

# **Leonardo da Vinci Vocational Training Program**

## ***A Qualifications Framework for Solid Waste Facilities Managers (SWFM-QF)***

**ATHENS 2014 2nd International Conference,  
Athens – 13/06/2014**

## **Involved Partners**

**13 Partners from 8 EU countries**

- **Bulgaria (1),**
- **Germany (2),**
- **Greece (2),**
- **Hungary (2)**
- **Italy (1),**
- **Lithuania (2)**
- **Poland (2),**
- **UK (1)**



## **Is SWFM-QF necessary? - The Need (1/2)**

- Eco-industry is an evolving sector. Solid Waste Management is the largest sub-sector of the EU27 eco-industry with a total turnover of €92.2 billion in 2008 and the employment to be estimated at about 1.467 thousand workers.

**New legislation, New Technologies, New Activities' fields increased internationalization of the market and growing subcontracting of activities.**

- Introducing integrated waste management approach have influenced decisively the evolution of the sector.
- The “new generation” of the waste management facilities are becoming highly technical worksites implementing innovative solutions and a number of processes on one site.
- This in turns affects the structure of qualifications and the composition of the skills for the professionals in the sector.



## **Is SWFM-QF necessary? - The Need (2/2)**

- The need for a large number of technically skilled employees to maintain and operate advanced waste treatment facilities will increase as more facilities are build.
- In addition to
  - increasing skills demands,
  - the number of highly qualified engineers,
  - operational managers and
  - processing technicians required to develop and operate treatment facilitiesemploying advanced technologies are expected to grow significantly in the immediate future.

The recognition and support of SWFMs are very diverse within the European countries. Designation of qualifications and VET is within the domain of state regulations and are strongly based on national traditions and priorities.

## **The Solid Waste Management Sector in European Union**

Proper management of solid waste is a central pillar of far-sighted, sustainable environmental policies.

Each year in the European Union alone we throw away 3 billion tons of waste - some 90 million tons of it hazardous. This amounts to about 6 tons of solid waste for every man, woman and child, according to Eurostat.

### **The Solid Waste Facility's Manager**

The Solid Waste Facility's Manager manages the operations of different Solid Waste Facilities, Sorting Facilities, Waste Recycling Centres, Landfills, Materials Recovery Facilities, Mechanical Biological Treatment Plants, Incinerators and Composting Plants.

## **The Solid Waste Facility's Manager**

Despite the constant increasing need for technically skilled employees, the qualifications and Vocational Education and Training (VET) frameworks of Solid Waste Facilities Managers (SWFM) have a diversified structure within the EU states and they are not aligned with the European Qualifications Framework (EQF) initiative.

SWFM-QF project covers this gap by developing a common professional qualification framework in line with the directions of the EU educational and training policies.

The outcome is a range of standardized profiles suitable for the different levels of SWFM qualification.

Member states show significant differences in respect to solid waste management standards and practices.



## **Study on the qualification and VET-system in the waste management industry in 8 EU countries (1/8)**

This study analyzes and compares

- the qualifications and
- the national vocational education and training system (VET-system) in eight EU countries
  - Bulgaria, Germany, Greece, Hungary, Italy, Lithuania, Poland and the UK –

in the field of waste management.

The report focuses on the qualification levels of managers (=EQF 6 - 8).

## **Study on the qualification and VET-system in the waste management industry in 8 EU countries (2/8)**

The relevant data were gathered mainly by eight national surveys among

- Waste management facilities and companies,
- respective business associations and authorities
- Training organizations,

to obtain first-hand data on the work requirements and qualifications as well as the vocational training courses provided to solid waste management technicians and managers.



## **Study on the qualification and VET-system in the waste management industry in 8 EU countries (3/8)**

### **Key findings for Greece**

- In Greece, the recycling rate is at 17%.
- The amount of landfilling is above 80% for solid waste.
- For solid waste professionals the following topics are of interest:
  - Principles of business/corporate organisation and management,
  - Negotiations' skills,
  - Communication skills,
  - Project and financial management,
  - Environmental crisis management,
  - National requirement for waste management procedures,
  - Environmental management systems and maintenance of equipment.

