VALLA VALIDATION OF ALL LIFELONG LEARNING IN AQUACULTURE

LIFELONG LEARNING PROGRAMME
European Qualifications Framework (EQF) Projects
Transversal Programme

Key Activity 1: Policy cooperation and Innovation

Deliverable 5

Evaluating and validating unaccredited sectoral training/competency acquisition

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1. Introduction

European aquaculture sector is an innovative industry, which has grown rapidly from a cottage industry in the 1960s into a diverse industrial sector. Its success, as in any other sector, relies very much on a joint practical and theoretical knowledge base, and people working in the sector often require specialized training. Much of the training provided in the aquaculture sector however falls outside current formal qualification systems. Therefore it is a challenge to prove that any individual worker has indeed gained the requisite knowledge, skills and competences acquired through specialized training that has slipped through national qualifications structures.

To remedy this situation, the European Qualification Framework (EQF) is being introduced throughout the EU starting from 2008. The EQF has been described as a translation device which will make national qualifications more readable across Europe, promoting workers' and learners' mobility between countries and facilitating their lifelong learning. One knock-on effect is that National Qualifications Frameworks (NQFs) need to be related to the EQF in some way. The EQF system is divided into 8 categories from the lowest to the highest knowledge level, with category 8 equivalent to the PhD level. Each level is described in terms of specific knowledge, skills and competence.

Using the EQF system requires that the client must know, and know how to use, learning outcomes for course descriptions. *A learning outcome can be defined as a statement of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning.* It can also be considered as a sort of "common currency" that assists courses and programmes to be more transparent at both regional and international levels.

How far the inclusion of the EQF system and learning outcomes have reached varies a lot in Europe; though some countries are well on the way, others have not yet begun the process. It looks as if so far the EQF system seems to work quite well in the formal education context. However in the aquaculture sector much of the training provided falls outside current formal qualification systems and it is a challenge to prove that any individual has indeed acquired the requisite knowledge, skills and competences through such learning. To improve this situation was the basis of the VALLA project , (Validation of Lifelong Learning in Aquaculture).

A major aim of the VALLA project was therefore to develop, test and evaluate tools and methods that make it possible to describe and evaluate unaccredited sectoral training/competency acquisition using the recommended Learning Outcome format. The aquaculture sector was used as a case study but the developed methodology should have the potential to be transferred to other sectors.

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The project was divided into 4 major parts:

1. Functional and occupational mapping of a sector
2. Development of a dedicated software tool based on existing European Best Practice that enables trainers to define (non-formal) training units in terms of competences and learning outcomes
3. Testing of the software in 20 case studies
4. Meetings with National authorities for higher education (HEA) and vocational education/training to get feedback on the methodology

2. Mapping of the aquaculture sector

In the project an Occupational and Functional Map of the Aquaculture Sector across Europe was developed. The aquaculture industry, FEAP, was deeply involved in the project to ensure that the mapping actually shows the industry as it is.

An Occupational Map can be described as a report about an industry or sector. The Occupational Map defines the range of occupations/job roles within a specific industry sector. It contains information on the numbers employed, key drivers in the sector, industry trends, analysis of current and future skills needs, progression routes and national occupational standards.

The OM identifies the range of job roles within a sector. In the Aquaculture sector (directly) the following job roles were identified:

- Semi-skilled/Basic Manual Worker – e.g., weekend feeder, labourer
- Skilled Craft/Semi-Skilled Craft –e.g., Diver, Engineer, Harvest technician
- Supervisor/Technician- e.g., , Site Supervisor, Boat Skipper, Hatchery Supervisor, Freshwater Production Coordinator
- Manager/Specialist- e.g., Production Manager, Farm Manager, Pen & Mooring Manager, Senior Ecologist
- Owner/Senior Manager/Professional -e.g., Director, Specialist Contractors, Production Director/ Senior Manager

Roles within the Sector

- Area Manager, Farm Manager, Assistant Farm Manager, Hatchery Manager, Assistant Hatchery Manager, Freshwater Business Manager, Grading Team Manager

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- Boat Skipper, Electrician, Engineer, Farm Technician, Production Co-ordinator, Grading Technician, Health Manager, Health Observer, Maintenance Mechanic, Moorings - Assistant Manager
- Pen & Mooring Manager, Smolt Production Unit Manager
- Temporary Farm Technician, Casual Farm Technician

A functional map identifies the key functions/activities that are necessary in order to work competently in a specific occupational sector. In other words – what needs to be done and how it can be done. It describes the outcomes (functions) of work activities, rather than the process involved. The Functional Map identifies and broadly describes the functions or activities to be included and across what sorts of occupational areas (Note: occupational areas, not jobs at this stage). The same 'Function' may be capable of demonstration at different levels of competence by different members of staff. Having the initial functional map allows for the exploration of whether there are existing national standards that are sufficiently relevant to be used or need to be tailored to meet the required specifications.

Prior to the VALLA project the WAVE project (Working in Aquaculture – Validation of Experience) was performed (2003 – 2006, under the European Commission Leonardo da Vinci Programme). WAVE identified and recognised the skills and knowledge needed for work in Aquaculture (primary production) across Europe. The WAVE Master List of 248 Competencies for European Aquaculture was developed and made available in 10 EU languages. This Master List is intended to cover all competences required for freshwater and marine hatcheries as well as the on-growing of finfish and shellfish for all species and regions (obviously no single individual would be expected to have all of the competences listed). The stakeholders were highly involved by means of a wide-ranging consultation with workers and employers in the European aquaculture sector (individual interviews: 150 respondents from 90 farms in 10 European member states). The WAVE master list was used as a basis for developing a functional mapping of the aquaculture sector (Fig. 1).

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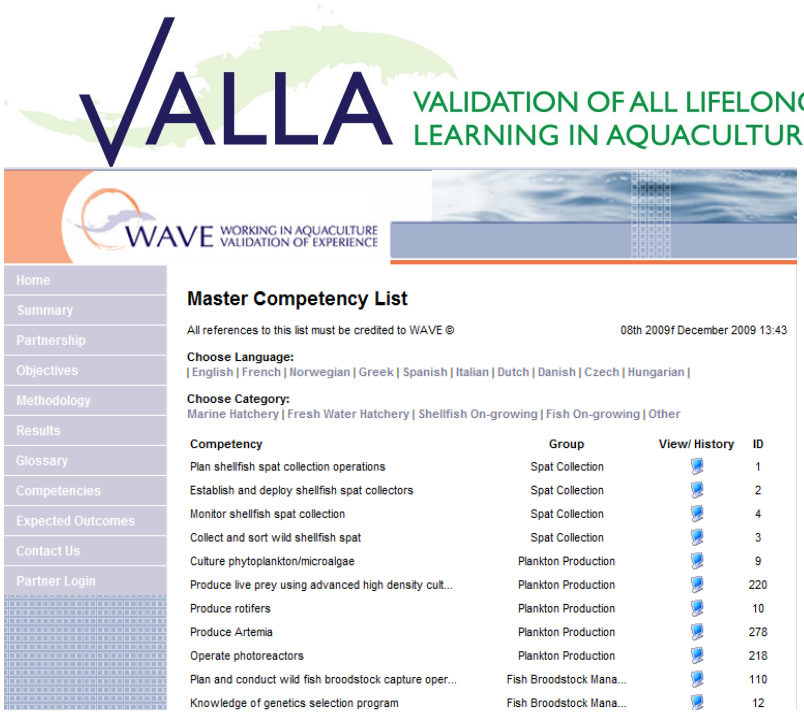

Figure 1. Example of a part of the WAVE master list

The occupational and functional mapping of the sector can be used for Skills analysis of workforce/training needs identification:

- Creating new programmes/mapping existing programmes to identified needs
- Framework – Course content/how many units/hours?
- Assessment methodology
- Quality Assurance and Benchmarking

It is however important to remember that the functional map is a 'snap-shot' in time – it will evolve as new techniques/procedures/trends emerge and will need to be updated to remain fit for purpose. Not every organization - nor every individual - within the industry will carry out all of the functions or activities included in the map but they should be able to identify those that apply.

