



IAEA

60 Years

Atoms for Peace and Development

Train the trainers for Radiation Protection Officers of Medical and Industrial Facilities, as part of the IAEA's approach to support Member States in building competence

A. CRISTOBAL, A. LUCIANI, J. WHEATLEY

Division of Radiation, Transport and Waste Safety

Department of Nuclear Safety and Security, International Atomic Energy Agency (IAEA)

Vienna International Centre, PO Box 100, 1400 Vienna, Austria

Outline

Introduction

- *IAEA Statutory Safety Functions*
- *Strategic approach to E&T in Radiation Safety*

Train-the Trainer for Radiation Protection Officers

- *Overview of the TTT RPO workshops*
- *Impact evaluation*

Other Train-the Trainer Activities

- *PGEC : TTT module*
- *Trainers of PGEC*

Conclusions

IAEA Statutory Safety functions

Member States receiving technical assistance are obliged to apply the IAEA Safety Standards

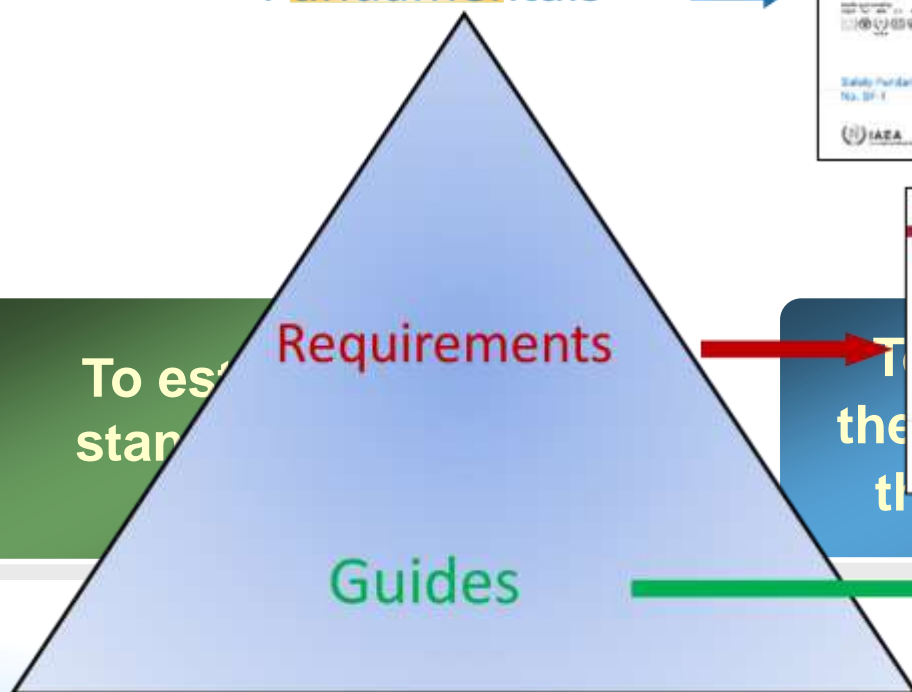
IAEA Functions in Radiation & Waste Safety (Article III.A.6)

Fundamentals



Underlying principles (aimed at politicians and regulatory bodies)

To establish the standards



Requirements



Specific obligations and responsibilities ("shall")