## **Study on the qualification and VET-system in the waste management industry in 8 EU countries (4/8)**

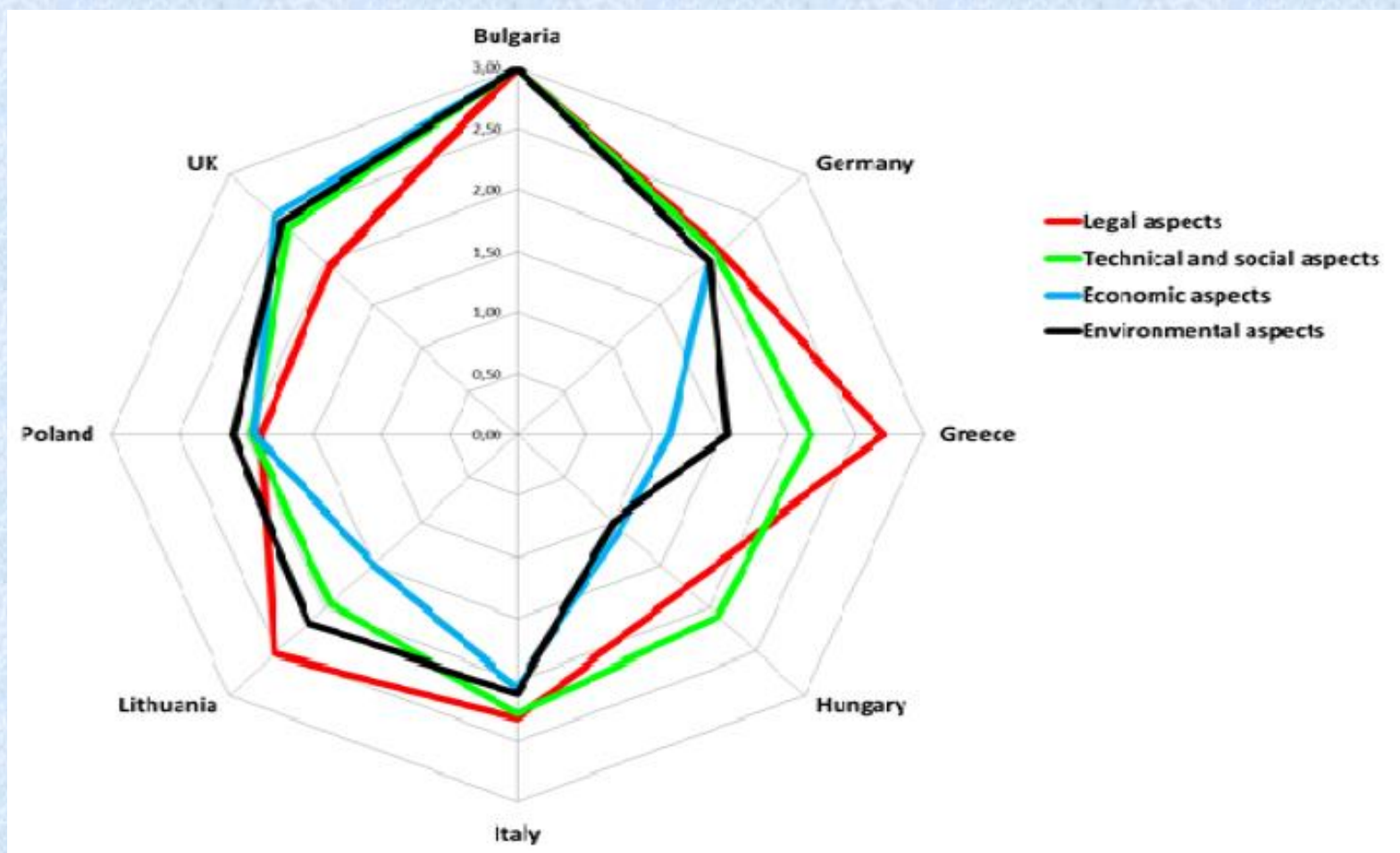
### **Key findings for Greece**

Due the low knowledge level, the following topics are of further interest:

- European solid waste legislative framework,
- monitoring and environmental parameters,
- technical requirements for processes and
- technologies of waste management,
- Principles of emergency preparedness and
- planning and technical requirements for equipment of waste management.

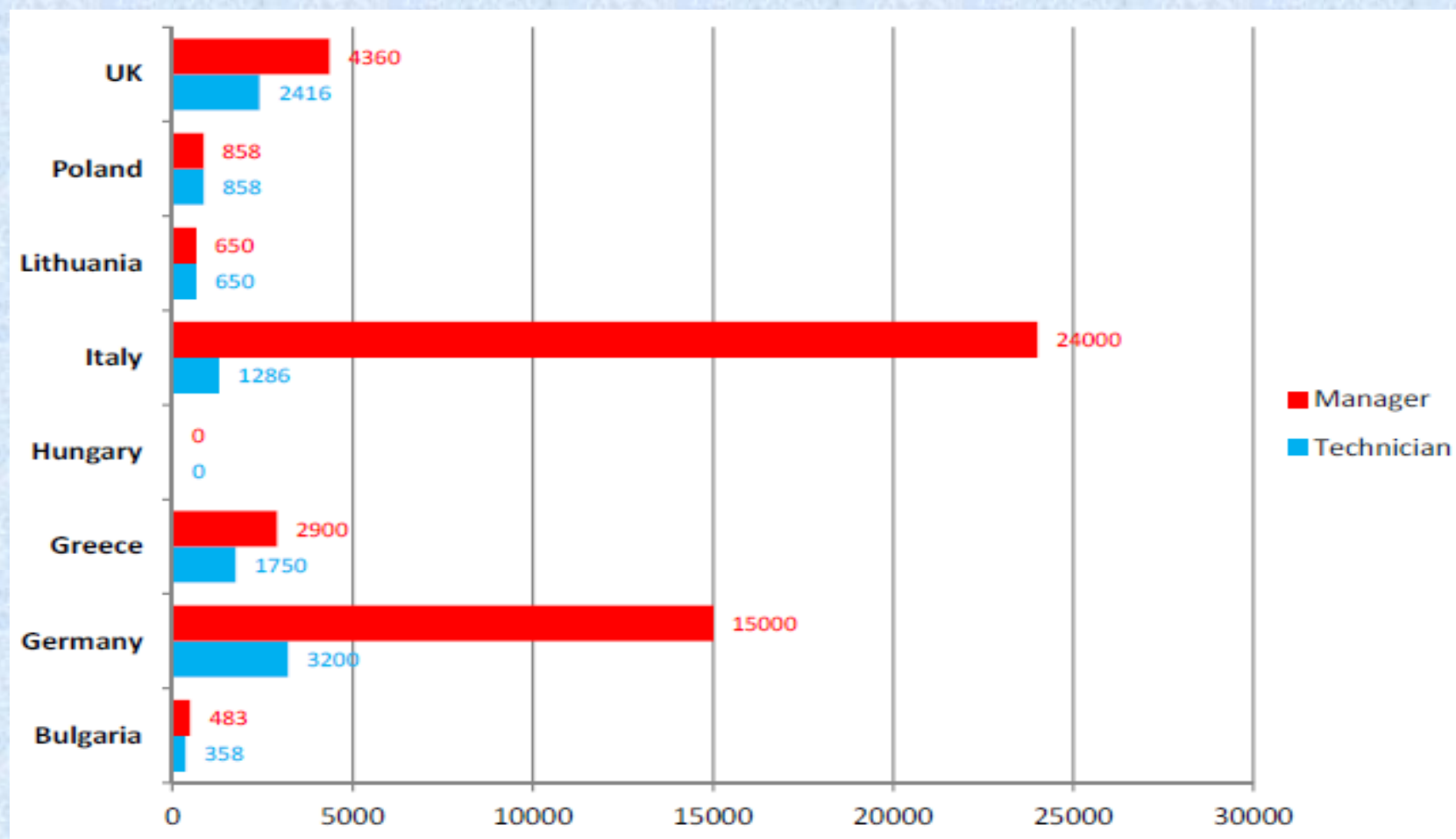
Cooperation with the Greek Ministry of Labour and Social Affairs, EOPEPP and Universities seem to be reasonable to provide affordable and work process oriented trainings.

