


## Occupational safety and health in eco-industry - part 2: Overview of national qualification frameworks for eco-industry in participating countries of THESEIS project

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### Abstract

Another article dealing with results of THESEIS project (Training on Health & Safety for workers in the Environmental Industrial Sector) presents the results of a survey aimed at identifying the status of national qualifications systems in the countries participating in the project. Qualifications and other requirements for workers in so called „eco-industry“, specifically the technicians of wastewater and waste management experts were surveyed.

**Keywords:** wastewater, waste, eco-industry, knowledge, skill, education, surveys, Czech Republic, Belgium, Bulgaria, Poland, Greece, Germany, Finland

## **Abstrakt**

Další z článků věnovaných výsledkům projektu THESEIS (Training on Health & Safety for workers in the Environmental Industrial Sector) seznamuje s výsledky průzkumu zaměřeného na zjišťování stavu národních kvalifikačních systémů v zemích zúčastněných v tomto projektu. Předmětem průzkumu byly kvalifikační a další požadavky na pracovníky tzv. eko-průmyslu, konkrétně na techniky odpadních vod a odborníky na odpadové hospodářství.

**Klíčová slova:** vody odpadní, odpady, eko-průmysl, znalosti, dovednosti, vzdělání, průzkumy, Česká republika, Belgie, Bulharsko, Polsko, Řecko, Německo, Finsko

## **Introduction**

In EU-25, the major eco-industry sectors in terms of turnover by far are water supply, waste water treatment and solid waste management (waste management and waste water treatment each represent approximately one third of the pollution management turnover).

The total direct and indirect employment due to eco-industries represent approximately 3.4 million full-time job equivalents, of which 2.3 million jobs are from pollution management activities. Resource management activities represent approximately 1 million full-time job equivalents. The majority (77%) of the jobs in the pollution management activities are in the waste water treatment and solid waste management sectors.

## **Aims of the survey**

The aim of the recommendation of the European Parliament and the Council on the Establishment to develop National Qualification Frameworks in the EU member states was to link national qualification systems to the European Qualification Framework (EQF). The purpose is to make national qualifications more comprehensible and comparable within the EU. The 2<sup>nd</sup> survey in THESEIS project brings a review of national qualification frameworks in participating countries.

The second surveys was aimed at indentifying national qualification frameworks for eco-industry in participating countries - workers which professions are directly related to ecology, environmental protection, waste management etc. and who are exposed to specific risks of water pollution due to industrial production. The survey was focused on two target groups: wastewater operators and waste management professionals.

## **Results of the survey in participating countries**

According recent studies, the training needs for acquisition of skills, competences in OHS issues, in European eco-industries, have received the first or second highest ranking amongst all other training needs. Therefore, the learning outcomes were designated according the specific training needs of workers that were identified via a research survey along with the investigation of the existing National Qualifications Frameworks for the workers occupied in eco-industry sector, in all eight participating countries in the project (Belgium, Bulgaria, Czech Republic, Finland, Germany, Greece, Poland, Sweden - partly) - what was the aim of second survey of THESEIS project. Some countries had focused on both target groups („Wastewater operators“ and „Waste management Professionals“), some countries had included into the survey only one of them. The target group “Waste management Professionals” contained three professions - refuse collection workers, incinerator operators, land-fill operators.

## GREECE

The legislative framework of the Hellenic Qualifications Framework is included and described within the context of the Law 3879/2010 - Development of the Life Long Learning.

With the establishment of the Hellenic Qualification Framework (HQF) all forms of formal, non formal and informal learning at all levels are correlated with each other, their results are recognized and classified in levels taking into account the respective European Qualification Framework levels. HQF uses the same 8 reference levels with EQF based on learning outcomes to describe what a learner knows, understands and is able to make a person after completion of a learning process.

The Hellenic Qualifications Framework is planned to be developed in 4 stages. After a period of planning, public consultation, legal consolidation, and preparation, Greece is now entering the 3rd phase, which is the Implementation Phase. This one consists the core phase of the HQF and it will be completed by engaging all stakeholders and the formation of the necessary Working Groups.

