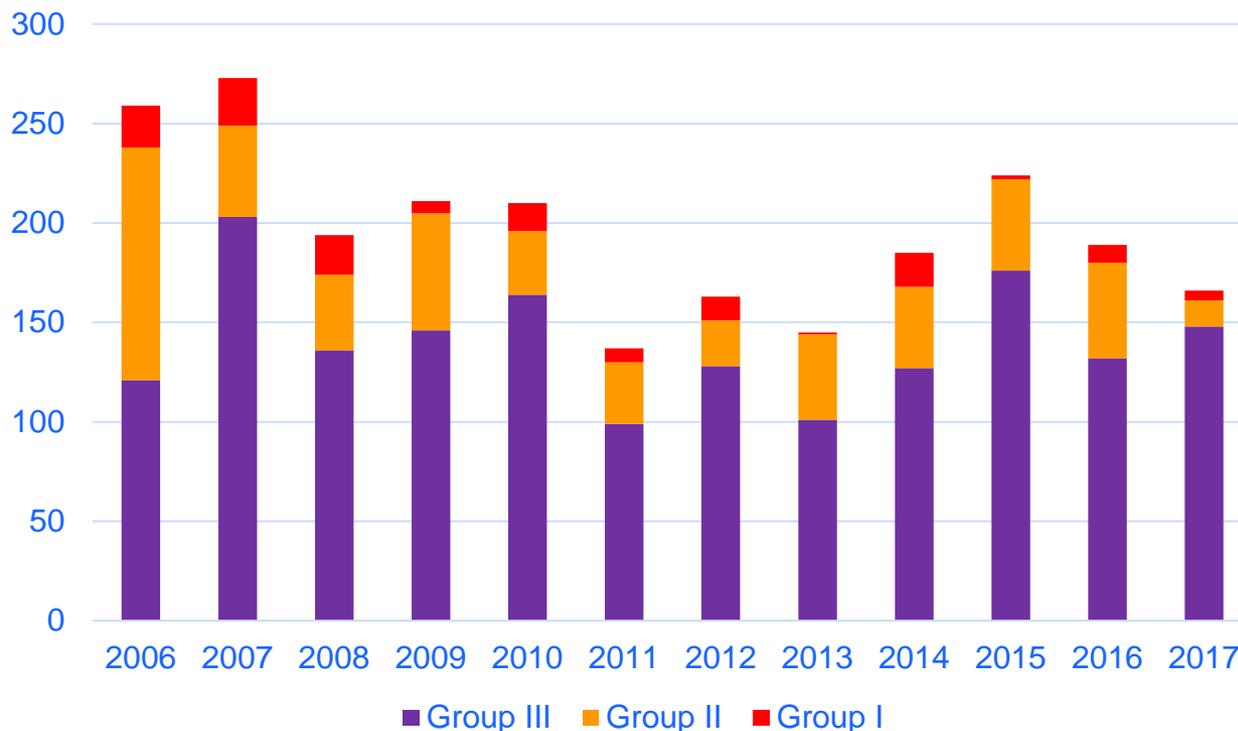


Belgium issues anti-radiation tablets to every home after Isil 'dirty bomb' threat

By Matthew Holehouse in Brussels
THE entire population of Belgium is to be issued with a ration of iodine tablets, after warnings about the threat of Isil building a dirty bomb.
Iodine pills, which help reduce radiation build-up in the thyroid gland, had previously only been issued to people living within 20km (14 miles) of Belgium's nuclear plants.
Maggie De Block, the health minister, said that would be extended to 10 million people, following advice from an expert council.
The pills will be sent to pharmacies, and the public would be ordered to collect their ration in the event of a meltdown.
It emerged, following last month's terrorist attacks, that an Isil cell may have been plotting to kidnap a nuclear expert in order to build a 'dirty bomb'.
IAEA nuclear workers had their passports revoked. Ibrahim and Khalid Bakhtiari, the brothers behind the outside strikes on Brussels airport and Marawi, are believed to have been involved in the plot to scatter radioactive material over a populated area.
A senior Belgian nuclear industry official was secretly filmed by jihadists late last year, according to the IAEA.
The age of Belgium's Th232 and U233 plants, which have both shown signs of metal degradation, causing security fears.
Belgium's nuclear safety agency (ASCN) rejected the German request, saying the two plants "meet the strictest possible safety requirements".
The key figure in the suspected dirty bomb plot is Mohammed Bakhtiari, 26, who was arrested in Norway on suspicion of helping to plan the Paris massacre.
Police raided his wife's flat and found a 10-hour video from a camera hidden opposite the home of an executive at the Centre for the Study of Nuclear Energy in Mol, northern Belgium. The executive had access to radioactive isotopes at the national nuclear research centre.
The 40-year-old Th232 and U233 reactors he turned off "until the reactor pressure vessel at both the reactor pressure vessel of metal degradation. They were temporarily shut down for safety reasons."
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Events confirmed by States to IAEA ITDB