Figure 2 shows the VALLA functional map for the European Aquaculture Sector. The first map shows the key functions (16), the second map is a snapshot of the unit description of one key function, the third map shows the competences linking to two unit descriptions.

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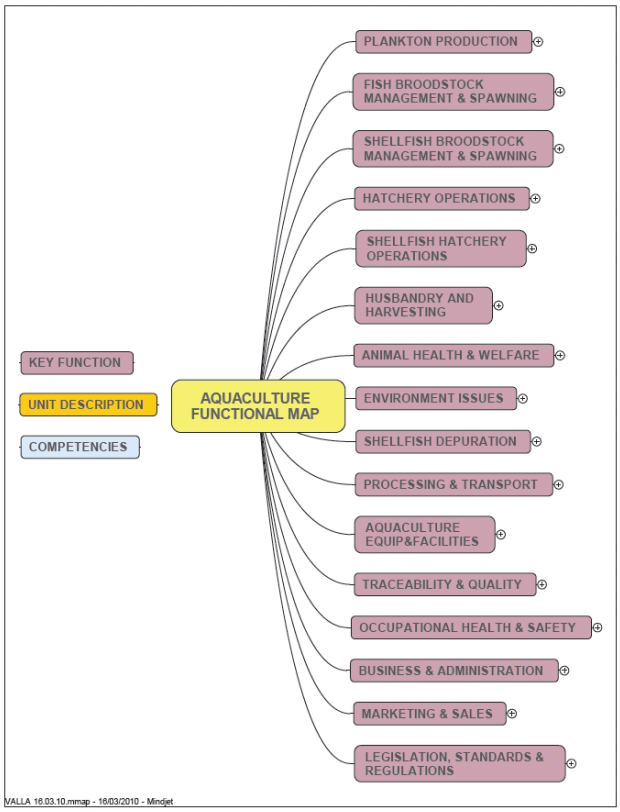

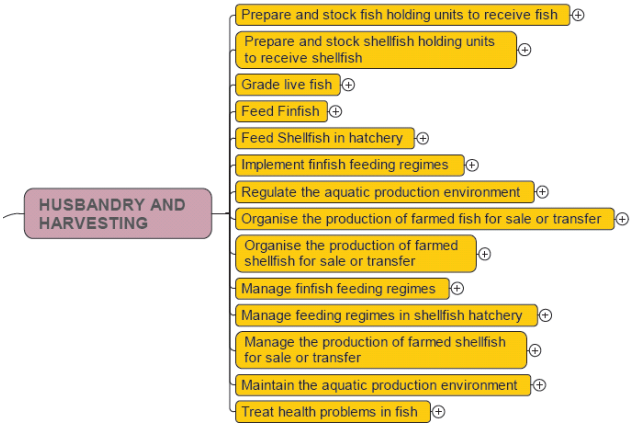

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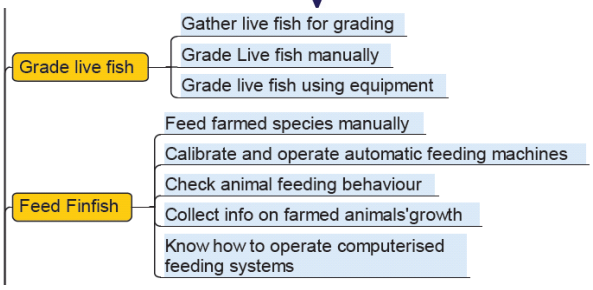

Figure 2. The functional mapping of the aquaculture sector. The first map shows the key functions (16), the second map is a snapshot of the unit description of one key function, the third map shows the competences linking to two unit descriptions.

3. Development of the VALLA online tool

To make it easier for trainers to define both formal and non-formal training units in terms of competences and learning outcomes, a dedicated software tool based on existing European Best Practice was developed. For developing the software the following information was used as a base:

- Scottish Qualification Authority: Writing National Units /1/
- Declan Kennedy: Writing and using Learning Outcomes: a practical guide /2/
- Writing objectives using Bloom's taxonomy (Fig. 3) /3/
- Aquaculture functional map (Competencies related to Units)

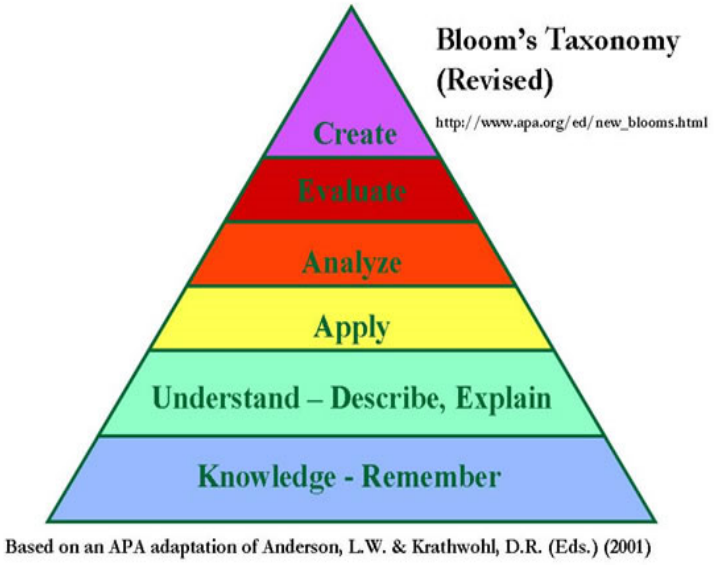

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Figure 3. Bloom`s taxonomy used for writing learning outcomes. (Bloom Benjamin S. and David R. Krathwohl. Taxonomy of Educational Objectives: The Classification of Educational Goals, by a committee of college and university examiners. Handbook I: Cognitive Domain. New York, Longmans, Green, 1956.)

The developed software takes the trainer through a step -by-step tool to gather and organise the necessary information to describe, for instance, a short training course, a representative student course, a field trip, work placement or other activity that can document the achieving of a learning outcome (Table 3). The VALLA online tool organises course descriptions around three components**:**

a) **Course** (describes the study of a particular topic within a wider study area, i.e., one component of a programme of studies)

b) **Unit** (one part of a specific course, i.e., one of the elements needed to attain a specific qualification or certificate)

c) **Learning Outcome** (describes the final output of achievement in terms of knowledge, skills or competences) (Figs. 4, &.5).

