



IAEA

Capacity Building in Nuclear Security

International Forum on Peaceful Use of
Nuclear Energy and Nuclear Non-
proliferation and Nuclear Security 2024

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Nuclear Security Plan 2022-2025

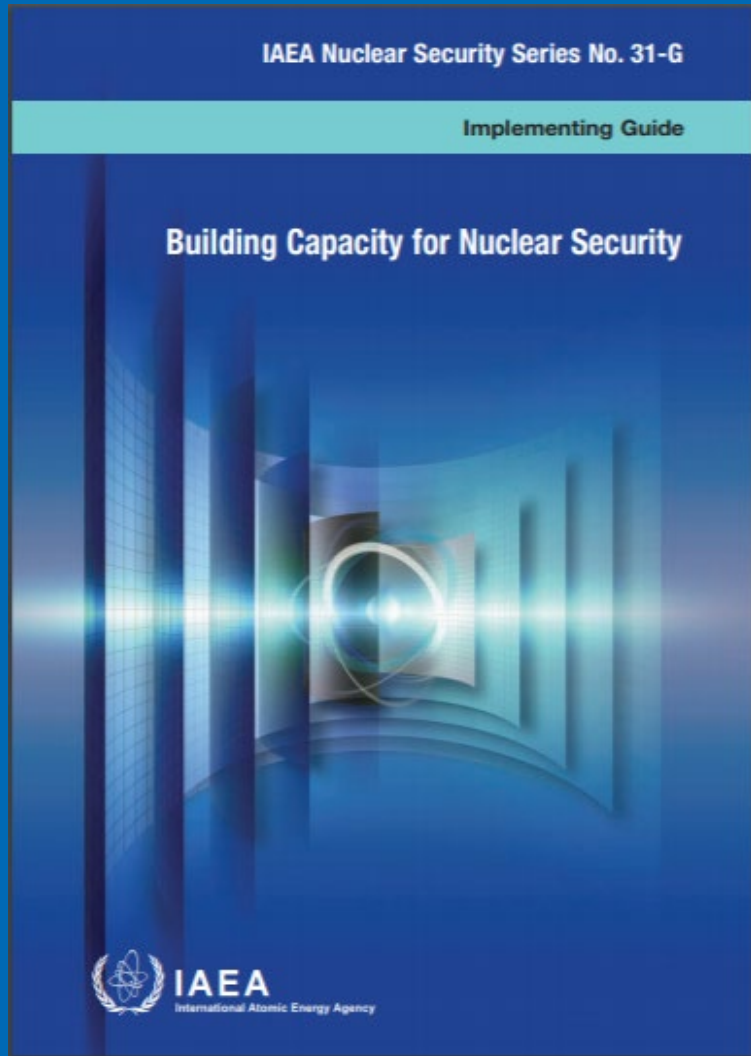
Contribute to global efforts to achieve effective nuclear security, by establishing comprehensive nuclear security guidance and, upon request, promoting its use through peer reviews and advisory services and capacity building, including education and training

- Material, resources and tools for supporting human resource development in nuclear security
- Modular training programmes covering all aspects of nuclear security following a systematic approach to training
- Continuous training and train-the-trainer programmes



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Capacity and Capacity Building



- **“Capacity**...refers to an **organization** or **individual** that has both the **competence** (knowledge, skills, attitude) and **capability** (resources, authority, processes, equipment, means of deployment) needed to achieve their desired goal.”
- **“Capacity building for nuclear security**....refers to a **systematic approach** to the use of education, training, exercises, awareness raising, workforce management, knowledge management and knowledge networks to develop and continuously improve the **governmental, organizational and individual capabilities necessary** for establishing, implementing and sustaining an effective nuclear security regime.”

