

# Overview on ENETRAP projects

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- **ENETRAP** series: projects - limited duration - focusing on specific deliverables - disseminate through website, presentations, ...
- **EUTERP**: evolution from project to sustainable platform - for RP trainers, RPE, RPO, other RP professionals - associates - information exchange mainly through website, newsletter, workshops
  
- ENETRAP 6FP (2005-2007)
- EUTERP Platform (2006-2009)
- ENETRAP II 7FP (2009-2012)
- EUTERP Foundation 2010
- ENETRAP III 7FP (2014-2018)



# Driving forces of ENETRAP projects

-1-

## Concern

- Decrease in number of high-level competences in radiation protection. However, **increased attention to RP is needed**: more technologies (and more frequently used) rely on ionizing radiation
- European approach in job **recognition** and competence building to guarantee safe use of ionizing radiation and facilitate workers mobility

## Actions

- **Increase awareness** that knowledge of RP science is important (at all levels; in medical, industry, research, ...)
- **Support** of young students and professionals in their need to **gain and maintain** high level radiation protection **competences**
- Develop good infrastructure for **education and training, both at policy and implementation/workfloor level**



# Driving forces of ENETRAP projects

-2-

## ■ Legal framework

- Council Directive 96/29/EURATOM, laying down **Basic Safety Standards** for the protection of the health of workers and the general public against the dangers arising from ionizing radiation + Communication 98/C 133/03, concerning its implementation (**QE**)
- In revision → **RPE, RPO, MPE** in Council Directive 2013/59/EURATOM

## ■ Common European goal:

- Clear and uniform terminology on professions in RP
- Common qualification criteria
- Common mutual recognition system for acquired competences of RP professionals
- Facilitating lecturer, learner and worker mobility across the EU

⇒ Common RP and safety culture



## Implementation 96/29/EURATOM

- In answer to legal requirements: almost all EU member states and candidate states provide an E&T program, based on European BSS and the definition of “qualified expert”
  
- BUT:
  - **Wide variety in terminology** (QE, RPE, RPO, personnes compétentes, ...)
  - **Wide variety of national approaches** for E&T programs and for the recognition of “qualified experts” in EU member states
  
- **First approach to harmonization by ENETRAP 6FP (2005-2007)**



# First approach to harmonization by ENETRAP 6FP

## Most important realisations

### EDUCATION

- Establishment of Consortium of Universities → Launch of **European Master in RP**

### TRAINING

- ENETRAP questionnaire, resulted in an overview on:
  - A. numbers of RPE's and RPO's;
  - B. identification of practices;
  - C. national capabilities for E&T in RP;
  - D. regulatory requirements;
  - E. recognition.
- Introduction of preliminary "ENETRAP training scheme"
- Development of first E-learning module via MOODLE
- Advise on implementation of OJT/WE
- Supported by end-users and providers (via EUTERP)



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Results of ENETRAP 6FP were good, however, more work was to be done:

- Primarily dealing with RPE and RPO, but interested in medical field and the approaches used for MPE
- Towards European reference training scheme for RPE, serve as basis for mutual recognition
- Introduction of ECVET approach, learning outcomes in terms of K, S, C
- Towards sustainable results via EUTERP and HERCA (and other members of the "ENETRAP II Advisory Group")



- *European Reference Training Scheme for RPEs*, with introduction of ECVET Learning Outcomes (K, S, C, in total >400)
  - Basic modules + Specialized modules depending on field of work
  - OJT + WE
  - Special attention to “non-technical” skills
  - LO’s developed in consultation with people “in the field”





Optional modules

**8. NORM** (30h)

NORM activities - Dose of workers - Dose of population - Protective measure - corrective actions

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**ALARA**

Additional module could be organized with European ALARA Network - EAN

**DOSIMETRY**

Additional module could be organized with European Radiation Dosimetry Group - EURADOS

**Additional Module**

Accidental situations – RP simulation codes and tools – Emergency Response - Communication – Train the trainers... or during refresher courses

Add-on modules

**4. NPP Research** (30h)

Reactor types – Fusion - Fuel Cycle - Dose Monitoring - Regulatory control - Safety Culture - Accidental situations - Criticality

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**5. Waste, Dec.** (30h)

Waste Management - Decommissioning - Ventilation, filtration - Transport

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**6. Non nuclear** (30h)

Irradiators/generators - Accelerators/Gauges - Industrial Radiography - Unsealed sources - Accidental situations

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**7. Medical** (30h)

Equipment - Occupational Radiation Protection - Classification of areas - Accidental situations

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Common Basis @

**1. Basics** (35h)

Radioactivity - Interactions - Quantities and Units - Basic biology & Bio. Effects - Physical principles of detection - Applications of Ionis. Radiation (overview)

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**2. Foundation** (50h)

RP and External Dosi. - Prot. against external - Prot. against internal - Dose monitoring - Regulatory Framework - Natural sources - Public / Environmental - Ethical considerations

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**3. Occupational** (30h)

Transport - Design issues - Accidents & Emergency issues - Safety Culture – ALARA - Decommissioning Principles – Waste Management principles

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(.h) indicative duration  
 ⚠ OJT  
 @ b-learning possibility  
 4 } ECVET unit  
 ⚠ }



## ENETRAP II

### Main results wrt RPE

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- *Text book and (limited) cyber book*
- *Preliminary management tool for LO's developed (originally not foreseen, needs to be further developed)*
- *Pilot session given at KIT*
  - Relative low attendance
  - Feedback from those who did attend: good training!
  - "Stamp", "European valorization/endorsement", ... was missing



### ■ *Requirements for RPO*

- Main areas of RPO work are considered and examples of appropriate training contents are given, divided into professional categories or competence groups, covering the following areas:
  - handling of radioactive materials and practices on installations producing ionizing radiation (incl. accelerators and cyclotrons)
  - medicine, dentistry
  - operation of x-ray equipment (technical, medical (without patients), veterinary medicine)
  - RPO in nuclear power plants/research reactors
- No recognition required



## Challenges beyond ENETAP II

- New and innovative topics for the specialized modules, further development of training material
  
- Most important:
  - Wait for official new BSS with definition of RPE/RPO/MPE
  - Still lack “official” European endorsement
  - Via EUTERP / HERCA: ENETRAP II work is used in the HERCA task force on E&T
  - Guidance to implement the BSS definitions in E&T
  - Implementation / demonstrate practical feasibility of mutual recognition
  - Attention for RPE + RPO + workers!
  - Attention for initial training + continuous training



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BME

PGE Nuclear

ULorraine

- “Think tank” activities with “Consultancy Group” (stakeholders)
- Propose text “guidance” for implementation of RPE and RPO E&T
- Test methodologies for recognition and mutual recognition in practice
- Develop new training courses for RPE working in medical area, NPP, geological disposal
- Develop a train-the-trainer event



# ENETRAP work always discussed at EUTERP Workshops

Next EUTERP Workshop:

September 30 – October 2, 2015 | Athens | Greece

<https://go.app.sckcen.be/EUTERPWorkshop2015>