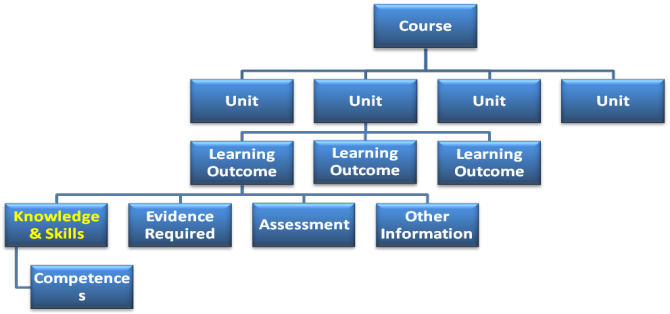

Figure 4. The structure of the software.

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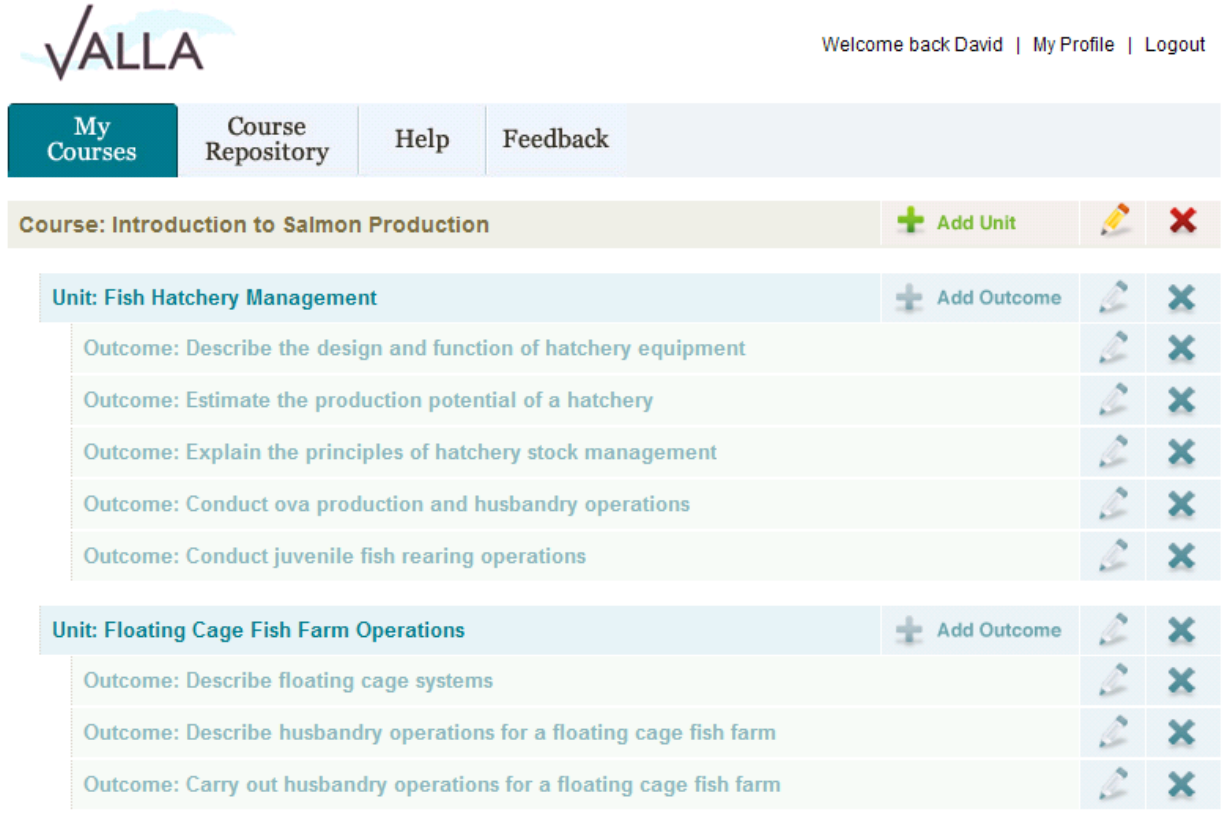

Figure 5. Example of one screen picture in the developed software

When using the tool to create the units, the following parameters must be included: *Title, Purpose, Entry level, Outcome specification, Evidence, Assessment, Supplementary information. At the next level* the creation of learning outcomes within each unit, the following information must be added: *Title, Knowledge and skills, Evidence, Assessment, Checkpoint questions.*

To get feedback on the tool and to check how easy is was for trainers to write learning outcomes a workshop was arranged at the National College of Ireland on the 26 – 27 November 2009. The workshop had three goals:

1. Understanding writing Units and Learning Outcomes
2. Using the functional map
3. Testing and further developing the functionality of the online tool

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In total 20 participants attended the workshop, representing a range of higher education, trainers and industry organisations. Excellent feedback on the methodology was given. The most often repeated comments concerned the fact that almost all participants had problems with how to write learning outcomes and need a lot of guidance, and they felt that it was important to give as much information about this as possible in the online tool. All attending the workshop also thought they had learned a good deal from the workshop. Below are some more specific comments for improvement from the workshop:

- put action verbs (Blooms taxonomy) and EQF levels into the online tool
- take the competencies from the VALLA functional map, and go a level further and associate skills and knowledge with each competence
- have an administrator for the online tool
- you have to think at what level developing Outcomes will come in. You usually first define the list of outcomes when setting up a course. The order is not first thinking of the units within a course, and developing outcomes within the units, but making outcomes first and then developing the units, depending on the outcomes. In Europe there are only 2 levels:
    - Qualification
    - Units (subdivision of qualification)

  Therefore, the tool should be flexible in such a way that you can choose between:
    - First constructing outcomes and putting them in units
    - First constructing units and develop outcomes within the unit
- it would be very good to turn the Master list competences into learning outcomes, and get that officially accepted by the aquaculture industry.
- make a system where people can submit new competencies and add adjustments, and have a type of Board to which they can be submitted and approved.

Table 3. Input required in the computer tool.

1. Describe the course/workshop/ placement training.
2. Describe the unit(s) within the course in terms of what learners will know and be able to accomplish on completion of the unit.
3. Describe the learning outcomes. Each unit normally consists of several learning outcomes
4. Each learning outcome must describe exactly what a candidate is able to do after completion of the learning activity. It should be described in terms of EQF levels, knowledge, skills or competences, with a description of the evidence needed to prove that the outcome has been reached.

4. Case studies

The Case studies are exemplars of different types of courses which at present lack formal validation/accreditation in both VET and HE education. Yet these are often formative educational

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experiences which are rightly regarded as valuable, from several points of view. The case studies are at the heart of the VALLA project and we see their influence as guidelines for the sector as constituting its most important justification. The following section describes the methodology that was developed In order to achieve this aim.