## **Legal, Technical and Social, Economic and Environmental aspects (5/8)**

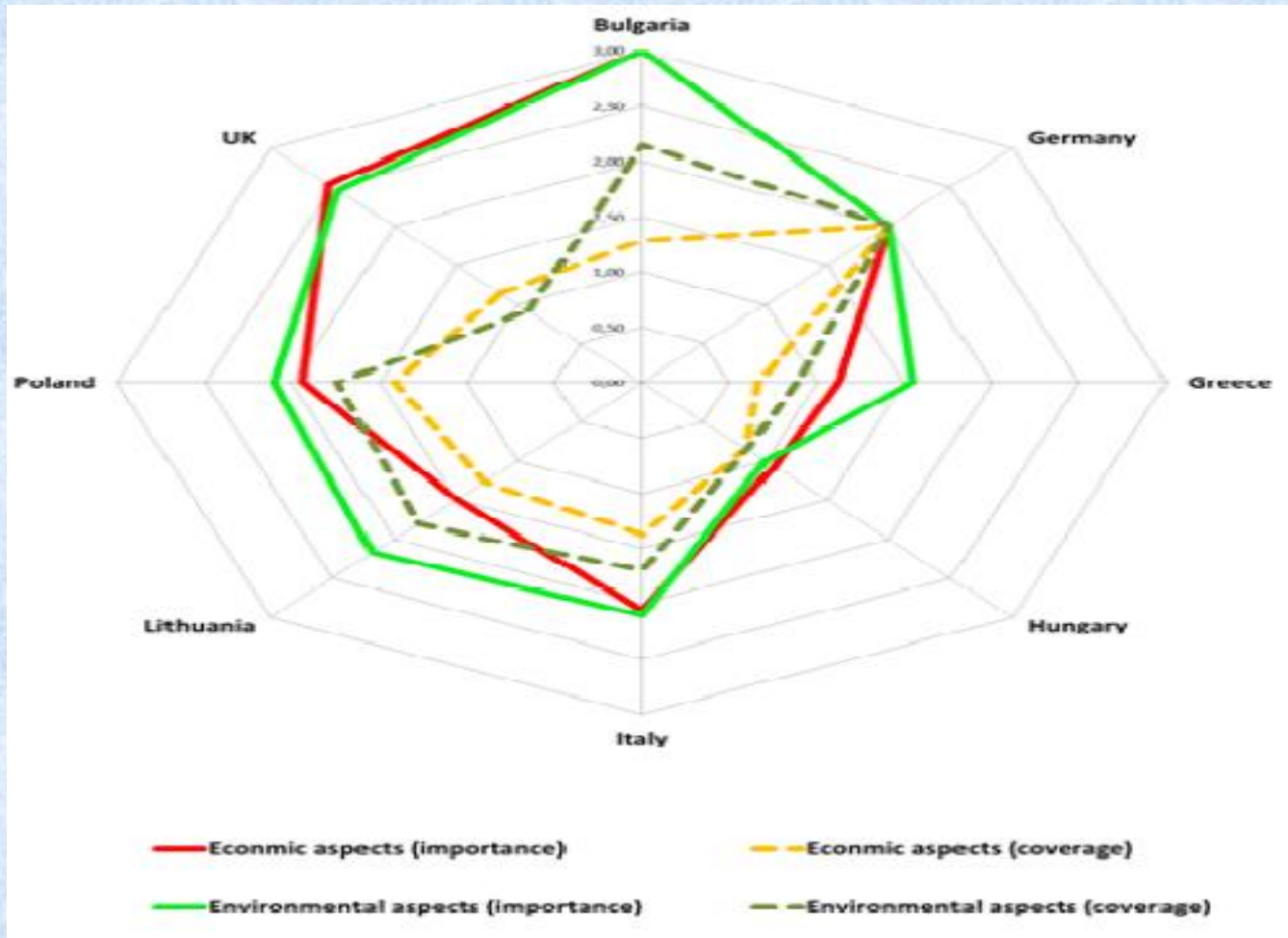




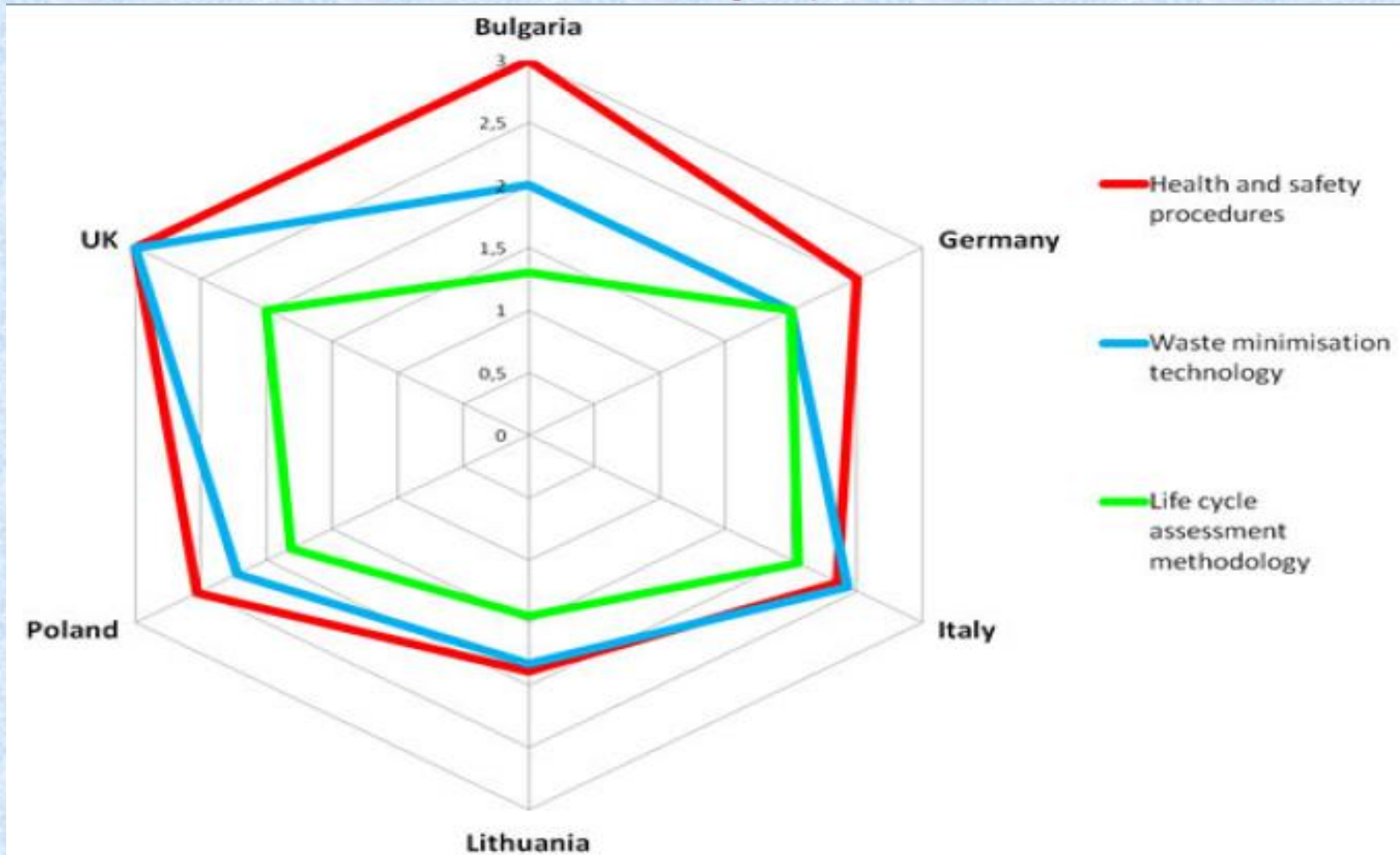
## Monthly salaries of technicians and managers in the field of waste management (in €) (6/8)



## Comparison of importance and coverage of knowledge (economic and environmental aspects) (7/8)



**Importance of skills (mainly technical and social aspects, not data for Greece and Hungary) (8/8)**





## **Harmonised Qualifications Framework (1/7)**

Based on the results of

- a. the comparative (report) analysis of the respective, identified qualifications in the 8 EU countries
  - b. Solid Waste Facilities (consultation)
- a European Harmonised Qualifications Framework (HQF) for the occupation of the Solid Waste Manager was developed.
- The methodology used to compile the SWFM Harmonised Qualifications Framework was based on the methodology implemented for the development of a Professional Profile.
- A Professional profile is defined as the overall professional functions, activities, tasks that make up the workpiece of a profession or a specialty and the relevant knowledge, skills and competences (abilities) required by a professional to correspond to these functions.

## **Harmonised Qualifications Framework (2/7)**

It was clearly revealed that solid waste facilities managers must not only possess technical but also strong administrative and financial management qualifications. Administrative and financial management qualifications are not diversified for different solid waste facilities.