Based on the above mentioned it is resulting that none National Qualification Framework has been developed in Greece, so far, including the Eco-Industry sector, too.

In Greece, Job profiles and Continuing Vocational Training programs are certified by National Organisation for Certification of Qualifications & Vocational Guidance (EOPP).

For workers occupied in Eco-Industry, it has been developed and certified by EOPP only one job profile, for the **“Technician for the Management and Control of Environmental Protection Systems”**.

The job profile of the **“Technician of Hazardous Waste Management (except radioactive waste)”** was also developed but not certified.

Additionally, during a Leonardo da Vinci project in 2006, the functional operations and the curriculum of the **Technician on (Solid) Waste Treatment and Recycling** was developed under the auspices of the General Secretariat of Lifelong Learning that belongs to the Ministry of Education, Lifelong Learning and Religious Affairs.

The working conditions, referring to Health and Safety issues, for the Technician for the Management and Control of Environmental Protection Systems, are designated and governed by the Hellenic legislative institutional framework for the Health and Safety at Work. Within the context of the legislative framework, there are provisions for preventing accidents and dealing with factors that can lead to diseases and unsafe working conditions.

In the job profile of the Technician for the Management and Control of Environmental Protection Systems, Health and Safety issues are included in **Basic Professional Operation 7**, which is referred as the **Supervision and Management for the Smooth Operation of the Area of his/her Responsibility and Personnel** employed therein.

## GERMANY

In 2006, there was an agreement to work on the development of a National Qualifications Framework (NQF) for Lifelong Learning in Germany. Just as the EQF, there are eight reference levels to be described along the descriptors “knowledge”, “skills” and “competences”.

In 2009 there had been a pilot testing of the functionality of the German NQF. It was realized by a working group of about 20 experts in all areas of education.

Since June 2011, there are working groups which are developing recommendations how to connect non-formal and informal learning to the German NQF. The implementation of the EQF is foreseen in 2012 in Germany (cf. Bundesministerium für Bildung und Forschung 2012).

Due to the lack of the missing connection between national qualifications and the German NQF, there must be some other sources to get to know which qualifications and skills in Health and Safety issues are required for workers in the solid waste management sector and for those in the field of wastewater treatment.

In 2002, there were introduced several new job-profiles for the eco-industry. Relevant professions for THESEIS project are the **Specialist for recycling and waste management** (Fachkraft für Kreislauf- und Abfallwirtschaft) and the **Specialist in waste water** (Fachkraft für Abwassertechnik).

## **CZECH REPUBLIC**

The formation of the qualification requirements for the performance of the professions/Occupations in the Czech Republic is given by the **National Qualifications System** (hereinafter referred as **NSK**) and the **National System of occupations** (hereinafter referred as **NSP**).

**National Qualifications System (NSK)** is a state/guaranteed system built on the real requirements of an activity within particular occupations and job positions. Each qualification which is applicable in the labour market has or will have its place here. NSK enables the identification, sorting and classifying of skills, their recognition and certification. It also allows a comparison of national qualifications with qualifications set out and described in other European countries. Developing of the NSK in the Czech Republic was launched in May 2009 and the expected date of completion is 30th June 2015. In the present day the NSK contains especially qualifications of craft and services. The main objective is to fill in the qualification system with other, higher level qualifications. Description of qualifications – stating what is needed to know and how to be skilled for the profession – is available via the „Register of qualifications certified in the Czech Republic“.

The development of NSK is based on other tool – the **National Occupation System (NSP)**. NSP provides information about occupations and model positions occurring in the labour market and provides in addition to the requirements for the qualifications also other relevant information such as work activities which are typical for the job/profession. NSP arises as systematically developed tool published on the Internet catalogue.

