

News from the Division of Radiation, Transport and Waste Safety  
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## Focus on Asia and the Pacific

### A Newsletter issue for the region

The IAEA [Strategic Approach](#) to Education and Training in Radiation, Transport and Waste Safety (2011–2020)<sup>1</sup> provides a framework for establishing a sustainable education and training infrastructure in Member States that addresses national needs for building and maintaining competence in radiation, transport and waste safety that is consistent with IAEA Safety Standards.

For this purpose, IAEA’s General Conference<sup>2</sup> has encouraged Member States to develop a [national strategy](#) for education and training, underlining the fundamental importance of sustainable programmes for building competence in radiation, transport and waste safety, as a key component of safety infrastructure. Furthermore Member States that receive assistance from IAEA are obliged to apply [IAEA Safety Standards](#) which require, inter alia, governments to establish a **national policy and strategy for safety**, including **provisions for acquiring and maintaining the necessary competence nationally for ensuring safety**.

[IAEA’s Division of Radiation, Transport and Waste Safety](#) is assisting Member States to develop their own national strategies in Asia and the Pacific via the Regional project RAS/9/066 on “**Strengthening Education and Training Infrastructure, and Building Competence in Radiation Safety**”, which includes, inter alia, **Regional Workshops on National Strategies** for education and training in radiation, transport and waste safety (see below).

**IAEA’s Regional Training Centres (RTCs)** in Malaysia and Syrian Arabic Republic are key partners in the Asian and the Pacific region.

<sup>1</sup> Note to the IAEA Board of Governors and General Conference ‘2010/Note 44’.

<sup>2</sup> IAEA General Conference Resolution GC(56)/RES/9

# Building Sustainable Education and Training Infrastructures in Radiation Safety

The IAEA Secretariat and Member States in the Asia and the Pacific region have jointly designed the regional project RAS/9/066 “Strengthening Education and Training Infrastructure and Building Competence in Radiation Safety” (2012-2015).

## Objective

To strengthen the education and training infrastructure and build competence in radiation safety.

## Outcomes

Participating Member States have developed a national education and training strategy in radiation safety in line with the IAEA Strategic Approach 2011-2020.

Increased expertise in radiation safety consistent with the IAEA Safety Standards based on identified needs.

## Outputs

National strategy for education and training in radiation, transport and waste safety

Personnel are educated and trained in the relevant IAEA Safety Standards (including IAEA General Safety Requirements Part 3, [GSR Part 3](#)).

## Project Activities

Competence in radiation protection is strengthened through the attendance at the IAEA Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources (PGEC). These courses are hosted at the IAEA Regional Training Centres (RTCs) in the region (see page 5).

Train-the-Trainers workshops are organized for Radiation Protection Officers (RPOs). The Train-the-Trainers modality is aimed at developing communication skills as well as familiarizing participants with the IAEA training material with a view to building a core of national trainers in radiation protection.

Regional workshops are organized to disseminate the IAEA methodology to establish the national strategy.

*Radiation Protection Officer is defined in IAEA Safety Standards as a ‘person technically competent in radiation protection matters relevant for a given type of practice who is designated by the registrant, licensee or employer to oversee the application of relevant requirements’*

Expert missions can be requested by Member States to receive direct assistance and advice on how to establish a national strategy.

Experiences in developing the national strategy are shared during workshops and progress made is monitored via the education and training module (Thematic Safety Area 6: TSA6) of the Radiation Safety Information Management System (RASIMS).

*RASIMS is an IAEA web-based platform that enables Member States and the Secretariat to jointly collect, analyse and view information regarding the national infrastructure for radiation, transport and waste safety.*

Representatives of the RTCs participate in the annual meetings of the Steering Committee on Education and Training in Radiation Protection and Waste Safety (Newsletter issue No. 1) and the PGEC directors.

In Table 1 the time schedule of the project activities is summarized. The regional workshops (highlighted in green) organized in 2012 are presented on pages 3-4.

## IAEA Staff

Technical Officer: Mr Andrea Luciani (Department of Nuclear Safety and Security, Division of Radiation, Transport and Waste Safety); Project Management Officer: Mr Mohammed Munim Awais (Department of Technical Cooperation, Division for Asia and the Pacific).

