



Nuclear Security Summits / EU related activities /

**Dr. Said Abousahl
European Commission
Joint Research Centre
Head of Unit / Nuclear Safety and Security**

Brussels, 13 of July 2015

Specific Nuclear security world-wide challenges

Nuclear Security Summits



Nuclear Security Summits identified priorities as:

- *Security of Nuclear Material and Radioactive Sources (2010, 2012, 2014)*
- *Reducing the quantities of nuclear material where possible (2010, 2012, 2014)*
- *International cooperation (2010, 2012, 2014)*
- *Illicit Trafficking, Detection & Nuclear Forensics (2010, 2012, 2014)*
- *Nuclear security Capacity building, security culture (2010, 2012, 2014)*
- *Information security (2010, 2012, 2014)*
- *Role of Nuclear Industry (2010, 2012, 2014)*
- *Role of IAEA, role of UN and other international initiatives (2010, 2012, 2014)*
- *Strengthened international nuclear security architecture, including legal framework (2012, 2014)*
- *Training and support centres / Centres of Excellence (2012, 2014)*
- *Nuclear Transportation (2012, 2014)*
- *Bridging Nuclear Security and Safety (2012, 2014)*
- *cybersecurity (2014)*
- *Voluntary measures/ building national and international confidence (2014)*
- *2016 → International organisations (IAEA, UN, Interpol) + Initiatives (GICNT, GP)*



EU activities in the field of Nuclear Security

Highlights

- Nuclear Detection
- Nuclear Forensics
- European Nuclear Security Training Centre
- The EU CBRN Centres of Excellence
- Support to IAEA
 - EU Funds
 - IAEA ITDB
- International coordination



Nuclear security – ITRAP+10

ITRAP: Illicit Trafficking Radiation Detection Assessment Programme

ITRAP 1997-2000

- Pilot study
- Suggested by IAEA
- Financed by Austrian government
- Basis for standards and IAEA guidelines

ITRAP+10 Phase I 2010-2013

- Large scale test
- Financed by EU
- Parallel programme by US DHS & DOE
- Test of IEC & ANSI standards

ITRAP+10 Phase II 2014-2016

- Towards EU certification
- EU MS network laboratories
- Feedback to IEC and CENELEC

Nuclear Detection Testing & Standardization



Commercial equipment testing: ITRAP+10

Funded by EC-DG HOME

Collaboration: US DNDO/DHS, DoE



Family of equipment 31 tested in total in 8 families	Standards Reference (IEC, ANSI, IAEA)
RPM for Vehicles (Radlition Portal Monltors)	IEC 62244 + IAEA NSS1 (2006 & Rev.1)
SRPM (Spectrometric Radlition Portal Monltors)	IEC 62484-FDIS + IEC 6224 + IAEA NSS1 (2006 & Rev.1)
PRD (Personal Radiation Detectors)	IEC 62401-FDIS + IAEA NSS1 2006
SPRD (Spectrometric Personal Radiation Detectors)	ANSI N42.48
RID (Radiolsotope IDentifier)	IEC 62327 + IAEA NSS1 (2006 & Rev.1)
GSD (highly sensitive Gamma Search Detectors)	IEC 62533
NSD (highly sensitive Neutron Search Detectors)	IEC 62534-FDIS
PRS (Portable Radlition Scanners – Backpack type)	ANSI N42.43 + IEC 62327 +IAEA NSS1 Rev.1

Nuclear Detection Testing & Standardization



the WHITE HOUSE PRESIDENT BARACK OBAMA

BLOG PHOTOS & VIDEO BRIEFING ROOM ISSUES the ADMINISTRATION

Home • Briefing Room • Statements & Releases

The White House
Office of the Press Secretary

For Immediate Release March 25, 2014

Joint U.S.-EU Statement on Combating Illicit Trafficking

The European Union and the United States of America, in cooperation with the International Atomic Energy Agency (IAEA), each understand the importance of nuclear security and embrace the shared international responsibility to develop and promote systems and measures for the prevention of, detection of, and response to nuclear or other radioactive materials out of regulatory control. In recognition of this international responsibility, and in support of the Nuclear Security Summit Key Topic of Combating Illicit Trafficking, and in line with the conclusions of the successful "International Conference on Nuclear Security: Enhancing Global Efforts" organised by the IAEA in Vienna on 1-5 July 2013, we are taking the following initial steps:

- The IAEA Nuclear Security Series, specifically the Implementing Guide on Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control, emphasizes the importance of detection instruments in the context of a national level Nuclear Security Detection Architecture. In support of this principle, the European Commission Directorate General for Home Affairs (EC-HOME), the Joint Research Centre (EC-JRC), the U.S. Department of Homeland Security Domestic Nuclear Detection Office (DNDO), the U.S. Department of Energy (DOE), and the International Atomic Energy Agency (IAEA) have collaborated through the Border Monitoring Working Group in the conduct of the Illicit Trafficking Radiation Assessment Program (ITRAP+10) test campaign.

The ITRAP+10 effort demonstrates a crucial facet of nuclear detection as outlined in the IAEA Nuclear Security Series, namely the evaluation of nuclear and radiological detection technologies against a set of common performance goals. Over the past three years, this international partnership tested about 70 different models of detection and identification equipment against international guidance and standards. Now that testing has been completed, we pledge to share the findings of this test campaign to inform, as appropriate, future revisions to the IAEA Nuclear Security Series and other relevant international standards. Furthermore, we intend to make available scientific and technical data on commercially available detection systems with the international community with the aim of documenting detection instrument capabilities, exemplifying proper usage and deployment, and promoting new research and development efforts.

Joint
Research
Centre



ITRAP+10 Summary Report

200-ITRAP-124860V0.00
May 14, 2015

UNCLASSIFIED
This document contains commercial confidential information and is not releasable under the Freedom of Information Act, Exemptions 3 and 4. In accordance with 6 U.S.C. 594(b), these test results shall not be publicly disclosed without the consent of the relevant vendor.
Date: May 14, 2015
Name/org: L. Murphy/DHS, Physical Scientist
Guidance: DHS SCG DNDO-001.1, 12/12





- Hints on history of the nuclear material that has been diverted, stolen or lost
- Chemical composition, impurities, isotopic composition of nuclear material, isotopic composition of accompanying elements, particle size, microstructure

Areas of application at EC/JRC

- Illicit Trafficking of Nuclear Materials (e.g. Uranium in scrap metal)
- Non-Proliferation (e.g. HEU particles)
- Nuclear Safeguards (e.g. consistency of chemical impurities with declared processes)
- Environmental Issues



Electron microscope picture of the U/Pu powder.

➤ Inside the EU - EU CBRN Action Plan

- Enhanced operational support to EU MS in Nuclear Forensics (training in core capabilities, establishing legal basis for operational nuclear forensics support)
- New project – Ensuring Quality and Building Expertise in Nuclear Forensics across the EU (networking of experts, interlaboratory comparison exercise, training)

➤ Outside the EU - EU CBRN Risk Mitigation CoE initiative

- 2 Nuclear Forensics projects in SEA

➤ Collaboration with the IAEA

- Nuclear security Guidance documents
- CRP on Identification of High Confidence NF Signatures for the Development of National NF Libraries
- Nuclear Forensics Training (IAEA, US, ITWG...)



Uranium fuel pellet.



