



PILOT PLATFORM OF VOCATIONAL EXCELLENCE – WATER (PILOT PoVE WATER)

Vocational Excellence Scanning Comparative Analysis

Glasgow Clyde College

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DISSEMINATION LEVEL: CONFIDENTIAL

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Summary

The purpose of the scan is to assist Vocational Excellence Training (VET) providers and their stakeholders within the triple helix of the water sector in integrating Vocational Excellence in their organisation's policy, operation and embedding Vocational Excellence closely in the regional innovation ecosystems. Concentrating purely on the relationships that lie within the triple helix – also known as the knowledge triangle we can identify weaknesses that when strengthened will create the five centres of excellence that the project is striving to achieve.

This report explains the interpretation of existing systems of Vocational Excellence in the Water Sector of the participating partner organisations. This work was carried out by Glasgow Clyde College as part of work package 3.

Each of the five regional captains were asked to complete a Context Scan to assist Vocational Excellence Training (VET) providers and their stakeholders within the triple helix of the water sector in integrating Vocational Excellence in their organisations policy, operation and embedding Vocational Excellence closely in the regional innovation ecosystems.

The PESTLE model achieves this whilst answering each part utilising a Strengths, Weaknesses, Opportunities and Threats (SWOT analysis) approach.

Regional Captains

Each region showed strengths and weaknesses in the context scan in relation to the triple helix of the water sectors. From this each partner can draw on the strengths of the other partners to deliver Vocational Excellence in the Water Sector.

- **CREA = Bretislav Skacel** – faces challenges of how to get the water supplier to engage with them on equipment/machinery required to provide a better water supply. Challenge building partnerships.
- **CIV = Pieter Hoekstra** – Has great links with industry and water supplier but wants to extend training platform. Challenge to reach more people based on practical activities.
- **CLYDE = David Innes** – Leads in the delivery of Water qualifications at SCQF level seven. Challenge is to have more water lecturers, from across a diverse subject area and work force.
- **MALTA = Alex Rizzo** – Water shortage is the main problem. Challenge is to find new ways of cleaning the water using existing materials.
- **RTU = Sandis Dejus** – Water isn't valued in the same way as it is in other countries. Challenge is educating the population to understand the value of the water industry.

Context scans

The five regions were tasked with providing Glasgow Clyde College (GCC) with one or more context scans, (for example we received two perspectives from CZECH, and the same from Latvia) providing us with an overview of where they are placed within the water industry. (Annex 1)

Company Name:
Person Completing:
Contact Details (email):

PESTLE	Political	Economic	Social	Technological	Legal	Environmental
<i>Where do you see your organisation in relation to the water industry under each of the headings above?</i>						
Strengths						
Weakness						
Opportunities						
Threats						

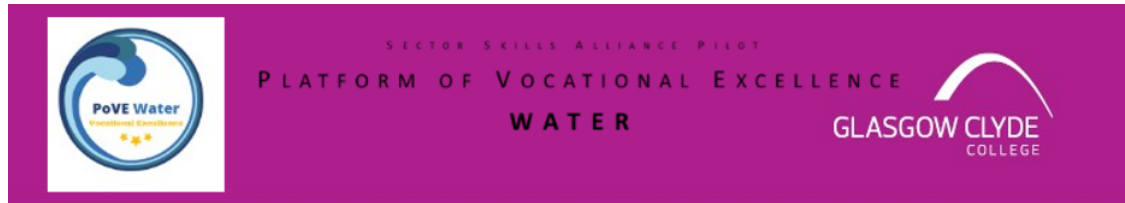
Each of the regions provided in depth information and from this GCC had to develop an overview for each region on one template. This demonstrated the overall Economic, Environmental, Legal, Political, Social results and lastly established the overall Technological results in each of the partners' regions. (Annex 2)

Re-organising the table once the information was returned, allowed us to compare each region side by side whilst looking at only one area of the PESTLE model, whilst still having the SWOT analysis available, which allowed us to understand areas, where partners could support each other, with particular business needs and or opportunities.

