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# AQUAVET

## Activity O5-A1

### *Compiling evidence on the validation of the AQUAVET curriculum*

## **METHODOLOGY**

NILHR

February 2017

Project acronym:	<b>AQUAVET</b>
Project name:	Strategic Partnership for the development of a VET course on water efficiency technologies for water technicians
Project code:	2014-1-EL01-KA202-001601
<b><u>Document Information</u></b>	
Document ID name:	AQUAVET_ O5-A1_ COMPILING EVIDENCE ON THE VALIDATION OF THE AQUAVET CURRICULUM
Document title:	COMPILING EVIDENCE ON THE VALIDATION OF THE AQUAVET CURRICULUM
Output Type:	Intellectual Output
Date of Delivery:	02/03/2017
Activity type:	Study/analysis
Activity leader:	<b>NILHR</b>
Dissemination level:	Public

**Document History**

Versions	Date	Changes	Type of change	Delivered by
Version 1.0	17/11/2016	Initial document		<b>NILHR</b>
Version 2.0	31/01/2017	Second Draft	After partners amendments	<b>NILHR</b>
Version 3.0	27/02/2017	Final document	After partners amendments	<b>NILHR</b>



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## Introduction

This document provides the methodology which will identify the most suitable evaluation tools for the training pilots and the train-the-trainer seminars (C1, C2), in order to produce a validation report based on the assessment of the project results by trainers and learners.

The methodology for the validation of the AQUAVET learning materials will mainly focus on the water efficiency technologies learning outcomes in line with the EQF formulation of learning outcomes instructions and the European transparency tools.

*This deliverable* is structured as follows:

**Chapter 1** introduces the reader to the European context and guidelines on Validation of non formal learning, and provides definitions of terms and concepts used in this deliverable.

**Chapter 2**, briefly presents the activities of the AQUAVET project which will be the context of the Aquavet curriculum evaluation, namely the training pilots and the train-the-trainer seminars (C1, C2). This chapter focuses, then, on the purpose and the tools applied for the validation methodology and their limitations in order to validate the Aquavet curriculum as well as a timetable of the activity.

**Annex 1** presents the tools and evaluation forms for the Training Pilot, and

**Annex 2**, presents the tools and evaluation forms for the Train the Trainer Seminar

## Chapter 1: The European Context of Validation

The economic globalization and the intense economic competition raise more than ever the need for a skilled workforce competitive in terms of productivity, quality and innovation.<sup>1</sup>

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<sup>1</sup> ([http://ec.europa.eu/education/policy/strategic-framework/growth-jobs\\_el.htm](http://ec.europa.eu/education/policy/strategic-framework/growth-jobs_el.htm))

From the "Lisbon Strategy" 2000 to the "Europe 2020", the European Union gives increasing emphasis on the education and training of the workforce, highlighting them as among the most essential elements for the economic and social development of the common European space.

## 1.1 Tools for recognition of skills and qualifications

In order to increase the human capital skills, as well as the labour and educational mobility in the common labour market, the European Union has developed several "tools" and has been promoting the transparency and recognition of knowledge, skills, and competences.

Four (4), of the most important tools are:

- **European Qualifications Framework (EQF)**
- **National Qualifications Framework (NQF)**
- **Europass**
- **European Credit System for Vocational Education and Training (ECVET)**

With these kinds of tools, qualifications and learning outcomes achieved by European citizens in one country are more easily compared and recognized in another EU country.

For a better understanding of their function, the meaning of these terms according to Cedefop Terminology,<sup>2</sup> is given below:

- **European Qualifications Framework (EQF)** is a *reference tool for describing and comparing qualification levels in qualifications systems developed at national, international or lifelong learning (EQF) sectoral levels. Comment: the EQF's main components are a set of eight reference levels described in terms of learning outcomes (a combination of knowledge, skills and/or competences) and mechanisms and principles for voluntary cooperation. The eight levels cover the entire span of qualifications from those recognising basic knowledge, skills and*

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<sup>2</sup> CEDEFOP, (2014). Terminology of European education and training policy, Second edition a selection of 130 key terms, Luxembourg: Publications office of the European union, file:///C:/Users/c.paidoussi/Downloads/4117\_en%20(3).pdf



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*competences to those awarded at the highest level of academic, professional and European qualifications framework for lifelong learning (EQF) vocational education and training. EQF is a translation device for qualification systems.*<sup>3</sup>

