

La dimensione umana della security e i Centri di Eccellenza

La dimensione umana, che abbraccia la cultura della security e dello sviluppo delle risorse umane, è alla base di un regime di security nucleare o CBRN (chimico, biologico, radiologico e nucleare). Diversi Paesi hanno inaugurato o stanno pianificando centri nazionali o Centri di Eccellenza di formazione e supporto per la security nucleare (o CBRN). Diverse iniziative a livello regionale sono in corso, delle quali la CBRN Centres of Excellence Initiative dell'Unione Europea è la più importante. A livello internazionale, l'IAEA (International Atomic Energy Agency) ha assunto un ruolo di coordinamento attraverso l'International Network for Nuclear Security Training and Support Centres. Nel quadro del Nuclear Security Summit, l'Italia ha presentato un Gift Basket che promuove il networking e la cooperazione internazionale tra i centri per la security.

Developing the human dimension of security by means of Centres of Excellence

The human dimension, encompassing the culture of security and human resources development, is the foundation of a sustainable nuclear – or chemical, biological, radiological and nuclear (CBRN) – security regime. Several countries have established, or are planning to establish, national nuclear (or CBRN) security centres, or Centres of Excellence for training and support. Initiatives at the regional level are also under way, of which the EU CBRN Centres of Excellence Initiative is the most important. At the international level, the IAEA (International Atomic Energy Agency) is assuming a coordinator role through the International Network for Nuclear Security Training and Support Centres. In the Nuclear Security Summit framework, Italy introduced a Gift Basket promoting networking and international cooperation among security centres.

DOI: 10.12910/EAI2014-100

■ F. Padoani, A. Rizzo

Introduction

The human dimension is the key element underpinning nuclear security and, more in general, CBRN security. The origin of any security event, whether malicious or not, can ultimately be tracked down to the human factor. Security culture and human resource development are essential components of an effective security regime and its sustainability.

The Nuclear Security Summit (NSS) process [1] has played an important role in fostering the importance

of the human dimension. The 2010 Washington NSS gave it an unprecedented importance for a high-level political event; then the 2012 Seoul NSS further recognized the fundamental importance of investing in

■ Contact person: Franca Padoani
franca.padoani@enea.it

human capacity-building for promoting and sustaining a strong nuclear security culture, while encouraging States to promote human resource development through education and training.

Several countries have established in recent years, or are planning to establish, national nuclear (or CBRN) security centres. Initiatives at the regional level are also under way, strengthening a regional culture of security in a synergic manner: the European Union's Chemical, Biological, Radiological and Nuclear Centres of Excellence (EU CBRN CoE) Initiative is the most relevant example in this field. At the international level, the IAEA is assuming a coordinator role with respect to nuclear security through the International Network for Nuclear Security Training and Support Centres (NSSC Network).

The Italian contribution

From the Italian G8 Presidency in 2009 to the Nuclear Security Summits

Italy has been paying special attention to education, training and institutional capacity building as essential elements to an effective safety and security infrastructure since the Italian G8 Presidency in 2009. In the framework of the G8 Nuclear Safety and Security Group, Italy organized an International Workshop on Nuclear Safety and Security Education and Training in Countries Embarking on or Expanding Nuclear Programmes, with the support of the IAEA, the European Commission and ENEA, in Bologna in October 2009 (see Fig. 1). The recommendations of this Workshop now constitute important elements of the Washington NSS Communiqué and Work Plan and are now being implemented worldwide.

Following on from this, at the Washington Summit in 2010 Italy announced the creation of an International School on Nuclear Security with the IAEA and the International Centre for Theoretical Physics (ICTP) in Trieste. The School held its fourth two-week course in May 2014, a successful initiative much appreciated by the participants and widely recognized by the international community. Many of the participants were from developing and emerging countries, mainly from Asia and Africa, and from regulatory bodies,

