WM2011

Session 62

Training and HR Development in RWM

Petrus - programme, a coordinated European initiative to address industry needs for E&T in deep geological disposal

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Motivation to network

Ensuring the continuation, renewal and improvement of the professionals skills in the field of radioactive waste disposal needs anticipation

→ suitable framework(s) and networks for implementing and delivering sustainable E&T ← programmes.

Promote the creation of a high quality European Training Market by pooling users and providers and by the division of work

- Smallness of the Radwaste management community and organisations working in the field (~3500-4000 specialists in Europe)
- Long duration of the nuclear waste management programmes and of the disposal projects (long operation times)
- Multidisciplinary
- Accumulation of scientific and technical knowledge that can be transfered also by education and training (E&T)
- Competition about experts and work force within the nuclear field (NPP new builders looking for thousands /ten thousands of new staff)

PETRUS

Towards "**Euratom Fission Training Schemes**" **(EFTS)** based on Public – Private Partnerships

EFTS proposed in Work Programme of Euratom FP-7 (2008)

- a significant development from a pure training and mobility programme to one dedicated rather to structuring research training across the EU
- target public = research workers and industrial experts at post-graduate or equivalent level, i.e. from doctoral students to senior visiting scientists.

Objectives:

- address life-long learning and career development, with emphasis on top-quality training, mutual recognition of internships and mobility
- maximise transfer of higher level knowledge with emphasis on multidisciplinarity and/or inter-sectoral mobility, through **public – private partnerships**
- define a methodology for structuring research training across the EU and test the different steps (e.g. Systematic Approach to higher level Training of IAEA)

→ **ultimate goal = develop European passports for CPD**
(formal (mutual) recognition of learning outcomes independent of the means of acquiring them)

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PETRUS II Geological Disposal Education and Professional Development

A FP7 Euratom Fission Training Scheme

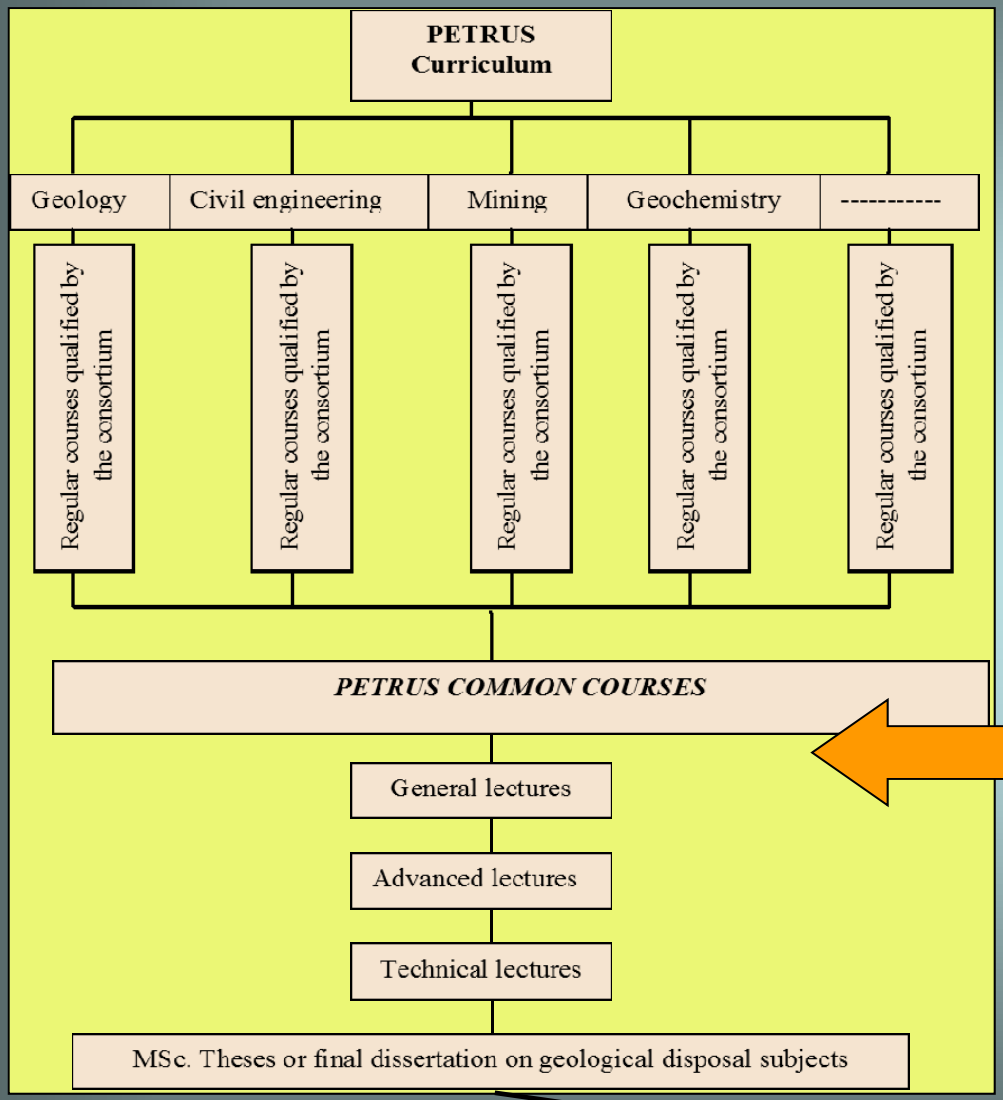
- **Education and Training schemes**
  - Training Scheme for Professional Development in Geological Disposal of Nuclear Waste
  - "European Master's" scheme in Geological Disposal (on-going)