The register of National qualification System currently does not include relevant group which could provide information for qualifications related to eco-industry. In the NSP there are more professions related to professional category „ENVIRONMENT“ which can be considered under Czech conditions as an equivalent to the profession „wastewater operator“. For the purposes of THESEIS project the profession **“Technician Ecologist for Water Management”** was described more detailed:

## **FINLAND**

The Finnish National Board of Education is the National Coordination Point for the European Qualifications Framework appointed by the Ministry of Education and Culture. The National Coordination Point supports and guides the relationship between the national qualification system and the European Qualifications Framework together with other national authorities. It is intended that the National Framework for Qualifications and Other Learning be adopted from the start of 2013. A framework covering the whole system of education will improve the clarity and effectiveness of the

Finnish qualifications system, increase the national and international transparency and comparability of qualifications, and promote national and international mobility. In this framework, the qualifications, syllabi and other extensive competence entities of the Finnish national education system are classified into eight levels on the basis of the requirements. It is proposed that statutory regulations on the level descriptors and the positioning of qualifications, syllabi and extensive competence entities on the various levels on the basis of required learning outcomes be enacted at a later date by a Government Decree. The framework facilitates overall scrutiny of the Finnish education and qualifications system and other learning. It describes the learning outcomes of qualifications, syllabi and other extensive competence entities as knowledge, skills and competences, and by defining their interrelations. The competence-based description of qualifications is designed to support lifelong learning, improve employment prospects, increase mobility, and bridge the gap between education and work. The Framework for Qualifications and Other Learning is based on the European Qualifications Framework (EQF). In the proposal, Finnish qualifications are placed at the following levels of competence of the National Qualifications Framework:

The profession "**Wastewater treatment plant operator**" is the nearest to the "Wastewater operator", whereas the professions "**Waste plant operator**", "**Landfill operator**" and "**Garbage truck driver**" are the nearest to the "Waste management professionals".

**Wastewater treatment plant operator** - the job consists mainly of the monitoring of automated purification process. Tasks also include monitoring the use of machinery, sample taking and minor repair duties. Workplaces are at municipal water supply plants and industry. **Landfill operator** works at waste disposal areas, where municipal and industrial waste is placed. Their tasks include the receiving of waste, checking of loads and managing of documents, as well as the grinding and compressing of waste

## **POLAND**

The existing Occupational Health and Safety (OHS) educational and training systems established by the Labour Code and other sector regulations are to provide necessary OHS qualifications of workers of the eco-industry sector.

Since 2010 the work on the Polish Qualification Framework (PQS) has become part of a broader reform carried out in Poland, seeking to modernize the educational system at all levels and in all sub-systems. An important part of this reform is an overall shift to learning outcomes - requiring redesign of all programmes, standards and curricula - in general, higher education, vocational education and training. The role of the framework is to promote this shift and to ensure that is consistent. It concerns also eco-industry and OHS sub-systems.

Along the work on PQS there are efforts to establish precise qualification requirement for various group of professions. The relevant documents are published in official Journal of Laws. At the moment the only document (Regulation of Ministry of Education and Science of March 21, 2006, Journal of Laws of 2006, No. 62, Item 439, Part 7) relating to OHS field concerns qualification requirements for OHS technicians.

In the operation of wastewater plants the identification and management of hazard areas (both in open and confined spaces) particularly where the presence of gases such as methane and hydrogen sulphide or exposures to a low oxygen environment can generate potentially hazardous conditions to health and safety is a key issue for worker health and safety. Therefore required knowledge of **workers employed in waste water treatment installations** in Poland expands to cover information of: properties of flammable materials-gases, composition of biogas, sources of fire and explosion, general guidance as to the main principles, definitions and explanations of terms relating to hazardous area classification as well on technical and organizational solutions have been set out.

## **BELGIUM**

The foundation of the Belgian occupational safety and health legislation is the Act of 4 August 1996 on well-being of workers in the performance of their work (Belgian Official Gazette 18 September 1996). This Act transposes into Belgian law the framework Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

The Act is completed by several Royal Decrees. Royal Decrees are bundled in the so called Codex. As opposed to the Act, which contains the general rules, the Codex contains more specific rules on several matters like medical exams for workers, consultative bodies, and specific workplaces like construction sites. There are however, no rules applicable to the waste management sector.

