

Strengthening Nuclear Security through professional development and training: from best practice to successful implementation

Nuclear security itself is nothing new, with measures to prevent nuclear and other radioactive materials from becoming out of regulatory control and to detect their potential trafficking having existed since the start of the nuclear age.

Additionally, the widespread use of radioactive materials for medical and industrial applications is therefore associated with the risk of theft of such materials with their potential use in criminal and terrorist acts. These increased threat concerns lead to clear consensus among security experts that nuclear terrorism is one of the greatest threats to global security and that strong preventative measures are needed to lock down nuclear materials around the world.

The success of the fight against illicit trafficking of nuclear and other radioactive materials necessitates the mobilization and interaction of different competent authorities such as police, customs, border guards, regulators, radiation protection and expert scientists. Each of these authorities has a role and responsibilities during nuclear security incidents that require a close interagency cooperation and interdisciplinary skills and an understanding of the technicalities involved with the detection, handling and analysis of nuclear or other radioactive materials. Thus, non-experts in the radiological field, such as front line officers, need to be familiarized with radiation detection, radiation hazards, and measuring and relaying technical information obtained from instruments for subsequent analysis by the scientific experts. This complexity and the need for optimized use of radiation measurement equipment obviously call for thorough training of the front line officer and the other competent authorities relative to their roles in the State's national nuclear security plan.

Recent years have seen a surge of interest in nuclear security education and training courses driven by a growing international recognition of the importance of a strong nuclear security culture. Training is indeed considered as a systematic process through which a nuclear security organization's human resources gain knowledge and develop skills by instruction and practical activities that result in improved States nuclear security capabilities. In that respect, national and international developments of training programmes shall ideally pattern the training for front line officers, their management, trainers and other experts in the field using adult learning methodologies and providing hands-on training using the actual threat materials and the detection equipment deployed. Consequently, several States and international organizations have launched initiatives in nuclear security training and education assistance as their contribution to enhancing the security of both nuclear and radiological material and know-how. Knowledge and expertise in this specific subject are, nevertheless, not enough to ensure that training is effective, thus focus is put on "train-the-trainers"(T3) sessions. This advanced course is to instruct selected participants on methodology to train pairs on how to best detect and respond to illicit trafficking of nuclear or other radioactive materials. The sessions are designed as strategic measure for cascading nuclear security related knowledge to the competent user groups in the Member States.

The international community has predominantly focused efforts at border and customs officials. Nevertheless, complementary efforts had to focus to assist law enforcement in thwarting the acquisition of nuclear and radiological materials by terrorists, by similarly increasing their capacity and capability to secure all materials and prevent a potentially catastrophic event from happening. The combination of individual and cross training all nuclear security involved stake holders of a State play a critical role in maintaining effective national-level nuclear detection architecture.

With the view to keeping abreast of Member State's needs in this particular area as their programme gain maturity, one can mention the support of the European Commission to international training activities with the help of its European Nuclear Security Training Centre (EUSECTRA) operated by the Joint Research Centre support. The concept of EUSECTRA has been highly influenced by the cooperative work of the Border Monitoring Working Group and benefited from the experience and support of its members to assist Member States in indigenizing such training activities by integrating these elements into their established law enforcement curricula.

The European Commission through numerous support programmes from different General Directorates (namely DG TAXUD for Customs community, DG HOME for law enforcement community and DG DEVCO for EU foreign support) sustains building of multidisciplinary and cross agency capacity through training and exercises to prevent and respond to the terrorist and other criminal offences involving nuclear or other radioactive material.

Training for front line officers and proficient experts aims to be done in the most realistic way possible. Train-

ing centres use generally different small radioactive sources or simulated sources to inject radiation detection spectra into the radiation detector and thus produce “realistic” observables. Few training centres such as the EUSECTRA seeks to provide a “train as you fight” approach training by providing realistic scenarios with real special nuclear material. The training program offers then a unique opportunity for trainees to see and experience actual materials and commodities, as EUSECTRA is one of the few places in the world where a wide range of samples of plutonium and uranium of different isotopic compositions can be used for training in detection, categorization and characterization.

There is a clear consensus among training experts that Instructional systematic design (ISD) approach to curriculum development is critical to collaboration efforts, the efficacy of the resulting training and its portability across organizations and training centers. This approach has several advantages, it

- Provides framework for subject matter experts to contribute to the technical content of the material
- Helps ensures that stakeholder roles and responsibilities are appropriately incorporated into curriculum
- Promotes the development of progressive techniques, such as “flipped classroom” approach that enhances student engagement.
- Extends the impact when curriculum is implemented in regional centers such as EU Centres of Excellence and IAEA Nuclear Security Support Centres

The provided training courses shall aim to transfer practical knowledge and skills immediately applicable to participants’ professional responsibilities to combat illicit trafficking; stimulate and encourage inter-institutional communication and collaboration to combat illicit trafficking at the operational level; provide a standardized course format and materials that national partners can easily replicate after receiving initial training and assistance. Significant efforts may be granted to deliver an extensive range of equipment and apparatus to cover anticipated national or international customers commonly deployed and operated gears. Cross-over agency trainings and field exercises shall then support enhancement of efficient networking and capacity building.

This global approach in providing training and expertise dissemination is then expected to better meet the transfer and the dissemination of knowledge necessary to spread worldwide rigorous nuclear Security Culture and its successful implementation.

State

Other

Gender

Male

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