CMET session on the feasibility of a voluntary accreditation scheme
Exchange Forum 5, Kalmar, October 2014

Introduction to Accreditation
Orientation to the Walkabout

Marijatta Palmu, Posiva Oy, CMET chair.
Purpose of today’s session:

- In the introduction to give a brief overview of voluntary accreditation and about ECVET - “a credit system for professionals”
- Orient and assist you in preparing for the walkabout and to speed up the walkabout process: what is expected from you and what to do with the given post-it notes and handout during the walkabout and also afterwards

The walkabout is aimed to:

- Collect your multiple perspectives and to
- Contribute to the feasibility study of the voluntary accreditation scheme and related work by the CMET working group
  - by soliciting input of the IGD-TP participants and
  - ensuring that crucial expert views are not excluded from the study
  - assist in the on-going work of the current EFTS projects (European Fission Training Schemes)
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About Competence Maintenance, Education and Training Working Group (CMET)

• We are a permanent working group set by the IGD-TP in 2012 resulting from the SRA’s Cross-cutting Activities (JA14).
• Our terms of reference (v.2) were revised at the end of 2013.
• We are ~30 geological disposal professionals from 13 different countries, 27 organisations, and representing 6 different type of stakeholder organisations.
• The activity is now lead by Posiva Oy and it is supported by the Euratom FP7 SecIGD2 project grant.
• One CMET action includes the feasibility study of a voluntary accreditation scheme – aiming to contribute to the adoption of ECVET as a tool for improved borderless mobility, lifelong learning and quality of learning.
Accreditation is defined E.g by IAEA (2014, NG-T-6.4): “the formal process of approval against established standards by an independent body”

Accreditation within the ECVET context would be

- about a third party recognising your knowledge, skills and competence (KSC) achieved non-formally or informally
- vs. a formal qualification that a national body/ies recognises
- includes inherently an element of trust about the objectivity of the recognition of the units of learning, learning outcomes, KSCs

Such accreditation in geological disposal does not exist beyond:

- agreement based accreditation in specific disciplines: E.g. basic radiation protection training, NDT, welding, shotcreting, work safety, ENEN Master’s supplement

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1 IAEA 2014 no NG-T-6.4 Nuclear Engineering Education: A Competence Based Approach to Curricula Development
2 ECVET = European Credit system for Vocational Education and Training
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Why ECVET? It’s Part of European Policy

The recent 2nd situation report on E&T in the Nuclear Energy field in EU3 highlights e.g.

- the challenge that human resources in the nuclear field could be at risk;
- therefore one main goal of Euratom actions to contribute to the sustainability of nuclear energy by three means and one of them is “developing the required competences (training). “

To improve European competitiveness, these Euratom actions aim

“to continuously improve knowledge transfer and competence building, in particular by fostering lifelong learning and borderless mobility, thereby improving the employability in the nuclear sector across the EU. “ and

“Euratom E&T actions are addressing primarily research and industry workers with higher education, i.e. levels 6 to 8 of the European Qualifications Framework – EQF (= bachelor, master and doctorate levels or equivalent, resp.). The focus is on Continuous Professional Development (CPD), taking advantage of the governance and best practices for E&T that are proposed in the EU higher education policy (DG EAC)”.

Another recent European report

The SET Plan E&T roadmap (2014) ([http://setis.ec.europa.eu/setis-deliverables/education-training-roadmap](http://setis.ec.europa.eu/setis-deliverables/education-training-roadmap) *) that is a collective roadmap on E&T formulated by stakeholders, puts forward a structural approach, calling for large-scale E&T actions and is designed with the following three main guiding objectives:

1. To address knowledge, skills and competences needs and gaps via building networks, pooling capacities and allowing quick and wide replication;
2. To reinforce the E&T system’s link with the business and research environment;
3. To plan and enable skill development and recognition, at the same time facilitating the dissemination of new knowledge, techniques and tools.

European ECVET pilot is ending in 2014 and will be evaluated:
The future can be a permanent system of ECVET.
Also for the professionals with nuclear sector being the flagship.