It was clear that potential users would need not only to understand the learner-centred approach, and the underlying concepts, but would also have to be able to rewrite course content in terms of identifiable and assessable Learning Outcomes. The shift to the Learning outcomes approach has been described by one of the prime movers in this far-reaching reform as an important paradigm change (Stephen Adams, 2008. Edinburgh. Learning Outcomes based higher education-the Scottish experience). They shift the focus from teachers/trainers to all learners and, by explaining what learners are expected to know, understand or be able to do at the end of a learning process, they become more motivated and more actively involved in the learning process. Another positive feature lies in the fact that learners are better able to see what is offered in a particular course and how this links with other courses and programmes. But, perhaps most importantly for the aims of the VALLA project, they provide a framework within which formal and informal learning can be recognised and accredited (for the purposes of study, training, employment, mobility). This latter capability can deliver a reliable trustworthy platform on which mobility exchanges, credit transfer and recognition of qualifications between different countries can be built.

It is not surprisingly therefore that rewriting courses with acceptable Learning Outcomes is a time-consuming task which has put off many potential users. In fact, one of the prime proponents of the Learning Outcomes approach goes much further. "*Learning Outcomes are frequently met with strong and widespread scepticism by higher education staff. They are often viewed as a threat that will dumb down education and constrict academic studies by reducing them to mere 'Tick box' training and rote learning. These objections should be taken seriously, as learning outcomes, if poorly conceived and badly implemented, can damage education*." (Adam, 2008)

CEDEFOP puts forward the inherent difficulties in the following concise yet thoroughly pragmatic view of the situation. "*Strong disjunctions traditionally exist between HE and VET. In many countries the framing of HE qualifications and VET qualifications are separate, and there is institutional reluctance and technical difficulty in bringing the two into closer alignment. This lack of connection has also emerged as a potential problem within the EQF, where the specific intention is to bring into alignment different forms of qualification through the adoption of common levels based on generalised learning outcomes. This tension can be seen clearly at the European level, where differing approaches are being taken to credit accumulation and transfer in HE (ECTS) and in VET (ECVET*)."

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The VALLA partners are well aware of the difficulties and indeed the many pitfalls along the pathway towards realization of the project's admittedly ambitious aim. The VALLA online Tool was therefore conceived as a tool which would be able to deliver specific guidance and genuine assistance in the form of appropriate templates available online. These generic templates can be customised to cope with individual courses and thus help users create descriptions of sectoral training (mobility placements, short term training, workshops/conferences, on the job training) in terms of Learning Outcomes. The templates generated are very transparent and should go a long way to satisfy the strict accountability criteria of Quality Assurance agencies as the online tool and the supporting guidelines/protocol have been designed to ensure compliance with EC policies.

In the case of the aquaculture industry, the Learning Outcomes were based on a list of agreed competences drawn up via a bottom-up approach in which industry and academia worked in unison. The outcome of this cooperation led to a mutually acceptable Master List of competences.

The next step was to transform the agreed competences into Learning Outcomes directly related to the knowledge skills and competences reference points as set out in the European Qualifications Framework. However, in order to fulfill the requirements of awarding bodies and educational providers, the VALLA partners had to undertake both an occupational mapping exercise of the aquaculture industry which has a wide range of job roles of differing levels of complexity and skills (WP2). The complementary functional analysis (WP2) then enabled the development of a range of occupational standards. These occupational standards form a vital part of the process of writing Learning Outcomes that accurately describe levels of achievement that can be set at the appropriate level in the EQF reference levels which are needed when trying to describe the Learning Outcomes.

The VALLA Tool takes users step by step through a process which generates a template that covers in essence the following areas:

- identification of the Learning Outcomes covered by the subject areas of a specific unit or course
- information as to how the Learning Outcomes can be acquired
- information as to how these Learning Outcomes are assessed.

The choice of case studies (or exemplars) was made in consultation with industry, educational and awarding body representatives. They exemplify the needs of both industry and vocational education and are clustered according to these perceived needs: professional short training courses, 2-day workshops for industry, candidates undergoing on-the-job training, some academic coursework, field trips, mobility exchanges. This last was impossible for the partners to organise within the constraints of a two-year project and therefore virtual mobility courses were included, as these too fall into the category of unaccredited learning experiences.

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Assigning levels to the Learning Outcomes is of course is a task beyond the scope of the present project; however partners felt it was incumbent upon them to incorporate in the VALLA Tool a Level assignment function (as ECTS or desired EQF levels) so that the resulting course descriptions would gain credibility in the eyes of the awarding bodies. And indeed, some of the comments from the consultation with awarding bodies reflect the importance of this issue.

These related activities culminated in a joint exercise in which the learning outcomes from the case studies/exemplars, covering HE, VET, formal and informal learning), were presented (as described in detail below) to several European awarding bodies which were also responsible for creating National Qualification Frameworks (NQFs). The idea was to test whether the KSC/learning outcomes fall within national structures and could as such, be evaluated and validated. This extremely valuable consultation can be seen to authenticate both the VALLA process and its products.

The case studies show that it has been possible to establish common reference points across a sector and the generated course descriptions should enable qualifications authorities partners to use the reference grid of the EQF as intended (as a translation device which makes it possible to position and compare learning outcomes throughout Europe and throughout the sector). If the VALLA tool is used constructively, it will also provide the quality assurance so vital to the successful setting up of the EQF.

In addition, it must be clearly stated that the VALLA partners are fully cognizant of, and take into account, CEDEFOP's caveat that *"the use of learning outcomes for referring national qualifications levels to the EQF is not the same as using learning outcomes for defining standards, or for describing curricula or for designing assessment approaches."*

Nevertheless, the case studies show:

- ✓ how to develop a methodological solution and guidance tools at the national, European and sectoral levels.
- ✓ how to implement and further the Learning Outcomes approach.
- ✓ how to relate qualifications to EQF levels and descriptors.
- ✓ how to develop pathways between higher/general education and VET.

All 20 case studies are presented as VALLA Deliverable 4A.

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5. Evaluating and validating unaccredited sectoral training - Meetings with National authorities

Meetings with National authorities in several EU countries both regarding higher education (HEA) including Universities and vocational education/training were scheduled with the aim of demonstrating i) the VALLA methodology developed to map a sector, ii) the specially designed computer tool and iii) the case studies with particular emphasis on focus on work placements, short training courses and industrial workshops, mobility exchanges. The overall aim of these meetings was to see whether all three features above could be used for evaluating and validating unaccredited sectoral training/competency. Below are the results from the meetings which point out both the positive and negative aspects of the VALLA methodology demonstrated.

5.1 Belgium

5.1.1 UGent & AUGent institutional experts

In Belgium institutional experts (K. Janssens, F. De Decker) from Ghent University and Ghent University Association were asked for feedback on the VALLA methodology and results.

First the objectives and background of the project were presented: WAVE project, competency list, occupational & functional map, online tool. Some clarification was provided where requested. Then some questions were presented to both experts.

Mrs Janssens and Mr De Decker appreciated the approach and accomplishments of the WAVE & VALLA project. The approach of empowering the education providers to initiate the validation of their educational products was perceived as typically “Scottish”. This is not intended as criticism as the Scottish qualification regulation is regarded to be ahead of most other European countries. However, it is important to understand the Flemish accreditation situation in order to meaningfully assess the potential implementation of VALLA developments in a Flemish context.