IAEA CRP 2013: Identification of High Confidence Nuclear Forensics Signatures for the Development of National Nuclear Forensics Libraries

Propagation of Nuclear Forensics Signatures at the Front-End Fuel Cycle

- *Metallic Impurities*
- *Age dating*

Facility	Process	Samples
A	Ore → ADU → U ₃ O ₈	10
B	UOC → UO ₃	38
C	UO ₃ → UF ₆	21

Progress report delivered at CRP meeting in Dec 2014





Strengthening Nuclear Security through continuous professional development and training



JRC-ITU-EUSECTRA-info@ec.europa.eu





EUSECTRA



Training centre

- In line with implementation of the CBRN AP
- JRC expertise on RN detection
- Availability of RN material at JRC sites
- Forensics expertise
- Feedback from cooperative projects
- International collaboration (IAEA, ITWG, BMWG)



EUSECTRA covers SECURITY and SAFEGUARDS training

Main goal:

improve MS capabilities to address the threats associated with illicit incidents involving nuclear or other radioactive materials by providing hands-on training using real materials

EUSECTRA: Trainings course at the JRC (Karlsruhe & Ispra sites)

European
Commission

TOPICS:

- Detection at borders/nodal points
- Train the Trainers
- Mobile Expert Support Teams
- Reach back
- Response plans
- Nuclear Forensics
- Management of radiological Crime scene
- Nuclear security awareness for management
- Sustainability & Maintenance issues
- Nuclear safeguard trainings and non proliferation issues
- ...on demand courses



Target audience(s):

- Front Line Officers
- Trainers/future trainers
- Experts
- Management/Decision Makers
- Safeguard inspectors

EUSECTRA 2014 highlights in detection



- ✓ Detection Training (SLD) #2: ~~3-7~~ March 2014 Bulgaria, Romania
- ✓ Detection Train the Trainers EUSECTRA/Ispra 24-28 March 2014, Cambodia, Laos, Thailand, Philippines
- ✓ Detection Training (SLD) #3: 12-16 May 2014 EUSECTRA/KA Kenya, Djibouti
- ✓ Detection Train the Trainers EUSECTRA/Ispra 19-23 May 2014 Morocco
- ✓ National Communication System Workshop EUSECTRA/KA 24-26 June Azerbaijan, Bulgaria, Georgia, Kyrgyzstan, Mongolia and Romania
- ✓ Detection Training (SLD) #4: 30 June - 04 July 2014 Kyrgyzstan, Mongolia, EUSECTRA/KA
- ✓ Detection Training (SLD) #5: 8-12 September, Sri-Lanka, Bangladesh, EUSECTRA/KA
- ✓ Advanced Operator Training for SEA, 8-12 September (Ispra)
- ✓ T3 Detection training for Algeria, 22-26 September 2014 (Ispra)
- ✓ T3 Detection training for Balkans (E&I) 6-10 October 2014 (KA)



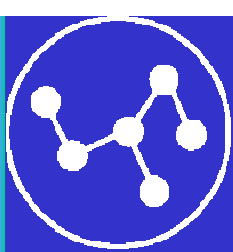
- ✓ **NSS 2014 Workshop on Counter Nuclear Smuggling (CNS):**
DoE, SLD, 11-13 Feb. 2014
- ✓ Core Capability for EU MS (under DG HOME Support),
Hungary, Poland, Czech Republik, Slovakia, Slovenia,
Belgium, The Netherlands, Greece, 7-11 April 2014
- ✓ Core Capability for E&I, Albania, Serbia, Kosovo*, FYR
of Macedonia, Montenegro, Turkey, 10-13 June 2014
- ✓ Core capability for EU MS (under DG HOME Support),
Finland, Denmark, Sweden, Italy, Ireland, Malta, Cyprus,
Austria, Portugal, 22-26 Sep. 2014
- ✓ BfS (Germany) customized training 24-27 Nov. 2014
- ✓ Radiological crime scene management, Israel (E&I), 8-12
Dec. 2014
- ✓ **GICNT (Radiant City), JRC-Karlsruhe 5-7 May 2015**

RADIANT CITY



05 – 07 May 2015
EC-JRC, Karlsruhe, Germany





CBRN

**Centres
of Excellence**

An initiative of the European Union



*Jointly implemented by European
Commission and UNICRI*

The EU CBRN Centres of Excellence (CoE) Initiative: a CBRN regional based network

Legal basis: Instrument for Stability 2007-2013 (IfS) , now continued by Instrument contributing to Stability and Peace 2014-2020 (IcSP).