### **Technical management qualifications:**

- Transfer and Waste Sorting station,
- Sanitary Landfill,
- Incineration,
- Anaerobic Digestion and Mechanical Treatment,
- Recycling,
- Composting.

### **Common professional qualifications:**

- Solid Waste Facility Operational Management,
- Human Resources Management,
- Financial and Contractual Management,
- Environmental Aspects Management,
- Health and Safety Issues Management

## **Harmonised Qualifications Framework (3/7)**

**Learning Outcomes (LO)** are statements of what a learner knows, understands and is able to do after the completion of a learning process. LO can be described within the framework of a coherent description as a continuous text or as a matrix, subdivided into individual elements of knowledge, skills and competences. A detailed description of learning outcomes in the form of a matrix has the advantage that it enables a better comparison with the respective curricula and is more clearly structured with regard to the subsequent assessment of LO.

| <b>Learning Outcomes Units /<br/>Knowledge Skills Attitudes<br/>(SKA) specification:</b> | <b>Learning Outcomes / SKA Components</b> |                    |
|--|---|--------------------|
| <b>Knowledge</b>   | <b>Knowledge Components Description:</b>  | <b>EQF Level =</b> |
| <b>Skills</b>  | <b>Skills Components Description:</b>     | <b>EQF Level =</b> |
| <b>Affective, Attitudes,<br/>Behavior, Traits</b>  | <b>Affective Components Description:</b>  | <b>EQF Level =</b> |

The proposed qualifications are described in LOs, since learning outcomes are considered the criteria for the certification and performance-value reflected in the European Qualifications Framework, the common frame of reference levels of qualifications in EU. Learning outcomes are further analysed in knowledge skills and competences descriptors.



## **Harmonised Qualifications Framework (4/7)**

|                   |   |
|-------------------|---|
| <b>Knowledge</b>  | means the body of facts, principles, theories and practices that is related to a field of work or study. It is described as theoretical and/or factual knowledge;   |
| <b>Skills</b>     | mean the ability to apply knowledge and use know-how to complete tasks and solve problems. They are described as cognitive (logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments); |
| <b>Competence</b> | means the proven ability to use knowledge, skills and personal, social and methodological abilities in work or study situations and in professional and personal development. It is described in terms of responsibility and autonomy.                                    |

## Harmonised Qualifications Framework Template (5/7)

**Generic title:**

|  |                           |   |                                     |
|--|---------------------------|---|-------------------------------------|
| <b>ULO 1</b>   | <u>Title of the unit:</u> | Date:   |                                     |
|  |                           | Version:                                      |                                     |
| Work tasks:  |                           |   |                                     |
| <b><u>Learning Outcomes:</u></b>                           |                           |   |                                     |
| <b><i>Knowledge</i></b>                                    | <b><i>Skills</i></b>      | <b><i>Competence</i></b>                      | <b><i>Technological Context</i></b> |
| He/she knows...  | He/she is able to ...     | Role and level of responsibility and autonomy | Used equipment, tools & materials   |
|  |                           |   |                                     |
|  |                           |   |                                     |
|  |                           |   |                                     |
|  |                           |   |                                     |
| Personal qualities:<br>mindset, attitude,<br>behaviour,... |                           |   |                                     |
| Possible assessment tool(s):                               |                           |   |                                     |


## Harmonised Qualifications Framework Example (6/7)

Lifelong  
Learning  
Programme




|  |   |  |
|--|---|--|
| <b>ULO TS-6</b>  | <b>TITLE:</b><br><b>Implement and maintain systems and procedures for site process management</b>   | EQF 6  |
| <b>Work tasks:</b>   | <b>Set up and fulfil waste movement and contingency plans for the site</b>  |  |
| <b>Weighting:</b>  | 2   |  |
| <b>Learning outcomes:</b> LO 1: Understand how to develop appropriate and effective schedules for the movement of waste on and off site<br>LO 2: Identify the ways in which waste can be effectively managed on site<br>LO 3: Understand how to develop and maintain appropriate contingency plans, in line with potential disruptions to site operations, to minimise impact on work activities |   |  |
| <b>Knowledge</b><br><i>(assimilation of knowledge throughout learning)</i>   | <b>Skills</b><br><i>(Ability to apply knowledge)</i>  | <b>Competences</b><br><i>(Measure of responsibility and autonomy; ability to use knowledge, skills, social abilities)</i>  |
| <b>1) Develop appropriate and effective schedules for the movement of waste on and off site</b>  |   |  |
| <ul style="list-style-type: none"><li>- Demonstrate an advanced knowledge on how to monitor and record waste movement</li><li>- Demonstrate a critical understanding on how to gather and use information to improve the effectiveness of new or existing schedules</li><li>- Describe in detail the importance of regular</li></ul>   | <ul style="list-style-type: none"><li>- Demonstrate advanced skills by preparing schedules, which enhance operational performance, for movement of vehicles on and off site</li></ul> | <ul style="list-style-type: none"><li>- Assume responsibility for the implementation of planned &amp; agreed schedules</li></ul>   |
| reviews of existing schedules  |   |  |
| <b>2) Control the management of waste on site</b>  |   |  |
| <ul style="list-style-type: none"><li>- Demonstrate an advanced knowledge about current waste management techniques</li><li>- Determine current legislation and BAT which is relevant to the waste managed on site</li></ul>   | <ul style="list-style-type: none"><li>- Demonstrate advanced skills by evaluating current waste management techniques, relevant to the site</li></ul>                                 | <ul style="list-style-type: none"><li>- Manage process of how to access and use useful as well as reliable information sources</li></ul>   |
| <b>3) Ensure that contingency plans are in place for potential disruptions to site operations</b>  |   |  |
| <ul style="list-style-type: none"><li>- Determine in detail the importance of contingency planning</li></ul>   | <ul style="list-style-type: none"><li>- Regularly review contingency plans, in line with previous performance, feedback, best practice and current legislation</li></ul>              | <ul style="list-style-type: none"><li>- Assume responsibility for instructing staff</li><li>- Ensure that all staff are aware of, and understand, the contingency plans in place</li></ul> |