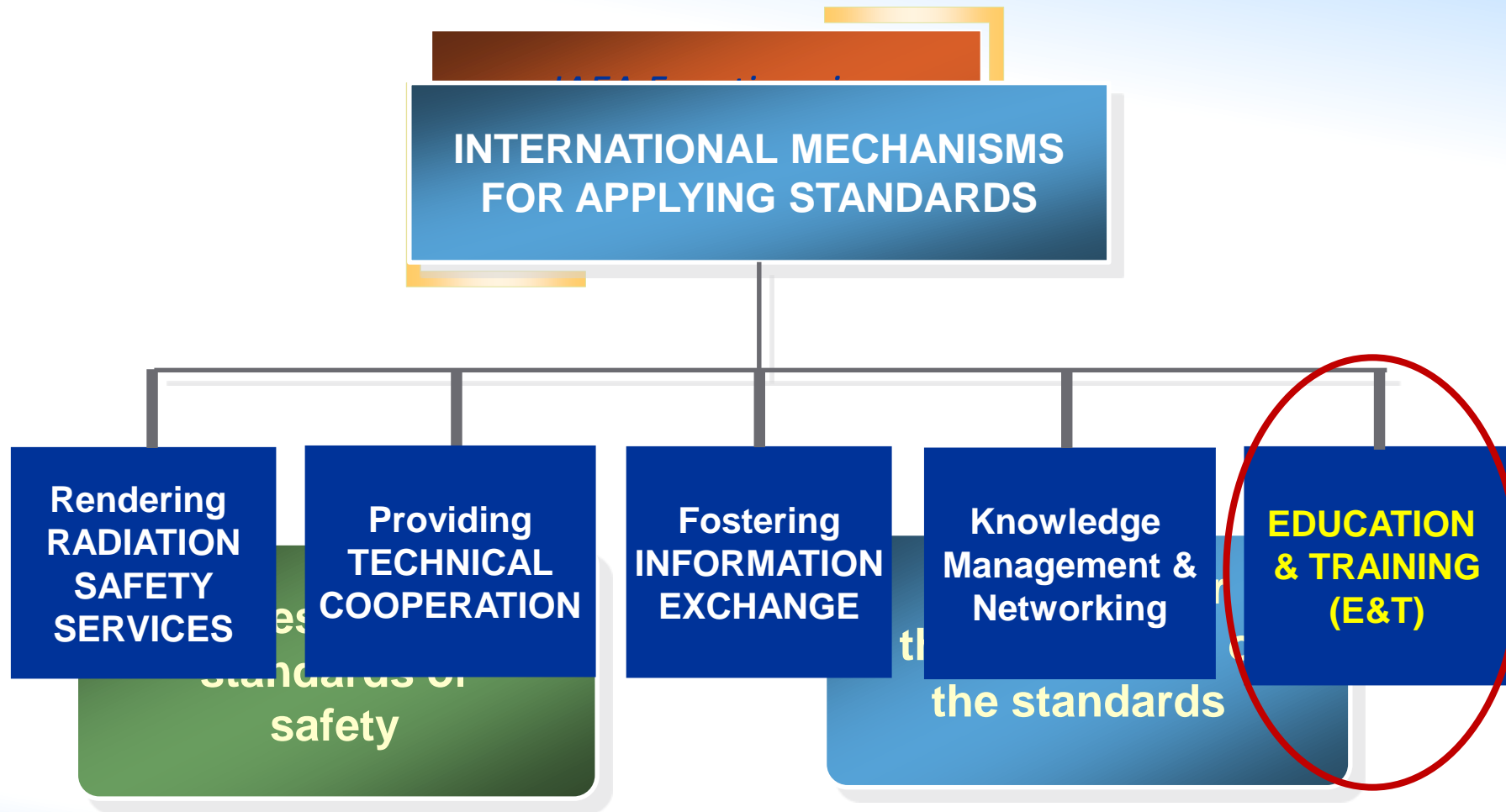
To ensure the implementation of the standards

Guides



Recommendations to support requirements ("should")

IAEA Statutory Safety functions



E&T activities for Member States



Outline

Introduction

- *IAEA Statutory Safety Functions*
- *Strategic approach to E&T in Radiation Safety*

Train-the Trainer for Radiation Protection Officers

- *Overview of the TTT RPO workshops*
- *Impact evaluation*

Other Train-the Trainer Activities

- *PGEC : TTT module*
- *Trainers of PGEC*

Conclusions

Radiation Protection Officer (RPO)

in IAEA safety standards

- 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
- **Competence** needed depends on the functions: Ability to supervise radiation safety in the **type of facility**
- **Educational level**: minimum secondary level (tertiary level appropriate for specific practices).
- Experience: on the **specific practice**
- Skills and attitudes requirements: **communication**, analytical skills