- **National Qualifications Framework (NQF).** Is the national formal system describing qualifications. *Each country corresponds to each of the eight levels of the EQF, the qualification that correspond after the compulsory education to the highest level of academic and vocational education and training*<sup>4</sup>
- **Europass,** *Portfolio of five documents helping citizens to better communicate their skills and qualifications when applying for job or study in Europe. The Europass CV and the language Passport are completed by citizens themselves; the other three documents can be issued to citizens who achieve a mobility experience in another European country (Europass mobility) or who complete a formal programme of vocational education or training (certificate supplement) or of higher education (diploma supplement). Comment: Europass promotes an adequate appreciation of learning outcomes acquired in formal, non-formal or informal settings.*<sup>5</sup>
- **European Credit System for Vocational Education and Training (ECVET)** *Technical framework for transfer, validation and, where appropriate, accumulation of learning outcomes by individuals, to achieve a qualification. ECVET tools and methodology comprise a description of qualifications in units of learning outcomes with associated points, a transfer and accumulation process and complementary documents. ECVET is based on the description of qualifications in terms of learning outcomes (knowledge, skills and/or competences), organised into transferable and accumulable learning units to*

<sup>3</sup> [https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im\\_field\\_entity\\_type%3A97](https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97)

<sup>4</sup> Cedefop (2015). National qualifications framework developments in Europe – Anniversary edition Luxembourg: Publications office of the European Union. Cedefop information series.

<sup>5</sup> [https://ia600402.us.archive.org/27/items/ERIC\\_ED560857/ERIC\\_ED560857.pdf](https://ia600402.us.archive.org/27/items/ERIC_ED560857/ERIC_ED560857.pdf)

*which credit points are attached and registered in a personal transcript of learning outcomes.*<sup>6</sup>

## 1.2 Validation guidelines

In recent years, however, another issue that the European institutions for education and training faced is the identification and recognition of knowledge and training that is acquired outside the formal education and training system, such as work, training programs or even the knowledge acquired through the “Massive Open Online Course” (MOOC).

In 2012 a recommendation from the European Council encouraged all Member States to establish a procedure for the validation of skills and competences acquired in non-formal and informal learning ways.<sup>7</sup> This process adopted some basic principles and called validation principles: Common European principals on validation on non formal and informal learning.<sup>8</sup>

In this deliverable the methodology to be followed is largely inspired by the EU guidelines on the validation of informal and non-formal learning / education. This approach is justified by the fact that the Aquavet Curriculum was developed in a non-formal educational process, and that the learning material will be available through Open Educational Resources (OER) (massively and freely available online courses).

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<sup>6</sup> Cedefop (2014) Terminology of European education and training policy, Second edition a selection of 130 key terms, Luxembourg: Publications office of the European union.

[https://ia600402.us.archive.org/27/items/ERIC\\_ED560857/ERIC\\_ED560857.pdf](https://ia600402.us.archive.org/27/items/ERIC_ED560857/ERIC_ED560857.pdf)

<sup>7</sup> **Validation of learning outcomes** confirmation by a competent body that learning outcomes (knowledge, skills and/or competences) acquired by an individual in a formal, non-formal or informal setting have been assessed against predefined criteria and are compliant with the requirements of a validation standard.

Validation typically leads to certification or Process of confirmation by an authorised body that an individual has acquired learning outcomes measured against a relevant standard. Source: Cedefop, 2014; council of the European Union, 2012.

<sup>8</sup> [http://ec.europa.eu/education/policy/strategic-framework/skills-qualifications\\_en.htm](http://ec.europa.eu/education/policy/strategic-framework/skills-qualifications_en.htm)

More specifically the methodology described hereafter is mainly related to the documentation and certification of a validation process. The documentation of the learning outcomes aims at making visible what the learner will know after the training. Methodology places emphasis on producing evidence of the skills acquired through learning process and on certifying that the learner's skills have been achieved against certain standards. In this sense, the methodology deals with the evaluation and assessment as part of the validation of non-formal learning process, which will afterwards enable the recognition of learning both by an educational institution or by an employer.

It must be noted in this context that at present, most EU countries have already adopted or are in the process of developing their own systems for validation. Countries such as the UK and the Netherlands, two of the countries involved in this project, are considered to be far ahead in the recognition of non-formal and informal learning, while countries such as Spain and Greece continue to be at the beginning. Although, at the European level there isn't a standard way of validation, a process that combines all or some of these four elements, is considered reliable enough.