Table re-organised for analysis and presentation purposes

Economic	GCC	CREA	CIV & Friesland	MCAST	RTU
<i>Where do you see your organisation in relation to the water industry under the heading to the left</i>					
Strengths					
Weakness					
Opportunities					
Threats					

The information would then be presented to the regional partners at the first meeting in January 2020 (Annex 3). The information shared within a “regional context” would ensure the feedback that was provided by each regional was captured correctly and that no fundamental information was missed. In summary the regional Contextscans include the following:



Glasgow Clyde College– where do you see your organisation in relation to the water industry in your country?

- P** - Government owned in Scotland provides strong political support creating many opportunities however in the rest of the UK there is some political desire to renationalise.
- E** - SW invests billions annually but is working hard to maximise renewable energies, private water companies investment is lower due to big bonuses for shareholders
- S** – SW educate at home and internationally on how to look after your water supply and are leading many initiatives to protect the infrastructure from climate change, Environmental protection post Brexit is a concern
- T** – UK has a successful water industry, pioneering in water technologies sharing best practice across 20 water utilities, 5 year fixed term investment periods. Introducing new technologies is a problem with an aging workforce– skills gap
- L** – Looking to achieve 100% compliance, England & Wales = 99.96% and Scotland 99.88%
- E** – Lots of investment on protecting the environment, 4 major floods since 2007 causing billions in damage. Work with the country on waste and its affect on the water supply.



CIV & Friesland – where do you see your organisation in relation to the water industry in your country?

- P** – Part of the water campus and is supported well by the ministry of education. Water is a top priority, however if political choices of the schools change this will affect innovation.
- E** – Relies on funding to create synergies between VET and Applied Sciences. Funding have ending periods.
- S** – CIV provide a holistic approach to training, committed team but are vulnerable due to dependence on educational structure. Huge opportunity to educate the workforce through real life experience on site.
- T** – State of the art training establishment for delivery but it takes time to implement and has financial restrictions
- L** – CIV water relies on Friesland College as a legal body and although CIV have the freedom to operate in a flexible manner some opportunities are missed as the college is not always able to respond when required.
- E** – Are in a great location to deliver training (water campus) there are great opportunities for CIV water due to climate change to re skill employees.



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Mendel Uni – where do you see your organisation in relation to the water industry in your country?

P – Having memberships in consulting bodies and working on various boards provides a platform to influence local politicians. CR ministry of education politics has an affect on the universities

E – CR does not have enough interest in the water industry, no leading body, membership in clusters. There are economical opportunities not reached due to balanced state contributions

S – Great opportunities however with low salaries there is a lack of new students entering the WI. Students are leaving to work elsewhere.

T – Lack of ability in maintaining technologies as students are pressed to be a specialist not a ground worker

L – Not consistent ability to influence changes on draft documents produced unless you know someone

E – Preparing specialist environmental programs, but these are limited for water. Aim to provide fast track programs to support environment.



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Crea – Where do you see your organisation in relation the water industry in your country?

P – Supported by the regional authority South Moravian Region on various projects. No voice in the importance of water?

E – stable network of support from partner organisation's and stakeholders, poor or irregular income but opportunities to work with universities

S – Water sector not seen as important industry, opportunity to exchange staff within our partner organisation's. Aging workforce with no graduates coming behind to backfill industry

T – Receiving support on technologies from universities. High demands on water industry but slow innovations considering increasing population and aging infrastructure

L –Independent and strong position as a leading cluster but changes in regional authorities not supporting the role of the cluster is a threat

E – Declining base of VET water professionals due to high living costs in the City or more opportunities out with the region.



MCAST – where do you see your organisation in relation to the water industry in your country?

P – Strong drive by government to address water scarcity and they fully support MCAST initiatives. The Water Services Corporation are responsible for all water activities on the island.

E – MCAST are training providers for in water at a high level supporting various other industries. The water industry is governed by one main stakeholder.

S – Working with general public on the importance of the water supply, also raising awareness with agricultural industries in relation to water quality

T – State of the art facilities has a water testing rig which supports training across many different industries, more investment required to support areas like reverse osmosis.