IAEA Support for Capacity Building



**HUMAN
RESOURCES
MANAGEMENT**



**COMPREHENSIVE
TRAINING
PROGRAMME**



**NUCLEAR
SECURITY
EDUCATION**



**NUCLEAR
SECURITY
KNOWLEDGE
NETWORKS**

Human Resource Needs Analysis and Planning

- Support in **self-assessment** of national capacity building and human resource development (HRD) programmes for nuclear security
 - Training and education **needs and gap analysis**
 - Training and education **capability assessment** and identification of **resources**
 - **Expert Missions** to support overall needs analysis and HRD planning for personnel carrying out nuclear security functions
- Support in the development of a national **HRD Programme** in the area of nuclear security



Comprehensive Training Programme

- Preparing and implementing **national training programmes** in the nuclear security field
- Support to **training activities**
- Participation in IAEA nuclear security **training courses**
- Introduction and implementation of a **systematic approach to training**
- **Instructor** training and development





Nuclear Security Training and Demonstration Centre

- **Complements and fills gaps in capabilities** that do not commonly exist among institutions in States, including National Nuclear Security Support Centres (NSSC)
- **Focuses on new capabilities**, further enhancing programme in nuclear security with advanced technology and expertise to respond to States' requests

Mission: To support States in addressing unique challenges and implementing complex projects in nuclear security that require specialized technical infrastructure, through training, research and development

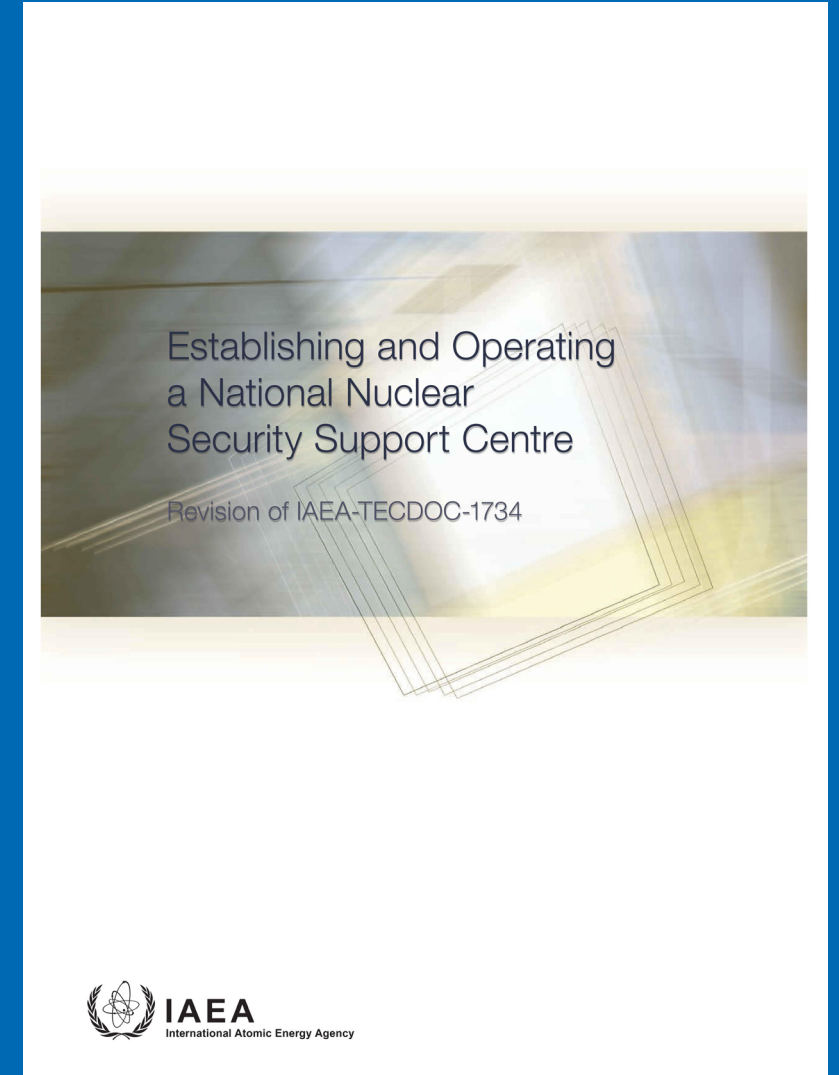
Nuclear Security Training Activities

- **Over 140 training courses** on workshops published on IAEA Nuclear Security Information Portal (NUSEC)
- Various **training settings** (including classroom and table-top, lab, mock-up, field/OJT, simulation, self-study/e-learning)

