

*Pierre Funk (IRSN)*

# Training in nuclear security

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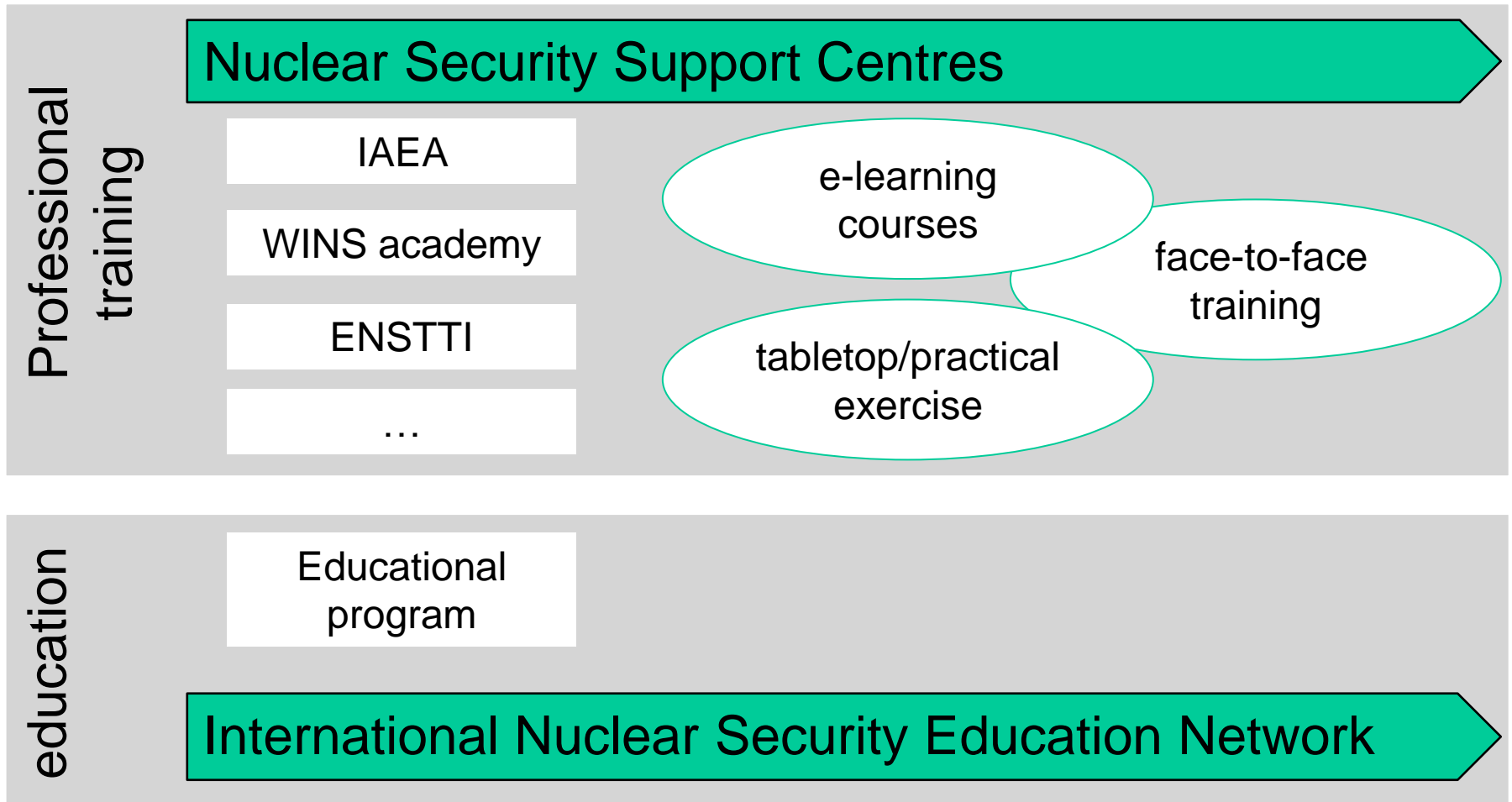
# 1. Why training in nuclear security is needed?

The 61<sup>th</sup> IAEA General Conference (September 2017)...

- “Encourages ongoing initiatives of Member States, in cooperation with the Secretariat, to further enhance nuclear security culture, as well as skills and knowledge of personnel, with a view to developing and building human resources in this regard, through nuclear security education and training...”