L – Governed by the EU Directives, but would benefit from direct legislative regulations specific to water to encourage personal water abstraction. Water governance is dominated by a few stakeholders

E – Climate change has had a negative impact on freshwater stocks, training available to educate however over extraction has resulted in high energy consumption and poorer water quality.



RTU & Olaine – Where do you see your organisation in relation the water industry in your country?

P – Supported by the ministry of education, school choices have an affect on opportunities for innovation.

E – Rigas Udens is the biggest water utility company in Latvia however it is seen as too far to go to work, there is a need to encourage students into the water industry by providing better training at various levels and better pay within the educational areas.

S – Aging work force ending in brain drain, companies take only one student at a time for site experience. Young do not see the water industry as an exciting role less interest in STEM subjects from schools.

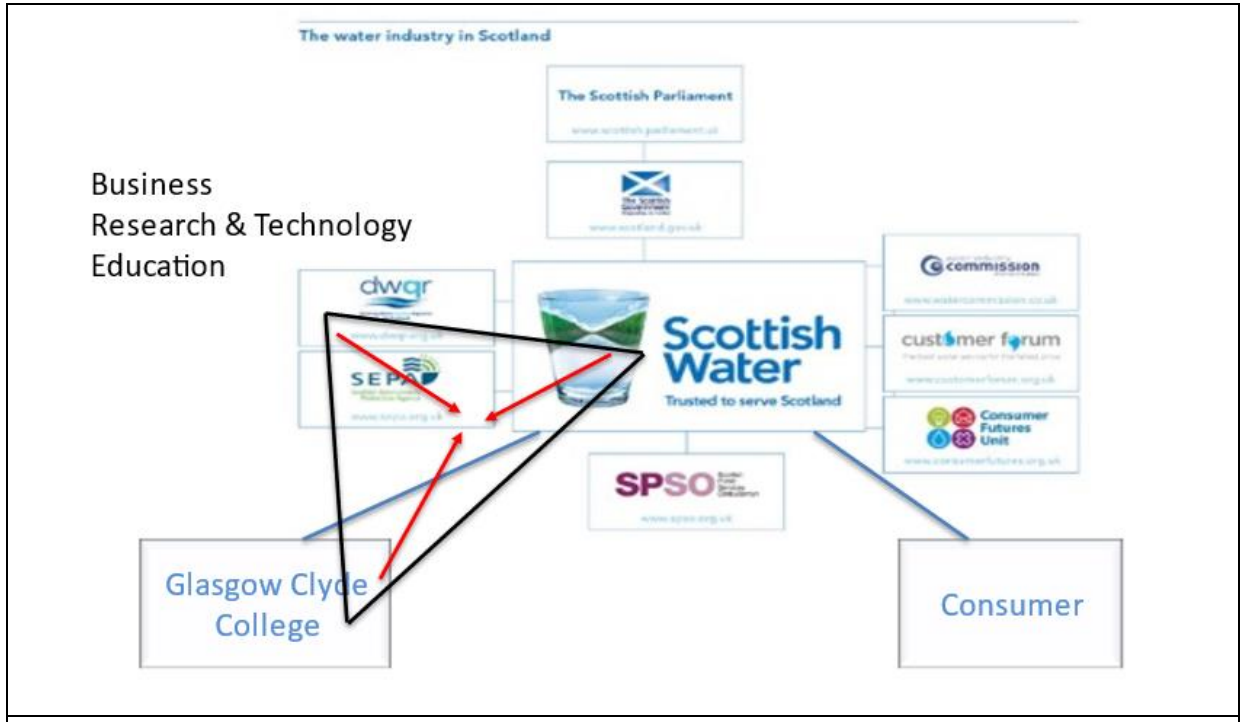
T – Low finances in water technology means less research can be achieved, climate change has an affect on an already aging infrastructure.