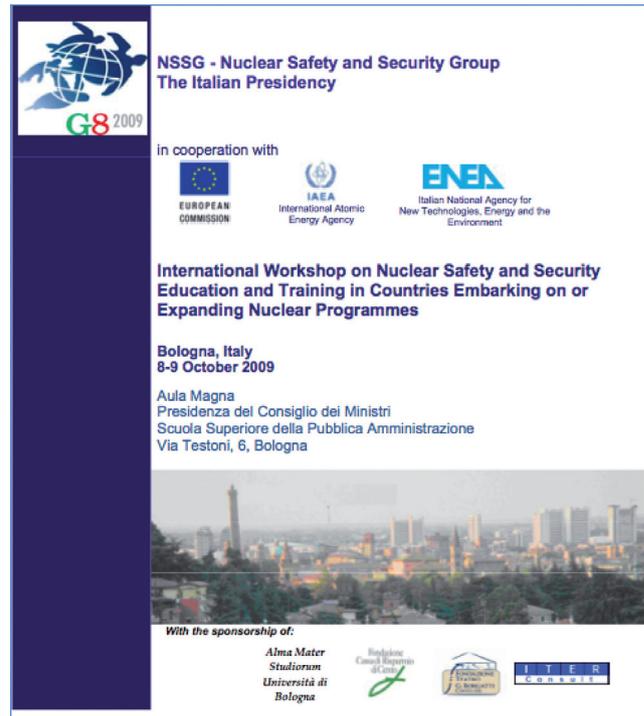


FIGURE 1 The G8 International Workshop in Bologna, 2009

universities, research institutes, government ministries and law enforcement agencies.

The NSSC/CoE Gift Basket

Although under different names such as training centres, schools or centres of excellence, in recent years many centres have been or are in the process of being set up, at the national, regional or international levels. With the network rapidly expanding, a coordination effort is essential in order not only to prevent overlapping but also to enhance the leveraging of resources, particularly at the regional level. The IAEA effort towards this end, finally leading to the creation of the NSSC Network, is therefore commendable, as are European efforts at the regional level with the CBRN CoE Initiative.

An awareness of these issues led to Italy's decision to sponsor the Nuclear Security Training and Support Centres / Centres of Excellence (NSSC/CoE) Gift Basket at the Nuclear Security Summit in The Hague, in 2014 [1]. The Gift Basket recognizes the expansion of the

Joint statement on Nuclear Security Training and Support Centres / Centres of Excellence for the 2014 Nuclear Security Summit submitted by Italy

On the occasion of the 2014 The Hague Nuclear Security Summit, the following States, Algeria, Argentina, Armenia, Australia, Belgium, Canada, Chile, France, Georgia, Germany, Hungary, Indonesia, Israel, Italy, Japan, Kazakhstan, Republic of Korea, Lithuania, Mexico, Morocco, the Netherlands, Pakistan, Philippines, Romania, Spain, Sweden, Turkey, United Arab Emirates, the United Kingdom, the United States and Vietnam recall the Joint Statement on Nuclear Security Training and Support Centres (NSSCs) issued at the 2012 Summit held in Seoul, Republic of Korea, and note that the International NSSC Network now has over 100 members from 39 States and that 12 States have established such centres since the 2010 Nuclear Security Summit.

The States noted above reaffirm the value of the NSSC Network in strengthening international and regional cooperation and collaboration to promote nuclear security education and training. They also encourage the IAEA and other stakeholders to work with and to support the further development of nuclear security training and support centres / centres of excellence and to explore the synergies between education and training that such centres can provide for national, regional and global nuclear security.

They welcome the IAEA's activities carried out in conjunction with the NSSC Network to promote the establishment of centres and, in particular, activities to provide for the exchange of information and best practice that would strengthen capacity building and nuclear security culture, and maintain a well-trained cadre of technical experts in States.

Acknowledging the importance of the NSSC Network to promote coordination amongst such centres and recognising the importance of avoiding duplication and overlap, they also encourage regional cooperation initiatives and other initiatives to facilitate greater information sharing on and harmonization of respective capabilities and plans among individual centres in particular regions.

