# The Water Sector in Scotland
# Market Size Research
## Turnover, Jobs, Exports and Gross Value Added

Final Report
Scottish Enterprise
April 2019

J3108

## Executive Summary

The water sector in Scotland provides 16,600 direct jobs and has a turnover of £3.7 billion. It generates £1.7 billion of Gross Value Added (GVA) for the Scottish economy. The performance of the sector is summarised in the table below, including a breakdown between the supply chain/key water processors and Scottish Water/larger retailers.

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailers | Total Scottish water sector |
|---|---|---|---|
| Turnover | £1,862 million | £1,864 million | £3,726 million |
| Jobs | 12,028 | 4,573 | 16,601 |
| International Exports | £168 million | £1.5 million | £169.5 million |
| GVA | £968 million | £772 million | £1,740 million |

**Table 1 - Summary of the Scottish water sector economic performance**

Scottish Water and one other larger water retailer generate approximately half of total water sector turnover but only 28% of jobs and 44% of GVA. The remainder is generated by the supply chain providing water sector technologies, products and services, water processing companies focusing on bottled water production, and the generation of hydroelectricity.

The water sector generates more GVA per job than the overall Scottish economy. The high GVA per job is partly due to the relatively low labour intensity of Scottish Water operations where there is a high level of capital investment in infrastructure that supports service delivery.

There has been significant growth in the water sector in Scotland over the past three years in turnover (29%), jobs (23%) and exports (28%). This growth has been far in excess of that experienced by the wider Scottish economy.

Within the water sector, the rate of turnover growth has been greater than the rate of employment growth and this pattern is expected to increase over the next three years. This is an indicator of improving labour productivity.

Some of the growth in the water sector supply chain turnover has been driven by increased capital expenditure by Scottish Water over the period. However, only 54% of water sector sales are to water utilities with the remainder coming from sectors such as oil & gas, distilleries/breweries/other drinks manufacturers and the public sector (mainly NHS and local authorities), so growth has also been driven by increased demand from non-water utility customers.

The value of exports of water sector products and services is £170 million. This represents a relatively low proportion of exports from the overall Scottish economy, in comparison to the proportion of water sector turnover. This is due to a significant part of the water sector having a low propensity to export, such as Scottish Water, water retailers and construction companies. However, other parts of the water sector demonstrate a track record in exporting and a desire to increase exports in future. Approximately 30% of water sector companies currently export and others have indicated an intention to do so in the future. The Middle East has been identified as a market that will drive future export growth, in particular the UAE.

Companies operating in the water sector have over 1,000 Full Time Equivalent staff working in R&D and Innovation. This is indicative of an innovation active sector.

Over 60% of companies in the water sector have plans for growth. The most common activities planned to support this growth are skills development, marketing & sales, investment and innovation.

The cyclical nature of spending by water utilities is identified as a barrier to growth as is accessing these markets directly via procurement frameworks (which provide the water utilities with a pre-approved shortlist of suppliers to invite to bid for contracts) and indirectly via Tier 1 framework contractors. Some regard the water utility market as being risk averse to innovation but this varies between different water utilities. The availability of skilled staff is also identified as a barrier to growth.

From the perspective of Scottish Enterprise, potential areas to consider include:

- Investigating options to support the sector to address the innovation challenges of non-water utility customers
- Working with Scottish Development International to help existing and new exporters to target opportunities in the Middle East and the UAE in particular
- Working with other public sector partners to identify how to best support water sector companies overcome issues around the availability of skills and further improve the attractiveness of the sector as a career destination
- Investigating options to support water sector companies to increase awareness and capabilities in digital marketing tools and practices, such as use of Scottish Enterprise's Expert Support – Marketing (Domestic and International) products

When communicating with companies in the water sector, it is important to recognise that a significant minority self-identify as being part of other sectors such as oil & gas, construction, etc. This has implications for the way in which any interventions are communicated to ensure they are perceived as being relevant to the target audience.