In Flanders, certification and quality control is organised by the respective independent associations for vocational and for academic higher education (VLHORA & VLIR). The Dutch-Flemish accreditation agency (NVAO) accredits education programs by assessing if proper procedures for certification and quality control were complied for. As for other qualification levels, the Flemish Socio-Economic Council (SERV), composed of representatives of employers’ organisations and trade unions, is the key player. Over the last years, this organisation has established a series of “occupational competency profiles” (“beroepscompetentieprofiel” or “BCP”) which are detailed lists of competencies required for a specific occupation. Many other BCP’s will have to follow in future. These BCP’s are established according to a

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transparent methodology in consultation with the respective sector representatives. Furthermore, by the end of 2010 the SERV is expected to launch "COMPETENT", an interactive database that would, amongst others, enable to easily produce new or update existing occupational competency profiles. If such a BCP is levelled, it can be referred to as a qualification. It is for the moment however unclear who will take the responsibility in this levelling exercise.

Against this Flemish context, a number of questions were discussed with regard to the potential of the VALLA realisations.

1) **Regarding the case studies; if users followed our guidelines (principle learning outcomes, units, courses, using EQF, etc.) is there any mechanism for validating and secondly accrediting such sectoral training? / If people use this methodology, is there a way this could be recognised nationally?**

A first observation concerns the competency lists as produced with the WAVE project and elaborated in VALLA. The experts see a clear resemblance with the Flemish BCP's and therefore believe this outcome would be a considerable headstart if ever Flemish occupational competency profiles were to be drafted in the field of aquaculture. It must be said that, as it stands, the need for such Flemish BCP is near to non-existing since there is virtually no Flemish aquaculture sector of importance. However, since the SERV is expected to respond to any request for BCP by 'the sector', however small the sector is, the issue is not irrelevant.

The experts highly appreciated the VALLA online course tool, being a real practical instrument on an issue of growing importance but as yet tackled by numerous predominately descriptive initiatives. As for its potential use in Flanders a couple of observations were noted:

- Validation and accreditation of formal learning by academic and vocational institutes is well-established. It is managed by the HEI's based on ECTS-principles. Several HEI's have developed their own procedures, up to including (online) tools, to produce "ECTS course descriptions" needed for further accreditation. In this respect, the applicability of the VALLA tool is determined by the degree it produces descriptions that match ECTS (and in future also: ECVET) prescriptions.
- Although the generic approach of the tool is acknowledged (being non-sector specific), the integration of the competency list and the functional map into the tool would be an asset in the field of aquaculture
- A crucial gap in the tool is the explicit and unequivocal integration of EQF-compliant level descriptors per competency, leading to an overall level indicator for the produced course description. Therefore, the existing competency list should be further elaborated in order to include detailed and unequivocal level descriptors. Any effort to use the tool for accreditation will remain idle without this additional step...

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2) **Do you see any issues making this difficult? Specifically related to:**
   a. **Recognizing Prior Learning**
   b. **Quality Assurance issues**
   c. **Logistical challenges in recognising and maintaining quality assurance for sectoral competency acquisition?**

A couple of challenges were perceived by the consulted experts:

- A problem that commonly arises when accrediting non-formal learning is related to the inherent salary implications. Such accreditation evidently alters the status of an employee and may raise (salary) expectations that an employer cannot or wishes not to meet. A similar friction may arise from the fact that accreditation of non-formal learning may reveal distinct salary differences between workers with similar functional responsibilities but with different formal qualifications. In this respect the experts highly valued the successful involvement of an employer organisation in the project (FEAP) which should guarantee the endorsement of the VALLA developments by this crucial stakeholder;
- Another potential obstacle to accreditation of non-formal learning is the quality control that it involves. Providers of non-formal learning may well be deterred from accrediting their course for it can imply a deceptive outcome of the quality control to which they will be subjected. Obviously, this effect will eventually protect learners and employers against inadequate courses.

3) **What do you see as the challenges of mapping NQF to EQF and also sectoral frameworks to the EQF?**

Both experts are convinced that the WAVE and VALLA project delivered a very significant contribution towards the development of a sectoral qualifications framework in aquaculture. The main challenge remains the level descriptors for the competencies and adding a degree of abstraction in order to comply with the EQF spirit. A net advantage is seen in the strong European-wide endorsement that the project achieved.

5.2 Greece

In Greece two meetings took place, the first in December 2009 with the Ministry of Agriculture which is responsible for projects involved with the occupational mapping of aquaculture, another in April 2010, with Mr Antonis Glaros, Head of the Accreditation of Qualifications Department EKEPIS, together with Ms Paraskevi Basdra. A further meeting is planned for late May, too late for inclusion in the present report.

The Greek partner, VTC Diastasi (Vocational Training Centre), founded in 1997, is a strong and dynamic company in the field of vocational training, education and development of human resources, specialising

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in the thematic fields of: Economics and Administration, Information Technology, Tourism and Provision of Relevant Services, Agricultural Specialization, Environment, Health and Welfare, Technical and Transportation Studies, Education and Training Occupations, as well as Civilization and Athletics.. VTC DIASTASI carries out vocational training programmes in all regions of Greece and is certified by the National Accreditation Center of Continuing Vocational Training. VTC DIASTASI is also a Certification Center for Dexterities in the Technology of Information and Communication, functioning as an ECDL Examination Centre, as well as, a certified – by the Hellenic Ministry of Development – Centre for Private Insurance Mediators' Training. It has therefore the appropriate background and credentials to make the right approach towards ascertaining the reaction of the national authorities in Greece to the VALLA project.

There have been some delays in Greece in setting up an infrastructure dealing with the establishment of the Greek National Qualifications Framework. Indeed, a conference to mark the setting up of the consultation period in preparation for the establishment of the Greek National Qualifications Framework took place only on February 25 2010.

VTC Diastasi however has been able to arrange several meetings to promote knowledge of the VALLA project, starting in December 2009, up to 24th April 2010, with representatives from the National Accreditation Centre for Continuing Vocational Training (EKEPIS). The Centre's mission is to develop and implement the National Accreditation System for Continuing Vocational Training.

There was a great deal of interest from EKEPIS staff in the VALLA methodology and in the VALLA tool. In the light of the Greek commitment to establish a National Qualification Framework, it was felt that EKEPIS could benefit from the pioneering work carried out by the VALLA partnership. It was suggested that further meetings should be held, to broaden the audience and to include open discussion on issues such as:

- the methodology of sectoral mapping,
- the presentation of the online Tool for the development of Learning outcomes based courses,
- the harmonization of existing quality assurance systems and credits awarding systems, and
- the value of the tool in transferability of Validation and Accreditation of Lifelong Learning credits among EU countries.

5.3 Ireland

In Ireland two meetings took place: i) with the **National Qualifications Authority of Ireland (C. Kelly)** and ii) with the **Higher Education and Training Awards Council (HETAC) (I. McKenna).**

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5.3.1 National Qualifications Authority of Ireland

In the meeting with the **National Qualifications Authority of Ireland (C. Kelly) a** brief on the VALLA project was given (including the VALLA leaflet), and the main deliverables were outlined and showed, in particular the Functional map and the online tool, including a printed case study example.

Ms Kelly explained the NQAI is responsible for developing and maintaining the Irish National Framework of Qualifications. The NQAI is also the National Coordination Point for the European Qualifications Framework for Lifelong Learning (EQF), and as such responsible for overseeing the implementation of the EQF in Ireland.