- **Training**: Core (foundation radiation protection) + Practice specific

There is likely to be a large number of RPOs that need to be trained, and this lends itself to the **Train-the-Trainers (TTT) approach**

TTT RPO workshops

- TTT RPO purpose
 - Provide theoretical knowledge of roles, duties & competence of RPO (medical + industrial);
 - Practical skills to design/ deliver training sequences on related topics; in order to

Act as **trainer of RPO in their Countries**

- Expected outputs
 - Support **sustainable** training for RPOs
 - Improvement **radiation safety infrastructure** in Member States

- Learning Objectives
 - **Understand** role/duties of the RPO industrial/medical
 - **Be familiar with** competencies needed for RPO based on the IAEA syllabus for RPO
 - **Be able to select/use** training methods for adult learners
 - **Enhance** presentation/communication skills
 - **Demonstrate** learning by designing/delivering a training sequence

27

Workshops
(2012 –
March 2019)



As of March 2019

466

Participants
100
Member States



- Latin America
(Spanish)
- Asia & the Pacific
(English & Arabic)
- Europe (English &
Russian)
- Africa (English &
French)





Continuous
Implementation
of **Lessons
Learned** from
previous
workshops

TTT RPO workshops: Structure

- Technical Part (Radiation Protection)
- Soft skills
- Exercises

- Very participative
 - About 25 participants per workshop

Regional train the trainers course for Radiation Protection Officers (RPOs) of medical and industrial facilities
3 - 7 October 2016
Colombo, Sri Lanka
PROGRAMME

Monday, 3 October

Aug. Time	Topic
08:30	Registrations
09:00	Welcome remarks National Anthem and lighting of the traditional oil lamp Welcome Address : Saseo-Hasegawa, Chairman SLAERC Opening Remarks : Amparo Cristobal, IAEA Vote of Thanks : Anil Rajapala Alakkalanne Ujanage, Course Director Group Photo
10:00	Coffee break
10:30	Administrative topics on the course for participants Anil Rajapala Alakkalanne Ujanage
10:40	Aims and objectives, overview of program Amparo
11:00	Introductions of experts and participants Gaudie Sadapalaak, Liz Grindrod All Participants
11:30	IAEA Key Requirements Amparo
12:00	Lunch

IAEA TTT, Sri Lanka, October 2016 First Draft Page 1/4

Tuesday, 4 October

Aug. Time	Topic
09:00	Exercise 1 • Short presentations Participants
11:00	Coffee break
11:30	IAEA Training Packages • Exercise: use of the CLP4NET platform Amparo
12:00	How adults learn • Learning theories • Application in RP training Liz
13:00	Lunch

IAEA TTT, Sri Lanka, October 2016 First Draft Page 2/4

Wednesday, 5 October

Aug. Time	Topic
14:00	Course design and lesson planning • Objectives and the target audience • The learning methodology • Teaching and learning activities • Assessment Liz
15:00	Coffee break
15:30	Exercise 2: • Planning a learning package Participants Assessed from Liz Gaudie, Amparo
17:30	Summary of topics of day 3 CLOSE

Thursday, 6 October

Aug. Time	Topic
09:00	The Group Exercise Liz
09:30	Exercise 3 • Design of Group Exercises Participants Assessed from Liz Gaudie, Amparo
11:30	Lunch

IAEA TTT, Sri Lanka, October 2016 First Draft Page 3/4

Thursday, 6 October

Aug. Time	Topic
12:00	Communicating with a group • Body language • Using the voice • Creating the right atmosphere • Q and A / Learning feedback Liz
13:00	Teaching aids Gaudie
14:00	Coffee break
14:00	Preparing for exercises 4 Liz Gaudie, Amparo
17:30	Summary of topics of day 4 CLOSE

IAEA TTT, Sri Lanka, October 2016 First Draft Page 4/4

Dedicated space in IAEA CLP4NET

IAEA's Cyber Learning Platform

allows users to find educational resources
support instructor-led courses
audience