L – RTU is an independent university in Engineering, changes in international policy have made it easier for international students to go to Latvia for studies

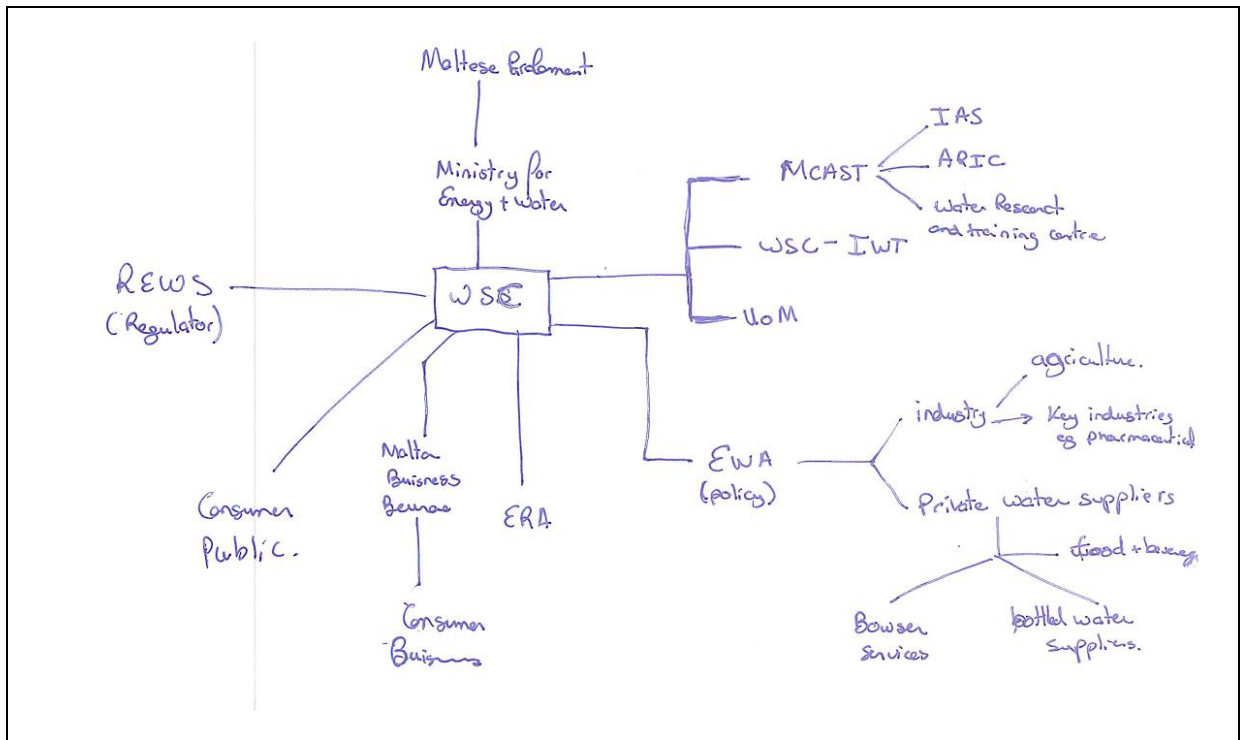
E – Green campus – educating/promotion of tap water lowering the use of plastic bottles. Climate changes require more water sector professionals to upskill the operatives in the water industry.

Triple Helix positions

All partners take in a different position in the triple helix of their regional innovation ecosystem.