The Belgian legislation in the field of occupational safety and health contains very few rules that apply to one job or one sector in particular. The rules for working with asbestos and asbestos removers are one notable exception. At regional level, voluntary systems exist that prescribe and certify competences of employees in the waste management sector.

The Well-being Act is applicable to all employees and workers in Belgium, including those who operate in the waste-management sector. The Act contains all rules that are supposed to guarantee the workers safe workplaces and working conditions.

A central concept is risk assessment. Employers have the legal duty to examine the risks to which an employee may be exposed. After identifying the risks, every risk should be evaluated and based on this evaluation, the employer as to choose the fitting preventive measures.

## **BULGARIA**

Bulgaria had offered only a list of acts, laws and orders which are regulating the OHS issues:

Constitution of the republic of Bulgaria

Article 48. (1) Citizens have the right to work. The state takes care of creating the conditions for realization of this right.

(5) Employees are entitled to safe and healthy working conditions, the minimum wage and pay for the actual work and rest and leave, under conditions and procedures specified by law.

Labour Code

Article 126. (Amended - SG. 100 of 1992) In carrying out the work which he talked, the employee must:

6. (Amended - SG. 25 of 2001) to observe the rules for safe and healthy working conditions;

Article 127. (1) (Amended - SG. 100 1992, text of art. 127, suppl. - SG. 25 of 2001, effective 31.03.2001) Employer shall provide the employee normal conditions for work performance of employment to which it is agreed by him with:

3. (Amended - SG. 25 of 2001, effective 31.03.2001) healthy and safe working conditions;

Act for Health and Safety at Work

Articles 4. - 34

Further the Bulgarians gave a list of orders which regulate OHS trainings:

Order <sup>1</sup> RD 07-2 of 16 December 2009 – Procedure and Terms for holding periodical training and instruction of

employees, a rule to ensure of health and safety at work.

ACT Vocational Education and Training (publ. SG. 68 of 30.07.1999, posl. izm. units. 74 of 15.09.2009, in force since 15.09.2009) and other ordinances regulate the vocational education and training in Bulgaria.

## Conclusion

### Overview of NQF obtained in the framework of both target groups in partner countries

The second survey shows that none partner have found a National Qualification Framework for Eco-Industry and especially in wastewater and solid waste management. None NQF for mentioned areas has been finished in participating countries so far.

In the majority of partner countries national qualification frameworks are planned to be developed or they are under construction.

In Greece the Hellenic Qualification Framework (HQF) was established.

The implementation of the EQF is foreseen in 2012 in Germany (cf. Bundesministerium für Bildung und Forschung 2012).

In Finland it is intended that the National Framework for Qualifications and Other Learning be adopted from the start of 2013.

Developing of the NQF in the Czech Republic was launched in May 2009 and the expected date of completion is 30th June 2015.

Since 2010 the work on the Polish Qualification Framework (PQS) has become part of a broader reform carried out in Poland.

The Well-being Act is applicable to all employees and workers in Belgium including those who operate in the waste-management sector.

Bulgaria does not report on any activities in developing of national qualification framework in the country.

Sweden did not provide a country report of this issue (only material from Swedish National Agency for Higher Education).

However, if we look at examples of professions that cooperated countries have chosen and described, we can find common requirements for their qualifications which are in many ways similar to those obtained in the 1<sup>st</sup> survey. The requirements for the knowledge and skills required for these professions can be considered when designing the content of VET program, too.

The common requirements for a new VET program for workers in eco-industry are:

- **Hazardous substances,**
- **Use of personal protective equipment,**
- **Fire safety,**
- **Equipment Safety,**
- **Risk assessment,**
- **Environmental protection.**

## Literature

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### Vzorová citace

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