## **Harmonised Qualifications Framework Website (7/7)**



The Project ▾ | Deliverables ▾ | Network | Qualifications Frame | Info-Training Toolkit | Knowledge Base | Announcements ▾

HOME • LOG OUT • USEFUL LINKS • CONTACT US • LANGUAGE: ENGLISH   

Towards a European qualification  
for Solid Waste Facilities' Managers

SWFM QF - Solid Waste Facilities' Managers Qualification Framework

PAGE: / Harmonised Competence Frame / Qualifications Framework


Environmental | Financial & Contractual | Health and Safety | Human Resources | New Projects | Operational | Technical ▾

### Qualifications Framework

A harmonized qualification framework to fulfill the needs of for managers occupied in different types of solid waste management facilities, was fully developed. The identified qualifications are presented in the form of a matrix according to EQF level 6 knowledge, skills and competences descriptors, supporting to their recognition and adoption across the European Union countries.


The methodology used to compile the SWFM Harmonised Qualifications Framework was based on the methodology implemented for the development of a Professional Profile.

It is anticipated, the developed qualification frameworks to contribute to a wider understanding of the roles and responsibilities, activities and tasks of waste managers in managing effectively and sustainably different solid waste management facilities.



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Programme

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launched: 01.2013

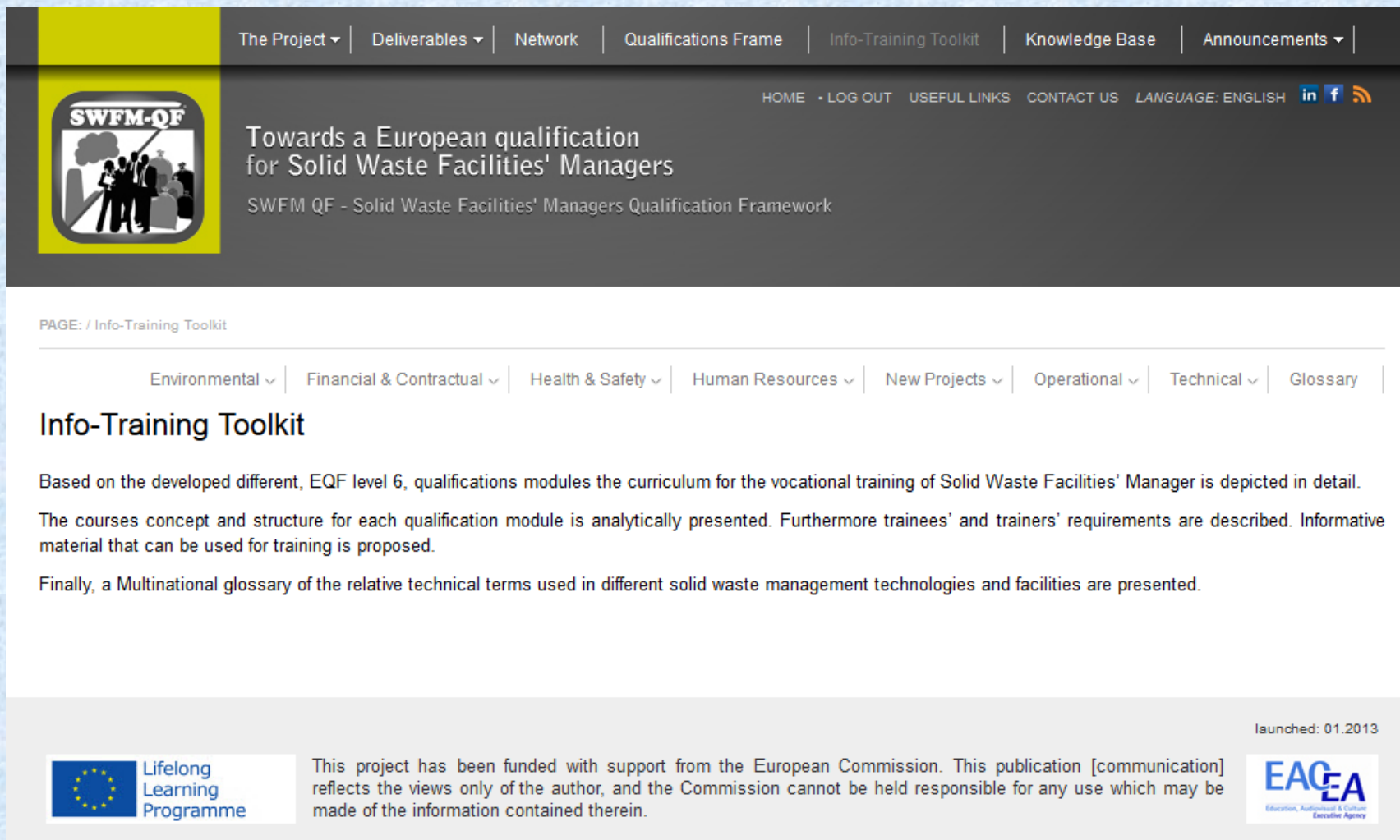
## **The Info-Training Toolkit (1/3)**

Based on the identified Knowledge, Skills, Competences, an Info-Training Toolkit that have the format of a webpage was developed.