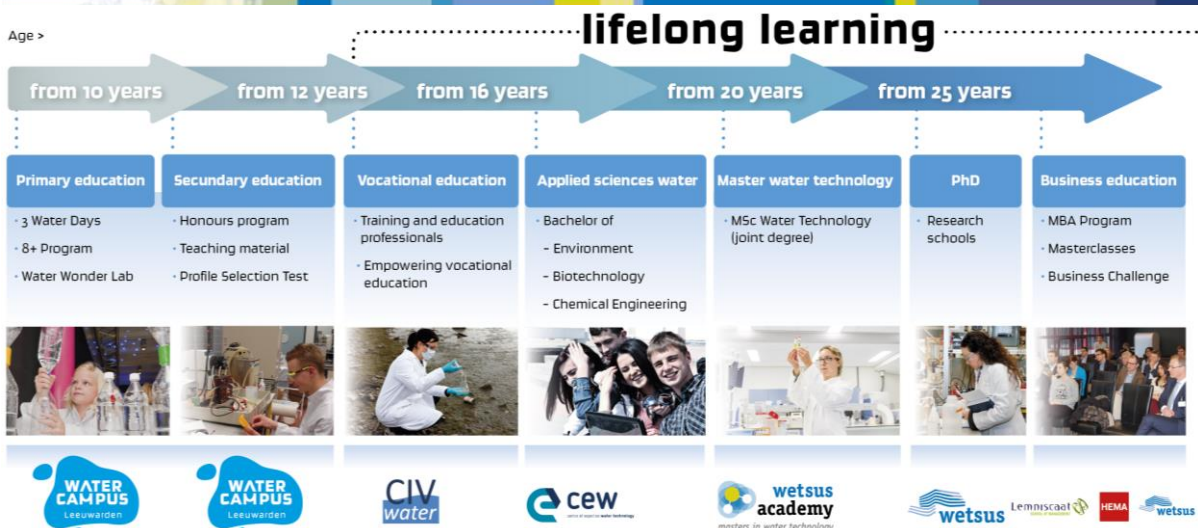


The triple helix position of Glasgows Clyde College in Scotland.

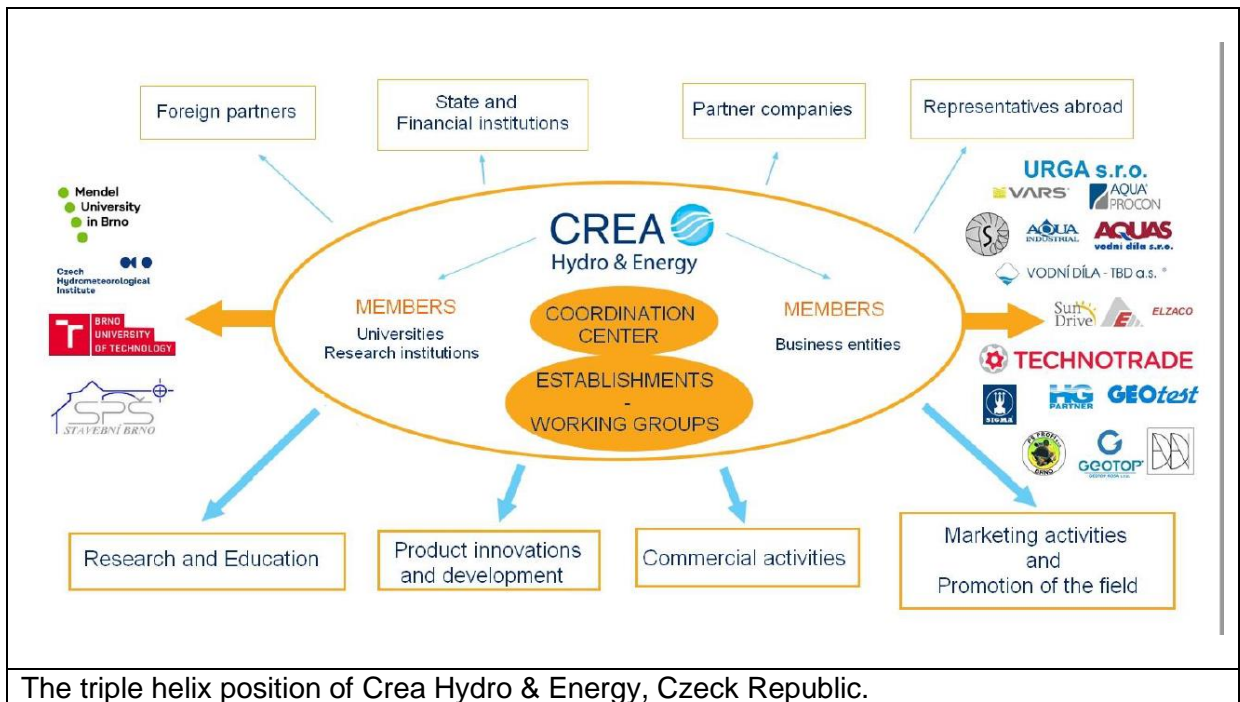


The triple helix position of MCAST, Malta.

Innovation Ecosystem



The triple helix position of CIV Water in the Netherlands.