Space in CLP4NET provides to

- TTT RPO workshops
- Future training activities of
- Networking platform

Train the trainers workshop for Radiation Protection Officers



Powerpoint Presentations, Reference and Material for exercises

Here, access the course's presentations & materials added on this platform to support you as you learn and when creating you own trainings

PRESENTATION, EXERCISES OF THIS COURSE (select the icon, discover the related material*)


Day #	Technical	Soft Skills	Exercises	Conclusions	Other
1					
2					
3					
4					
5					

VIRTUAL LIBRARY OF RESOURCES

	Syllabus & Training for RPOs	IAEA Reference Materials & Useful web pages for trainers	Other reference Materials
Documents:			
Websites:			

*Note: The "Technical" PPTS will be available BEFORE they are presented | The "Soft-Skills" PPTS will be available AFTER they are presented.

Quizzes




1. Why do we need? (What do you need to understand)

2. What you will be able to do?

3. How to do?

4. How do you know you did the work's objective?

5. Technical Skills

6. Case for ethics to reflect: question linked to ethics

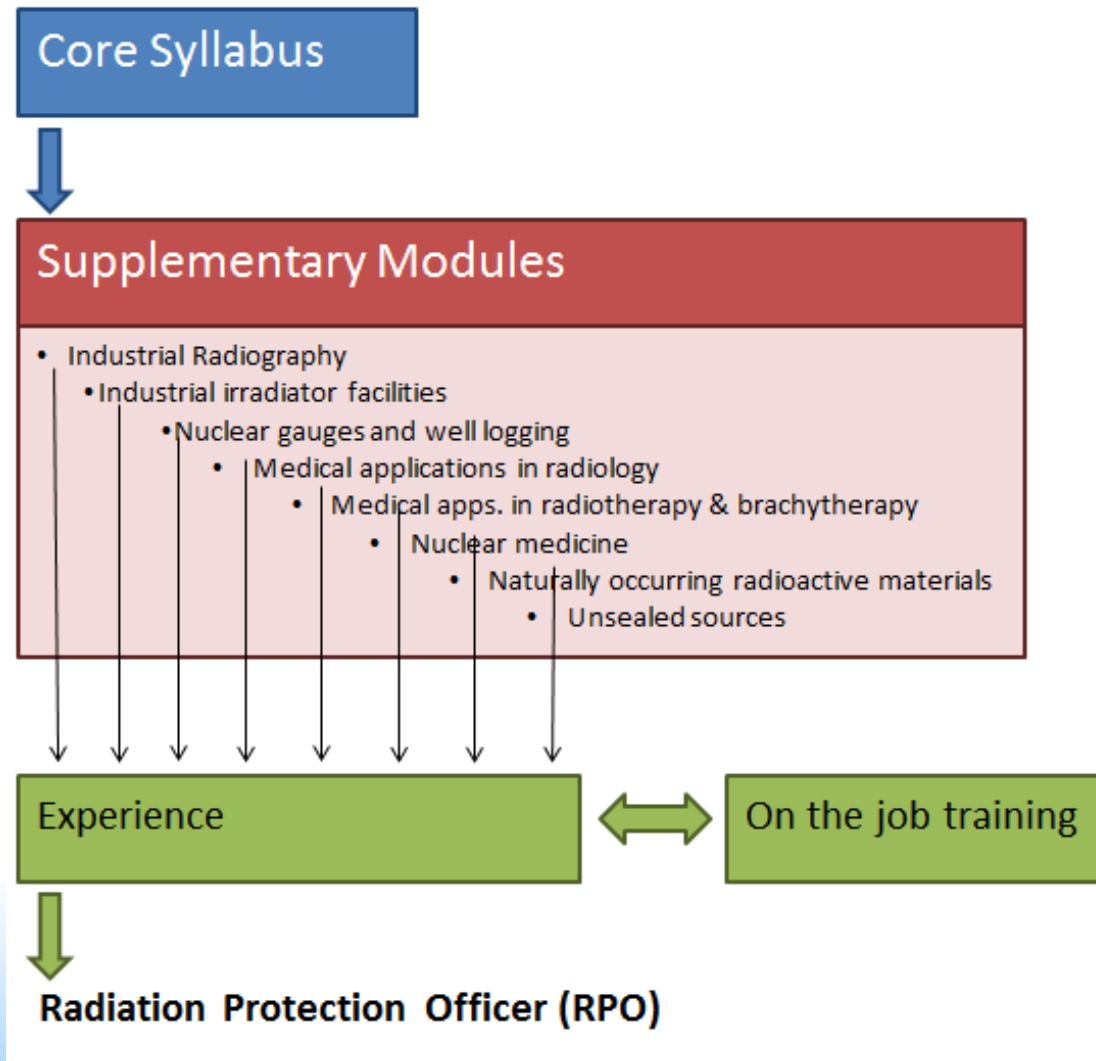
7. Final test

8. We have arrived at the end of the journey