The Info-Training Toolkit incorporates:

- The curriculum of the vocational training addressed to Solid Waste Facilities' Manager based on the identified required qualifications.
- Definition of criteria and requirements for the designation and implementation of the vocational training course.
- A Multinational glossary of the relative solid waste management technical terms used in different solid waste management technologies and facilities.

## **The Info-Training Toolkit (2/3)**



The screenshot displays the website for the SWFM-QF project. The header features a navigation menu with links: The Project, Deliverables, Network, Qualifications Frame, Info-Training Toolkit, Knowledge Base, and Announcements. Below the navigation bar, there is a logo for SWFM-QF and the title 'Towards a European qualification for Solid Waste Facilities' Managers'. The main content area is titled 'Info-Training Toolkit' and contains three paragraphs describing the toolkit's purpose and content. The footer includes logos for the European Union Lifelong Learning Programme and the Education, Audiovisual & Culture Executive Agency (EACEA), along with a disclaimer and the launch date (01.2013).

SWFM-QF

Towards a European qualification  
for Solid Waste Facilities' Managers

SWFM QF - Solid Waste Facilities' Managers Qualification Framework

PAGE: / Info-Training Toolkit

Environmental | Financial & Contractual | Health & Safety | Human Resources | New Projects | Operational | Technical | Glossary


### Info-Training Toolkit

Based on the developed different, EQF level 6, qualifications modules the curriculum for the vocational training of Solid Waste Facilities' Manager is depicted in detail.


The courses concept and structure for each qualification module is analytically presented. Furthermore trainees' and trainers' requirements are described. Informative material that can be used for training is proposed.

Finally, a Multinational glossary of the relative technical terms used in different solid waste management technologies and facilities are presented.

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## **The Info-Training Toolkit (Health and Safety) (3/3)**

|                            |  |
|----------------------------|--|
| <b>Course Unit 3:</b>      | <b>Methodologies for the Identification and Assessment of Occupational Hazards</b>   |
| <b>Sub-units:</b>          | <ul style="list-style-type: none"><li>• Risk Analysis and Assessment Methodologies</li><li>• Monitoring of Occupational Accidents and Near Misses</li><li>• Documentation of Occupational Hazards</li><li>• Report of Hazardous situations</li></ul>   |
| <b>Course description:</b> | <p>During this course the students will learn the modern risk assessment and analysis methodologies in order to be able to identify and assess hazards associated with the operation of solid waste management facilities. They will also learn how to establish an effective monitoring, documentation and reporting system regarding potential accidents and near misses during the SWF operation.</p> <p>After the completion of the course the students will be able to setup a hazards identifications and risks assessment system and define in detail an investigation procedure for H&amp;S accidents and near-misses in a solid waste management facility.</p> <p>Student will acquire the competence to improve H&amp;S conditions within the SWF operation and evaluate the results of the H&amp;S accidents and near-misses investigations in order.</p> |
| <b>Course materials:</b>   |  |