For a better understanding of the validation process according to the "Validation guidelines"<sup>9</sup> we present below the four main steps;

- **Identification:** This is the first, fundamental stage of the validation process. During this stage we are trying to reveal the prior learning of an individual – whether of a formal, non-formal or informal nature. A good approach is to find the equivalence of these learning outcomes in National Qualification Framework (NQF).
- **Documentation:** This is the process where the individual proves in various ways (through documentation, CV, work attestation, demonstration), his/her knowledge of a subject (*provision of evidence of the learning outcomes acquired*).<sup>10</sup> The documentation of learning outcomes is of central importance to their subsequent assessment.

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<sup>9</sup> Council of the European Union 2012

<sup>10</sup> Cedefop (2015). European guidelines for validating non-formal and informal learning. Luxembourg: Publications Office. Cedefop reference series; No 104.<http://dx.doi.org/10.2801/008370>

- **Assessment** is essentially a referencing process. Learning outcomes documented are referenced against a specific standard (e.g. a skills or requirements profile) or against certain expectations. *“This can imply evaluation of written and documentary evidence but might also involve evaluation of other forms of evidence”.*<sup>11</sup>
- **Certification** It is the result of the assessment of an individual's learning outcomes acquired through non-formal and informal learning. The certification can lead to a certain level of a NQF or EQF.

## Chapter 2: Methodology of Validation of the Aquavet curriculum

The compiling of evidence with which will build the Validation arrangements of the educational material of AQUAVET project, will take place through two educational activities where the curriculum will be used. Both the first and second activity - the training pilot and the train the trainer seminar- provide precious elements and information concerning the quality of training material, its response to the needs and expectations of trainees and the achievement of learning outcomes

Furthermore these activities offer the opportunity to identify critical weaknesses and but also strengths of the training material so as to carry out the necessary corrections or to highlight the positives aspects. These activities contribute to the improvement of the educational processes and training tools of the Aquavet curriculum, which are essential for the quality of training, a strategic objective of the European education and training policy.

In the context of a European project such as Aquavet, the evaluation process has an additional value: it gives interesting information about the attitudes of water technicians that come from different European countries, with different training and validation systems, but also career paths and national labour markets, toward a common training material.

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<sup>11</sup> Ibid.

In order to achieve the project objectives, an evaluation process will be applied that involves the main actors of the vocational training, such as the trainer who is responsible for implementing the training program and the trainee who wants to acquire new, knowledge, skills and competences in his/her specialty.

The evaluation process suggested below aims to collect valuable evidence that will contribute to the further improvement the training program, and to the validation of the curriculum in the European context.

## **2.1 Training Pilot evaluation tools: purpose, processing**

### *2.1.1 Short description of the Training Pilot*

The first activity of the multiplier events is the training pilot. According to the project there will be three (3) training pilots in the Netherlands, United Kingdom, and Spain, primarily for the purpose of sharing and multiplying the AQUAVET learning materials.(E1-E2-E3).According to the project, on the occasion of these one-day pilot delivery sessions, the partnership will valorise the trainees' feedback for further optimisation and evaluation of the AQUAVET pedagogical resources, to ensure that project outcomes reached their target audience and purpose. Sharing of the "hard skills" and "green skills" learning units will be provided by the AQUAVET partners (NSAET, CONAIF, WWA) responsible for the organisation of the pilot events, within the context of their existing training programs during that period. The provision of materials and delivery of training will be carried out by partners' in-house qualified trainers.

The events will be structured as follows:

- a)** integration of the AQUAVET curriculum (learning outcomes (O2-A1), learning units (O2-A2) and instructional and pedagogical resources and assessment tools (O3) on the partners' existing provisions for water technicians,
- b)** pilot use (by both trainers and learners) of the AQUAVET open educational material (O4),
- c)** gathering of feedback from learners via a follow-up questionnaire activity.

According to the project, the training pilot will be evaluated by the participants/learners who include water technicians that undertake already WWA, Summit Skills and Conaif training courses, and workers employed in the water industry sector, who will be reached by the project's dissemination efforts in each country of the project partners.

### *2.1.2 Methodology and evaluation tools*

Because of the limited duration of the training pilot, one day, the possibility to apply evaluative procedures and collecting appropriate data to document the involvement of the target group, trainers and trainees, is limited.