Project Activities	Year			
	2012	2013	2014	2015
Education of personnel through the IAEA PGEC (Arabic, English)	✓	✓	✓	✓
Train-the-Trainers workshop for Radiation Protection Officers (Arabic, English)		✓		✓
Regional workshop to introduce IAEA methodology on establishing a national strategy (Arabic, English)	✓			
Expert missions to assist Member States to develop/refine the national strategy	✓	✓	✓	✓
Regional workshop to share experiences and report on progress in developing national strategy. Review and update of information related to education and training in RASIMS (English)		✓		✓
Participation of representatives of the RTCs in the annual meetings of: IAEA Steering Committee on Education and Training in Radiation Protection and Waste Safety; PGEC Directors	✓	✓	✓	✓

Table 1: Summary of project activities and time schedule (as out of January 2013).

# Regional Workshops on National Strategies

Two IAEA regional workshops on "Establishing a national strategy for education and training in radiation, transport and waste safety" were organized for the Asian and the Pacific region in 2012, one in English and the other one in Arabic.

## Background

According to the IAEA [Strategic Approach](#) to Education and Training in Radiation, Transport and Waste Safety 2011–2020, Member States are expected to assume ownership of the process for establishing sustainable education and training infrastructures to achieve the desired level of competence. The sustainability will be ensured through the development and implementation of national strategies to strengthen education and training in radiation, transport and waste safety, considering the needs at national level and optimizing the available resources across all the Member States in the region. An approach based on four-interlinked phases (Figure 1), where the outcome of one phase is the starting point for the next phase, will be adopted: identification of the training needs; design of a national training programme; development and implementation of the national training programme; evaluation and feedback.

## Location, Date, Language

- Jordan, in collaboration with the Jordan Nuclear Regulatory Commission, 4-6 June 2012, Arabic.
- Thailand, in collaboration with the Office of Atoms for Peace, 24-26 July 2012, English.

## Purpose

- To provide Member States with a general understanding of the IAEA methodology for developing a national strategy for education and training in radiation, transport and waste safety
- To familiarize Member States with the relevant IAEA safety standards and guidance, providing



Fig.1: Phases to establish and maintain a national strategy for education and training in radiation protection.

requirements for education and training in radiation safety and supporting the development of national strategies;

- To collect from Member States preliminary information for the development of national strategies, including regulatory framework for education and training, human resources and training infrastructures in radiation safety

## Scope and Nature

The workshops were in plenary sessions and in working groups. Experts gave presentations and reviewed the work of the breakout groups. The participants gave presentations on national regulatory frameworks for education and training and on human resources and training infrastructures in the field of radiation safety.

The main reference documents for the workshops (Figure 2) were:

- Governmental, Legal and Regulatory Framework for Safety, IAEA General Safety Requirements Part 1, GSR Part 1
- Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards - Interim Edition, IAEA General Safety Requirements Part 3, GSR Part 3
- Building Competence in Radiation Protection and the Safe Use of Radiation Sources, IAEA Safety Guide, RS-G-1.4
- Draft guidance on the IAEA methodology for establishing a national strategy for education and training in radiation, transport and waste safety.

One regional workshop in English is planned for 2013 in Malaysia on 17-20 June 2013 for all the Member States in the region.



Fig.2: Reference IAEA Safety Standards and documents for the workshops: GSR Part 1, GSR Part 3, RS-G-1.4, Draft guidance for establishing a national strategy.

### Participants

In total 23 participants from 16 countries attended the workshops. The lecturers and facilitators were from the IAEA Regional Training Centres in the region (Malaysia and Syrian Arabic Republic), plus IAEA staff.

#### Workshop in Thailand (English):

Workshop Facilitators		
Muhamad B. Lebai Juri (Malaysia), John Wheatley (IAEA)		
Participants		
	Indonesia	RINDAYANI, Kanadiato Rini
	Cambodia	SRENG, Pengsong
	Malaysia	NURDIN, Nuriati Binti
	Mongolia	ZUZAAN, Damdinsuren
	Myanmar	MYINT, Aung
	Nepal	REGMI, Narayan Prasad
	Pakistan	REHMAN, Syed Shakeel Ur
	Sri Lanka	DE SILVA, Uththama W. K. Haryantha CHOBPRAW, Rattapanom NANTAJIT, Danupon PERMTERMSIN, Chalermisin SUPARIT, Nitaya
	Thailand	
	Vietnam	NGUYEN, Quoc Anh

#### Workshop in Jordan (Arabic):

Workshop Facilitators		
Mohammad Hassan Kharita, (Syrian Arabic Republic)		
Participants		
	Bahrain	YAHYA, Jameel Jaffar
	Iraq	AL-EQABI, Assim Mahdi  ABU MHAREB, Mohammad ALBREK, Mustafa ALOMARI, Ahmad ALTAHER, Shiran
	Jordan	
	Syrian Arabic Republic	ALHAJJI, Eskander TAKEYEDDIN, Moiffak
	United Arab Emirates	ALYAMMAHI, Abdulla
	Yemen	AL-ASBAHI, Abdulmoin