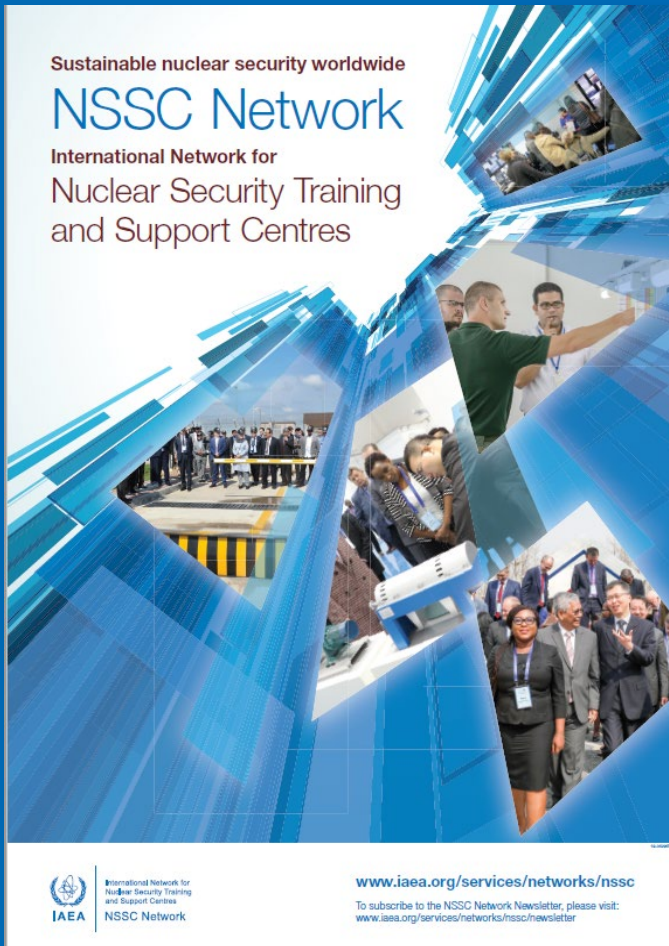


Nuclear Security Support Centres

- Support to the **International Network for Nuclear Security Training and Support Centres (NSSC Network)**
- Comprehensive support for establishment and operation of Nuclear Security Support Centres (NSSC)
 - **HRD** focused on training
 - **Technical support** programmes including training
 - **Scientific support** programmes including training
- Support for **regional cooperation**



NSSC Network



Established in 2012

Objectives

- A. Encourage cooperation and support joint activities;
- B. Identify and document best practices; and
- C. Strengthen information sharing among NSSCs.

Highlights

- Network meetings, workshops, technical exchange visits
- Information management tools on NUSEC
- 3 working groups, 6 regional sub-groups