9. Please come back: We will contact you for TTT year

Technical Part (Radiation Protection)

The syllabus is divided into 2 parts:



Technical Part (Radiation Protection)

Technical Quiz

Which of the following activities are duties of the RPO?

One or more answers might be correct

- a. As appropriate, acts or gives advice on patient dosimetry ❌ Incorrect
- b. Supervision of work to ensure compliance with local rules and national regulations ✅ Correct
- c. Providing new workers with an appropriate introduction to local rules and procedures ✅ Correct
- d. Carrying out, or supervision of, workplace monitoring ✅ Correct
- e. Supervision of arrangements for workers individual monitoring ✅ Correct

The correct answer is: Supervision of work to ensure compliance with local rules and national regulations, Providing new workers with an appropriate introduction to local rules and procedures, Carrying out, or supervision of, workplace monitoring, Supervision of arrangements for workers individual monitoring

Redo question

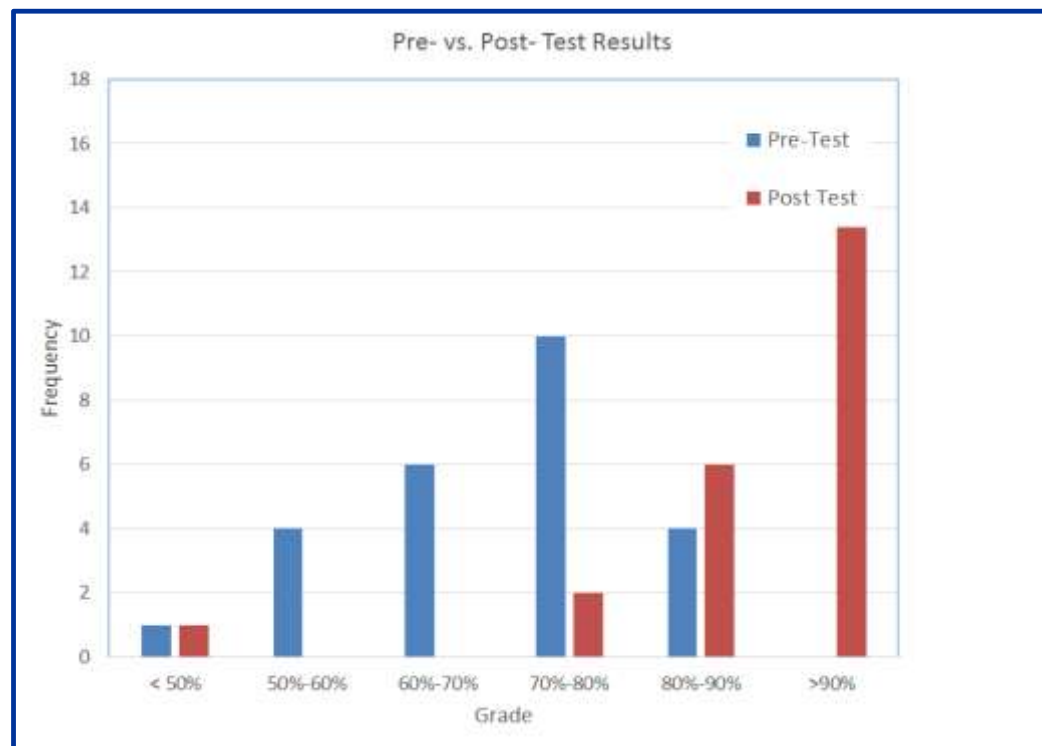
Elements of Assessment of participants

Soft Skills

- How adults learn
- Course design and lesson planning
- Communicating with a Group
- Teaching Aids