ITDB Reports Received by Group



Group 1 = Confirmed or likely trafficking, malicious use, scam or fraud
Group 2 = Undetermined act of trafficking or malicious use
Group 3 = Act confirmed not / unlikely to be trafficking or malicious use

Global Nuclear Security Framework

International Legal Instruments

Conventions (Binding)

Convention on the Physical Protection of Nuclear Material (CPPNM) & Amendment
Safeguards agreements and Additional Protocols
Convention on the Suppression of Acts of Nuclear Terrorism
Convention on Early Notification of a Nuclear Accident*
Security Council resolution 1540
Security Council resolution 1373

Codes of Conduct (Non-Binding)

Code of Conduct on the Safety and Security of Radioactive Sources

State's Nuclear Security Regime

Regulations and Enforcement

Operation of Facilities and Use of Materials

Detection and Response Systems and Measures

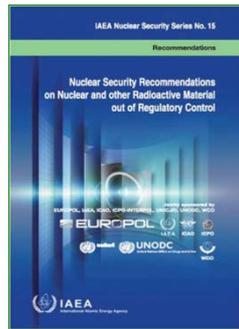
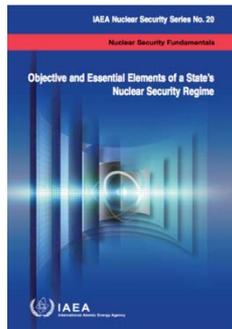
Aim- To protect persons, property, society, and the environment from harmful consequences of a nuclear security event

Objectives- To establish, implement, maintain and sustain an effective and appropriate nuclear security regime to prevent, detect and respond to nuclear security events

National Nuclear Security Framework: The NSS Series

NSS 20 – Nuclear Security Fundamentals

NSS15 – Nuclear Security Recommendations



NST004- National Framework for Managing the
Response to Nuclear Security Events (in editing)

NSS22G – Radiological Crime Scene
Management

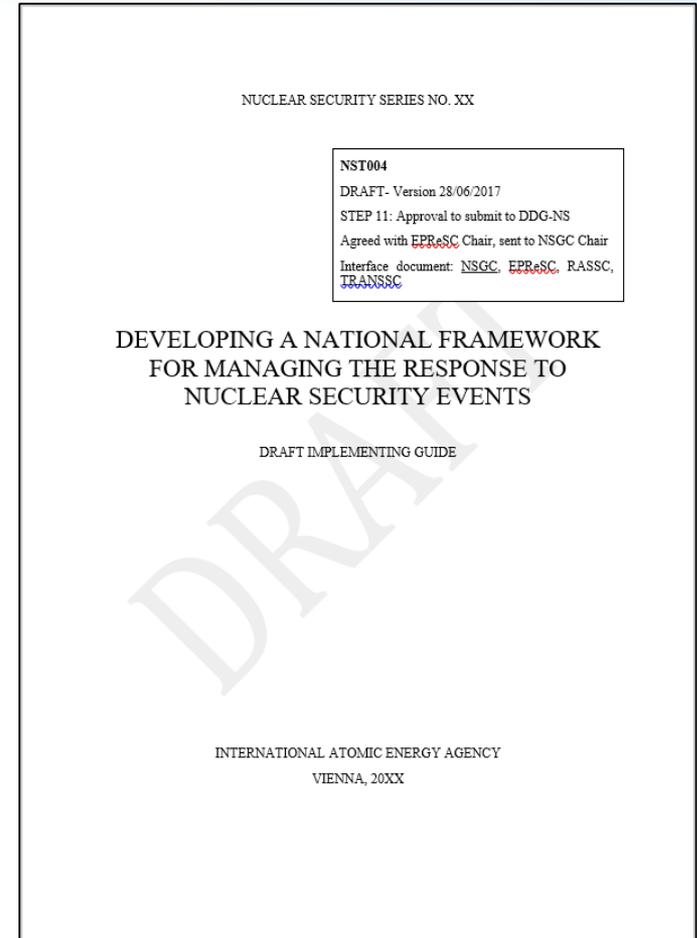
NSS18 – Major Public Events

NSS2G – Nuclear Forensics in support of
Investigations

NST004- National Framework for Managing the Response

Considers:

- A State's **Multi-Agency** arrangements for responding to nuclear security events;
- The **basis** for the national framework: **Threat and Risk Assessment; Graded Approach; Detection Architecture**
- Different **types of nuclear security event** and their **impact on resources**
- Strategic Aims, Key Activities, Policies and Plans; Roles and Responsibilities; Command and Control arrangements
- **National infrastructure** to support the response: Competent Authorities; response resources; training and exercising arrangements
- **Sustainability** of the framework