#### Workshop summary

Member States were informed about the IAEA methodology for establishing a national strategy for education and training. The presentations included preliminary information on which to start identifying needs i.e.: data on practices and activities in each State, as well as national legislation and regulations for education and training in radiation, transport and waste safety. The presentations subsequently provided an important source of information that was used to update the profiles of the Member States in RASIMS for Thematic Safety Area 6 on education and training. Participants also reviewed the IAEA draft guidance on a methodology to establish a national strategy, and proposed a road map for national stakeholders when establishing a national strategy.



Fig.3: Photographs from the workshops: group photo in Jordan (left) and work in groups in Thailand (right).

# IAEA Regional Training Centres

The IAEA Regional Training Centres (RTCs) for education and training in the field of radiation protection are centres that provide training in collaboration with IAEA. Within the IAEA Strategic Approach 2011-2020 the RTCs are assigned a key role in the development of competence in the region. This includes collaborating with IAEA to disseminate the methodology for establishing a national strategy for building competence through education and training to Member States in the region. To become an IAEA RTC, the centre has to meet the criteria established by the Steering Committee on Education and Training in Radiation Protection and Waste Safety. Additionally, the centre must host an IAEA Education and Training Appraisal (EduTA) mission and, on the basis of the outcomes of the mission, a long term agreement is signed between IAEA and the authorities of the Member States hosting the RTC. The RTCs in Asia and the Pacific are hosted in Malaysia and the Syrian

Arabic Republic (Figure 4). They provide training and support to Member States in English and Arabic, respectively.



Fig.4: IAEA Member States hosting the Regional Training Centres for education and training in radiation protection.

## MALAYSIA Malaysian Nuclear Agency (Nuclear Malaysia)

### Introduction

Established in 1972, Malaysian Nuclear Agency (Nuclear Malaysia) is a national organisation for research and development under Ministry of Science, Technology and the Innovation Malaysia, focusing on the application and promotion of nuclear and related technologies for national development. Our approach has been customer focused, and remains in line with the mainstream of national socio-economic agenda. Thus Nuclear Malaysia's activities support the short, medium and long-term national developmental programme, towards the generation of knowledge, wealth creation and societal well being.

The Training Centre of Nuclear Malaysia has been entrusted to enhance the application of nuclear technology in various socio-economic sectors i.e. industry, medical, agricultural and the environment. In this conjunction, skilled manpower should be developed and able to participate in various activities to support national development agenda. In executing the functions, the centre has sufficient resources in term of manpower, finance and facilities. In addition, the centre is backed by a pool of experienced and skilled personnel from other divisions in Nuclear Malaysia and also from our associates or partners to ensure smooth implementation of training programme. Furthermore we have established smart partnership with relevant organisations and ministries such as Ministry of Health, Ministry of Human Resources and Ministry of International Trades which have common interests in training activities in our effort to achieve shared vision, mission and goals to enhance

socio-economic development, particularly in the era of knowledge-based economy.

The training products offered by the centre are clustered into 6 main sectors, as follows:

- Radiation Safety and Health (including PGEC)
- Non-destructive Evaluation
- Medical X-ray
- Environmental Safety and Health
- Technomanagement
- Instrumentation and Engineering



Fig 6: Participants in the IAEA PGEC during a technical visit to the research reactor.

The Training Centre has been certified with Quality Management System ISO9001:2008 to ensure services rendered are consistent, uniform, and are of acceptable quality.

### Accreditation

The Centre has also been recognised as an 'accredited training and examination centre' by various authorities and organisations that include: Atomic Energy Licensing Board, Department of Skill Development - Ministry of Human Resources, Ministry of Health, Ministry of

International Trades, Ministry of Finance and Malaysia Medical Council-Malaysia Medical. Recently, the Training Centre has also been accredited by the Department of Safety and Health (DOSH) and AELB to grant the Continuous Education Program (CEP) points on selected courses.

### Physical infrastructures

The centre is well equipped with classrooms, laboratories such as the radiochemistry and environmental laboratory, Standard Secondary Dosimeter Laboratory, plants such as the Sinagama Complex (a gamma irradiation facility), the Electron Beam Machine (EBM) and the TRIGA Puspatti Research Reactor. The Centre is also equipped with a library where a wide range of reading materials and references are available. In addition, the centre is supported with IT facilities such as wireless internet. A web-based application for online training (course-on-demand) has been established to meet the customer needs and demands.