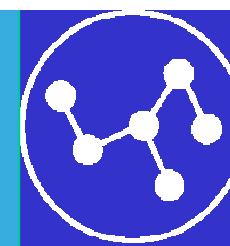
Aim: CBRN risk mitigation, on a voluntary and regional basis (institutional capacity building). Mirroring effect (EU CBRN Action Plan).

Mid term: CBRN National Action Plans established.

Long term: long term sustainable CoE network by 2020.

Structure: Partner countries, Regional Secretariats, National Focal Points, CBRN National Teams

The EU CBRN CoE Network



CBRN

Centres of Excellence

An initiative of the European Union

53 Partner Countries in 8 regions, from African Atlantic Facade to South East Asia

Near 50 projects completed or being implemented by EU and international consortiums



CoE Tools

- **CBRN Needs Assessment Questionnaire (NAQ)**
- **Regional Round Tables twice a year + NFP + HoS
+ many bilateral meetings**
- **Regional Projects**
- **Technical evaluation of the project implementation
by MS Consortia**
- **Supporting the development of National Action
Plans (NAP)**
- **Communication and knowledge management,
including the public and private CoE Portals**

Tools: CBRN Needs Assessment Questionnaire (NAQ)



European Commission



User friendly, modular, interactive pdf forms

Voluntary, confidential (data belongs to partner countries)

Basis to prepare National Action Plans
300 closed form questions

'Yes', 'No', 'Don't know' response + extra info

Automatic data extraction



Funded by the European Union



NEEDS ASSESSMENT Questionnaire

Section 1. Legislation and Regulations

List of identified institutions:
This list is non-exhaustive and will depend on the government of each country.

- Ministry of Foreign Affairs
- Ministry of Defence
- Ministry of Interior
- Ministry of Justice
- Ministry of Health
 - Ministry of Agriculture or Animal Care
- Ministry of Industry
- Ministry of Energy
- Ministry of Economy
- First Responders
 - Emergency Medical Services
 - Fire Brigade Services
 - Crisis Center
- Police/Gendarmerie
- Customs/Border Officers

Specific and more developed guidelines are available in an attached document.

PLEASE PROVIDE YOUR DATA:

Institution(s):
Name(s):
Job Function/Role:
E-mail:
Country:
Date:



Funded by the European Union



Section 1. Legislation and Regulations

Q1.1: Does your country have national legislation in place for Chemical substances with respect to:

	Yes	No	Don't know	Additional info/evidence
1.1.1) Licensing/national register of users?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.2) Transport of dangerous goods?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.3) Acquisition/sales of dangerous goods?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.4) Import/export control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.5) Border control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.6) Customs control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.7) Material control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.8) Facility protection?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.9) Crisis management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1.1.10) Civil protection/civil defence?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

If yes, please provide the names/references of the laws/regulations related to Chemical substances

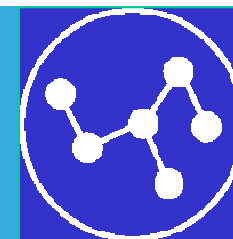
Q1.6: Do you have sufficient means to enforce compliance with national laws and regulations?

Yes	No	Don't know	Additional info/evidence
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Q1.7: Do you employ non-binding international guidelines/recommendations or other codes of good conduct?

