

Questionnaire on Vocational Training Needs

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1 Overview

This is a formal Deliverable from the Work Package 2, whose principal subjects refers to Training needs and curricula design.

This deliverable aims assessing the training needs, based upon results of the preliminary survey on training needs carried out in the proposal phase and in other initiatives.

The assessment of training needs is carried out at the level of eLEANOR partners and target groups, investigating about their requirements for training in water sector. The training needs will be assessed according to the considered categories of professionals in water industry and to the topics of interest dealing with the implementation of EU Directives on waste water management, water supply and storm water management.

Upon the results of the survey, this WP2 also aims drafting the Curricula (learning pathways) for all the 3 categories of water industry professionals considered by the project (technicians, engineers and managers) and at validating the outcomes with the help and contribution of industrial partners.

Curricula, moreover, need also to be updated over time and adapted to legislative and technological changes. This implies a continuous monitoring of the context, aspect that will be anyway analysed as a part of the Valorisation Plan.

Finally, transparency of training offer and compliancy with European Credit System for Vocational Training (ECVET) is also experimented in this WP.

1.1 Goals and Objectives

The main objectives of this WP are:

1. Assessment of vocational training needs: The assessment of needs of water sector at vocational training level is carried out through a questionnaire developed upon the basis of preliminary surveys and investigations performed in the proposal phase and in the framework of other initiatives in the specific sector. Target addressees of the questionnaire will be potential end users of eLEANOR training already addressed by other initiatives carried out by the Consortium, such as EuroAquae, Erasmus Mundus, Hydroeurope, WSSTP and WATER-GIS Network promoted by GISIG (P1) now being contacted for an ad-hoc focus on their training needs. Other important stakeholders will be also considered.
2. Curricula design: In this task, eLEANOR curricula are prepared covering topics for different vocational trainings identified. Learning pathways are drafted for Technicians, Engineers and Managers. They clearly define the path to be followed to get specific skills or to move from a level to another and, if possible, from a category to another. Learning paths are also

documented through metadata to standardise their description and the available information on them.

3. Introduction & Integration of ECVET: Articulation of the reference systems such as ECTS, ECVET and EQF (European Qualification Framework for lifelong learning) will be highlighted in the design of eLEANOR curricula, in order to describe qualifications in terms of knowledge modules and units of learning outcomes. Especially ECVET as a technical framework will be used by the certifiers and the training centres to ensure the best comparability and compatibility of units of recognition in different countries as well as to achieve the equivalence and conversion among them.
4. Curricula validation: Validated by actual and potential users during the project, to assess and evaluate their consistency with water sector needs for vocational training and their applicability to the labour market. The curricula are submitted for a validation to the industrial partners in the Consortium as well as presented to potential stakeholders and final users during the dissemination and the training workshops. Outcomes and results of these workshops will help to tune the curricula accordingly.

The major goal of this deliverable is to achieve the first objective of this WP2.

2 INTRODUCTION

In order to identify the vocational training needs in the water sector, the first mandatory step is to get the acquaintance of the water business sector.

This deliverable includes the activities and tasks aimed at identifying and assessing, in the various water business processes, the gaps in education that deserve to be bridged according to the needs of the different jobs profiles.

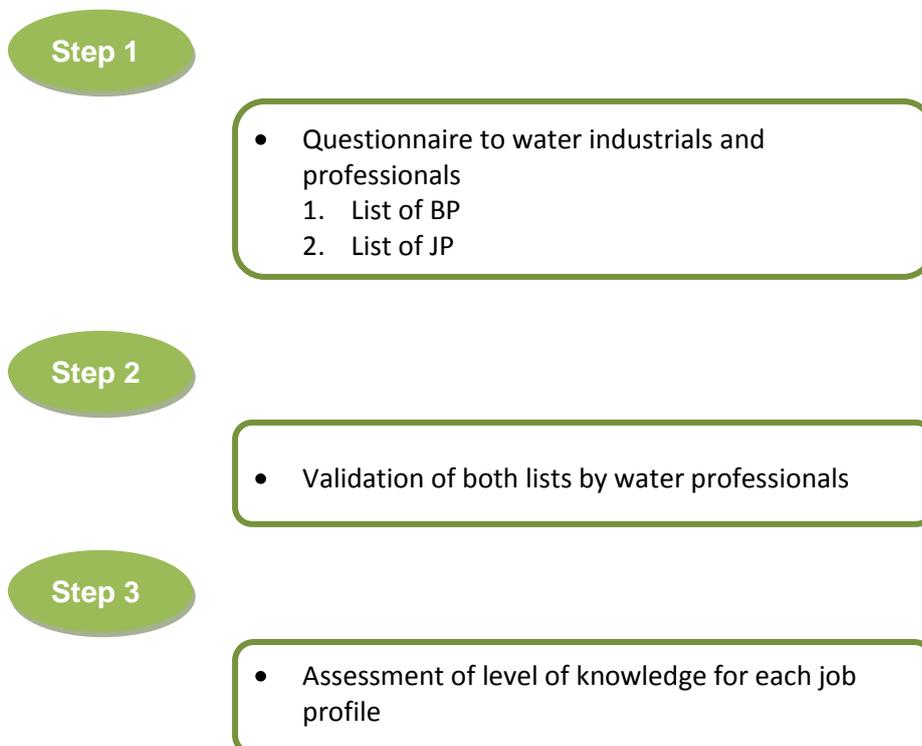
This deliverable deals therefore, with the identification of all macro business processes and job profiles involved in the water domain, as well with the relation between each other.

This WP will define the detailed scope of the project by a deep investigation of the importance of the relationship between a business process and a job profile; covering at the same time the waste water treatment and water supply domain.