Joint Statement on Nuclear Security Training and Support Centres resulting from the 2012 Seoul NSS

On the occasion of their participation in the 2012 Seoul Nuclear Security Summit, Algeria, Australia, Canada, Chile, Czech Republic, Germany, Hungary, Indonesia, Italy, Japan, Jordan, Kazakhstan, Republic of Korea, Lithuania, Malaysia, Mexico, Morocco, Netherlands, Pakistan, Philippines, Ukraine, United Arab Emirates, the United Kingdom, and the United States note their intent to collaborate in the form of the International Network for Nuclear Security Training and Support Centres (NSSCs) aiming to build up a cadre of highly qualified and well trained nuclear security personnel, provide specific technical support required for effective use and maintenance of instruments and other nuclear security technical systems, as well as provide scientific support for the detection of and the response to nuclear security events in a country.

In accordance with its Nuclear Security Plan for 2010-13 approved by the Board of Governors in September 2009, the International Atomic Energy Agency's Office of Nuclear Security supports these member states through coordination of the activities of the Network. The IAEA's Nuclear Security Web Portal (NUSEC) provides a platform to facilitate coordination and sharing of best practices. These NSSCs enhance nuclear security at the national level and promote many of the elements of the Communiqué and Work Plan of the 2010 Washington Nuclear Security Summit and the Communiqué of the 2012 Seoul Nuclear Security Summit. In particular, they support human resource development and education and training in nuclear security, enhance nuclear security culture, and maintain a well-trained cadre of technical experts.

BOX 1 Gift Basket (or Joint Statement) on Nuclear Security Training and Support Centres / Centres of Excellence (NSSC/CoE) presented by Italy at the Nuclear Security Summit in The Hague

network, while further promoting the development of nuclear security training and support centres/centres of excellence, in this way encouraging networking and international and regional cooperation. ENEA has been designated as the reference institution, acting as Scientific Secretariat for the Gift basket.

The text of the Gift Basket is shown in Box 1.

The NSSC Network

The Network for Nuclear Security Training and Support Centres (NSSC Network) was established in February 2012 with the IAEA in a coordinator role and serving as secretariat. The NSSC Network objectives are on the one hand to promote a high level of nuclear security training and support services and, on the other hand, to facilitate cooperation and assistance (also technical and scientific) and to optimize the use of available resources.

The NSSC Network centres, although under different names (NSSC, CoE, and so on), all have the shared aim of developing human resources in nuclear security, enhancing nuclear security culture, and maintaining a

well-trained cadre of technical experts. Some Centres have set up regional networks, such as the recent Asian Regional Network (ARN) by South Korea, China and Japan. The EU CBRN CoE Initiative, through its regional approach, is complementary and synergic to the NSSC Network.

Several national centres have been or are being established following the IAEA concept of NSSCs based on three elements: the development of human resources through tailored training programmes; the development of a network of experts; the provision of technical support for equipment during its lifecycle, and scientific support for the detection of and response to nuclear security events (see Fig. 2).

As the number of NSSCs/CoE increases and operational experience is acquired, they may evolve in different ways from the initial concept, in order to better reflect the nation needs. For example some have extended their scope beyond nuclear security to encompass the full CBRN spectrum threat and emergency preparedness and response. In this respect, one interesting example is Kenya which initially established a centre with IAEA support following the NSSC concept and then, also