ECVET – European Credit System for Vocational Training and Education is part of EU educational policy and developed in the framework of the Copenhagen 2002 process (vs. Bologna process for higher education)

- It starts from defining a job: a profile, function or task, which is
- is broken down to smaller units of learning and
- Each unit is defined by learning outcomes (LO) i.e. what is learned or mastered
- Each such unit of learning can then be recognised and exchanged between contexts
- The learning outcomes for each unit are targeted to a specific level of European qualification framework (EQF⁴), whose 8 levels act as a “translation tool“ between different national qualifications, and
- Each LO is broken into three types of components: KSC i.e. Knowledge, Skills and Competence that are defined in a common language using a taxonomy (Bloom or sector specific) and
- The learning outcome/s and units can then be assessed and recognised irrespective of the way they have been acquired.

⁴ complies with the ISCED 2011 levels (Unesco 2012)
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Borderless Mobility and Accumulation of Learning Units/Outcomes

Learning context / country A

Assessment of L.O.*
Credit for L.O.*

Learning context / country B

Validation  Recognition  Accumulation

Transcript of Record

*L.O. = Learning Outcomes

Source: ECVET brochure NC-80-09-607-EN-D, European Commission, DG EAC
## Knowledge, Skills and Competence for Learning Outcomes - Examples

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Cognitive Ability</th>
<th>Know what (conceptual, abstract)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>Mathematics/Calculus</td>
<td>Calculate differential equations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th>Technical or Functional ability</th>
<th>Know how (to do, procedural)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>Engineering/Nuclear Safety</td>
<td>Produce a nuclear safety documentation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence</th>
<th>Attitude, behavioural or interpersonal ability</th>
<th>Know (how) to be, how to relate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>Interpersonal</td>
<td>Capacity to mobilise people</td>
</tr>
<tr>
<td>part of Unit</td>
<td>Coordination of safety analysis/case for geological disposal (some examples)</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>LO</td>
<td>Understand and apply long-term safety requirements for achieving, demonstrating and presenting safety of geological disposal (including safety functions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understand the concept of safety and the understand the impact of underlying physical and chemical processes.</td>
<td></td>
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<tr>
<td></td>
<td>Understand probabilistic safety analysis principles and risk in the context of safety case</td>
<td></td>
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<tr>
<td>K</td>
<td>Plan and structure a comprehensive safety case for a licensing stage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apply natural analogue information in a safety case in support of long-term safety arguments (complementarity)</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Able to steer and supervise the production of a safety case</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Able to coordinate interdisciplinary work in team</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adopted from Petrus II (FP7) and ECVET seminar 2012
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Why should this work be carried out for Geological Disposal?

Our state-of-the-art of learning:

• Dedicated university education is available in some EU countries, but most learning and accumulation of experience is informally acquired (includes training, learning on projects, learning at work...).

• Informality is specific for learning in our community: either learning on the job and internal training. This includes professional development.

• Different learning outcome are needed at different stages of the repository development.

• The learning outcomes already achieved, they have not been collected or documented => Accreditation can act as a motivation to carry out such memory keeping work.

• With the long-timeframes of disposal – knowledge preservation and transfer is needed already now as the demographics change in Europe.

• Work on identifying the Knowledge, Skills and Competence has started, but the results are far from complete and have not been brought together yet.

This is were your views are now needed:

Do we need to proceed and how to proceed!
Some Implementation Need Examples

• KSC from the various stages of geological disposal need to be collected and documented => they will also form the assessment criteria or a standard for accreditation

• Standards/KSC defined need validation from the relevant stakeholders

• Accredited learning outcomes need recognitions from the relevant stakeholders/ the community. One needs a (broad) partnership/ partnerships (networks) like ENEN

• Transcripts are needed as a proof of recognition.
Accreditation further requires for example

- an accreditation body/bodies – *professional, objective*
- agreed accreditation criteria – *a preset standard/s*
- target/object of accreditation – *unit of learning, learning outcomes* – *e.g. defined using ECVET*

**ECVET is also tool** for setting up the criteria

- A tool for setting the standards for what *an individual masters* or *e.g.* what *a training programme delivers*, if implemented according to the standards leading to the validated and accepted learning outcomes
- ECVET enables assessment *independently of the way* the learning outcomes are acquired
- In this way it contributes to lifelong learning and efficiency directly by *eliminating the need for overlapping training or education* when the assessment standard is met.
ECVET Framework: Objectives, Contribution and its Technical Components