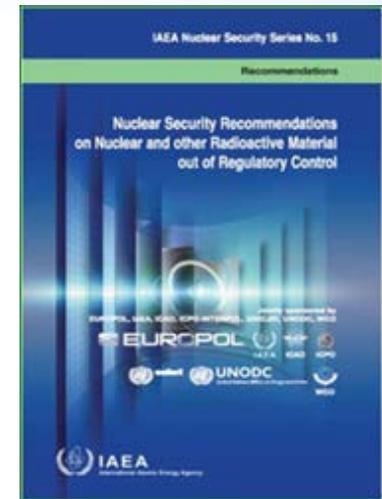


NSS15- National Response Plans

A key component of a State's National Framework

The NRP should :

- **Coordinate with other security plans, such as the Counter-Terrorism plan;**
- **Coordinate with the National Radiological Emergency plan;**
- **Coordinate with the National Detection Strategy;**
- **Provide detail on:**
 - **Assessment of alarms and alerts**
 - **Notification and activation processes, including plan activation;**
 - **Roles and responsibilities of ALL responding organisations;**
 - **Multi-Agency Command and Control arrangements;**
 - **Formal information-sharing arrangements and protocols;**
 - **Procedures for the recovery, storage and transport of seized nuclear or radioactive material;**
 - **Procedures for notifying international organisations and seeking international assistance**
 - **Plan sustainability**



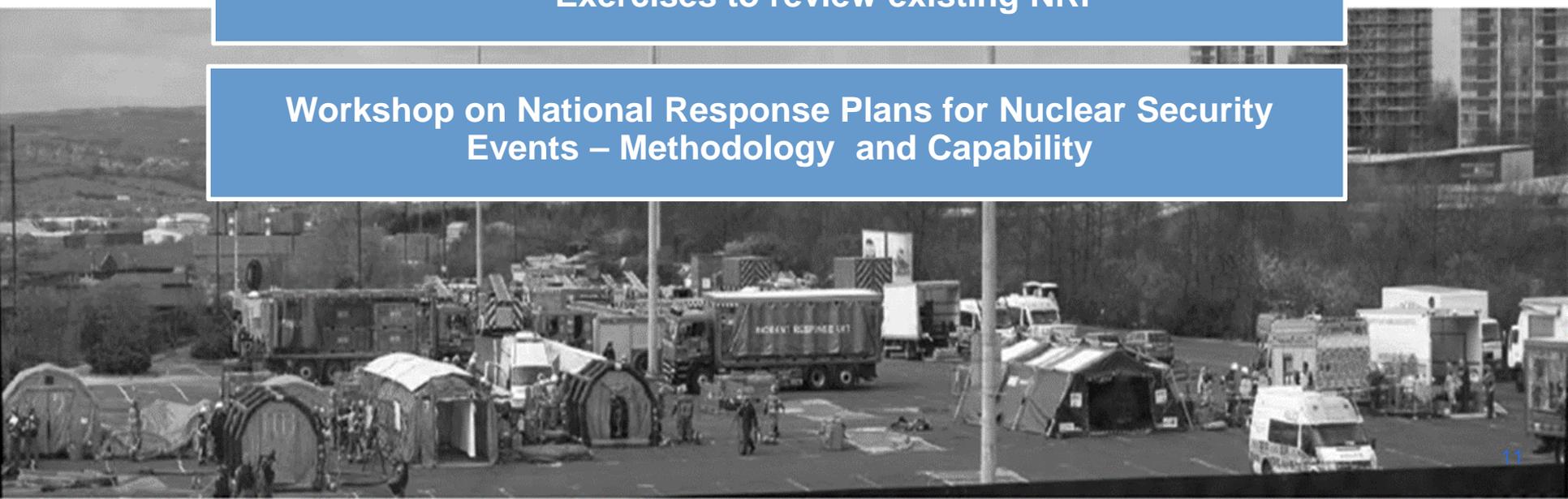
IAEA Support to States' Framework and Plan Development

Workshop on Developing a National Framework for Managing the Response to Nuclear Security Events

Workshop on Developing a National Response Plan for Nuclear Security Events (in development)

Expert mission / advice / Table-top Exercises / Field Exercises to review existing NRP

Workshop on National Response Plans for Nuclear Security Events – Methodology and Capability





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Common Challenges, Lessons and Recommendations

- **Threat and Risk Assessment**
- **Multi-Agency National Response Framework**
- **Multi-Agency Concept of Operations**
- **Multi-Agency Nuclear Security Response Plans**
- **Implementation of Response Plans**
- **Formal Coordination Arrangements**
- **Formal Information Sharing Arrangements**
- **Resources- Human and Technical**
- **Focus on Detection and Equipment**
- **Regional Cooperation**



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Questions?