- Pre and post training test:

Elements of Evaluation of the workshop & Assessment of participants



Group and individual exercises:

- **Design and implementation of training**

- **Objective:** become familiar with the storyboard technique, plan a training sequence, produce associated written materials and deliver training sequences

- **Elements of Assessment of participants**

Written individual feedback is provided by lecturers & participants on:

- Fulfilment of objectives
- Clear delivery and quality of audio-visual ppt
- Engage the audience
- Technical content



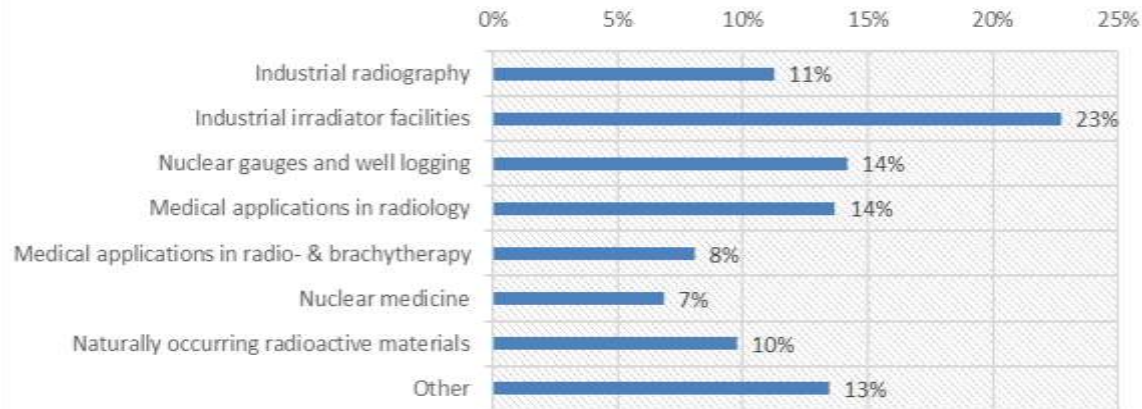
- Collection of data based on **self-assessment**
- **Objectives** of the **impact evaluation** are to review:
 - how many RPO/workers participants have been subsequently trained and in which area;
 - if their performance as a trainer of RPOs had improved;
 - to what extent they applied what they had learned during the workshop
 - when they were able to do this;
 - if they have not applied what they learned, what might be the reason

- Initiated in 2016
- performed for 15 workshops (276 participants): 199 of them replied (72%)

- **4 926 RPO/workers** have been subsequently trained by participants of TTT RPO

Results of the impact analysis

Areas of training



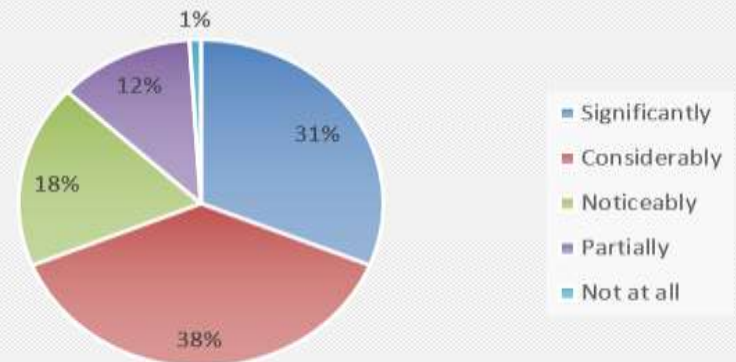
Areas of training :

- **48%** industrial area
- **29%** medical area
- **23%** other

Performance as a trainer of RPOs:

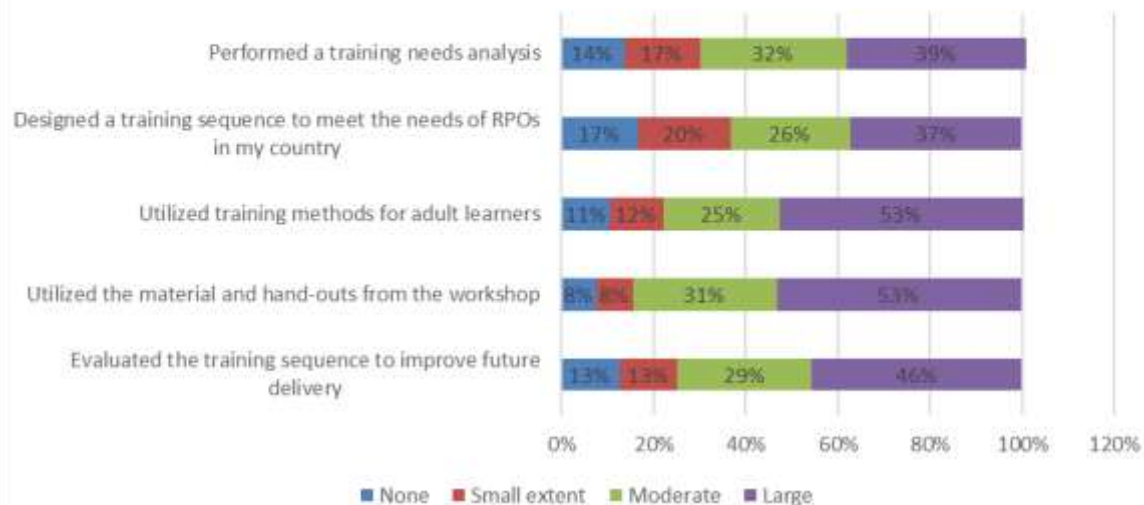
- **69 %** of participants has improved **significantly/ considerably**
- **30%** has improved noticeably/partially
- **1%** didn't have the opportunity to train