Ms Kelly explained the Irish National Framework, which consists of 10 levels and which has sub strands of knowledge, know-how & skill and competences. According to her the EQF has been build on the basis of the Irish NQF. She stated that the EQF should really be seen as a meta framework, a reference framework for National Qualification Frameworks and should not be seen as a competences framework. It is not intended to be used for the classification of individual competences.

She commented that the EQF is used for referencing with National Frameworks, where they are in place, but so far no one really knows how to deal with sectoral frameworks related to the EQF. She knows about EC EQF pilot projects who have been dealing with the sectoral approach, and they usually refer back to National Frameworks, not directly to the EQF. A project she has been involved in is SECCOMPAT - EQF and compatibility of the sectoral qualifications between countries".

How to get training validated and accredited in Ireland:

The NQAI does not recognise and accredit training, and so Ms Kelly refers us to the different bodies in Ireland responsible for these tasks, which are:

- Further Education and Training Awards Council (FETAC)
- Higher Education and Training Awards Council (HETAC)
- The (7) Universities
- State Examinations Commission - a non-departmental public body under the aegis of the Department of Education and Science.

Ms Kelly stated that in order to get training awarded by the official Awarding bodies (as mentioned above) one would need a course with a minimum amount of credit points (e.g. 20 ECTS).

The procedure is that the Awarding body would send their own standard format papers to the education providers when one requests a validation appeal. Their format is a competence / outcomes-based

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approach. Therefore Ms Kelly thinks that the VALLA approach is definitely useful, as VALLA is using the same approach.

Ms Kelly stated that she thinks at the end of the day all training has to have national recognition, as opposed to referencing training to sectoral or EQF levels directly, because the validation and recognition processes are at national level.

Ms Kelly commented that universities can 'subcontract' part of their education, so the VALLA methodology could be useful for training providers of for example field trips, who wish their training to be validated and accredited, to be capable of fitting in formal education systems.

She commented the VALLA project produced very useful results, as the occupational map will be a reference tool, with the basic steps on how to describe a sector and which key functions and competences exist within the sector, which are independent from any political educational system in place. The tool is a very useful tool to describe training in the appropriate format; the steps we are taking in it are indeed the steps that qualification awarding bodies are taking as well, and in which they would like to see training described. She remarked the VALLA project has come far and is going in the right direction. She acknowledged it's a difficult and long process.

Ms Kelly pointed us to recent documentation of the Irish Universities on writing their education in Learning Outcomes: "University awards and the National Framework of Qualifications (NFQ): Issues around the Design of Programmes and the Use and Assessment of Learning Outcomes".

<u>Who is the EQF national contact point in Ireland:</u>

- The CEO of the National Qualifications Authority of Ireland – Jim Murray

5.3.2 Meeting with the Higher Education and Training Awards Council (HETAC)

A brief on the VALLA project was given (including the VALLA leaflet), and the main deliverables were outlined and showed, in particular the Functional map and the online tool, including a few printed case study examples.

Mr. McKenna explains that HETAC awards qualifications at all levels of higher education and training up to PhD level. At the Irish National Qualifications Framework, which is a 10-level framework, this translates to all education starting from level 6 and upwards.

The standard procedure in case an Irish education provider is looking for validation and accreditation of their courses in HETAC is in two stages:

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1. A thorough evaluation and check of the training provider
2. Accreditation of a programme of education or training

So before HETAC will even look at any course, the provider of the course will be assessed and evaluated. This first stage is a very rigorous process and will include amongst others an identification of the providers' quality assurance methods, what are procedures for assessment of learners in place, what are procedures for ongoing monitoring and evaluation of programmes, financial stability, IPR issues, and a site visit (including interviewing people concerned). An international panel of experts will be established to assess the education provider. So the first step is to establish the competence of the provider. A provider could for example be an organisation similar to FEAP.

Only when this first step has been successfully completed, accreditation of a training course provided by the accepted institution can be made. In Ireland, education and training qualifications should be based on standards of knowledge, skill or competence to be acquired by learners. These standards are based on the level indicators and award-type descriptors of the Irish National Framework of Qualifications. The level descriptors of the Irish Framework are divided into three different types of learning outcomes – knowledge, skill and competence. These strands are then further subdivided (sub-strands) and each strand/sub-strand is important, but can have different weighting from programme to programme.

So assessment of a course will be done by indicator; each individual indicator will be assessed in detail: knowledge-breadth, knowledge-kind, know-how & skill-range, know-how & skill-selectivity, competence-role, competence-learning to learn.

Mr McKenna stated that assessment is a very important aspect, and there should be a very strong established link between Learning Outcomes and assessment of the Learning Outcome. Assessment can take all sorts of forms; it doesn't have to be formal written examinations, but can also be practical assignments. The most important thing is consistency and validity.

So each Irish qualification is structured according to the Irish NQF model.

The establishment of procedures for the assessment of learners is the responsibility of the provider.

Feedback on VALLA methodology:

1. Question: Regarding the case studies; if users followed our guidelines (principal learning outcomes, units, courses, using EQF, etc.) in Ireland is there any mechanism for validating and secondly accrediting such sectoral training? / If people use this methodology, is there a way this could be recognised nationally?

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The VALLA methodology and tool are a good start for describing programmes and acceptance by accrediting institutions, as it follows more or less the same structure for describing programmes, although our method is more based on EQF, and they would require the NQF structure. However, the language used is different, and much more importantly; HETAC would not be able to validate and accredit any course without assessing and accepting the course provider. Mr McKenna emphasised that assessment per Learning Outcome is extremely important and should be given a lot of emphasis.

Mr McKenna recommended Declan Kennedy's book for writing and using Learning Outcomes, which VALLA have been using for the tool.

Mr McKenna remarks that several institutions use their own internal online tools for describing programmes (for example the University of Limerick in Ireland).

A general criticism on using online tools for describing programmes could be that one forces the programme to suit the online tool, and that people might get lazy in describing Learning Outcomes, not putting the effort of the thought into it.

2. Question: What do you see as the challenges of mapping NQF to EQF and also sectoral frameworks to the EQF?

Mr McKenna doesn't think the 'technical'/'mechanical' translation of NQF's to EQF's is as much a problem. He thinks that a challenge will be managing the expectations of learners. One should realise that EQF is merely a translation tool which helps establishing the levels, but it does not guarantee access to a certain qualification, which is what learners might start to expect.

3. Question: Has this exercise been done in Ireland before? Do you know of any other examples?

No

5.4 Norway

There have been several meetings in Norway including University of life science (UMB) and National authorities both regarding higher education (HEA) and vocational education/training. Below is a summary of findings from these meetings.

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5.4.1 Director of Academic Affairs from the Norwegian University of Life Science (UMB)

Below is a summary from the meeting with the Director of Academic Affairs O.J. Torp at the Norwegian University of Life science UMB.

1. The mapping of the aquaculture sector (comments)

- A very good tool
- makes everything very transparent
- a good help for developing courses for the aquaculture sector
- a good help when setting learning outcomes for the courses

Questions

- How often must such mapping be performed?
- Will it cover new trends in the sector?
- Or is it a snap shot of the sector?(For instance like what happened to the salmon industry in Chile when it collapsed due to disease.)