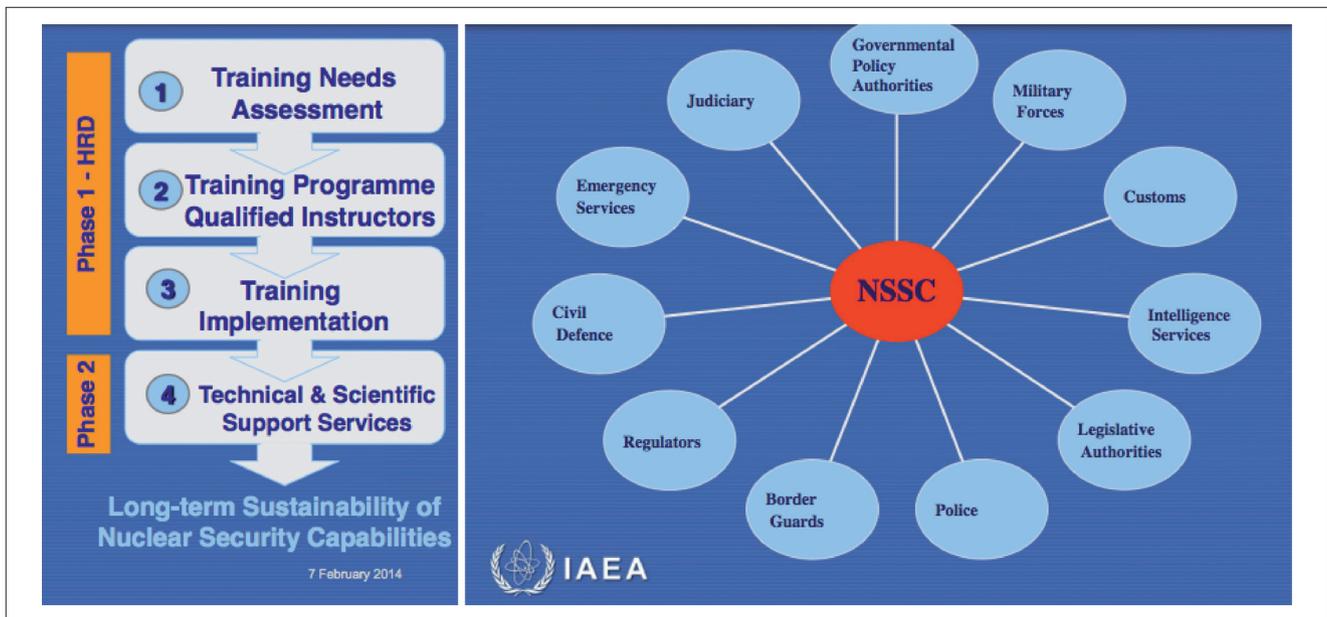


FIGURE 2 The IAEA concept for the establishment of NSSCs
Source: IAEA

thanks to the influence of activities of the EU CBRN CoE Initiative, further developed the structure, changing its name to the Nuclear Security Coordination Centre, in order to deal with the CBRN threat both in the case of malicious acts and of natural catastrophes.

The NSSC Network is closely linked to the INSEN, the International Nuclear Security Education Network [2]: two-way communication exists between the two networks recognizing the mutual advantages of collaboration on a number of common and cross-cutting activities, such as peer review and the preparation of training and educational material.

As of March 2014, the NSSC Network consists of more than 90 members from more than 40 institutions, recognizing the need for coordinated collaboration. The activities are organized in three working groups: WG A – Coordination and Collaboration, WG B – Best Practices, and WG C – Information Management and Other Emerging Issues. The annual meeting is the major event and the forum for the exchange of information with the other international organizations relevant to the NSSC/CoE development. One of the most important ones in addition to the EU with its CBRN CoE initiative is the G8 Global Partnership subgroup on Centres of Excellence.

The EU CBRN CoE initiative

The EU CBRN Risk Mitigation – Centres of Excellence (CBRN CoE) initiative was launched in 2010 by the European Union, as an instrument to bring together the activities relating to the mitigation of CBRN risks in countries outside Europe, addressing the gaps in coordination and fragmentation at the national level, and promoting the sharing of good practices and expertise between European and non-European countries.

The CBRN threat

Any malevolent use of chemical, biological, radiological and nuclear agents against persons and the environment, including the agro-food chain, is considered a CBRN threat. However, one of the most important threats comes from the spread of technical knowledge and capabilities that can enable subversive individuals or groups to build CBRN devices: hence, once again, the need for a strong security culture. The level of threat from terrorist attacks depends on the chosen CBRN agent, technical expertise and means of delivery available to terrorist groups.