Yes	No	Don't know	Additional info/evidence
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

NAQ exercise



CBRN

**Centres
of Excellence**

An initiative of the European Union

2013 (pilot NAQ missions)

- 1.Armenia
- 2.Moldova
- 3.Lebanon

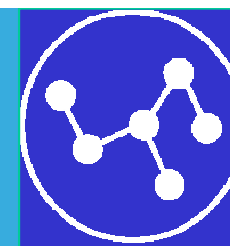
2014

- 4.Myanmar
- 5.former Yugoslav Republic of Macedonia
- 6.Kenya
- 7.Gabon
- 8.Democratic Republic of Congo
- 9.Albania
- 10.Iraq
- 11.Côte d'Ivoire
- 12.Uganda
- 13.Philippines
- 14.Viet Nam

2015

- 15.Senegal
- 16.Tajikistan
17. Burundi
18. Niger
19. Laos

**NAQ workshops organised in
19 CoE Partner Countries.**



CBRN

Centres
of Excellence

An initiative of the European Union

NATIONAL ACTION PLANS

Based on NAQ, voluntary, confidential, EC support

**5 countries completed and endorsed in 2014/2015
NAPs ongoing in the EU neighborhood countries**

News

**High-level Side Event at the Sixty-ninth Session of the
United Nations General Assembly**

The Government of Georgia presented the CBRN National Action Plans



Funded by the European Union



CBRN

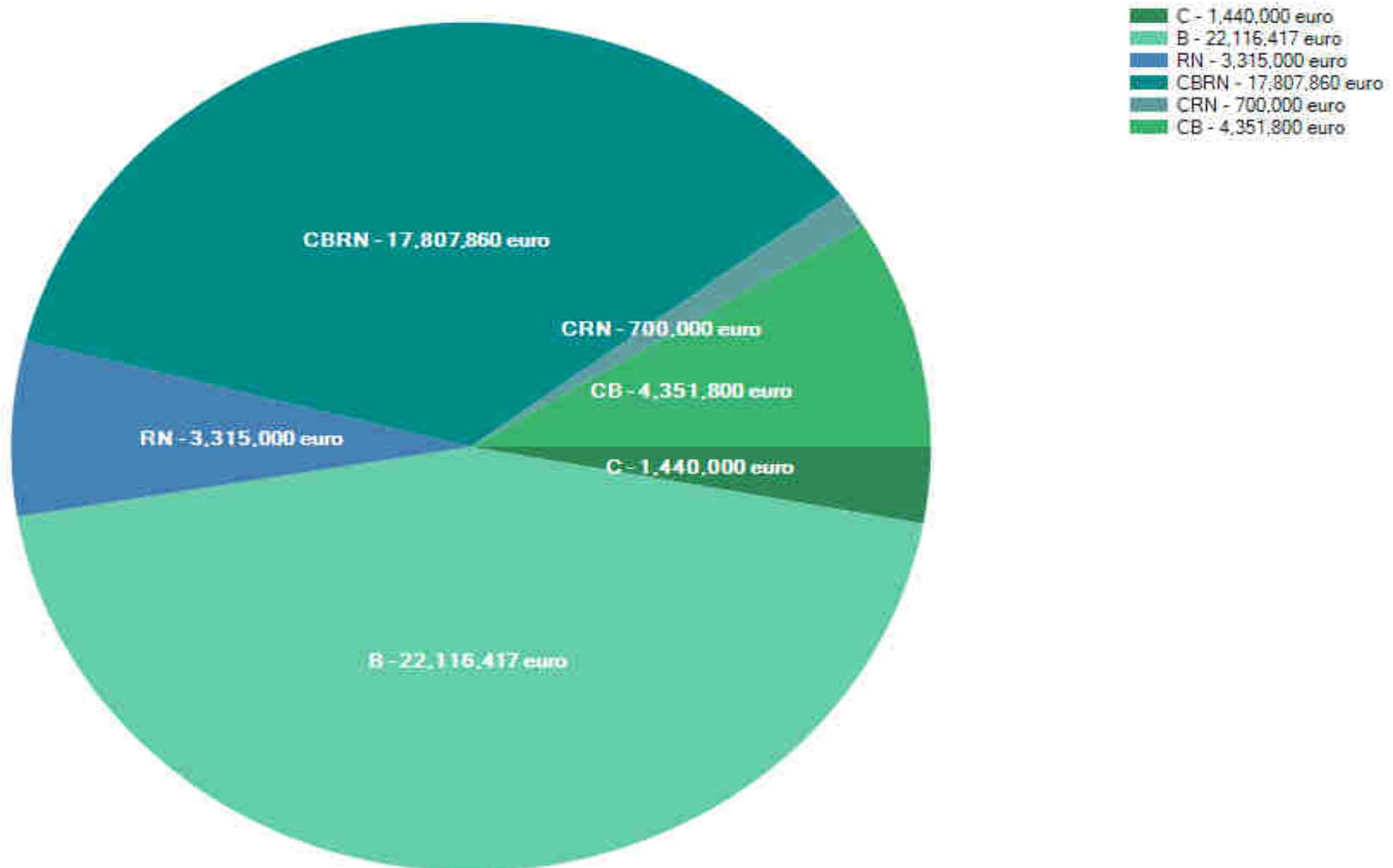
Centres
of Excellence

An initiative of the European Union

CBRN CoE Projects - investment



CBRN / BUDGET



EU-IAEA cooperation (EU funds, IAEA implements)

EU/CFSP budget → IAEA Nuclear Security Fund

- 40 million EUR since 2004 for nuclear security projects (six joint actions so far; to continue!)
- On-going joint action (CD VI): Council Decision 2013/517/CFSP adopted on 21 October 2013
 - Selected projects (covered by the IAEA Nuclear Security Plan 2014-2017): 147 tasks, 52 beneficiary States (BMWG regularly informed about it)
 - Implementation period: 3 years (2014-2016), **budget: 8.05 million EUR**
 - Regularly reviewed (discussions between IAEA and 28 EU MS in CONOP)

Support to IAEA: Improvement of Incident and Trafficking Database



Enhancing usefulness of ITDB

(funded by EC-DG HOME in framework of CBRN AP)

Areas for improvement as identified by EU Member States

- Reporting to ITDB
 - Best practice document
 - **Harmonized reporting culture**
- Modernized reporting means
 - Web-INF
 - **Data security**
- Analytical report





2014-08-15

