



Training and Tutoring (T&T)

Projects for capacity building
for Nuclear Safety Regulators
through the Instrument for
Nuclear Safety Cooperation



enstti



This project is funded by the European Union and implemented by ENSTTI & ITER-Consult

Foreword



The European Union's view regarding the safe utilisation of nuclear energy is that it requires "a competent, independent and adequately financed national nuclear safety authority, including their technical support organisation(s)". This view is consistent with the provisions of the International Atomic Energy Agency's "Safety Requirements for Legal and Government Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety", which address the issues of NRA competencies and training by requiring that "In order to ensure that the proper skills are acquired and that adequate levels of competencies are achieved and maintained, the regulatory body shall ensure that its staff members participate in well-defined training programmes. The training should ensure that staff members are aware of technological developments and new safety principles and concepts." To achieve these goals, an essential aspect of the European Commission's policy is to assist countries outside the EU in strengthening their safety authorities through the Instrument for Nuclear Safety Cooperation (INSC).

Because of the high demands on technical competence, the continuous availability of new information, the recruitment of new staff, development of new reactor types, new safety mechanisms or new assessment methodologies, there is always a need for general, in-depth and specific training for the staff of NRAs, as they should be committed to the training and development of their employees. In this respect, the Training & Tutoring (T&T) initiative to support capacity building worldwide is part of the INSC's efforts towards making the EU a global reference in matters of nuclear safety and radiation protection, emergency preparedness and regulatory framework.

It is my pleasure to introduce you to the present document, which provides an overview of the progress achieved in this area since 2012, when the T&T initiative was launched.

Olivier Luyckx

Head of Unit, Nuclear Safety, Security

Dir B – People and Peace

Directorate-General for International Cooperation and Development

European Commission

Aiming for the highest nuclear safety standards worldwide

About the European Union

The European Union is a unique economic and political partnership between 28 European countries. In 1957, the signature of the Treaties of Rome marked the will of the six founding countries to create a common economic space. Since then, first the Community and then the European Union have continued to enlarge and welcome new countries as members. The European Union is a major player in international cooperation and development aid. It is also the world's largest humanitarian aid donor.

The Instrument for Nuclear Safety Cooperation

The European Union attaches great importance to the highest standards of nuclear safety in Europe and beyond its borders. The Instrument for Nuclear Safety Cooperation (INSC) was set up as part of the European Commission's Development and Cooperation Programme, and contributes significantly to improve the level of nuclear safety and efficient, effective nuclear safeguards in non-EU countries.

The T&T initiative is implemented through contracts with the European Nuclear Safety Training and Tutoring Institute (ENSTTI) and Independent Technical Evaluation and Review (ITER-Consult).

Key elements of INSC cooperation with non-EU countries include the promotion and development of effective regulatory frameworks, technical support to nuclear regulatory bodies, and national technical safety organisations. Other activities concern the field of nuclear safeguards, radioactive waste management and emergency preparedness. The EU aims to ensure that the concept of nuclear safety remains the top priority in regulatory and legal frameworks and operational decisions in non-EU countries.

The T&T initiative: capacity building in nuclear safety, radiation protection and control of nuclear material

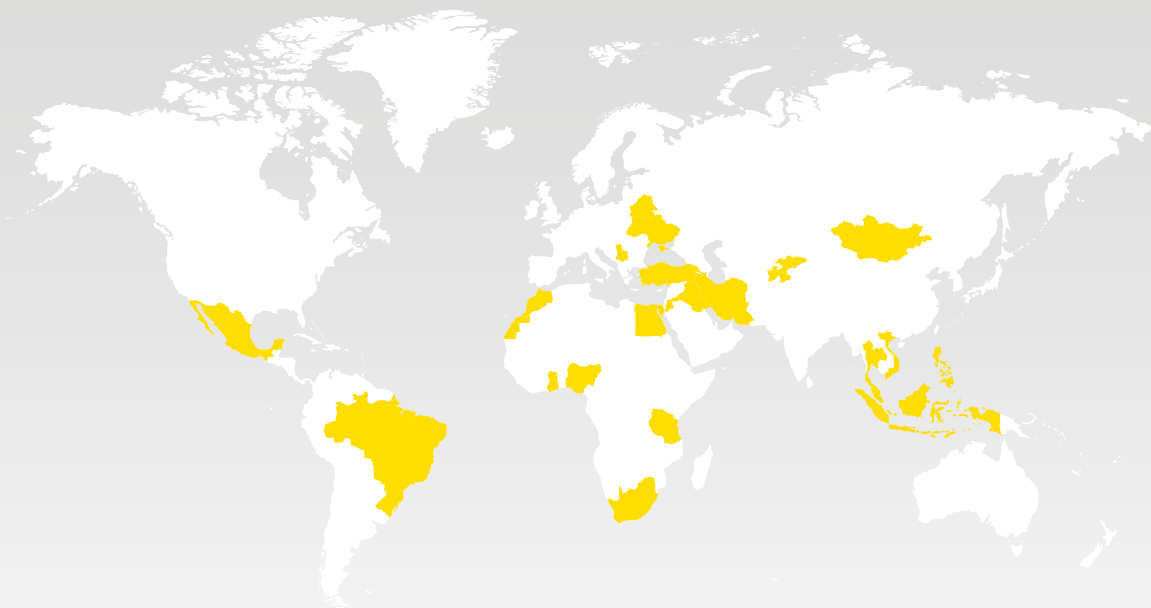
The INSC includes a Training & Tutoring (T&T) initiative meant to provide capacity building in nuclear safety, security and radiation protection through a wide range of disciplines that require highly professional expertise. Building such expertise is more than a matter of education, as it involves transferring practical knowledge and culture. This transfer is best done by senior experts from Nuclear Regulatory Authorities (NRAs) and Technical Safety Organisations (TSOs) who actually work in the areas that are pertinent to regulatory practices. It is internationally recognised that the quality of training in safety and security assessment depends on the practical expertise of the trainers.