Particularly in the case of bio and chemical agents, the development of new techniques and new processes

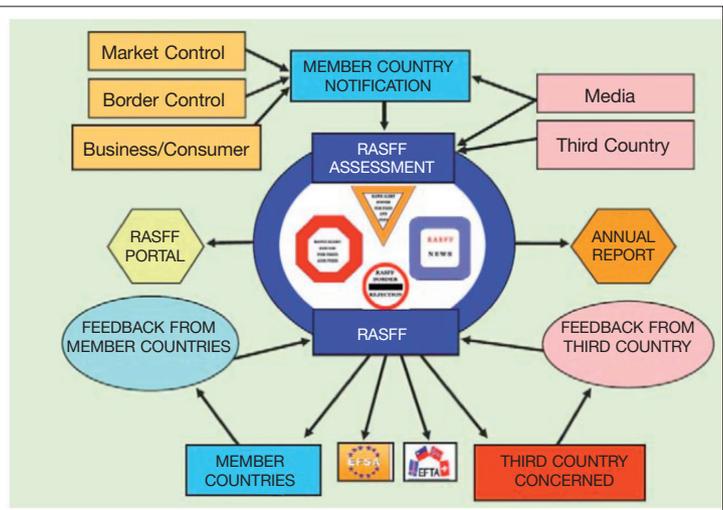


FIGURE 3 Frozen berries in the EU market, found to be contaminated with hepatitis-A in 2014, and the RASFF system for alert on food contamination

Source: 2012 Report http://ec.europa.eu/food/food/rapidalert/docs/rasff_annual_report_2012_en.pdf

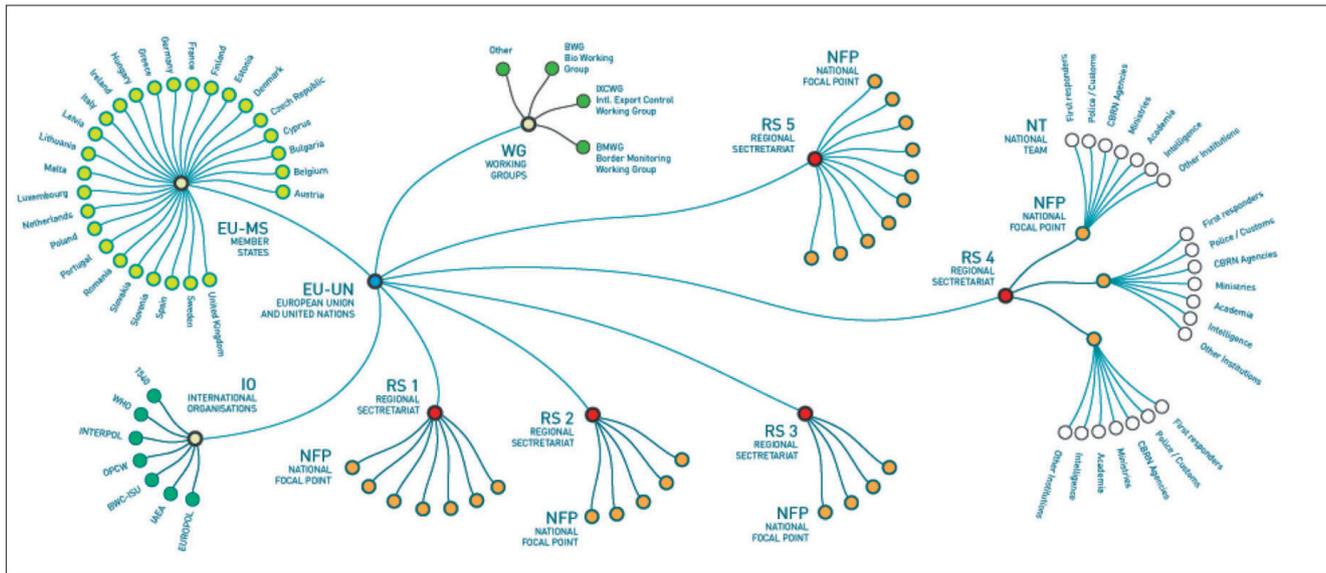


FIGURE 4 The structure of the EU CBRN CoE network
Source: <http://www.cbrn-coe.eu/AboutCoE.aspx>

(like microfluidics, nanotechnologies and microwave reactors) are resulting in the downscaling of productive systems, facilitating the operation of innovative technology in very small environments, thus increasing the possibility of evading control. Biological agents could also be used to contaminate food, facilities and the agricultural productive chain with a huge potential psychological impact on the population. To address this threat, the EU has implemented the monitoring of chemical and biological risks in the food chain by setting up the RASFF alert system (Rapid Alert System for Food and Feed), http://ec.europa.eu/food/food/rapidalert/index_en.htm (see Fig. 3).