- **Features**
  - Master course components and Professional Development
  - Pilot sessions
  - Evaluation and validation of components
  - Knowledge Management

- **Consortium members** and other affiliated organisations
  - **INPL, CU, TUC, ENSMN, Linnaeus, Micans, ENEN (UPM, CTU, TKK, BME), ITC-School, POSIVA, ANDRA, ARAO, RAWRA, ENRESA, GRS, ITN, NDA, IAEA – a consortium of universities, training associations and WMO's and other employer organisations**

- 3 years duration, budget 1,9 Mio €, EC grant 0,8 Mio €

Structure of the PETRUS scheme(s)



EDUCATION

- Modularity
- Mutual recognition
- Mobility

EURATOM

TRAINING

Professional Development Scheme

Introductory Courses

Other training courses

Modular Course 1

Modular Course 2

Research or development project

PD Diploma

RD&D (PhD Studies,……)

PETRUS

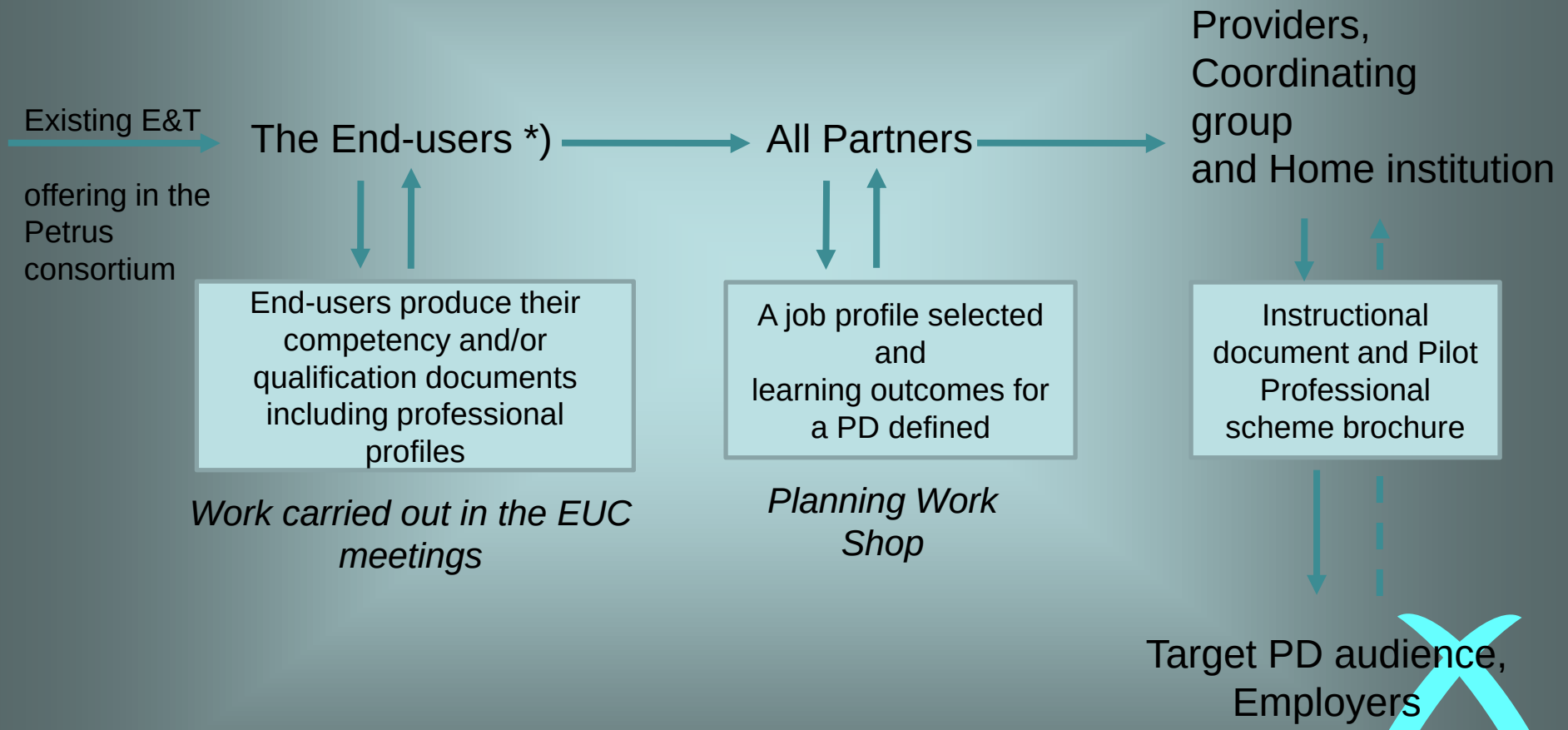
How are end-user views integrated in Petrus II?