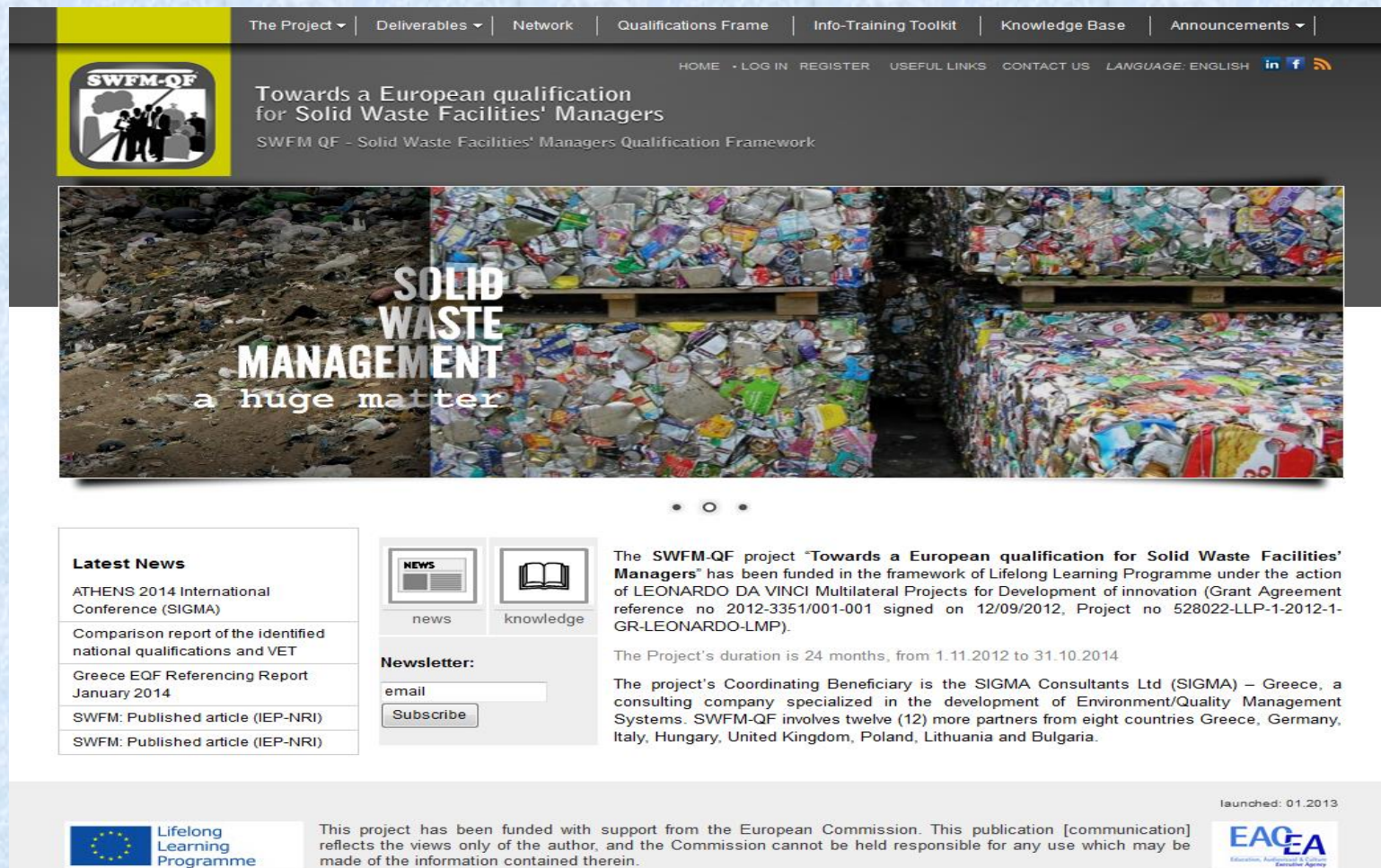
## **Conclusion**

- SWFM-QF project's structure and partnership including associated partners are directly connected to all interested stakeholders involved in solid waste management and vocational training.
- SWFM-QF partners already participate actively in large networks of vocational training and Waste Management sectors, thus exhibiting a full potential to reach all stakeholders not only on regional/national level but also on trans-European and worldwide basis and further disseminate and communicate project's results and the developed, exploitable products (Harmonised Qualifications Framework, Info-Training Toolkit, etc.) that were produced for this purpose.
- The project's outcomes will be beneficial in raising transparency for required competences and mobility of professionals in the environmental protection business sector introducing an innovative clearly defined methodology for the creation of a new job profile (SWFM) along with their correlated standardised profiles for different levels of qualifications (EQF Level 6) based on the actual needs of the labor market, across different countries in Europe.



## SWFM-QF – Dissemination Actions

Project website – <http://www.swfm-qf.eu>



The Project ▾ | Deliverables ▾ | Network | Qualifications Frame | Info-Training Toolkit | Knowledge Base | Announcements ▾

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**SWFM-QF**  
Towards a European qualification  
for Solid Waste Facilities' Managers  
SWFM QF - Solid Waste Facilities' Managers Qualification Framework

**SOLID WASTE MANAGEMENT**  
a huge matter

**Latest News**  
ATHENS 2014 International Conference (SIGMA)  
Comparison report of the identified national qualifications and VET  
Greece EQF Referencing Report January 2014  
SWFM: Published article (IEP-NRI)  
SWFM: Published article (IEP-NRI)

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The SWFM-QF project "Towards a European qualification for Solid Waste Facilities' Managers" has been funded in the framework of Lifelong Learning Programme under the action of LEONARDO DA VINCI Multilateral Projects for Development of innovation (Grant Agreement reference no 2012-3351/001-001 signed on 12/09/2012, Project no 528022-LLP-1-2012-1-GR-LEONARDO-LMP).


The Project's duration is 24 months, from 1.11.2012 to 31.10.2014.

The project's Coordinating Beneficiary is the SIGMA Consultants Ltd (SIGMA) – Greece, a consulting company specialized in the development of Environment/Quality Management Systems. SWFM-QF involves twelve (12) more partners from eight countries Greece, Germany, Italy, Hungary, United Kingdom, Poland, Lithuania and Bulgaria.

launched: 01.2013

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## SWFM-QF – Dissemination Actions

### Project website – Registration

[http://www.swfm-qf.eu/main/?page\\_id=4900&lang=en](http://www.swfm-qf.eu/main/?page_id=4900&lang=en)

PAGE: / Registration

**Latest News**

- Informative workshop (PASEPPE)
- Approval of Progress Report SWFM-QF
- SWFM-QF in Facebook and LinkedIn
- Participation to a Greek Event
- New article about SWFM-QF (SBGDD)

**Newsletter:**

email

**Registration**

|                           |                      |
|---------------------------|----------------------|
| Username *                | <input type="text"/> |
| Name *                    | <input type="text"/> |
| Surname *                 | <input type="text"/> |
| Email *                   | <input type="text"/> |
| Phone *                   | <input type="text"/> |
| Profession *              | <input type="text"/> |
| Company Name (or private) | <input type="text"/> |
| City/Region *             | <input type="text"/> |
| Special Code              | <input type="text"/> |
| Country *                 | <input type="text"/> |

\* Required field

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***Thank you***

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