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| **Prepared By:** John Taylor/ Joginder Fagura | **Date:** April 2019 |
| **Approved By:** Angus Hunter | **Date:** April 2019 |

**Appendix A:** **Survey questionnaire**

**Appendix B:** **Data sample summary**

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# 1 Introduction

This report about the water sector in Scotland has been prepared on behalf of Scottish Enterprise. It is based on data and information kindly provided by 123 companies active in the water sector from an estimated total population of 412 companies (30% response rate). The report covers current R&D activity, current and historic economic performance, expected future performance, plans for growth and related drivers and barriers.

## 1.1 Background and research objectives

This study follows on from similar research carried out in 2014. The previous study investigated low carbon heating and cooling and water supply[1]. Within the previous report the water sector data was reported separately but used a different methodology to make whole sector estimates based on sample data. As such there is limited comparison that can be made between the findings of the two studies. Instead, this research sought to gather data about the economic performance in the last complete financial year and for the comparable performance four years ago, giving a three year period over which to assess trends. As the survey was carried out in early 2019 the typical time period, over which trends were assessed, was 2015 to 2018.

The research objectives were to source data directly from relevant companies to understand the scale of the current water sector in Scotland in terms of turnover, jobs and exports, the scale of any growth over the last three years and expectation for future growth. It also sought to identify the proportion of sales to water utilities and a breakdown of the other sectors that also purchase water sector goods and services. The scale of R&D expenditure and activity was to be identified. Finally, information about the companies' significant future plans for growth was to be sought in conjunction with the drivers and barriers related to growth.

## 1.2 Scope of the water sector

Scottish Enterprise defines the water sector as including companies with operations in Scotland involved in the following activities:

[1] 'Analysis of the Scottish Company Base and Market Opportunities: Low Carbon Heating & Cooling and Water Supply & Wastewater sectors', Innovas (2014) - http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=556

| | |
|---|---|
| Water supply and treatment | Smart management of water, sensors, instrumentation, data analytics and related services |
| Contaminated water and wastewater treatment (including filtration, UV treatment etc.) | Pipe, drain and sewer cleaning |
| Energy generation using water (including anaerobic digestion, water source heat pumps and hydroelectric) | Bottled water |
| Resource management, reuse and recycling (including sludges) | Freshwater aquaculture (but not marine) |
| Catchment management and flood prevention | Groundwater, boreholes and irrigation |
| Distribution – water pipelines, trains, tanks and plumbing | Water features and swimming pools |
| Mechanical equipment for industrial processing (including pumps, valves, filters, energy efficient equipment etc.) | Construction, repair & maintenance contractors to the water sector |
| Water efficiency products and processes | Consultancy to the water sector and supply chain |
| Other specialist products and services | |

**Table 2 - Water sector activities**

Scottish Enterprise had previously developed a database of companies classified as being in the water sector in Scotland. During this study the database was added to using a list of relevant Scottish Water contractors. In total, 412 companies have been identified as constituting the water sector in Scotland. The figure below summarises what is, and is not, included in the scope of this study.