The release of the best practice document *Reporting to the ITDB* marked a significant milestone in collaboration between the International Atomic Energy Agency (IAEA), the European Commission and European Union Member States. The report has been drawn up by all three parties and outlines the good practices of an Incident and Trafficking Database (ITDB) Point of Contact (POC) within the European Union.

This document goes through the key functions of the POC as set out in the document *Enhancing the IAEA Incident and Trafficking Database Programme*. These include, inter alia, roles and responsibilities, developing national networks, and completeness and timeliness of reporting. The Division of Nuclear Security is looking to use this document as a template for a proposed global ITDB Good Practice document. The development path has been proposed and it is set to be discussed as part of the triennial meeting of ITDB POC in 2015.

The WebINF project has succeeded in developing an electronic Incident Notification Form. This enables Member States to complete and submit information on ITDB incidents to the IAEA and ITDB participant States. The project has gone through a series of iterations to re-develop the format and with the assistance of a working group of Member States developed a 'beta' release for trial. The testing of the beta system has received an excellent reception and is positioned to go live.

An additional component of the project has been to set up a tool to facilitate the access of additional Member State users to web based ITDB information. This met a key commitment made to Member States during 2012 of making ITDB information more widely available to key stakeholders with each State.

The project has also provided funding to train staff and provide equipment that has increased ITDB staff capability to improve information systems and its associated electronic security. One product of this is the development and release of the ITDB Dashboard, a web based analytical tool that provides States with a significantly improved capability to review ITDB information.



International Cooperation and Coordination

- **IAEA, Practical Arrangement signed in 2013**
- **Border Monitoring Working Group**
- **Nuclear Smuggling International Technical WG**
- **US-DoE, US-DNDO**
- **Japan JAEA**
- **GICNT, GP....**