Improvement in performance as a trainer of RPOs or workers after the WS



Results of the impact analysis

Extent to which knowledge and skills gained during the IAEA WS have been applied

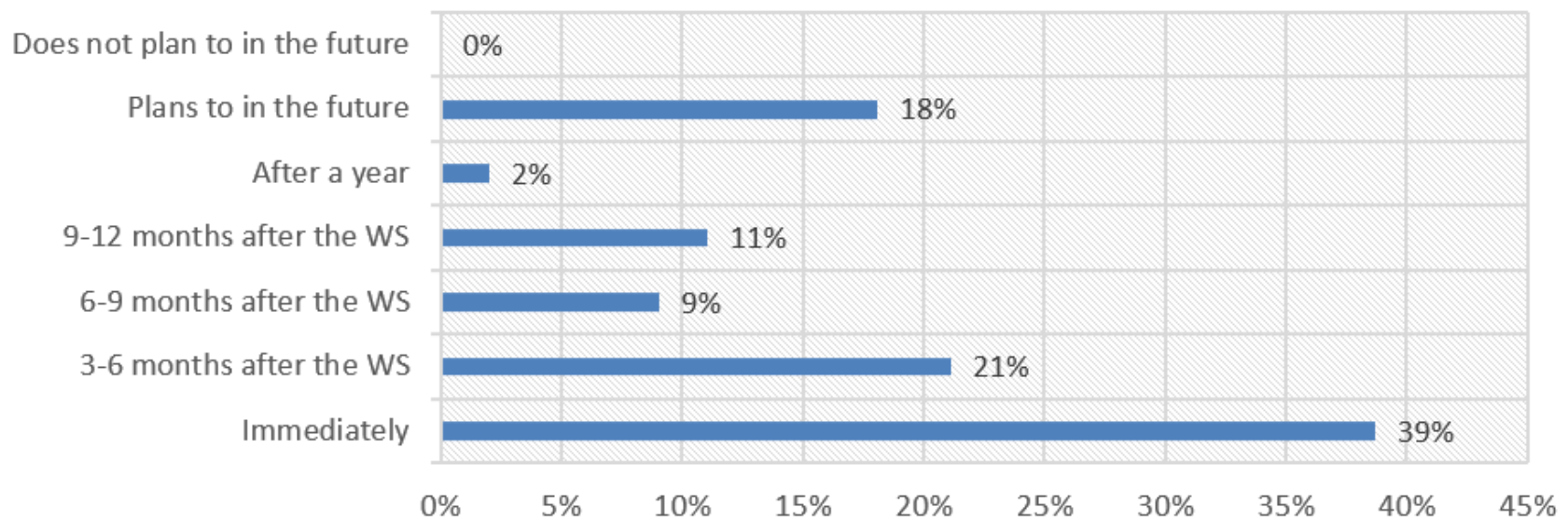


- **53%** of participants used the material and hand-outs from the workshop;
- **53%** utilized training methods for adult learners;
- **46%** evaluated the training sequence to improve future delivery;
- **39%** performed a training needs analysis;
- **37%** designed a training sequence to meet needs of RPO in their countries

to a large extent

Results of the impact analysis

When was the acquired knowledge and skills applied



- **80%** within 1 year
- **All participants** planned to apply what they learned in the future

Outline

Introduction

- *IAEA Statutory Safety Functions*
- *Strategic approach to E&T in Radiation Safety*

Train-the Trainer for Radiation Protection Officers

- *Overview of the TTT RPO workshops*
- *Impact evaluation*

Other Train-the Trainer Activities

- *PGEC : TTT module*
- *Trainers of PGEC*

Conclusions

Other Train-the-Trainers activities

- **TTT Module PGEC** (Post Graduate Educational Course in Radiation Protection and Safety of Radiation Sources)

Objective:

- Students develop didactic skills to be able to organize and implement **national training courses** in their own countries
- They apply the didactic skills to the oral presentation of their research project

- TTT for **new lecturers of the PGEC**

Objective:

- perform an **analysis of training needs** to prioritize activities and tailor their training sequences to the students of the PGEC;
- **design** their training sequences from the PGEC syllabus creating lesson plans;
- select and utilise interactive training **methods for adult learners**;
- enhance their **presentation** and **communication skills** and demonstrate their learning by delivering their training sequences utilizing effective presentation and communication skills.

Outline

Introduction

- *IAEA Statutory Safety Functions*
- *Strategic approach to E&T in Radiation Safety*

Train-the Trainer for Radiation Protection Officers

- *Overview of the TTT RPO workshops*
- *Impact evaluation*

Other Train-the Trainer Activities

- *PGEC : TTT module*
- *Trainers of PGEC*

Conclusions

Conclusions

- IAEA offers **TTT workshops** for **RPO of medical and industrial facilities** to Member States to support the sustainable training of key personnel to supervise radiation safety in the facilities
- **466 trainers of RPO** were trained in 27 workshops, that have been evolving to include lessons learnt (feedback from lecturers and participants). Due to a high demand in all regions, IAEA has increased the number of TTT RPOs, and are now offered in English, French, Russian, Spanish and Arabic.
- TTT RPO workshops have been successful and facilitated the fulfilment of the learning objectives for the participants. A space in the CLP4NET platform complements the workshops with useful **information** that participants may use for **future training activities** and a platform for **communication**

Conclusions

- Participants have been responsive to the **impact questionnaires**. According to the analysis of the **199 replies** received, the workshops had a considerable impact on their performance as a trainer in radiation safety. Participants have trained **4.926 RPO/workers** in a range of training events
- Participants have performed an **analysis of training needs** and an **evaluation of their training sequences** to improve future delivery and used training methods for adult learners
- The Train-the Trainers methodology is also offered to the **lecturers** of the **PGEC** in order them to improve their training performance as well as to the **students** of the PGEC, with the objective that they can design national training programmes in their Countries and apply the didactic skills to the presentation of their work project



IAEA

60 Years

Atoms for Peace and Development

Thank you very much for your attention!