The T&T initiative: a major training and tutoring programme

The T&T initiative has been implemented since the beginning of January 2012. So far, 15 million euros have been devoted to the programme.

The T&T initiative's partner countries around the world

To date, 23 countries are partnering in the T&T initiative run by the European Commission¹. The programme's regional dimension has been expanding since 2016, with 32 regional training courses currently conducted worldwide.



Armenia	Nuclear and Radiation Safety Center (NRSC) – (TSO ²) Armenian Nuclear Regulatory Authority (ANRA) – (NRA ³)
Belarus	Gosatomnadzor (NRA)
Brazil	Comissão Nacional de Energia Nuclear (CNEN) – (NRA)
Egypt	Egyptian Nuclear & Radiological Regulatory Authority (ENRRA) – (NRA)
Ghana	Nuclear Regulatory Authority, Ghana – (NRA)
Indonesia	Badan Pengawas Tenaga Nuklir (BAPETEN) – (NRA)
Iran	National Nuclear Safety Department (NNSD) – (NRA)
Iraq	Radiation Protection Centre (RPC) – (NRA)
Jordan	Energy and Minerals Regulatory Commission (EMRC) – (NRA)
Malaysia	Atomic Energy Licensing Board (AELB) – (NRA)
Mexico	Comisión Nacional de Seguridad Nuclear y Salvaguardias (CNSNS) – (NRA)
Mongolia	Nuclear Energy Commission (NEC) – (NRA)
Morocco	Agence marocaine de sûreté et de sécurité nucléaires et radiologiques (AMSSNuR) (NRA)

Nigeria	Nigerian Nuclear Regulatory Authority (NNRA) – (NRA)
Philippines	Philippine Nuclear Research Institute (PNRI) – DOST – (NRA)
Serbia	Serbian Radiation Protection and Nuclear Safety Agency – (SRBATOM) – (NRA)
South Africa	National Nuclear Regulator (NNR) – (NRA)
Tajikistan	Nuclear and Radiation Safety Agency (NRSA) – (NRA)
Tanzania	Tanzania Atomic Energy Commission (TAEC)
Thailand	Office of Atoms for Peace (OAP) – (NRA)
Turkey	Türkiye Atom Enerjisi Kurumu (TAEK) – (NRA)
Ukraine	State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) – (NRA)
Vietnam	Vietnam Agency for Radiation and Nuclear Safety (VARANS) – (NRA)

¹ Subject to adaptation as a function of training needs.

² TSO: technical safety organisation.

³ NRA: nuclear regulatory authority.