2. The tool

A very interesting tool, especially the part describing learning outcomes in terms of knowledge, skills and evidence required.
Comment: If everyone used this, everything would be very transparent.

3. About the EQF and the methodology

In Lifelong learning how will generic skills be included. For instance, our B.Sc. and M.Sc. programs are responsible for ensuring that generic skills such as oral presentations, to write good scientific reports, etc are covered. If this is not covered within a program, the program board assigns this topic to one or several ordinary courses in the program, and it then has to be included as an outcome of the course. In lifelong learning one is allowed to select individual courses, and in this way generic skills may not necessarily be included.

To make transparent the learning outcomes in terms of knowledge, skills and competences along with the evidence of achievement, is very detailed and time-consuming piece of work.
Question: Who is responsible for this and much will it cost in total?
Within sectoral education the basic courses at B.Sc. level must include learning outcomes at a low EQF level, 3 and 4, because students can be admitted to university courses without any sectoral competence. This means that EQF level 6 courses could include learning outcomes at levels 3 and 4.

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Question: How will this be done in practice? Is it legal to have the same output at different levels?.
By recognition of a large amount of informal, work-based learning, a student may be admitted to a Master program, obviously displaying a large difference in background knowledge.
Example 1. One student may have a lot of sector knowledge and another many generic skills (how to work in groups, how to make plans, good study techniques etc.).
Questions: How is this going to be evaluated?
Who is going to decide that the learning outcome with the evidence required has been reached and how shall the assessment be carried out?
At university level for instance UMB does this at present for students whose studies at UMB last for at least two years. Example a man means that he has covered all learning outcomes for taking a Bs in aquaculture based on working experiences and own reading. Who can evaluate and give him a Bs and is it possible?
Example 2 One adult learner states that he has covered all learning outcomes for a B.Sc. in aquaculture based on work experience and self-study.
Questions: Who can assess his work experience in terms of learning outcomes and award him a B.Sc.? Is this possible?

5.4.2 Ministry of Education and Research

Below is a summary from meeting in the Ministry of Education and Research (T.F. Strøm, K.E.Berg, K.Berg)

A brief presentation of the aquaculture sector mapping was made.
Comments This seems to have been done in very good and detailed way. This must therefore be a good exercise for people in the sector. The methodology used must also have large transferable potential to other similar sectors.
The sector seems to be very structured and technical with accurately described work positions and required competences. This differs from other not so clear sectors and clearly defined competences like humanities or history. But also for such sectors some of the VALLA methodology would be relevant.

Question: If someone starts to work in the sector and achieves a lot of the competencies and wants to change sector, how can those competencies then be transferred to other sectors ? The person will still have a lot of general knowledge.
Another question that was raised: how to include more general knowledge that is important to ensure a sustainable, competitive industry willing to face change. Where are the competencies like for instance, innovation and ethics ?
Comment: The tool looks fine, and it seems good for teachers/learners to use the tool because you must focus on learning outcomes, knowledge, skills and evidences for achieving the learning outcome.

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Norway has not yet completed its NQF. There is still no final decision as to how many levels it will have. If it is linked to the school structure there will be 6 levels, primary school, secondary school, technical college, Bachelor, Master and PhD. We have been using learning outcomes but these were not not related to the EQF. This task should be completed now. Universities should have performed these both at program level and at course level before the end of 2012. The deadlines have not yet been set for the lower levels.
The quality insurance is performed by Norwegian Directorate for Education and Training on primary and secondary school. At the higher level it is carried out by NOKUT (The Norwegian Agency for Quality Assurance in Education).

Evaluation of lifelong learning on higher levels is performed by Universities (delegated from NOKUT). At lower levels, such as the craft certificate, the evaluation is delegated to educational boards in each county. This is how the system works in Norway and the results are good with regard to generic competencies but not so good on sectoral competencies.
By defining very detailed learning outcomes it might be a problem that everything will be very focused on only these. There is the possibility of losing out on the broader general knowledge (In Norway this is criticism is leveled at national tests in the primary school).
If you define very detailed learning outcome a candidate can theoretically take a master without taking any formal course at all, as has happened in Ireland. It is therefore important to describe what additional competencies were acquired as a result of attendance at normal university courses.
Teachers in Norway try to define a general framework with similar learning outcomes. In the EU examples are the Eurobachelor in chemistry that all consist of the same learning outcome

5.5 Scotland

The Scottish Qualifications Authority (SQA) is the National Body in Scotland for compulsory school education and the validating and accrediting body for qualifications in the tertiary (Further Education) and vocational education and learning. We are also the key Credit Rating and Levelling Body for the inclusion of qualifications on the Scottish Credit and Qualifications Framework (SCQF) which is closely aligned to the EQF. This is an Outcome-based framework with clear benchmarks for each of its 12 levels. SQA has been pleased to be a partner in the VALLA Project and its predecessor, WAVE. By utilising SQA methodology, each of these projects has developed distinct products. WAVE developed the Master List of Competencies to work effectively in Aquaculture across Europe. This was then used by the VALLA team to develop the Online Tool. We recognize that the generic nature of the Tool means that it can be readily adapted to any occupational sector to offer the opportunity for employers and training providers to select the key competencies required by its workforce to create Outcome-based training programmes/courses suited to their needs. VALLA has demonstrated this by using Aquaculture as the 'test' sector. As the Master List is based on identified industry competencies, we can further see how

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this Tool may be used to evaluate prior experience and/or informal training and to carry out training needs analysis. We acknowledge the consultation process which informed the development and updating of the Master List which forms the basis of the Online Tool. SQA regards consultation with key stakeholders, employer and employer representatives, education and training providers and professional bodies as paramount to the accreditation and credit rating of any qualification/programme.

We acknowledge the methodology used by the VALLA Partners to develop the Online Tool. The Partners have demonstrated that this is clearly based on Occupational and Functional Mapping of the sector, the prerequisite to the development of occupational standards of competence for an industry. This is a tried and tested methodology and is used by SQA to develop, accredit and validate qualifications. The development of a set of comprehensive case studies at the Dublin Workshop further reinforces the content of the Occupational and Functional Maps and demonstrates how the Tool can be used effectively to evaluate both formal and informal learning and experiential learning. This is very valuable in determining existing skills and knowledge of individuals within the workforce and to identify future needs.

However, we have to stress that for accreditation/validation, the learning should be Outcome-based and there must be demonstration of assessment of skills and/or knowledge. So far as 'validating unaccredited' training goes, this can only be done by an appropriate agency, not by individual employers or training providers if they want it to have 'national' currency: i.e. it must be measurable**.**
Scotland has a Credit Rating and Levelling framework for all qualifications known as the Scottish Credit and Qualifications Framework (SCQF). This has 12 levels and covers both academic and vocational learning. This spans secondary school education through to Masters level, beginning with three Access levels (levels 1-3 for non-advanced learners), moving on to levels 4-6 which cover the post-16 school qualifications and are also available for a range of non-advanced college-based and work-based courses. Levels 7 and 8 cover advanced and professional qualifications such as Higher National Qualifications (Higher National Certificate –HNC- and Higher National Diplomas – HND), Ordinary Degrees and occupationally-specific, competence-based qualifications such as Scottish Vocational Qualifications – SVQs at these higher levels. Levels 9-12 cover post-graduate courses through to Masters degrees. It promotes and values Lifelong Learning for all learners, both in academic and vocational terms.