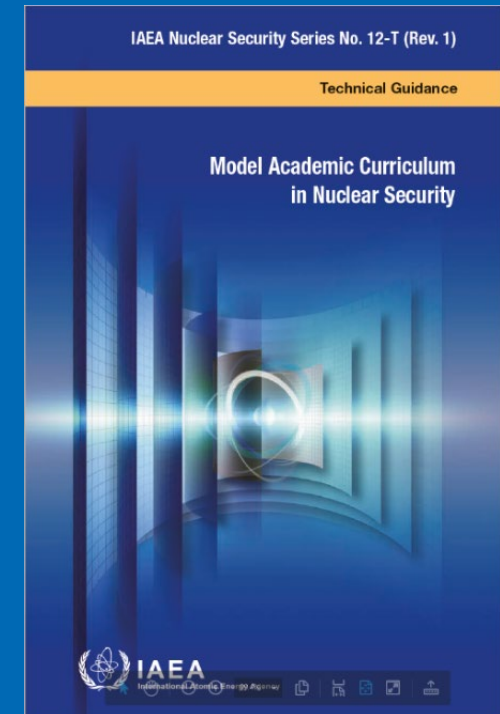
Membership

- 71 Network members (83 institutions) and 10 observers
- Membership open to all IAEA Member States

Mission: To contribute to the global efforts to enhance and sustain nuclear security through an effective and collaborative network of nuclear security training and support centres

IAEA Support for Nuclear Security Education

- Curriculum development: IAEA Nuclear Security Series (NSS) No. 12-T (Rev.1) – **Model Academic Curriculum in Nuclear Security**
- **Teaching material** development and revision
- **Master and certificate programmes**
- Support for **fellowships and internships** through Marie Skłodowska-Curie Fellowship Programme
- **International and Regional Schools** on Nuclear Security
- Professional/faculty development courses



Education Review and Analysis

- **Discussions** with stakeholders (government, operators, educational institution) to identify and analyze the staffing and competence needs
- **Joint review** of educational programmes, existing and future curricula in nuclear security
- **Recommendations** on developing new and/or adjusting existing programmes to fit the needs
- Conducted in **Malaysia, Ghana and Ukraine**



Master's Degree Programme in Nuclear Security

- Pilot MSc programme as part of a European university consortium in 2013-2014
- Brandenburg University of Applied Sciences (Germany) + consortium (2018-2020)
- National Master Programme in Nuclear Security, National Technical University of Ukraine, (2019-2021), 38 graduates.
- University of National and World Economy (UNWE), Bulgaria (since 2015) – 30 graduates supported by the IAEA



International Nuclear Security Education Network (INSEN)

- Established in **2010**
- **213 Network Members (74 States) & 14 Observers**
- **Mission:** to enhance global nuclear security by developing, sharing and promoting excellence in nuclear security education

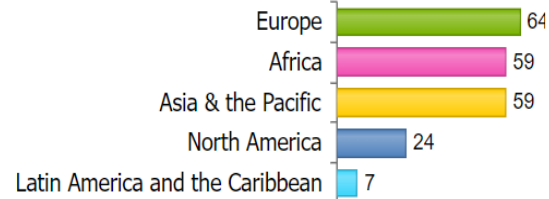


NUMBER OF NETWORK MEMBERS

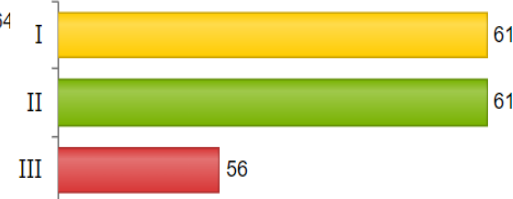
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(74 States)

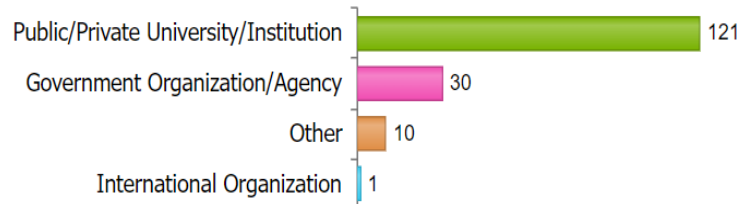
BY REGION



BY WORKING GROUP

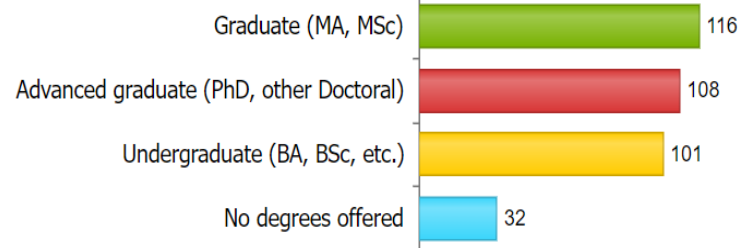


BY INSTITUTION TYPE



BY OFFERED DEGREE

multiple selection





Development and review of teaching materials and tools, academic programmes and curricula, consistent with IAEA-defined terminology and guidance.