Contribution to mobility and lifelong learning

General objectives

Transnational mobility (for all)
Lifelong learning (for all)

Technical components

Qualification

Units of learning outcomes (content and structure of qualifications)
Credit points (size of qualifications and relative weight of units)
Assessment of learning outcomes
Validation of learning outcomes
Recognition of learning outcomes
Memorandum of Understanding (partnership)
Learning Agreement
Learners’ transcript of record (individual achievement)

Recognition of learning outcomes in view of achieving qualifications
Transparency of qualifications
Accumulation process
Transfer process

Figure from ECVET User’s Group. 2011. Using ECVET to Support Lifelong Learning.
## Assessment of Learning Outcomes within Geological Disposal for Individuals and Training Providers/Programmes

<table>
<thead>
<tr>
<th>ECVET Technical Components need for:</th>
<th>Voluntary Accreditation of an individual’s LOs</th>
<th>Voluntary Accreditation of an ECVET training provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of LOs</td>
<td>Yes. Assessment criteria and demonstration of LOs needed. See also validation.</td>
<td>Yes. Assessment criteria and demonstration of LOs needed.</td>
</tr>
<tr>
<td>Validation of LOs</td>
<td>Yes. An accreditation body needs to be set up or approved by the partners.</td>
<td>Yes. Done by an internal process, by MoU partners, or by an accreditation body.</td>
</tr>
<tr>
<td>Recognition of LOs</td>
<td>Yes. By the industry and institutions in the community and/or by training providers by signing an MoU.</td>
<td>Yes (see MoU).</td>
</tr>
<tr>
<td>Partnerships (MoU)</td>
<td>Yes. Wide coverage of partners to engage themselves in a MoU for voluntary approval of the recognised LOs.</td>
<td>Yes. Basis for transfer of the recognized LOs between various providers (a criteria for voluntary accreditation, too).</td>
</tr>
<tr>
<td>Learning Agreement</td>
<td>No</td>
<td>Yes, needed for exchange in the formal exchange between training providers or between a provider and a workplace.</td>
</tr>
<tr>
<td>Learner’s transcript of record (e.g. Europass)</td>
<td>Yes, A certificate needs to be provided of recognition of LOs resulting from assessment ⇒ e.g. inclusion into Europass.</td>
<td>Yes, provided by the training provider to the home institute and later into the Learner’s transcript (achievements). One example, the ENEN supplement to a diploma.</td>
</tr>
</tbody>
</table>

Source: Palmu & al. (2013) NestET2013
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Your Input During the Walkabout

Reflecting on a potential for accreditation in geological disposal based on what has been presented and based on the questions

• write down your opinions and ideas related to 8 set of questions on the hand-out – write each idea on an individual post-it with print letters.

• identify where you consider benefits and constraints and identify what has already been implemented in your organisation/ country in geological disposal in the area of accreditation.

• identify what would still be needed or not needed?

After the reflection, start by taking your station related post-its to the station closest to you

• submit your post-it note for the relevant station (questions) on the flip chart and discuss your views with the station host and other participants on that station;

• after ~10-15 minutes move clock-wise to the next station and repeat until you have covered all stations – a clock/bell will ring an alarm as a sign.
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Direction of Walkabout - Clockwise

Station 1

Station 2
Jussi

Station 3
Ray and Christine

Station 4
Claudia

Station 5
Isabel, Manuel

Station 6
Klaus

Station 7
Rosa

Station 8
Radek, Marjatta

Door

Do or

Window

Window

Window

Tiina keeps time

Marjatta Palmu & CMET WG

EFS, CMET session, 29 October 2014
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Time to Start the Walkabout

• All views and inputs are most welcome, your own, your company, your neighbours, ... 😊
• Now please take your post-its and move to the flipchart station closest to you.
• A bell will signal for you to change the station.
• A coffee break will be at 10:30-11:00 hrs, please come back on time for the remaining stations.
• We will conclude the session for the lunch and come back with the session report in the afternoon.
Now please take your post-its and move to the flipchart station closest to you for your inputs.