The triple helix position of Crea Hydro & Energy, Czeck Republic.

1. Riga Technical University.
2. University of Latvia,
3. Latvia University of Life Sciences and Technologies.
4. Daugavpils University (DU) incl. Latvian Institute of Aquatic Ecology.

Non-profit research organization

1. Institute for Environmental Solutions.
2. Latvian State Forest Research Institute Silava.

Specific institutes granted by government

Bior - Institute of Food Safety, Animal Health and Environment - national research center.

1. Clusters: (1) Cleantech Latvia Cluster: 45 companies, 5 research & educational institutions, (2) Life Science Cluster of Latvia, (3) Green Tech Cluster, (4) Smart City Cluster of Latvia
2. Industrial wastewater, the «key» industries: (1) Dairy products, (2) Meat, (3) Beverages, (4) Chemicals
3. Water works engineering & service companies.
4. Water technology developers/ manufacturers.

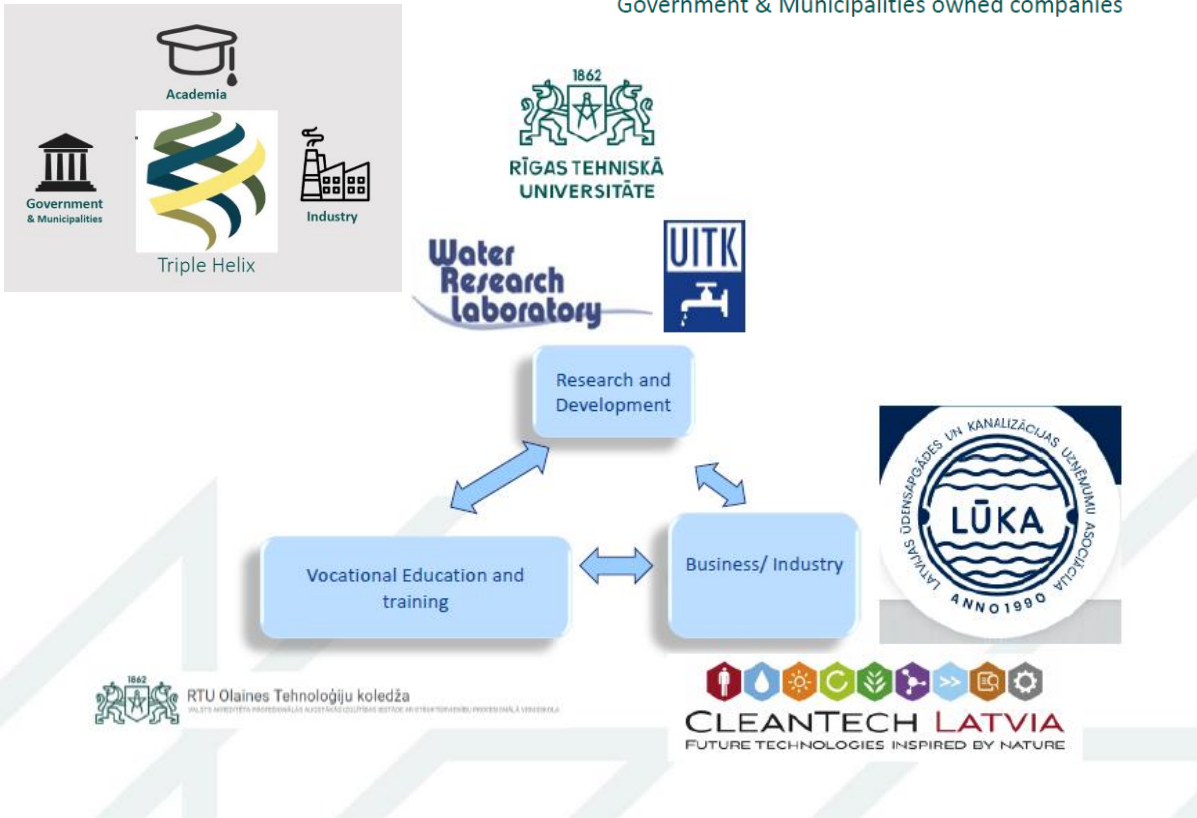
1. Ministry of Education and Science – education, research funding.
2. Ministry of Economics, Investment and Development Agency (LIAA) – innovation funding.
3. Ministry of Environmental Protection and Regional Development – legislation related with infrastructure.
4. LVĢMC - Latvian Environment, Geology and Meteorology Centre – collects critical data.
5. The State Environmental Service
6. Ministry of Agriculture – drinking water legislation.
7. Health Inspectorate, Ministry of Health – supervising water quality.