Fig. 5: Laboratory exercise at radiochemistry and environmental laboratory.

### Human resources

To further strengthen human resources, the Centre has a medium and long term strategic plan to improve the training, especially in delivery performance. It is the

## SYRIAN ARABIC REPUBLIC Atomic Energy Commission of Syria (AECS)

### Introduction

Due to the rapidly increasing demand for energy and nuclear technology and to the insufficiency of knowledge, experience, resources, and facilities in the nuclear knowledge management, the Atomic Energy Commission of Syria (AECS) has strengthened education and training in radiation protection since early 90's. AECS established the Nuclear Science and Technology Training Center (NSTTC) in February 2010. The strategy of the NSTTC is to meet the training plans and needs of the AECS, the national government

Training Centre policy that speakers and facilitators must be qualified, accredited and comply with a certain standards and requirements during selection. This is also well addressed in the QMS ISO9001:2008. The Malaysian government policies also state that, it is compulsory for government servants to attend training courses on at least 7 complete days per year.

### Highlights

The Training Centre is on track to further improve its infrastructure towards achieving medium and long term strategic goals. The Centre, in collaboration with the IAEA, has been organizing the IAEA PGEC course since year 2000. A total of 199 participants have attended the course with an average of 20 international participants for each course. A PGEC facebook alumni has been established to follow up the academic and job advancement as well as to encourage networking. The centre also organizes other international training courses, such as the on-the-job training for Ministry of Health of Brunei. The center is also in continuous efforts, acquiring more accreditations from relevant accreditation bodies to enhance customer trust and reputation.



Fig 7: Practical session during a training course.

and private sectors, in addition to the Arab and international organizations. It aims to establish a dynamic structure capable of studying and assessing the national training needs and plans to build training capacity to meet these needs.

The IAEA Postgraduate educational course on radiation protection and safety of radiations sources (PGEC) was one of the major activities hosted by the AECS. The purpose of the PGEC is to qualify young graduates to a postgraduate level and to prepare them to assume responsibilities within the radiation and waste safety infrastructure of their countries.

### IAEA Postgraduate educational course on radiation protection and safety of radiations sources

AECS and the IAEA in collaboration with the Higher Institute of Applied Science and Technology (HIAST) and with the University of Damascus have upgraded

this PGEC training course in 2000 into one full academic year (Post Graduated Diploma), and kept it running until 2006. This course was then upgraded to a Master degree course in 2006 and has been running till now. An additional Diploma course for one academic year was opened in 2011 at Damascus University.

The two courses are based on the IAEA standard syllabus and consist of lectures, experimental works, discussion sessions, laboratory and field exercises, and examination. The M.Sc. course consists of two years, the first one is a teaching program and the second is for a research project. While the Diploma course is one academic year with teaching program and short project. Diploma and Master Certificates are signed by the Minister of Higher Education.

The participant should be a B.Sc. holder in one of the following disciplines: physics, physics and chemistry, radiation physics, physics and mathematics, medical physics, nuclear physics or nuclear engineering, biophysics, physics engineering. The grade should be at least 'Good'. The selected participants should pass a standard university English exam. The practicals are grouped as follows: 20 laboratory experiments, 10 demonstrations, scientific visits to secondary standard dosimetry laboratory, reactor, cyclotron, chromosomes lab., irradiation facility, gamma cell and hospitals (therapy, nuclear medicine, diagnostic departments). Scientific trip to oil and gas industries, NORM (Naturally Occurring Radioactive Material) yards and NDF (NORM Descaling Facility) are included in the activities of the PGEC.



Fig. 8: PGEC Participants visiting NORM Descaling Facility.

Research project (12 weeks): each participant has to go through a practical research project in a research centre or a hospital by the end of which the participant will have to submit a thesis and present his/her work in an oral examination. The thesis and the oral presentation will be evaluated by an examination committee.

In total, 357 Arab students (from 18 different countries) have been through these PGECs; about 50% of them are from Syria (Figure 9).