However, it is considered necessary, even if limited to evaluate selected modules of the training programme as well as the teaching tools by trainers and trainees. The value of the evaluation is even greater, partly because trainers who are invited to deliver training are not directly involved in the program and therefore are 'objective' evaluators, but also because part of the educational product will be tested by trainees and professionals, who know the real *professional needs* of water technicians.

#### ➡ **Purpose**

The evaluation process is developing in accordance with the validation guidelines (*described in the 1<sup>st</sup> Chapter*) and in particular the **identification** and the **Informal assessment** phase.

In the first phase **of identification** the objective is to identify the educational and professional profile of the trainer as well as the hard and soft skills in water efficiency technology acquired (self-evaluation) either through work experience or education/training. These types of evidence ensure that the trainee is at level 3/4 of the NQF -EQF, so he/she belongs to the appropriate target group, but he/she is also a competent and qualified person to assess the educational program.

Afterwards, a second element that will be elicited will be the basic knowledge of the trainees in relation to the subject matter of the curriculum that will be taught. This will take place through

a simple self-evaluation sheet on «hard skills» and «green skills» in water efficiency technologies. The self-evaluation enables one, theoretically, to investigate at the end of the training what was learned by the trainee or perhaps what was novel in what he/she heard during training in relation to what he/she already knew. This provides an additional argument in favor of the value-added of the program's educational products.

In the **Informal assessment** stage, there will be two forms/tools of evaluation. The first form that will be filled by the trainers aims to collect information in relation to the educational process that was followed, the educational material used, and the learning outcomes that were achieved, as well as the reaction of the trainees to it.

The trainees, on the other hand, will carry on their own evaluation, mainly on the training material and the assessment exercises that they will undertake during the Training pilot. This is a very important procedure because provide feedback on the perception of the effectiveness of the training format and content from the professionals.

### ➡ Tools

At the first phase, **identification**, two main tools will be used in order to record important characteristics of the trainee :

1. A short C.V in order to identify his/her educational and professional background and making visible the learning and career path of the trainee (Form 1)
2. A self evaluation form for identification of hard and soft skills in water efficiency technologies (Form 2)

At the second phase, **Informal assessment**, two evaluation forms will be used,

3. Evaluation form to collect trainee feedback (Form 3)
4. Evaluation form to collect trainers feedback (Form 4)

### ➡ Process

The first two forms will be filled at the beginning of the training pilot by the trainees with the help of the trainers. The other two will be filled at the end of the training pilot (see timeline).

It would be reasonable to fill these forms electronically, as long as there is the option of using computers. If there is no such option, then they will be filled manually.

Every participant will fill the forms in his/her native tongue.

At the end of the whole process the filled forms will be sent to NILHR electronically, for their analysis and integration in the report.

➔ **Timeline for evaluation activities**

what	when	By which means
short C.V (trainees) (15 mins max)	at the beginning of the Training Pilot	discussion individual work
fill in the Self Evaluation form (trainees) 10 mins max)	at the beginning of the Training Pilot	individual work
Evaluation form (trainers) (10 mins max )	at the end of the Training Pilot	individual work
Evaluation form (trainees) (10 mins max )	at the end of the Training Pilot	individual work
Send the above four(4) forms to NILHR	after the Training Pilot	e-mail

## 2.2 Train-the-Trainer Seminar evaluation tools: purpose, processing

### *2.2.1 Short description of the Train the Trainer*

The Train-the-trainer Seminar, is the second multiplier event for the implementation of evaluation tools and the collection of data in the framework of the validation of the Aquavet curriculum.

According to the project implementation phase, the AQUAVET partnership foresees two five-day transnational train-the-trainer seminars: one in Greece, to be organised by NILHR and one in Spain, to be delivered by CONAIF. These training activities will be addressed to trainers involved in the delivery of courses for water technicians.

In each case, the partnership will train 30 trainers (26 in the case of Spain) on how to use, adapt, contextualise, and further develop the AQUAVET learning materials for the provision of water efficiency technology knowledge, skills and competences in line with the European recognition tools, such as ECVET.

For each Train the Trainer seminar, the partnership will invite 20 local and 10 international (6 in the case of Spain) participants, officially recognised by the national authorities of their countries as VET trainers.