Latvian water and wastewater works association: 29 municipal water services utilities and 12 private companies as members.

In total in Latvia are 500 municipal companies managing waterworks. «Riga Water» (leading municipal company).

- Water resources and treatment
- Water distribution networks
- Retailing water and sewerage services
- Sewage transporting networks
- Sewage treatment and discharge

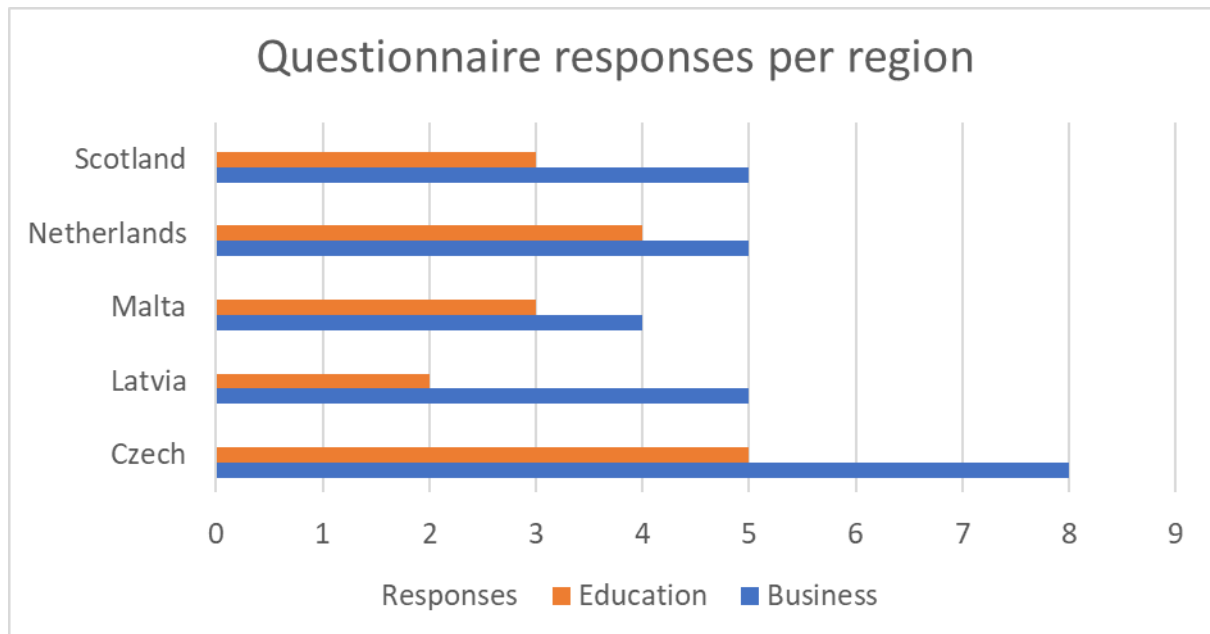
Government & Municipalities owned companies



The triple helix position of RTU Olaine VET college, Latvia.

Business and Education questionnaires

All partners completed the questionnaires with their educational and business stakeholders.



Results Business

- Even regions with strong links to partners agreed that there always room to strengthen partnerships
- Malta compared to all other regions were less interested in Water Quality recruitment/training and had more of a focus for Water Management recruitment/training
- Latvian businesses suffer from little or no research in the water industry in comparison to the other regions
- Czech and Latvian businesses do not have the same opportunities to exert influence on government strategies as Scotland, Netherlands and Malta

Results Education

- In Scotland and Latvia educational establishments are more focussed on Waste Water Management compared too the other regions
- All regions have a high level of interest in Water Quality and Ecology
- Malta and Scotland share a focus 100% on Water Management with Czech Republic following at 60%
- Netherlands and Scotland are 100% focused on Water Quality and Ecology
- Education in Malta, Netherlands and Scotland work more with government on a local or nation level than Latvia and Czech Republic.