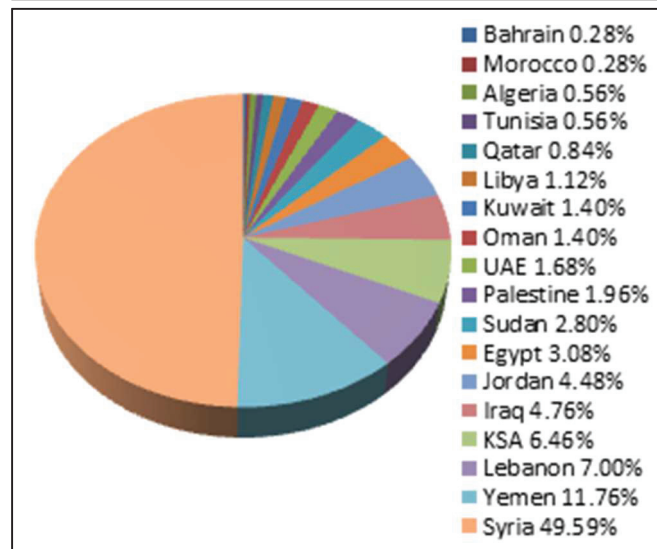
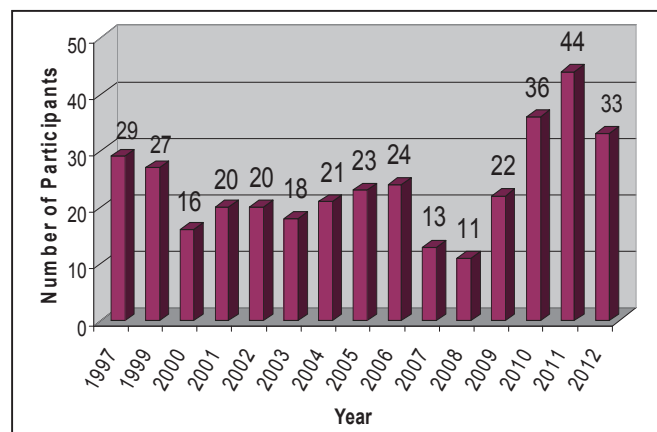


Fig. 9: Number of PGEC participants (top) and distribution of their origin country (bottom).

### Nuclear Science and Technology Training Center (NSTTC)

The NSTTC of the AECS is planning to promote, upgrade and enhance training in the different fields of the peaceful applications of the atomic energy and to develop a wide spectrum of nuclear education and training programmes for capacity and infrastructure building including the followings:

- Nuclear safety and security;
- Non-destructive testing (NDT);
- Quality control and quality assurance;
- Medical physics;
- Training course for radiation protection technicians;
- Radiation protection in the industrial applications;
- Radiation protection in the medical applications;
- Radiation inspectors (Regulators);
- Radiation protection advisors (RPA);
- Radiation protection officers (RPO).

Training has become one of the valuable services AECS is gladly offering to the national institutions especially in radiation protection and safety, and to regional member states through the IAEA training courses, fellowships and scientific visits. Courses hosted by the AECS during 2011 are: 1 international, 1 regional, 4 for Arabic speaking countries, 39 national,

and 7 internal (for AECS staff) on radiation protection and waste safety.

### **Physical infrastructures**

The NSTTC is currently situated at the headquarters of the AECS downtown Damascus. Six well equipped lecturing rooms are available (35 students each), furnished with all needed facilities (PC, overhead projector, data show, white board, and WLAN service). One e-learning room provided with 12 PCs, and an auditorium that can accommodate up to 250 persons are also available. A secretariat office with internet access is made available for the convenience of lecturers and students.

As for the practical part of the training courses, a well-equipped laboratory for radiation protection experiments is also available next to the lecturing rooms. More specific training in radiation protection is carried out in the Protection and Safety Department of the AECS.

### **Human resources**

The NSTTC with its qualified and adequate staff (15 full time and about 100 part time staff including PhD and MSc. holders) is responsible for managing, and implementing the training courses. It ensures the smooth running and the high quality services of the

courses and that all needs of the trainees and lecturers are met; including site seeing tours, confirming flights reservations for participants in the courses, in addition to providing entry visa in some cases.

### **Highlights**

Training provided covers the following stakeholders:

- AECS staff members.
- The national public and private sectors (universities, hospitals, nuclear medicine centres), especially in radiation protection and safety.
- Trainees, fellows and scientific visitors from IAEA and Arab countries and Asia region.
- Trainees from international organizations.

The main partners are:

- Ministry of health (MOH).
- Ministry of higher education (MOHE).
- Ministry of industry (MOI).
- Ministry of environment (MOE).
- Ministry of labour (MOL).
- Arab atomic energy agency (AAEA).
- International centre for genetic engineering and biotechnology (ICGEB).

## **Impressum**

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