IMPACT EVALUATION OF IAEA’S POSTGRADUATE EDUCATIONAL COURSE IN RADIATION PROTECTION AND THE SAFETY OF RADIATION SOURCES

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Outline

Overview of the PGEC
• Objectives, Syllabus, Hosting organizations
• Blended Learning approach, Assessment and Evaluation mechanisms

Results of the impact evaluation
• Participants’ professional development (individual level);
• Utilization of knowledge and skills towards strengthening radiation safety infrastructures (organizational and/or national level)

Conclusions
Overview of the PGEC

Course objectives

• To meet the needs of professionals at graduate level, or the equivalent, to acquire a sound basis in radiation protection and the safety of radiation sources, and;
• To provide the necessary basic tools for those who will become trainers in radiation protection and the safe use of radiation sources in their countries.
• Syllabus published as Training Series no.18 (pending to be published)
Overview of the PGEC

- 12 parts with a modular structure
- Duration: 5.5 months
- Syllabus based on the IAEA Safety Standards
- Delivered in English, Arabic, French, Russian, Portuguese and Spanish
Overview of the PGEC

- Regularly delivered in nine different Regional Training Centres (RTCs)
- Argentina, Algeria, Belarus, Brazil, Ghana, Greece, Malaysia, Morocco and Syria
Overview of the PGEC

PGEC is structured with **Activities** including:

- **didactical activities**
  - lectures, practical exercises (laboratory exercises, demonstrations, technical visits, case- and self-studies), work project

- **assessment activities**
  - a structured activity by which the competencies of an individual are measured. Assessment is often conducted at the end of a training session to determine the extent to which trainees have met the learning objectives

- **evaluation activities**
  - a series of activities used to measure the adequacy and effectiveness of a training session, or course

PGEC is delivered employing a **Blended learning (BL)** approach including

- a **traditional classroom component** coupled with
- **distance learning components** (typically e-learning)
TS7  Changed from Module to Part, spelled out TTT and WP.  
Changed background color for better visibility, like in the one you used for the TC reports.  
TICEVIC, Sabina; 09.05.2017
90 COURSES TOTAL

PARTICIPANTS TOTAL +1600

110 MEMBER STATES

FIRST PGEC 35 YEARS AGO IN ARGENTINA

As of 2016
Overview of the PGEC

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Results of the impact evaluation

- Participants’ professional development (individual level);
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Conclusions
Evaluation methodology

Objective of the impact evaluation
To provide information, through collection of data based on self-assessment, to what degree the course has an impact on:

- Participants’ professional development (*individual level*); and
- Utilization of knowledge and skills towards strengthening radiation safety infrastructures (*organizational and/or national level*).
## Evaluation methodology

### Impact questionnaires (structure)

### Professional development

Indicate your field of work immediately **before** attending the PGEC, and your **current** field of work

<table>
<thead>
<tr>
<th>Field of work before PGEC</th>
<th>Industrial (radiography, irradiator facilities, well-logging, NORM)</th>
<th>Medical</th>
<th>Nuclear (NPP, research reactor, fuel cycle facility, waste management, isotope production, uranium mining)</th>
<th>Research/Academic</th>
<th>Regulatory Authority</th>
<th>Service Provision (training, dosimetry, calibration)</th>
<th>Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current field of work</td>
<td>○</td>
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</tbody>
</table>

- Recommendation of PGEC
## Evaluation methodology

Surveyed population: 1404 (77 courses)