Skills and Competence Gaps

In addition to the research conducted with the several Vocational Excellence Scanning tools, all partners consulted their Water industry stakeholders and other actors in the regional Water innovation ecosystems to identify the existing and emerging vocational competences and skills needs in the water sector. Below we included a map of the top 5 most important Skills and Competences needs per country.

Apprentice Water Operator:

- Team worker
- Independent working on initiative
- Flexible
- Fast Learner
- Aspirational at own level

Team Leader Water Operations:

- Leader
- Organised
- Problem Solver
- Pioneering
- People Centred

Existing and emerging vocational competences and skills needs in the water sector, Scotland.

WSC is finding it extremely difficult to find mechanical/electrical / electronics engineers. Technical people with PLC experience, license B, and a knack for mechanical problem solving are required. Private companies are snatching up the last decent graduates in this sector, paying even higher salaries. Despite this, MCAST and University have a supply deficit.

We are experiencing a situation whereby Engineering graduates are still at technicians level, and this lacuna is never filled. We would hire at least 15 engineers if we were to hire right now.

We also find it difficult to find 'multi-skilled fitters' what one might refer to as 'jack of all trades who can fix basic technical issues that crop up on a regular basis.

talent for mechanical problem solving
multi-skilled

Existing and emerging vocational competences and skills needs in the water sector, Malta.

- curiosity for new developments in their profession
- professional attitude
- pro active
- networking skills (know how to find the right people)
- digital skills (ICT but also with the internet)

Existing and emerging vocational competences and skills needs in the water sector, The Netherlands.

Service Engineer of Water Systems

- Expert knowledge
- Responsibility
- Reliability
- Self-reliant (Independence)
- Team worker

Middle Manager (Head of Expert Team, Leading Designer of Water Systems, etc.)

- Leading skills
- Ability to transfer practical experience
- Aspiration to grow and to lead
- Language skills (English, German)
- Responsibility and reliability

Existing and emerging vocational competences and skills needs in the water sector, Czeck Republic.

- Motivated desire to be in the water industry;
- Willingness to study continuously and independently (not only in the specifically on topics covering water sector)
- To be able to share your experience with industry colleagues
- Supportive
- Don't be afraid to ask and take on responsibilities (but not too much, within reason)

Existing and emerging vocational competences and skills needs in the water sector, Latvia.

Technical Partnership opportunities

CREA = Bretislav Skacel – faces challenges of how to get the water supplier to engage with them on equipment/machinery required to provide a better water supply. Challenge building partnerships.

Work with CIV water on how to build relations focusing on the need for a better equipped industry.

CIV = Pieter Hoekstra – Has great links with industry and water supplier but wants to extend training platform. Challenge to reach more people based on practical activities.

Work with Clyde to share practical work practices and introduce to similar training providers in Scotland.

CLYDE = David Innes – Leads in the delivery of Water qualifications at SCQF level 7. Challenge is to have more water lecturers from a cross section of the water industry.

Work with Malta/Latvia to engage is lecturer exchange.

MALTA = Alex Rizzo – Water shortage is the main problem. Challenge is to find new ways of cleaning the water using existing materials.

Work with Crea/Mendel Uni to look at innovative equipment whilst protecting the environment.

RTU = Sandis Dejus – Water isn't valued in the same way as it is in other countries. Challenge is educating the population to understand the value of the water industry.

Work with Clyde on education of the population.

All of these regions can be fully supported by the other partners, Katapult and EfVET who can help with the organisation/guidance of the partnerships.

Partnerships

Having such a wide range of water industry experts allows for many different partnerships to develop throughout the duration of the project and beyond. From the partner responses it was clear that we are all invested in the water industry and would like to develop it further. For example, going forward with this project Glasgow Clyde College will learn from all other partner regions, to improve our own working practices and develop a centre of excellence which will provide fantastic opportunities for staff and students.