

Curricula (draft version)

Deliverable No. 8 Version 2.0

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Introduction

The draft curricula were anticipated (according the project proposal) to contain a detailed description of learning paths for each professional category and to consider training subject, including objectives and other useful information for trainee. Information on learning paths and related contents would be included in the form of metadata.

Nevertheless, the consortium decided to strengthen the quality of the information, provided by the curricula and the learning paths, by taking slightly modified approach.

The **final curricula** do not contain “a detailed description of learning paths” per se, they represent utilized comprehensive base leading to the construction of the learning paths themselves.

This document reports on the development of the curricula for each job profile in the scope of the project, heading for the construction and validation of the final ones (see Deliverable No. 9), during several rounds among the project partners.

The Curricula were created on the bases of the results from the assessment of vocational training needs (Task 2.1). The analysis and the validation of training needs were carried out by water industries in the first project phase to help the identification of the eLEANOR training subjects. The assessment of training needs was useful to further investigate existing needs/gaps in training of the water companies in the project partnership.

The vocational training needs assessment covered following steps:

- creation of a lists of Business Processes (BPs) and Job Profiles (JPs),
- validation of the lists by water professionals,
- assessment of a level of knowledge for each Job Profile,
- validation of the levels by water professionals,
- creation of a matrix mapping the training needs in relation with JBPs and BPs

In order to assess the vocational training needs (so as to design the curricula), and to fulfil the gaps in education of the water sector, it was required to define the profile of all the processes as well as to describe the profiles of the jobs.

Mapping the training needs in the matrix, by giving the level of knowledge (0 up to 3) to each cell [JP, BP], embodied the idea of the need of a Job Profile having an outlook at its engagement in each BP (Deliverable No. 7 Annex I.).

Job Frame	Business Processes	Asset Mngt	Field Interv. (DW&WW) Mngt incl. Connections	Field works (DW&WW) incl. Connections	Use of GIS	Maintenace of GIS	Mngt of Plant Maintenance	Electromech maintenance in WTP, WWTP & PS	Lab & QC for DW, WW	...
Management	Jobs									
	Production manager	2	1	1	1	0	1	1	2	
	Distribution manager	2	1	1	2	2	1	1	1	
	Sewerage manager	2	1	1	2	2	1	1	2	
	Customer manager	1	1	1	1	1	1	1	1	...
	Finance manager	1	0	0	0	0	0	0	0	
	HR Manager	0	0	1	0	0	0	1	0	↔
	Logistic manager	1	1	1	1	0	1	1	0	
	Commercial Manager	2	0	0	1	0	0	0	1	
	Contract Manager	2	1	0	1	0	1	0	1	
	Quality Prevention Env. & Processes	1	2	2	1	0	2	2	2	
	Asset Manager	3	2	2	2	2	2	2	1	
	Technical Manager	2	2	2	2	2	2	2	2	
	Innovation manager	1	1	1	1	1	1	1	1	...
	Research manager	2	1	1	1	1	1	1	1	
Communication manager	0	1	1	1	0	1	1	1		

Figure 1 - Matrix preview

1. Curricula development

In the scope of the project, there are 54 Job Profiles and 29 Business Processes. The Curricula were produced based on the Job Profiles description included in the Deliverable No. 7 and on the Matrix with the level of knowledge. The Job Profile description provides information on the general requirements, on the required knowledge and expertise; it also describes the outlook of the daily work.

The figure below (Figure 2) shows the Curricula evolution. The first steps (Figure 2 - 1) led to a construction of an idea of the Curriculum design and its structure. Next steps (Figure 2 - 2) were aimed at creating the Curricula for the 54 Job Profiles in the unified, visually understandable design. The final steps (Figure 2 - 3) were dedicated for verifying and validation of the Final Curricula. Each version of the Curricula was verified and discussed among the industrial and academic partners.