The SCQF is aligned to the EQF and is Outcome-based. This allows all qualifications to be measured against agreed benchmarks and assigned both a credit value and a level. The Scottish Qualifications Authority is the key Credit Rating and Leveling body in Scotland. SQA is a partner in the VALLA Project (and the predecessor WAVE Project) and has provided technical advice on the development of the Occupational and Functional Maps and how to write Outcome-based courses which could lead to qualifications. By following SQA Unit Writing principles, it is possible for detailed Outcomes to be

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developed which cover the essential knowledge and/or skills required to achieve competence. Central to the process is Assessment as this is measurable and allows for the level to be assigned.

VALLA has employed the SQA Criteria in the development of the Functional Map and Online Tool. The VALLA Functional Map clearly identifies the competencies associated with all aspects of Aquaculture and this will make it possible for individual employers, training providers (including Further Education Colleges and Universities) to select the Competencies appropriate to the required job role from the Online Tool, define Outcomes and devise appropriate assessments to meet the Competence. In this way, the course can be measured and assigned a credit rating and level against the SCQF.

It is important to emphasise that Credit Rating and Levelling of qualifications in Scotland can only be done by an appropriate approved Body such as SQA and that there is a cost associated with this service. However, this is offset by the added value of having nationally recognized qualifications which are clearly benchmarked within the SCQF and it opens up funding opportunities for candidates and providers.

The benefit to the candidate is clear: the course they undertake, whether in the workplace or college/university, has a clear value at an agreed level and it is possible to accumulate credit points in the chosen field of study to lead to higher levels of qualification. For example, students may undertake an HNC which carries 96 Credit Points at level 7 then progress to HND at level 8 and carries 240 points (including the 96 from the HNC). These can be accumulated and provide a progression route to the Scottish Bachelor (Ordinary) Degree. This sits at level 9(SHE level 3) and has at least 360 credits of which a minimum of 60 is at level 9. The Ordinary Degree is typically offered through the equivalent of three years full-time higher education but candidates who have achieved an appropriate HND may enter at Year 3 and complete the final credits for the award of Degree. The Ordinary Degree is recognised as the normal entry to a number of professions across the UK. Successful candidates could then further progress to the Scottish Bachelors Degree with Honours at level 10 (SHE level H). This carries at least 480 credits of which a minimum of 180 is at levels 9 and 10, including at least 90 at level 10. The Honours Degree is typically offered through the equivalent of four years' fulltime higher education but as with the Bachelor's Degree can be accumulative. The Honours Degree is recognised as the normal entry to postgraduate study.

This approach clearly promotes the concept and philosophy of Lifelong Learning and opens up alternative routes to qualification and competence for individuals. By using the Online Tool to develop Outcomes, employers and training providers can develop courses and submit these for Credit Rating and Leveling by an appropriate body.

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Overall discussion

From the meetings with the national authorities and higher education institutions emerged a number of interesting findings which are outlined and discussed below.

Occupational and functional mapping

All seemed to like the occupational and functional map developed for the aquaculture sector. It was especially pointed out as positive that the industry has been involved so directly in the project. The developed methodology should also be able to be transferred to other similar sectors. For developers of courses it must also be a good tool because it gives a view of the industry and what they need. But as has been pointed out, it will only give a snap shot of the industry at the point of time when developed and this must be taken into consideration when using it. It must be renewed at fixed intervals. When developing such a functional and occupational map it is also of great importance that it should be as general as possible but of course without losing important factors. It must be able to incorporate new trends.

The dedicated software

The national authorities and universities all like the developed software, and they see it as a good practical instrument for describing non-formal, informal and formal learning. Since describing learning outcomes also is quite new the tool also provides helpful guidance for course developers without experience of Learning Outcomes. The workshop where the software tools were demonstrated showed that it was very difficult for untrained trainers to use learning outcomes and they had to be given a lot of guidance. What was especially difficult was to relate the outcomes to the correct EQF level. Some of the "buzz words" used for the different EQF levels is included in the software but after discussing with National authorities and higher education institutions it seems that even more could be included/highlighted in the software.

What also transpired is that it will be a lot of work for teachers to define the learning outcomes of their courses in such a detailed way. So even if such systems are very transparent, it is going to take a lot of effort to do it in this way. This is especially relevant due to the fact that sector mapping will only be a snap shot of the sector and has to be regularly revised.

One general criticism made concerning the use of online tools for describing programmes, was that the use may force the course to suit the online tool, and that some people might get lazy in describing Learning Outcomes, and would not put the effort of the thought into it.

Validation of lifelong learning

How lifelong learning is validated varies between EU countries but all seem to have such systems. Validation of generic skills is quite often carried out, but not for sector validation (apart from formal

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courses which are accredited in ECTS or ECVET). One important factor in this seems actually to be the fact that functional and occupational mapping of a sector along with detailed descriptions of learning outcomes has not been carried out before.
One important factor that came up in the discussions with national authorities is the financial aspects of qualification awards. Approval of non-formal training as a result of fulfilling required learning outcomes may have great consequences for the salary of the applicant. Therefore it is important that the industry has been included in developing the system. Because of this, who approves the quality will become very important as will finding the evidence to support the claim that the applicant has actually achieved the required learning outcome.

However, it is important to remember that validation of unaccredited training can only be done by an appropriate agency, not by individual employers or training providers and if they want it to have 'national' currency: i.e. it must be measurable**.**

Generic skills
When mapping a sector with help from the industry it is very easy to omit generic skills that are also important for the industry. In a formal setting this will be included in the courses, but not necessarily in the specialized sectoral courses. A course focusing on innovation, which makes the sector more adaptable to change, was one example which came up, while another was general ethics, which of course is important for managers in the aquaculture sector.

Added value of formal education
The validation of informal learning may result in candidates missing certain features available to candidates in formal education, for example, working in groups or acquiring a broader view of the subject area.

EQF progress
There are significant differences in how far the different countries have come in creating National Qualification Frameworks and relating these to the EQF. There are few countries that have calibrated a sector framework against National Qualifications Frameworks and gone on to link the national framework with EQF levels. This shows that the process not has come very far and that this exercise is difficult when it comes to practical implementation. However as said before, there is a real challenge to define the actual learning outcomes needed for different occupational and the different EQF levels.

Could such a sector framework inhibit robust lifelong learning?
The development of very detailed sector learning outcomes is a very good outcome for candidates, whether they take a formal or non formal learning pathway. But what happens when they want to

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change sector? Are they then regarded as unskilled because they have fulfilled only sectoral learning outcomes? How easy is it to transfer such knowledge and learning outcomes to another sector?

Conclusion

- A method for occupational and functional mapping of a sector was developed and tested for the aquaculture sector
- A generic software tool that makes it easier for trainers to define both formal and non-formal training units in terms of competences and learning outcomes based on existing European Best Practice was developed
- 20 case studies on formal and non formal learning using the occupational and functional mapping and the developed software were performed
- Meetings with higher education institutions and National authorities in five European countries were carried out, the results of which show some very interesting and relevant feedback in respect of the specially designed Valla methodology.

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