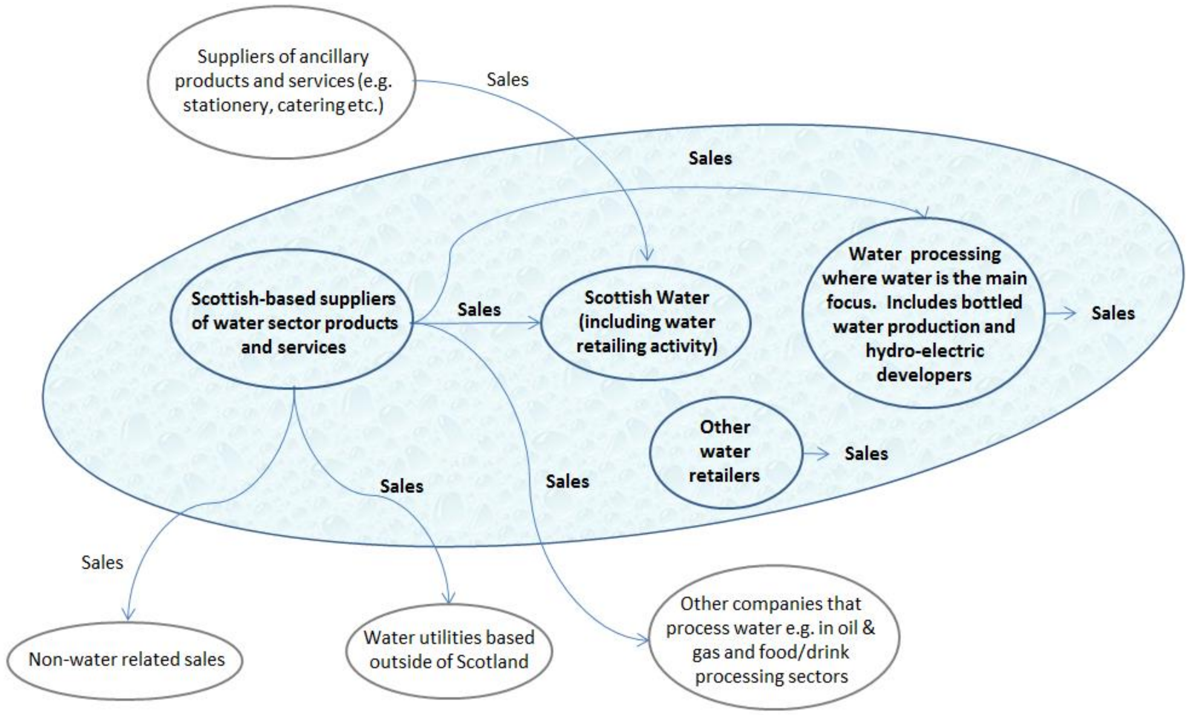


**Figure 1 - Scope of the water sector**

The following are in the scope of the water sector:

- Sales (and related jobs) from suppliers of technical water sector products and services (those listed in Table 2) to:
    - Scottish Water
    - Water utilities based outside Scotland
    - Water processing companies where water is the main focus of the business – including bottled water producers and hydroelectric developers
    - Other, non-water utility companies where there is an element of processing water (e.g. oil & gas, food & drink, etc.)
- Sales (and related jobs) of Scottish Water Group (including Business Stream)
- Sales (and related jobs) of water retailers in addition to Business Stream
- Sales (and related jobs) of water processing companies where water is the main focus of business – including bottled water producers and hydroelectric developers

The following are **not** classed as part of the water sector for the purposes of this report:

- Sales (and related jobs) of suppliers of goods and services to Scottish Water beyond the scope of activities listed in Table 2 (such as stationery, catering, etc.)
- Non-water sector sales (and related jobs) of suppliers that provide both water sector goods and services and non-water sector goods and services
- Sales (and related jobs) of companies that process water, but the water is not the main focus of the business (e.g. whisky distilling, soft drinks manufacturing)
- Any revenue or jobs of water related activity by the wider public sector (e.g. the Scottish Environmental Protection Agency, local authorities or the NHS)

- Any direct economic impacts of wastewater treatment plants owned and operated by manufacturing companies

# 2 Research Method

Scottish Enterprise provided a spreadsheet containing around 400 companies that had been classified as being part of the water sector in Scotland. Desk based research was used to identify telephone numbers to contact each company.

A survey was created to gather the data and information required to address all the research objectives. A copy of this survey is included in Appendix A. An online survey version of the questionnaire was also created.

The main method of data gathering was by telephone interview and the companies were contacted during February and March 2019. If a company agreed to participate, but preferred to do so via online survey, a web link was emailed to them. Where requested, a letter of introduction from Scottish Enterprise was sent to help explain the purpose of the research and the conditions under which the data would be gathered and held.