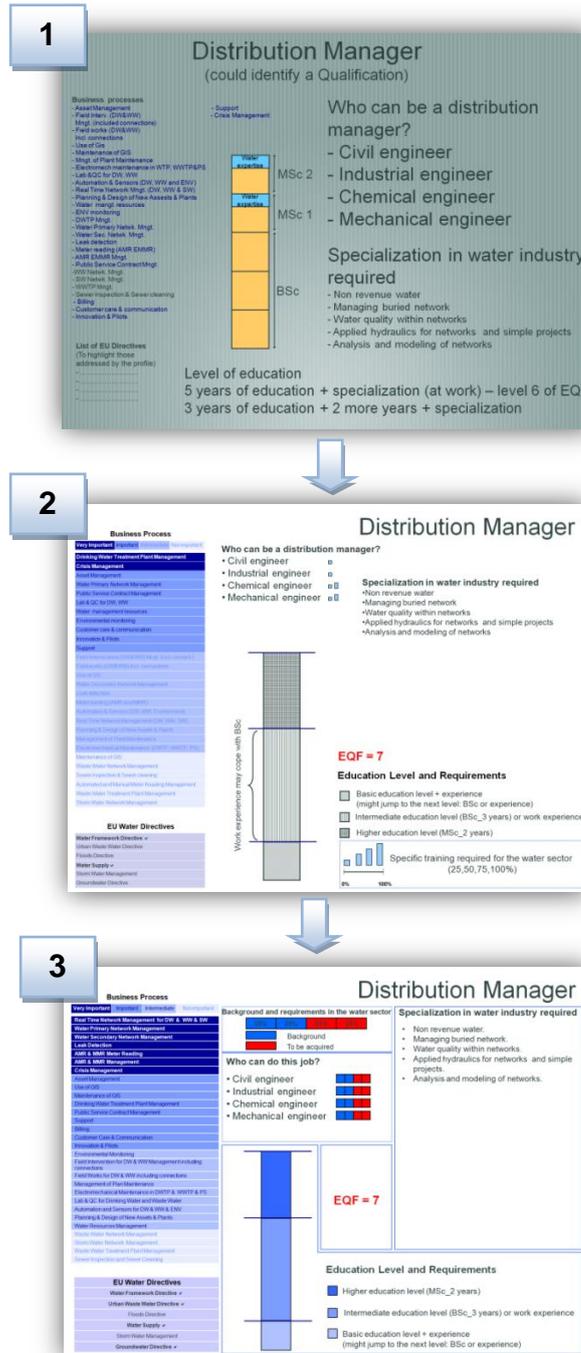


Figure 2 - Curricula evolution

Within the final Curricula (Deliverable No. 9), each Curriculum is structured into 5 sections (see Figure 3):

1. **Business Process:** the information on the importance of the Business Process for the particular job,
2. **Background and requirements in the water sector:** tied to the qualification,
3. **Education Level and Requirements:** education level associated to the European Qualification Framework (EQF),
4. **Specialization needed in the water industry required,**
5. **EU Water Legislation.**

The **Business Process (1)** section covers a list of Business Processes which are sorted according to their importance assessed and validated by the water industries (part of the Matrix in Figure 1). Four colours were selected to define this categorization. Dark blue define the most important process and light blue the less important.

The **Background and requirements in the water sector (2)** section indicates the knowledge previously acquired, meaning the experience or studies by the job candidate (Background, in Blue) and indicates the knowledge to be acquired in the water sector for the job candidate to fill the role (To be acquired, in Red). This is expressed for a list of job candidates (Who can do this job?) proposed to carry out the job.

The section **Education Level and Requirements (3)** visualizes the education level in a figure, designed as bar featuring 3 levels of specialization. It goes from light blue to dark blue. Each one of the 3 colours indicates the grade of specialization of the job candidate required for the particular Job Profile. In case that the candidate has got just a basic level of education, the lower part of the rectangle bar will show the light blue square coloured. As long as the level of education increases the following rectangles are filled:

- Higher education level (MSc_2 years)
- Intermediate education level (BSc_3 years) or work experience
- Basic education level + experience (might jump to the next level: BSc or experience)

The European Qualifications Framework (EQF) acts as a translation device to make national qualifications more readable across Europe, promoting job candidates' and learners' mobility between countries and facilitating their lifelong learning.