⇒ to enhance nuclear security culture

## 2. Overview of nuclear security training worldwide



# Educational program : Master of Science Programme in nuclear security”

- content is described in the Nuclear Security Series No. 12: Educational programme in nuclear security (2010)
- coordinated by the international network INSEN : International Nuclear Security Education Network
  - UK. M.Sc. in Nuclear Safety, Security and Safeguards, (The University of Central Lancashire):
  - Bulgaria. Master's in Nuclear Security, (University of National and World Economy)
  - Netherlands. Master's program in Nuclear Security (Delft University of Technology)
  - Germany. Master in Nuclear Security (MiNS) (Brandenburg University of Applied Sciences) – ref. M. Macori, EUROSAFE Forum, 2016.
  - ....

## IAEA e-learning courses

**Currently 16 modules in 4 topics**

- **Crosscutting Topics**
- **Nuclear Security of Materials and Facilities**
- **Nuclear Security of Materials Outside of Regulatory Control**
- **Information and Computer Security**

## IAEA face-to-face training

- **Global nuclear security overview**
- **Security of nuclear material**
- **Security of radioactive material**
- **Material out of regulatory control**
- **Nuclear Forensics**
- **Computer and information security**
- **International Physical Protection Advisory Service**

# ENSTTI: European Nuclear Safety Training and Tutoring Institute

- Created in 2010
- initiative of European TSO
- provision of training and tutoring in nuclear safety, nuclear security and radiation protection

Training in nuclear security  
provided by IRSN are managed  
by ENSTTI



### 3. Training in nuclear security provided by IRSN

- focused on physical protection of nuclear facility, nuclear material accounting and control, and international safeguards.
- Awareness is provided on security of radioactive materials, transport of nuclear material and cybersecurity at nuclear facilities.
- Practical exercises on a fictitious facility:
  - Physical protection system
  - Nuclear Material Accounting and Control
- Last one was a 5 days training course (GRS also contributed) on September 2017

# Typical schedule

Day 1	Day 2	Day 3	Day 4	Day 5
<ul style="list-style-type: none"> <li>• Nuclear security principles</li> <li>• Protection of nuclear materials and nuclear facilities</li> <li>• Example of practical means and devices in the field of physical protection system</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment process of a nuclear security system</li> <li>• Working group: Design of a physical protection system</li> </ul>	<ul style="list-style-type: none"> <li>• Transport of nuclear materials</li> <li>• Security of radioactive materials</li> <li>• Nuclear Material Accounting and Control</li> </ul>	<ul style="list-style-type: none"> <li>• Working group: Nuclear Material Accounting and Control</li> <li>• Measurement of nuclear materials</li> <li>• International safeguards</li> </ul>	<ul style="list-style-type: none"> <li>• Contingency plans and exercises in the field of nuclear security</li> <li>• Cybersecurity at nuclear facilities</li> <li>• Nuclear Security culture</li> </ul>

## EXTREME (EXternal Threat REsponse Management Exercise)

- 2.5 days scenario-driven tabletop exercise to address mainly crisis decision management.
- The scenario considers an attack on a nuclear power plant requesting an emergency response at national level.
- Participants go through the case study to identify and develop key issues related to
  - the effectiveness of the response,
  - management of decision addressing nuclear security and nuclear safety decision.
- Last one was in March 2017. Next one is schedule in Oct. 2018.
- Detailed presentation at the IAEA International Conference on Physical Protection of Nuclear Material and Nuclear Facilities, 13-17 November 2017.

## 4. What training could be further developed?

## Safety and security interface

Experts with responsibilities in safety assessment need to be provided with a working knowledge of security principle and vice versa.

- A first objective is to quickly identify, during an assessment, possible contradictory requirements between safety and security in order to resolved them more effectively.
- A second objective is to identify during safety assessment, if there are some security issues that needs also to be assess by security expert and vice versa.
- Development of this training course is foreseen in 2018.

# Nuclear Material Accounting and Control for Nuclear Security

- It will be a tabletop exercise that will address Nuclear Material Accounting and Control from a security point of view:
  - Organizational and human separation between follow-up, accountancy, physical protection, management of transport
  - Cross-checking of data
  - ...
- For facility operators as well as regulators and technical support organization.
- Development of this training course is on-going.

## Security of radioactive material

- New provisions related to the security of radioactive material must be put in place in order to ensure proper protection against malevolent actions.
- Awareness of stakeholders
  - What is the current awareness, for instance, of some hospital management team regarding the security of radioactive material?
- This means that great effort should be put on training.

## Conclusion

- Many training on nuclear security are available
  - educational
  - e-learning
  - face-to-face
  - tabletop/practical exercise
- It is important that stakeholders are aware of these training opportunities
  - Promotion of existing training course
- As well as developing new training when it is needed
- Eventually: development of a curriculum