Assistance in the different areas of nuclear security education through faculty professional development and exchanges, infrastructure, good practices, expertise, and information sharing.



Promotion of nuclear security education among INSEN members as well as other interested institutions and stakeholders.

International Nuclear Security Education Network (INSEN)

Educating the next generation of nuclear security professionals



INSEN Trends

Based on a summary survey conducted in 2024:

- Number of INSEN members **teaching courses** on nuclear security in existing national programmes increased from **54%** in 2023 to **64%** in 2024.
- Number of INSEN members **publishing a research paper** on nuclear security in a journal or book increased from **46%** in 2023 to **49%** in 2024.

Schools on Nuclear Security

Joint ICTP-IAEA International School on Nuclear Security

- Held annually since 2011 in Trieste, Italy, and supported by the Italian government as part of pledge to the Nuclear Security Summit process
- Two-week educational programme for up to 50 young professionals from developing countries, covering all areas of nuclear security

Regional and National Schools on Nuclear Security

- Follow standard curriculum
- Held in each region/language due to high demand





Benefits of Nuclear Security Education

- Contribution to human resource development
- Enhanced safety and security
- Regulatory compliance
- Improved nuclear security culture
- Research addressing emerging nuclear security threats and challenges
- Public confidence
- International cooperation

Assessing the Impact of Capacity Building Activities

Assessing impact: insights from the follow up surveys into:

- Improved capabilities
- Enablers and hindrances for knowledge application
- Country- and gender-disaggregated statistics
- Examples of nuclear security measures implemented following the provision of training