During the telephone interviews respondents were advised of the type of data that would be gathered and the purposes for which it would be used. Participants were advised that all data would be confidential and that individual participating companies would not be identified in the report.

A total of 123 surveys were completed (30% of the estimated population of 412), 30 of which were from companies Account Managed by Scottish Enterprise or Highlands & Islands Enterprise. Over 95% of the surveys were completed by telephone.

Of the 123 surveys, 103 had provided sufficient data to calculate the turnover and jobs related to water sector products and services. The sample size providing data for each of the different areas of the report is included in Appendix B.

The survey data was then analysed and steps were taken to estimate Gross Value Added (GVA) of the sample. The method used to do this is described in Appendix C.

The sample data was grossed up to create an estimate of the key economic performance of the population. This performance was then compared to the performance of the overall Scottish economy and to the manufacturing sector to provide context to the numbers. The remainder of this report presents the findings of the data analysis and related discussion.

# 3 Current water sector structure and markets

This section includes a breakdown of the structure of the water sector and segmentation of customers by market segment and geographical location.

## 3.1 Water sector structure

Respondents were asked to highlight their main business activity(s). Given that they were able to select more than one option the totals do not add up to 100%.

| Main business activity(s) | % selected |
|---|---|
| Contaminated water and wastewater treatment (including filtration, UV treatment, etc.) | 39% |
| Consultancy to the water sector and supply chain | 34% |
| Mechanical equipment for industrial processing (including pumps, valves, filters, energy efficiency equipment etc.) | 33% |
| Smart management of water, sensors, instrumentation, data analytics and related services | 26% |
| Construction, repair & maintenance contractors to the water sector | 24% |
| Water efficiency products and processes | 24% |
| Water supply and treatment | 22% |
| Catchment management and flood prevention | 19% |
| Distribution - water pipelines, drains, tanks and plumbing | 16% |
| Pipe, drain and sewer cleaning | 16% |
| Other specialist products and services | 15% |
| Resource management, reuse and recycling (including sludges) | 15% |
| Groundwater, boreholes and irrigation | 13% |
| Energy generation using water (including anaerobic digestion, water source heat pumps and hydro-electric) | 12% |
| Bottled water | 3% |
| Water features and swimming pools | 3% |
| Freshwater aquaculture (but not marine) | 0% |

**Table 3 - Main business activities of respondents**

There is a wide range of business activities represented in the sample of 123 respondents with only the freshwater aquaculture segment not included.

## 3.2 Water sector markets

### 3.2.1 Markets by type

The broad market segments for technical water sector products and services are:

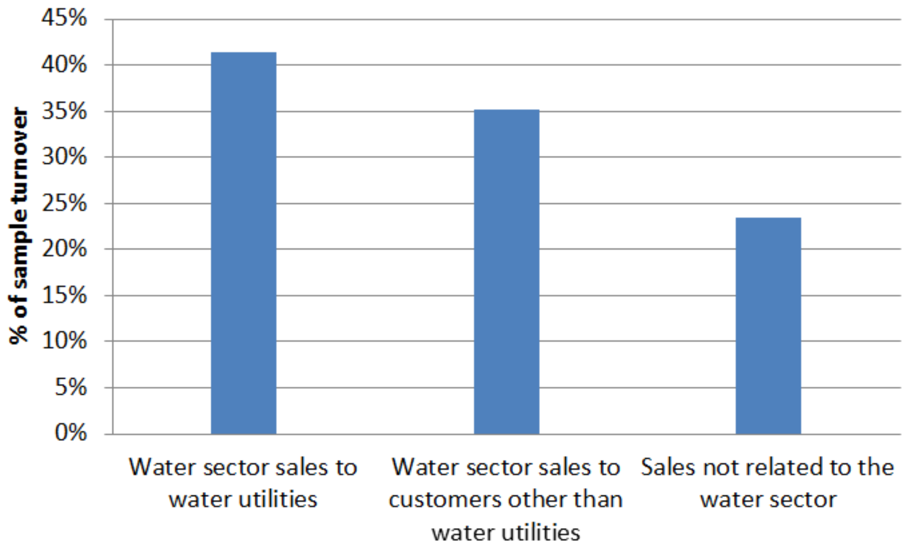


**Figure 2 - Turnover by broad market sector**

Over three quarters of the turnover reported by the sample is from water sector products and services, with the remainder not related to the water sector. Of the turnover that is related to the water sector, around 54% is from water utilities, such as Scottish Water, and 46% is from customers that are not water utilities.