The T&T initiative in figures

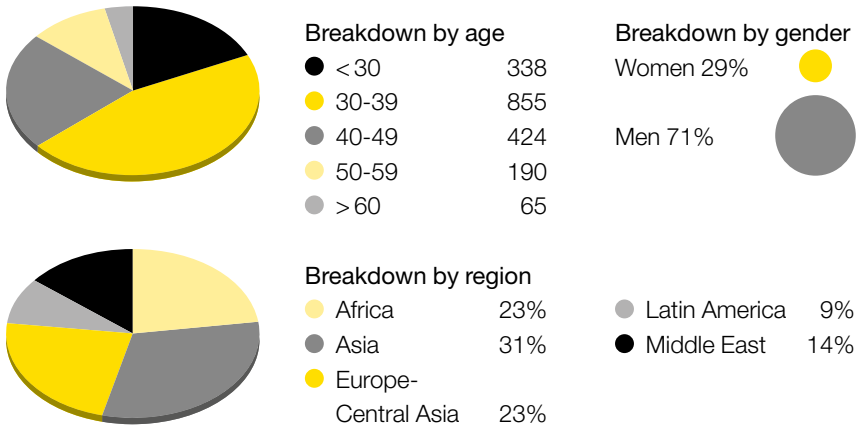
Trainers and Tutors



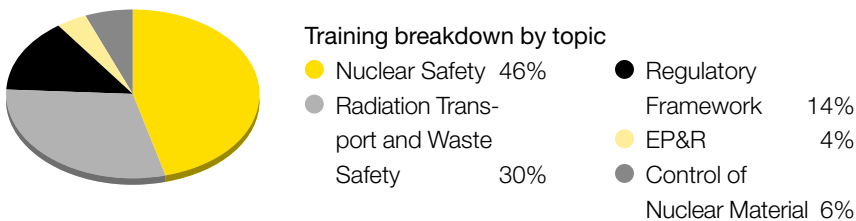
- Total number: 730 senior experts
- Representing 36 organisations, 73% TSO and 25% NRA, 2% other types of organisations, in 14 European countries

Trainees and Tutees

Total number: 1872



Training Breakdown by Topic



Volume of Training and Tutoring

<p>⚙️ Training</p> <p>13,400 student.days</p>	<p>⚙️ Tutoring</p> <p>3,200 student.days</p>	<p>⚙️ i.e.</p> <p>16,600 student.days over 6 years</p>
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“ This course will provide the basis for me to ensure the proper operation and improvement of the regulatory system in Ukraine. ”

Experience feedback from trainees and tutees

T&T courses provide postgraduate professional education to expert staff at regulatory authorities and technical support organisations from non-EU countries to help them reinforce their managerial capabilities and technical resources, and become self-reliant in executing their tasks and responsibilities. To date, more than 922 trainees and 45 tutees have built up their capacity through the T&T initiative in various areas such as nuclear safety, nuclear security, radiation protection, emergency preparedness and regulatory framework.

“In the tutoring on Decommissioning Safety, hosted by IRSN on behalf of ENSTTI as a part of the EU’s INSC programme, I gained in-depth knowledge on three major issues: the final shutdown of a research reactor, the safety of research reactor decommissioning, and the management of waste from decommissioning. In each subtheme, the tutoring starts with a brief but clear explanation by tutors followed by an assignment with a designated deadline. Before



reaching the deadline, the tutee presents his/her work, reviewed by the tutors who make remarks and suggestions. This process sequence is a good approach, as it helped me cover the different aspects and materials of the tutoring.

As a staff member of BAPETEN's Directorate for Inspection of Nuclear Installation and Nuclear Material, I am tasked with developing inspection guidance. My involvement in the tutoring has enhanced my knowledge and skill to develop such guidance especially at decommissioning stage. The tutoring has given me a solid basis in decommissioning issues that I intend to further develop in the future, in particular as regards characteristic survey and final survey issues that are not covered yet by the tutoring."

Joko Supriyadi

Directorate for Inspection of Nuclear Installation and Nuclear Material, Indonesian Nuclear Energy Regulatory Agency (BAPETEN)

"The INSC course entitled Radiation Protection helped me improve my knowledge of international standards, the main principles of radiation protection and nuclear installation safety, the facilities for radioactive waste, and other facilities that use radioactive materials. I learned about effective prevention of potential radiological hazards and accidents with radiological consequences, thereby keeping the exposure of the nuclear plant personnel and the public within the regulatory limits.

I think this course helped me develop and broaden my personal knowledge of the overall picture of international regulatory practices so that I may better contribute to ensuring radiation protection. This course, including an introduction to nuclear technology, radioactive waste management, decommissioning and environmental restoration, will provide the necessary basis for me to ensure the proper operation and improvement of the regulatory system in Ukraine."

Svitlana Gorieva

Chief Inspector, State Nuclear Regulatory Inspectorate of Ukraine (SNRIU)

Training & Tutoring Awards

Maro Aghazarian (Nuclear & Radiation Safety Centre (NRSC), Armenia) and Indah Annisa (BAPETEN, Indonesia), were honoured during the 2015 EUROSAFE Forum in Brussels with the European Commission Training & Tutoring Award for their top performance in the ENSTTI training courses.



Mrs. Dziyana Rakitskaya, Belarus, and Mr. Younes Sadeq, Morocco, received the Merit Award "Training & Tutoring" from Mr. Adriaan van der Meer and Mr. Henri Pauwels, European Commission, during the 2017 EUROSAFE Forum in Paris.



This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of ENSTTI and can in no way be taken to reflect the views of the European Union.

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DR European Commission,
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DR médiathèque IRSN,
Laurent Zylberman/médiathèque
IRSN

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ENSTTI for the European Com-
mission

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Design and production
Martin Brunner Associés

Printing
Atelier parisien d'arts graphiques
APAG

Printed on PEFC and FSC
certified Condat Silk paper

ISSN: pending

Read more on
[http://nuclear.jrc.ec.europa.eu/
europeaid-safety-tutoring/](http://nuclear.jrc.ec.europa.eu/europeaid-safety-tutoring/)

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