|        | 1 YEAR |            |            |             |                      |        |                      |            |                      |
|--------|--------|------------|------------|-------------|----------------------|--------|----------------------|------------|
| RTC    | No. of participants (No. of courses) | Response rate | RTC       | No. of participants (No. of courses) | Response rate | RTC | No. of participants (No. of courses) | Response rate | RTC | No. of participants (No. of courses) | Response rate |
| ALG    | 23 (1) | 74%        | ALG       | 20 (1)     | 70%                | ARG   | 11 (1) | 82%            |                      | ARG | 482 (29) | 33%          |
| ARG    | 12 (1) | 92%        | GHA       | 20 (1)     | 80%                | MAL   | 27 (1) | 70%            |                      | BYE | 142 (7)  | 38%          |
| BRA    | 1 (1)  | 100%       | BYE       | 13 (1)     | 92%                | MOR   | 20 (1) | 75%            |                      | GRE | 57 (3)   | 69%          |
| GHA    | 18 (1) | 100%       | MAL       | 47 (2)     | 58%                |       |        |               |                      |       |          |              |
| GRE    | 13 (1) | 100%       |           |            |                     |       |        |               |                      |       |          |              |
| MAL    | 61 (2) | 72%        |           |            |                     |       |        |               |                      | SYR | 171 (10) | 33%          |
| Total of surveyed participants (courses): | 128 (7) |            | Total of surveyed participants (courses): | 100 (5) |            | Total of surveyed participants (courses): | 58 (3) |            | Total of surveyed participants (courses): | 1118 (62) |
Results

- PGEC participants’ work category

Percentage of participants’ working categories, before attending the course and after course completion
Results

- Impact of the PGEC on professional career and development

Percentage of participants` professional levels before attending the course and after course completion
Results

• Impact of the PGEC on professional career and development

Percentage of participants stating that the PGEC had a positive impact on their professional development

Percentage of participants stating that the PGEC had an impact on acquiring additional tasks (left) and improving job performance (right)
Results

• **Impact of the PGEC on Radiation Safety Infrastructure**

IAEA categorises Member States’ radiation safety infrastructure in terms of Thematic Safety Areas (TSA) to ensure that all aspects of the relevant IAEA Safety Standards are covered in a comprehensive and consistent manner:

- TSA1: Regulatory Infrastructure
- TSA2: Radiological Protection in Occupational Exposure
- TSA3: Radiological Protection in Medical Exposure
- TSA4: Public and Environmental Radiological Protection
- TSA5: Emergency Preparedness and Response
- TSA6: Education and Training in Radiation Protection
- TSA7: Transport safety.
Results

• Impact of the PGEC on Radiation Safety Infrastructure

Percentage of answers stating that the knowledge and skills gained in the PGEC had
- high-moderate (HM)
- low-no (LN) impact
on each TSA (1 year after course completion)
Results

Sustainability and effectiveness of the PGEC

a) Continuity of the PGEC work project

1 year after completing the PGEC, 56% of the participants confirmed that they have been able to conduct follow-up activities planned in their work project.

b) Percentage of participants sharing knowledge and skills gained in the PGEC, by organizing or implementing training events
Results

Sustainability and effectiveness of the PGEC

c) Contribution towards academic and/or professional development

PGEC enabled participants to attend specialized training courses (35% of answers), train-the-trainers events (26%), and high-level academic programmes (26% for masters and PhD).

More than 90% of participants recommended attending the PGEC to their colleagues and/or employees, reflecting the usefulness, value and relevance of the course.

d) On-going success of the PGEC
Overview of the PGEC

- Objectives, Syllabus, Hosting organizations
- Blended Learning approach, Assessment and Evaluation mechanisms

Results of the impact evaluation

- Participants’ professional development (individual level);
- Utilization of knowledge and skills towards strengthening radiation safety infrastructures (organizational and/or national level)

Conclusions
Take Home Points

- The responses from the PGEC participants, confirmed that the course has had a positive impact on their professional careers and on the job performances, and has helped participants gain additional responsibilities and duties.

- The PGEC has also contributed towards their academic advancement in terms of attaining an MSc or PhD.

- Furthermore the utilization of knowledge and skills acquired during the course has made a significant contribution towards strengthening the radiation safety infrastructure in their home country or institution.

- Moreover, the impact evaluation confirmed the sustainability of the PGEC in several aspects, such as:
  - continuation of the work project;
  - sharing knowledge and skills through implementation of training events in radiation protection; and
  - an ongoing recommendation from participants to their colleagues to attend the course.

In conclusion, the impact evaluation of the PGEC confirmed that the course plays an important role by building a core of competent professionals in radiation protection and in strengthening the radiation safety infrastructure at the institutional and/or national levels.
Thank you!