The section **Specialization in water industry required (4)** describes the specialization required in the water industry, which will be tackled by the job and the worker. This section served as a base for the Learning Path construction.

The **EU Water Legislation (5)** section shows the European Water Directives that are involved in this job profile and/or business process.

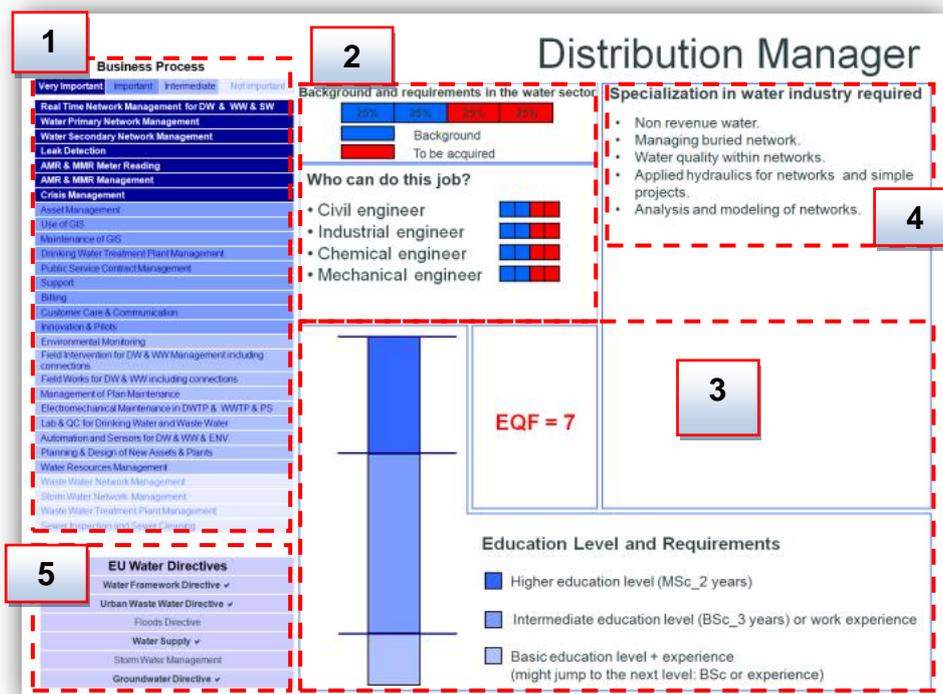


Figure 3 - Final Curricula design and the structure

2. European Qualification Framework

The European Union establishes the European Qualifications Framework (EQF) for lifelong learning providing the recommendations in the Parliament and the Council document 2008/C 111/01.

The EQF was chosen as a reference system in order to express the qualification level equalized across Europe. The connection to the EQF is done through the Education Level expressed in the Curricula.

Table 1 - EQF Level Explanation [http://ec.europa.eu/eqf/compare/eqf_en.htm#comparison]

	Knowledge¹	Skills²	Competences³
EQF 2	Basic factual knowledge of a field of work or study	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work or study under supervision with some autonomy
EQF 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems
EQF 4	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities
EQF 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	Exercise management and supervision in contexts of work or study activities where there is unpredictable change review and develop performance of self and others
EQF 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	Manage complex technical or professional activities or projects, taking responsibility for decision making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups
EQF 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research; critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

¹ In the context of EQF, knowledge is described as theoretical and/or factual

² In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)

³ In the context of EQF, competence is described in terms of responsibility and autonomy

The Figure 4 below provides the Education Level bar appearing in the eLEANOR Curricula, connected to the EQF levels 2, 3, 4, 5, 6, and 7.