An **end-user council (EUC)** was established for the project to give advice and assist in forecasting needs.

The objectives are:

- give data on demand of the **current and future needs** of professionals
- current and future **preferred employee job profiles and competence** for geological disposal to ensure quality
- prerequisites for new employees and on **entry level requirements** for working
- descriptions about the type of jobs and employers in the field for identifying the different **career paths**
- guidance for the **qualification time frames** to meet the future needs
- to **opportunities for mobility** in the form of apprenticeships, research projects or job openings at the end-user organisations or within their networks.

Analysis of required end-user competences and production of PD learning outcomes and the pilot scheme



*) WMOs, research institutes and research networks

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Course Tray for the Petrus Pilot Professional Development (PPPD) Scheme

The PPDP on Safety Analysis consists of the following courses in 2011:

Course	Date	Provider	Title	Location	ECTS	
1	11th – 15th April	Micans, Sweden	Microbiology and Radioactive Waste Disposal	Gothenburg, Sweden	1.5	
2	18th – 20th May	ITC	Safety Case Development	Switzerland	1.5	*)
3	14th – 23rd June	ITC-CTU-IAEA	Fundamentals of Geological Disposal	Prague & UEF Josef, Czech Rep.	4	*)
4	29th August – 30th September	Linnaeus University/NOVA	Geological Storage in Precambrian Bedrock	Aspö, Sweden	7.5	
5	September	INPL	Probabilistic Tools in safety assessment	Nancy, France	4	
6	October	SUBATECH	Behaviour of Waste Forms	Nantes, France	2	
7	18th – 20th October	ITC-ENSI	Safety Principles and Regulatory Standards	Brugg, Switzerland	1.5	*)
8	November	UPM	Transport Simulation	Madrid, Spain	3 to 4	

*) Not formal ECTS points, but need to be separately validated by a competent higher education institute

Conclusions

- *The experience in all the nuclear sectors shows that requirements for high level of expertise and human resources in the field of radioactive waste disposal have to be anticipated through adequate E&T initiatives.*

- *The objectives of PETRUS II are to support, through a variety of measures, the spreading of scientific competence and know-how throughout the RADWASTE sector in the different MS.*

- *PETRUS II measures aim to guarantee the earliest possible availability of suitably qualified staff, through joint training activities and improved coordination between different EU educational institutions, WMOs and industries in order to ensure qualifications are equivalent across all Member States, or by facilitating the training and mobility of students and scientists.*

- ***The sustainability of such initiative at European Level implies clear "expression of interest", support and feedback from end-users.***

PETRUS

More information available on

Project web site

- www.petrus2.eu

and

ENEN association's website for EFTS

- www.enen-assoc.org