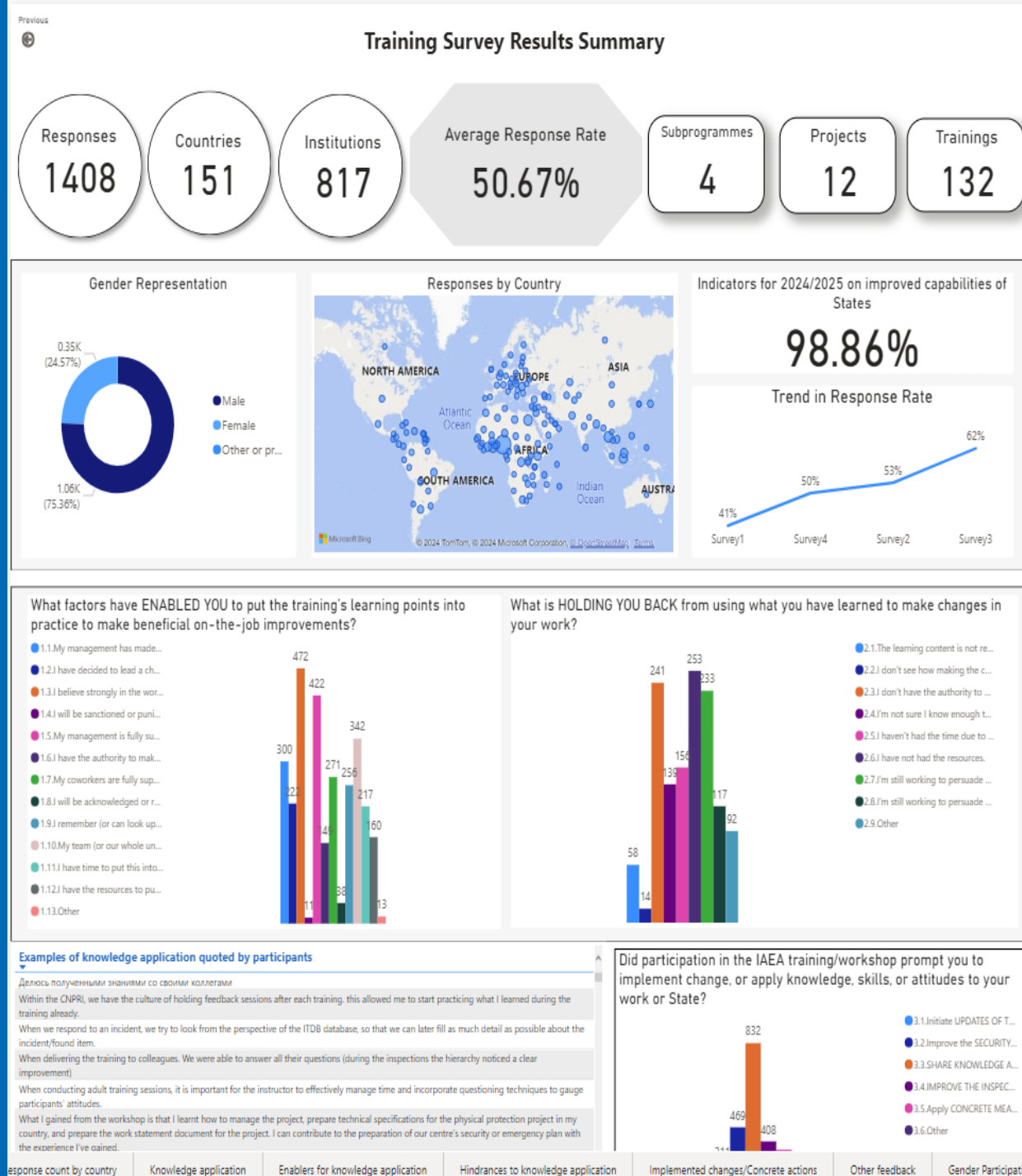
~99% of respondents have implemented or planning to implement acquired knowledge

Top enablers:

- Strong belief in the training/workshop's learning points
- Support from management
- Team is working together on implementation

Top hindrances:

- Lack of resources
- Lack of authority to make changes
- Still working to persuade management



Impact of the Nuclear Security Education

Graduates of the Master Programme in Nuclear Security:

~100% (23) found Master Programme topics relevant to their field of work and implemented concrete improvements at work

MSCFP participants of the International School on Nuclear Security:

~ 100% (69) consider nuclear security as a prospective field of study and/or professional activities:

- PhD programme – 19%,
- attending further capacity-building events – 39%,
- internship – 16%,
- participation in professional networks – 12%,
- participation in research projects – 9%,
- other – 6%.



IAEA Gender Initiatives

Marie Skłodowska Fellowship Programme (MSCFP)

- +260 MSCFP students completed the IAEA International Schools on Nuclear Security
- +10 fellows were hosted by the Division of Nuclear Security for internships

Lise Meitner Programme

- Launched in March 2023
- Multiweek visits of early and mid-career women professionals to advance their technical and soft skills

Women in Nuclear Security Initiative

- Launched in March 2021
- Aims to promote and strengthen the involvement of women in nuclear security worldwide and to enhance the attractiveness of nuclear security jobs and careers for women
- Mission: to support the achievement of gender equality in nuclear security both at the IAEA and globally



IAEA International School on Nuclear Security for the Students of MSCFP
26 August-04 September 2024
Vienna, Austria

Looking Forward

- Next **INSEN Annual Meeting**, will take place in Q4 2025, Japan
- **Celebration of 15 years of INSEN**
- **Major activities:**
 - Working groups planning and reporting
 - Panel discussions
 - Short professional development courses
 - International Students Competition on Nuclear Security





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THANK YOU