The responsibility to protect civilian populations against CBRN threats is assigned to States and the ultimate barrier is the capacity of the State to prevent, detect and respond to these threats. Each stage – prevention, detection and response – requires specific competences that need to be developed, maintained and sustained by the State. At the European level, the EU is playing a key coordination role in strengthening the CBRN security, and one important tool is the EU CBRN Action Plan aiming to complement national measures in European countries.

The CBRN CoE initiative

Echoing and integrating the CBRN Action Plan, with the Instrument Contributing to Stability and Peace (the successor to the Instrument for Stability from March 2014), the EU launched the EU CBRN Risk Mitigation – Centres of Excellence Initiative [3] in 2010 with the aim of coordinating in a synergic manner all the activities relating to the mitigation of CBRN risks in countries outside Europe, focusing above all on institutional capacity-building.

The structure (see Fig. 4) is based on Regional Secretariats with the role of facilitating coordination and cooperation with the partner countries and the implementation of projects funded through this Initiative in the region. The interaction of the Regional Secretariats with the partner countries takes place through the designated CBRN CoE National Focal Points, the key players of the Initiative at the national level. The role of the National Focal Points is also to set up a National CBRN CoE Team of experts from the bodies and ministries operating in the field of CBRN risk mitigation. The CBRN CoE Regional Secretariats are currently operating in the following eight regions:

Project	Title	Area
040	Strengthening health laboratories to minimize potential biological risks	B
039	Strengthening health security at ports, airports and ground crossings	CBRN
038	Export control outreach for dual use items	CBRN
037	MEDILABSECURE - Establishment of networks of human and animal virology laboratories and of medical entomology	B
036	Further development and consolidation of the Mediterranean Programme for Intervention Epidemiology Training (MediPIET)	B
035	Management of hazardous chemical and biological waste in the African Atlantic Façade region and Tunisia	CB
034	Strengthening capacities in CBRN event response and related medical emergency response under strengthened CBRN event preparedness	CBRN
033	Strengthening the national CBRN legal framework and provision of specialized and technical training to enhance CBRN preparedness and response capabilities	CBRN
032	Establishment of a Mediterranean Programme for Intervention Epidemiology Training (MediPIET)	B
031	Network of universities and institutes for raising awareness on dual-use concerns of chemical materials	C
030	Network of Excellence for Nuclear Forensics in South East Asia Region	N
029	Regional Human Resource Development for Nuclear Safety, Security, and Safeguards Management through a University Master's Programme carried out in Thailand	N
028	Supporting development of an integrated national security system for nuclear and radioactive materials	R
027	Bio-risk management	B
026	Prerequisite to strengthening CBRN national legal frameworks	CBRN
025	Knowledge development and transfer of best practice on bio-safety/bio-security/bio-risk management	B
024	Development of a methodology for RN materials detection, management and protection of the public	R
023	Building capacity to identify and respond to threats from chemical, biological, radiological and nuclear substances	CBRN
022	Provision of specialized technical training to enhance the first responders' capabilities in case of CBRN incidents	CBRN
021	Building regional border control capacity to identify and detect CRN materials	CBRN
019	Development of procedures and guidelines to create and improve secure information management systems and data exchange mechanisms for CBRN materials under regulatory control	CBRN
018	International Network of universities and institutes for raising awareness on dual-use concerns in bio-technology	B
017	Establishing a National Response Plan in Ghana and Kenya for responding to unauthorized events involving chemical, biological, radiological and nuclear (CBRN) materials	CBRN
016	Supporting development of an integrated national nuclear security system	N
015	Strengthening laboratory bio-safety and bio-security through development of a laboratory iso-bank system	B