Respondents were asked to select the market segments in addition to water utilities that purchased water sector products and services.

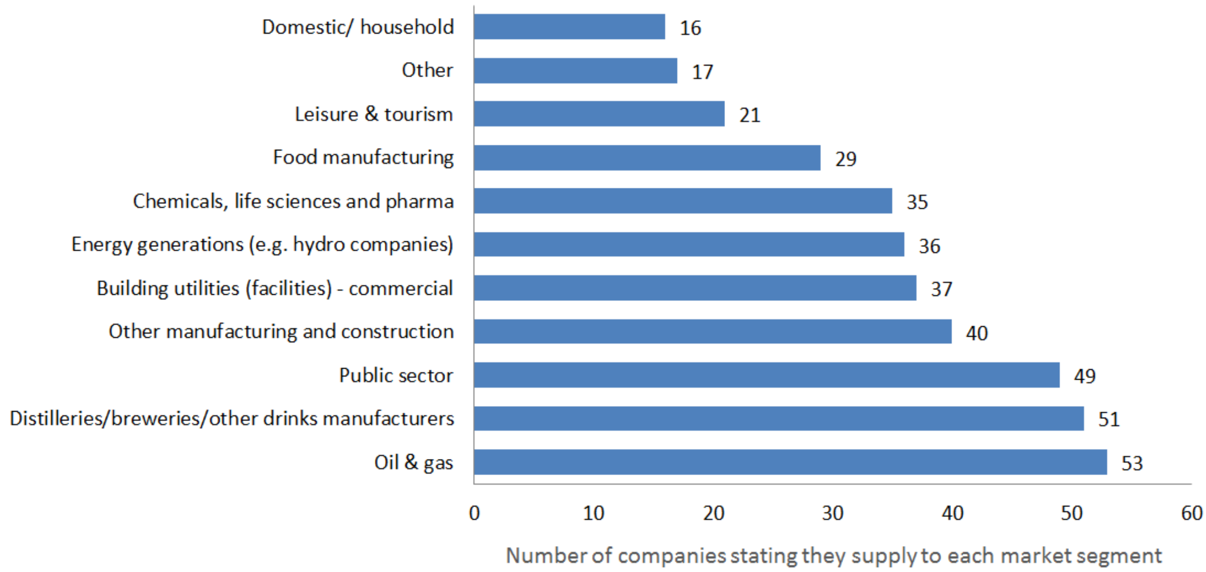


**Figure 3 - Non-water utility market segments purchasing water sector products and services**

Respondents were able to select more than one market sector. There are a broad range of sectors represented. Respondents were asked to provide further detail if they selected 'public sector' and the majority of these stated that the markets were either the NHS or local authorities. Where respondents selected 'other' they were also asked to elaborate and this identified markets such as farmers, military, aquaculture and retail. Of the companies supplying into non-water utility markets, those supplying to food manufacturers had the highest propensity to export (45%).

### 3.2.2 Markets by geographical location

Respondents were asked to provide a breakdown of total water sector sales by broad geographical location. The responses are summarised in the figure below.