The process of assessing vocational training needs is a key issue for the success of the project and provides a real added value to professional communities.

The chosen methodology to assess this training need was through a matrix, where the jobs profiles are listed in rows and the business processes in columns and the questionnaire itself consisted in filling the cells with the importance of each job profile with each business process, giving a suggestion of the ideal training for each job profile.

In synthetic overview, this WP is resumed in the following scheme:



Step 4

- Step 3 validation by water professionals

Step 5

- Identification of training needs

Step 6

- Validation of training needs

The steps that will be developed in this deliverable are steps from 1 to 4.

3 WATER BUSINESS SURVEY

The extension of the water domain is rather large, so in order to precise the different BP and the JP that derives from them, a better understanding of the water cycle was studied.

This understanding helped to choose afterwards the water uses we would work on.

3.1 The Water Cycle

Water cycle, also known as the hydrologic cycle, is the circuit of water movement from the atmosphere to the Earth and subsequent return to the atmosphere through various stages or processes such as precipitation, runoff, evaporation and condensation.

The Water Cycle can be divided in the following *Domains*:

- Natural environment;
 - Natural Hazards;
 - Water uses, which compounds the following *Uses*:
 - Agriculture;
 - Industry;
 - Recreation;
 - Energy;
 - Transport/Navigation;
 - Urban.
- } *Domains*
- } *Uses*

Where each domain can be defined as:

- Natural environment: Encompasses all living and non-living things, including natural forces occurring naturally on Earth or some region thereof, providing conditions for development and growth as well as of danger and damage. It is an environment that includes the interaction of all living species.

Referring specifically to water environment, there are different *biotopes* than can be distinguished.

A *biotope* is an area of uniform environmental conditions providing a living place for a specific assemblage of plants and animals. The subject of a biotope is a biological community.

Therefore, some examples of biotope are continental waters (rivers, lakes, reservoirs..), coastal and maritime environments.

- **Natural Hazards:** Unexpected or uncontrollable natural event of unusual intensity that will have a negative effect on the environment or people by threatening their lives or activities. Atmospheric hazards are weather-related events, whereas geologic hazards happen on or within the Earth's surface. However, it is important to underline that atmospheric hazards can trigger geologic hazards, and geologic hazards can trigger atmospheric hazards.

In the water domain, natural hazards are related to floods, droughts, tsunamis, limnic eruptions, seiche.

- **Water Uses:** Are composed of the water cycle with the added influence of human activity. Dams, reservoirs, canals, aqueducts, withdrawal pipes in rivers, and groundwater wells all reveal that humans have a major impact on the water cycle. All in all, the *Water uses* considered in this framework are:

It was agreed among the partners that this project would intend to deliver courses for the *Urban Use*, of the Water Uses domain.

Therefore it can be defined as:

Urban: Urban water use is generally determined by population, its geographic location, and the percentage of water used in a community by residences, government, and commercial enterprises. It also includes water that cannot be accounted for because of distribution system losses, fire protection, or unauthorized uses. For the past two decades, urban per capita water use has leveled off, or has been increasing. The implementation of local water conservation programs and current housing development trends, have actually lowered per capita water use. However, gross urban water demands continue to grow because of significant population increases and the establishment of urban centers. Even with the implementation of aggressive water conservation programs, urban water demand is expected to grow in conjunction with increases in population.

3.2 Business Process and Job Profiles

A first classification of urban water uses was done, by identifying the existing water business processes and jobs profiles.

In order to accomplish this, a common agreement of what is intended by job profiles and business process had to be done. Thus, in this project it will be called:

Job Profile (JP): The outline of the duties and tasked required of and performed by a person for a specific title/job.

Business Process (BP): Collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. A process is thus a specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs: a structure for action.

3.3 Creation of the matrix

The chosen methodology to assess this training need is through a matrix. As a first step, both job profiles and BP were listed, and then verified by industrials.

As already said, the goal of this Deliverable is to investigate the training needs of job profiles in the water domain. Therefore, what is really needed to be asset are tasks – the BPs – in which each job profile participates in. Once this map is done, the training needs come out from the knowledge that each job has to have in order fulfil these tasks.

This matrix was created incorporating the jobs profiles as rows and the BP as columns, as can be seen in ANNEX I.

3.4 Feeding of the matrix

Business processes and the jobs profiles of the water industry can be related to each other by assessing the importance of each JP in every BP.

In order to reflect this relation, the matrix was filled in with a scale from 0 to 3, indicating:

- 0: No specific knowledge requested about this BP.
- 1: Minimal knowledge of the BP (general overview about the BP), but the JP requires a shallow knowledge about this BP
- 2: Knowledge of the global BP and activity in parts of the BP
- 3: In depth knowledge of the BP core activity of the JP and management of the BP.

The matrix was circulated among the partners and fed by them, following at each time the agreed scale.

This it was circulated among industrials and finally, a common and consensus matrix was established, as can be seen in ANNEX I, which is the outcome of this Deliverable.

4 CONCLUSIONS

With the conclusion of this matrix, the basis for designing curricula has been achieved.

In effect, this matrix will help to describe the learning pathways for Technicians, Engineers and Managers. The matrix clearly describes the skills required for each job profile and the depth of knowledge for each subject.

This matrix will help as well to design courses to help in the career development of professionals of the water industry. Actually, specific courses to move from a category to another or from a level to other can be design upon this matrix.

However, it is intended that any employee from the water sector has a general overview of the water related services, besides the proper skills needed for his/her job.

ANNEX I: MATRIX OF VOCATIONAL TRAINING NEEDS