014	Provision of specialized and technical training to enhance the First Response CAPabilities (CBRN FRstCap)	CBRN
013	Capacity building and raising awareness for identifying and responding to threats from chemical, biological, radiological and nuclear materials in Sub Saharan African countries	CBRN
012	Sharing experience between EU and South East Asian countries on the reinforcement of legislations and regulations in the field of bio-safety and bio-security, as well as relevant laboratories management systems through Regional Centre of Excellence - phase 2	B
011	Promoting good practice and inter-agency procedures for assessing the risks of chemical, biological, radiological and nuclear misuse	CBRN
010	Development of e-learning courses for CBRN risk mitigation	CBRN
009	National Response Plan in Lebanon for CBRN Events	CBRN
008	Prerequisite to strengthening CBRN national legal frameworks	CBRN
007	Guidelines, procedures and standardisation on bio-safety/bio-security	B
006	Knowledge development and transfer of best practice on chemical and biological waste management	CB
005	Knowledge development and transfer of best practice on CBRN import/export monitoring	CBRN
004	Inter-agency CBRN Response Programme (ICP)	CBRN
003	Knowledge development and transfer of best practice on bio-safety/bio-security/bio-risk management	B
002	Building CAPacity to identify and respond to threats from Chemical, Biological, Radiological and Nuclear substances (CBRNcap)	CBRN
001	Identification and strengthening forensic capacities in the area of prevention of organized crime and illicit trafficking of chemical agents, including training and equipment for the line officers	C

TABLE 1 List of EU CBRN CoE initiative projects as of June 2014
 Source: <http://www.cbrn-coe.eu/>

- African Atlantic Façade;
- Central Asia;
- Eastern and Central Africa;
- Gulf Cooperation Council Countries;
- Middle East;
- North Africa;
- South East Asia;
- South East Europe, Southern Caucasus, Moldova and Ukraine.

For the period 2014-2020, the CBRN CoE initiative can count on a budget of €156 million. A total of 40 CBRN CoE Initiative projects had been funded by the EU at the end of 2013. All projects aim at awareness-raising and capacity-building, as shown in Table 1.

ENEA and the CBRN CoE initiative

ENEA has been involved in the Instrument Contributing to Stability and Peace from the very beginning, actively engaged as coordinator or partner in the implementation of projects in the framework of the Expert Support Facilities (ESF) and of the EU CBRN CoE Initiative. Even before the launch of the EU CBRN CoE Initiative, ENEA was coordinator of the project ESF-LOT5 “CBRN Training Centre on Safety and Security”, contributing to the definition of the concept of the EU CBRN CoE network. The ESF-LOT3 project on “Redirection of former weapon scientists and engineers” has recently been concluded. ENEA is currently coordinating two ongoing projects of the CBRN CoE Initiative:

- Project 13 “Capacity building and raising awareness for identifying and responding to threats from chemical, biological, radiological and nuclear materials in Sub Saharan African countries”. Geographical scope: Eastern and Central Africa.
- Project 31 “Network of universities and institutes for raising awareness on dual use concerns of chemical materials” Geographical scope in five Regions: South East Europe, Southern Caucasus, Moldova and Ukraine; Central Asia; Middle East; North Africa; South East Asia.

Concluding remarks

The growing awareness of the importance of the human factor in sustaining a nuclear (or CBRN) security regime is leading to an increasing number of

security centres, NSSCs and CoE. In a world in which resources are clearly scarce and mutual assurances essential, international cooperation and coordination is the only practical road toward effective and sustainable security regimes. The Gift Basket on NSSC/CoE, presented by Italy and co-sponsored by 31 countries, is an important recognition of the importance of this objective.

Franca Padoani

ENEA, Technical Unit for Reactor Safety and Fuel Cycle Methods - Reactor Core and Shielding Analysis and Design Laboratory

Antonietta Rizzo

ENEA, Technical Unit for Reactor Safety and Fuel Cycle Methods - Fuel Cycle Safety and Security Laboratory

- [1] F. Padoani, 2014, The Nuclear Security Summit process: the turn of the screw (this issue).
- [2] D. Nikonov, 2013, The international Nuclear Security Education Network (INSEN) and the Nuclear Security Training and Support Centre (NSSC) Network, Technical Meeting IAEA.
- [3] A. Mignone, 2013, The European Union’s Chemical, Biological, Radiological and Nuclear Centres of Excellence Initiative, EU Non-Proliferation Consortium.