### *2.2.2 Methodology and evaluation tools*

This seminar, due to its duration of 5 days and its composition with participations mainly from the two countries of the plan's implementation, Spain and Greece, provides a good opportunity for a more substantive evaluation of the educational products produced in the framework of the program.

Moreover, it allows for the comparative assessment of the learning outcomes for different audiences. At this stage as well the gathering of data for the validation report will come mainly from the evaluation forms which will be filled by the trainees and trainers of the train the trainer event.

## ➔ Purpose

The evaluation tools presented subsequently are also applied here in two phases of the validation process, **identification** and **Informal assessment**.

Regarding the process of **identification**, the main purpose in this first step is, to record the trainee's profile, the knowledge he/she has in general about the sector of watering technologies, the knowledge acquired from professional experience or from education/training. Such recording assures and proves that the trainee belongs to the appropriate target group. For the recording of the educational and professional profile of the trainee the form of the European CV – Europass – will be used.

Subsequently, a second element that will be investigated will be the basic knowledge of the trainees in relation to the subject matter of the curriculum which they will be taught. This will be accomplished through a self-assessment sheet regarding «hard skills» and «green skills» in water efficiency technologies as developed in the framework of the program.

Additionally, trainees will be given a pre-training test, with questions relevant to the materials taught, which will also be given at the end of the training, in order to facilitate an assessment of the knowledge acquired during the training. This method is used to measure knowledge gained from participating in a training course and to see whether the training was successful.

Regarding the evaluation of the program, the content, the educational tools and the assessment process, at **informal assessment phase**, aims at gathering data from the program's implementation, the assessment process that was followed and the reaction of the trainees to it. The evaluation of learning outcomes will be carried out during the last day of the seminar gathering evidence from participants with the use of questionnaires asking trainees to rate the educational material and methods but also the degree of alignment of the seminar's learning goals with the self-perceived attainment of learning outcomes. The trainers will have also and

active role in the evaluation of the whole training procedure and the results produced. Finally there will be a focus group discussion by splitting the participants in 5-6 persons groups, to explore how they aim to apply the knowledge from the seminar for the exploitation of AQUAVET outputs, but also share their views about, validation, training qualification, work mobility in the E.U etc.

### ➡ Tools

During the first stage, **identification**, basic summary information about the trainee are entered, through forms that inscribe:

1. The educational and occupational profile of the trainee (European CV – Europass) (Form 1)
2. The knowledge of the trainee of hard and soft skills in water efficiency technologies (self-evaluation) (Form 2)
3. The possible specialized knowledge of the trainee on the subject matter of the seminar (through a pre-training questionnaire) (Form 3)

At the second stage, concerning **Informal assessment**, the forms to be used concern:

4. Evaluation by the trainers of the program's content and the assessment process (Form 4)
5. Evaluation by the trainees of the program's content, educational tools, assessment process (Form 5)
6. Focus group discussion (Form 6)

### ➡ Process

The CV will be filled by the trainees before the beginning of the training and will be a precondition for their participation in the seminar. The other two forms will be filled at the beginning of the train the trainer seminar by the trainees.

Every participant will fill the forms in his/her native tongue.

Here as well, if there is an option to use computers, the filling of the forms could be done electronically, but if there is no such option, then they will be filled manually.

The evaluation forms will be filled by the trainers and trainees during the 5th day of the seminar. On the same day the **focus groups** will convene.

At the end of the whole process all the above will be sent to NILHR electronically for analysis and for the drafting of the report.

➔ **Timeline for evaluation activities**

what	when	By which means
Europass C.V. for trainees	One month before the Train the trainer seminar- during the selection period	e-mail
- fill in the pre training test (15 mins max)	At the first day of the Train the Trainer seminar	Individual work
- fill in the Self Evaluation form (10 mins max)	At the first day of the Train the Trainer seminar	Individual work
- evaluation form (trainers) (10 mins max)	At the 5 <sup>th</sup> day of the Train the Trainer seminar	Individual work
- evaluation form (trainees) (10 mins max)	At the 5 <sup>th</sup> day of the Train the Trainer seminar	Individual work
- focus group discussion (trainers, trainees, representatives from the partners, SP, GR) ( 60 mins)	At the 5 <sup>th</sup> day of the Train the Trainer seminar	Discussion, groups



Send the evaluation forms and the other material to NILHR	After the Train the Trainer seminar	e-mail
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