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## **Nuclear Forensics Activities supported by the EU CBRN Action Plan and EU CBRN Mitigation Centres of Excellence**

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Even though, the responsibility for nuclear security is with the EU MS, as this is a matter of national security, European institutions have been involved in activities related to nuclear security for decades.

In accordance with provisions of Chapter 7 of the EURATOM Treaty (1957), the European Commission has the responsibility to verify that nuclear materials are not diverted from their intended uses as declared by the users. Based on the work on nuclear safeguards, the European Commission in particular through its Joint Research Centre has acquired expertise in nuclear material analysis, which is also applied in Nuclear Forensics to provide evidence on history or even the origin of nuclear material.

In the field of nuclear and radiological security, the EC/JRC activities are well defined and aim at contribution to efficient and effective safeguarding; enhanced proliferation resistance of nuclear fuel systems; and support the EU and its Member States policies in enhancing internal and external security by combating illicit trafficking of nuclear and radioactive materials, in the areas of prevention, detection and response including Nuclear Forensics.

Naturally, the EC has attributed to the JRC the implementation of several projects and actions inside and outside Europe.

In 2009, the EU Council adopted the EU CBRN Action Plan with the aim to strengthen CBRN security throughout the EU. Based on an all-hazard approach, the Action Plan's overall goal is to reduce the threat of, and damage from CBRN incidents of accidental, natural and intentional origin, including terrorist acts. The European Commission Directorate General HOME AFFAIRS is in charge of the follow up of this action plan.

A total of 124 actions are to be implemented by the EU Member States and the EU Institutions. In addition to 25 actions relating to radiological and nuclear security, there are 32 actions covering biological or chemical security. A further 67 actions are horizontal actions in the sense that they apply to all the areas. The implementation of the AP is guided by consultation with national authorities and other relevant stakeholders. The IAEA, Interpol, and Europol are closely associated to the implementation of the AP.

Several actions, directly or indirectly, address also issue of Nuclear Forensics as for example Horizontal Action H.45, which states the following: "The Member States together with the Commission should enhance and support cooperation between Forensic laboratories, reference and specialised laboratories, including those equipped for measurement/analysis of CBRN materials. "

In the area of Nuclear Forensics, JRC implemented/implements 2 projects.

Under the project "Development of a mechanism for enhanced operational support to Member States in the area of nuclear forensics (RN. 25 and H. 21)" (2013-2014) and based on a questionnaire on current Nuclear Forensics capabilities of the EU MS, syllabus for a training course on core capabilities in Nuclear Forensics is being prepared and appropriate Member States are invited to a training course. This aims at establishing core capabilities in Nuclear Forensics in all EU Member States, recognizing that few Member States do have capabilities which go beyond that.

As investigations on illicit trafficking of nuclear materials may require analytical information that cannot be acquired by core capabilities, legal basis for operational Nuclear Forensic support (i.e. analysing the samples at the JRC laboratories) needs to be in place. Therefore, it is intended to offer concluding a collaboration agreement (or equivalent) with interested Member States. This whole procedure, including transport of "unknown" nuclear material and its analysis will be exercised in so-called joint analysis exercise.

Because of increasing concerns of illicit trafficking of nuclear and other radioactive materials, the Joint Research Centre was tasked to set up a dedicated 'Security Training Centre for the Law Enforcement Community (EUSECTRA) (Action RN. 20 and Action RN 24)' with the aim of developing a security training programme applicable to the law enforcement staff, and in particular front line officers.

The Centre serves as platform for knowledge transfer and for networking of experts and offers hands-on training on detection of radioactive/nuclear materials and response to incidents with radioactive/nuclear materials including Nuclear Forensic analysis.

Reference and standardised training materials have been and are presently being developed in close collaboration with international experts (e.g., from IAEA, US-DoE, FBI, Netherlands Forensic Institute) and under the Border Monitoring Working Group.

Moreover, the EU through its FP7 Security Research finances CBRN projects in the area of Prevention, Preparedness, Protection; Detection; Response, Crisis Management and Recovery to be implemented by the research institutes in the EU MS.

As for example, project "GIFT –CBRN (Forensics)" submitted at the end of 2012 and currently under implementation by 21 organisations from Netherlands, UK, Sweden, Finland, Ireland, France, Spain, Belgium, Turkey and also by the JRC, aims at development of common guidelines, practices and procedures for CBRN Forensic investigations at a European level as part of a CBRN Forensic Toolbox

and testing and validation of the CBRN Forensic Toolbox in the field with end users. The work of JRC within this project focuses on development of methods for collection of fingerprints and DNA samples from contaminated evidence.

The EU CBRN Risk Mitigation Centres of Excellence Initiative, launched in 2010 under the Instrument for Stability aims at strengthening national CBRN policies and capacities in currently 43 CoE partner countries and to promote national, regional and international cooperation in the CBRN risk mitigation area through implementation of a methodology and tailored projects. Technical scope of projects varies from awareness raising, strengthening legislative framework and regulatory infrastructure, sharing best practice, development of response plans, provision of training, and detection equipment to Nuclear Forensics.

The JRC provides technical and expert support for the implementation of the initiative.

In order to facilitate the assessment of current national CBRN risk mitigation capacities, a specific questionnaire called "Needs Assessment Questionnaire (NAQ)" was designed for a self-assessment of partner countries coupled with support from the JRC. The questionnaire covers all main CBRN risk mitigation areas including Nuclear Forensic capabilities.

Moreover, two projects in the area of Nuclear Forensics were/are implemented by JRC in the Framework of the initiative.

The main objective of the "Pilot regional project in South East Asia for capacity building in countering illicit nuclear trafficking" (2010-2012) was to contribute to a capacity building in selected countries in the South East Asia region. The project comprised activities such as: assessment of national capabilities for responding to nuclear security incidents and awareness rising on related needs with particular attention to Nuclear Forensic capabilities; promoting development and implementation of a national response plan for nuclear security incidents including establishment of a framework for mutual support in Nuclear Forensics; and basic training in Nuclear Forensics.

Based on the results of the pilot project, project no. 30 under the CoE initiative entitled "Network of Excellence for Nuclear Forensics in South East Asia Region" (2013-2014) aims to reinforce regional public security by upgrading Nuclear Forensics capabilities, technologies and methodologies to assess radioactive and nuclear materials.

Project no. 30 foresees activities as: to establish a regional forum for Nuclear Forensics experts to share best practices; to provide equipment for the laboratory of the Office of Atoms for Peace in Thailand, which will serve as a hub laboratory within the regional network as well as to provide a specific technical and training on radiological crime scene management. Moreover, support for development of National Nuclear Forensics Libraries will be provided.

In both projects, due consideration was/is being given to related activities funded or implemented by other donors. The implementation of the pilot project was coordinated with the National Nuclear Security Agency (NNSA) who is also engaged in activities in the same technical area and the IAEA in order to ensure coherence of the respective training activities. Activities under the project no. 30 are being implemented in close coordination with the US DOE's NNSA and the US Department of State.

In addition to these two projects, several projects are currently under implementation, in the framework of the CoE initiative, targeting the development of appropriate response capabilities, thus indirectly addressing also Nuclear Forensics capabilities in the CoE partner countries.

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