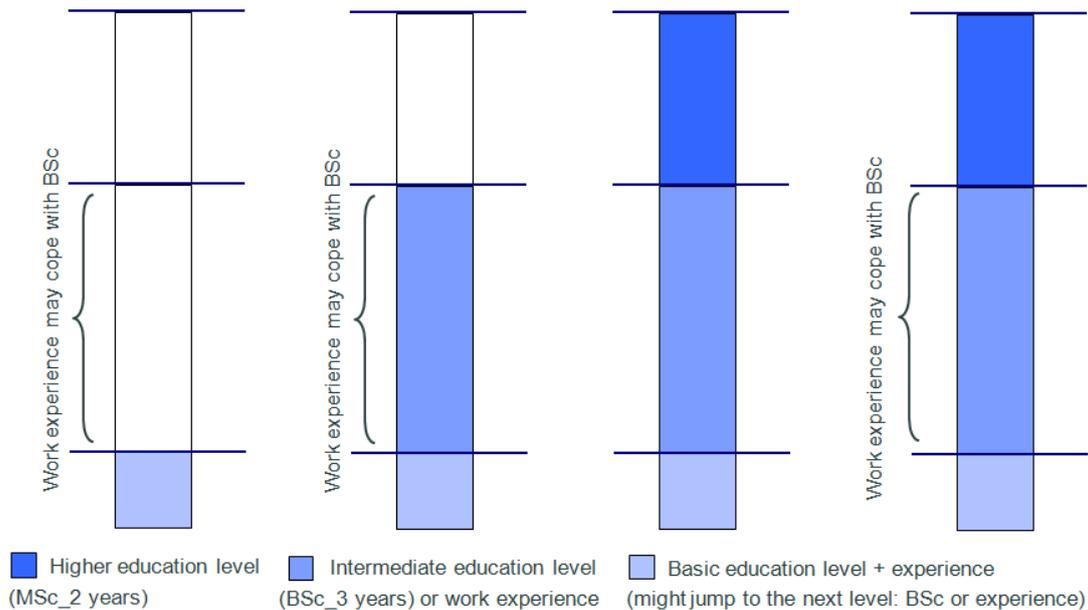


Figure 4 - Education Level bar in the eLEANOR Curricula

According to our findings from the training needs assessment and from the Curricula creation, within the water industry Job Profiles (in the scope of project) there are 7 Job Profiles with the EQF Level 2, 3 Job Profiles with the EQF Level 3, 14 Job Profiles with the EQF Level 4, 1 Job Profile with the EQF Level 5, 24 Job Profiles with the EQF Level 6, and 5 Job Profiles with the EQF Level 7 (see Table 2 below).

Table 2 – EQF Levels and the correspondent Job Profiles

Job Profiles	
EQF 7	Production manager, Distribution manager, Sewerage manager. Customer manager, Finance manager
EQF 6	HR Manager, Logistic manager, Commercial Manager, Contract Manager, Quality Prevention Env.& Processes, Asset Manager, Technical Manager, Innovation manager, Research manager, Communication manager, Health & safety manager, Crisis manager, Marketing manager, DW plant manager, Meter park manager, WWTP manager, Head of the lab, Project engineer, Resource & Env't TSE, DW Quality TSE, DW Network TSE, WW treatment TSE, WW network TSE, SW TSE
EQF 5	Automation engineer
EQF 4	Leak detection technician and/or operator, WWTP supervisor, Dispatcher / Control Room Technician, Electromechanic Technician, Head of maintenance team, Instrumentalist, Water quality lab technician, Works foreman, Field work planner / coordinator / scheduler, GIS technician, Head of GIS team, Samples collectors, Remote sensors technician, Project technician
EQF 3	WWTP technician and/or operator, Network inspection technician, Cleaning operator
EQF 2	Network operators, DW plant technician and/or operator, DW plant supervisor, MMR and AMR fitters, Meter readers, Meter bench specialist, Camera operator