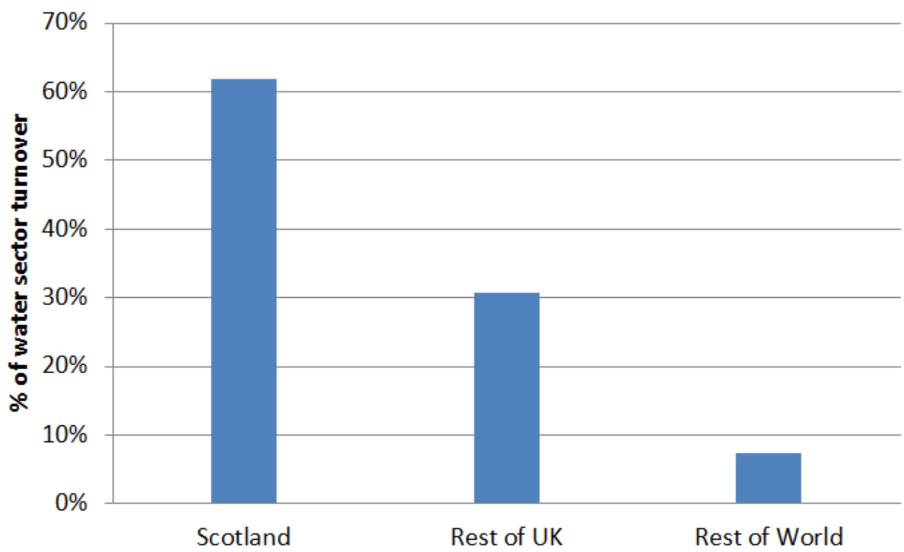


**Figure 4 - Broad geographical destination of water sector products and services**

Just under one third of the 123 companies interviewed indicated that they exported water sector products and services. By value this amounts to 7.3% of water sector turnover (this excludes Scottish

Water). Approximately twice the value of water sector products and services were sold in Scotland than were sold to the rest of the UK.

Those that do export were then asked to provide details about the destination markets they supply. The responses are summarised in the figure below.

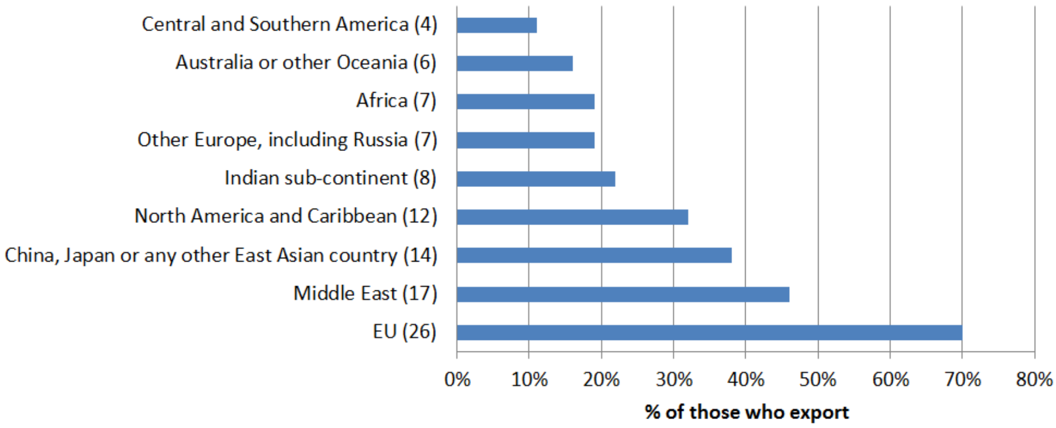


**Figure 5 - Export destination of water sector products and services**

Respondents were able to select more than one response meaning that the percentages do not add up to 100%. This is not an indication of value of export turnover by market, simply a count of the markets serviced as provided in the brackets next to each regional category. Of those selling into the Middle East the most prevalent activity is 'Consultancy to the water sector and supply chain' followed by 'Contaminated water and wastewater treatment including filtration, UV treatment etc.'

# 4 Current R&D and Innovation activity

Respondents were asked to indicate what percentage of their total turnover from Scottish operations is currently invested in R&D/Innovation. The responses are summarised in the figure below.

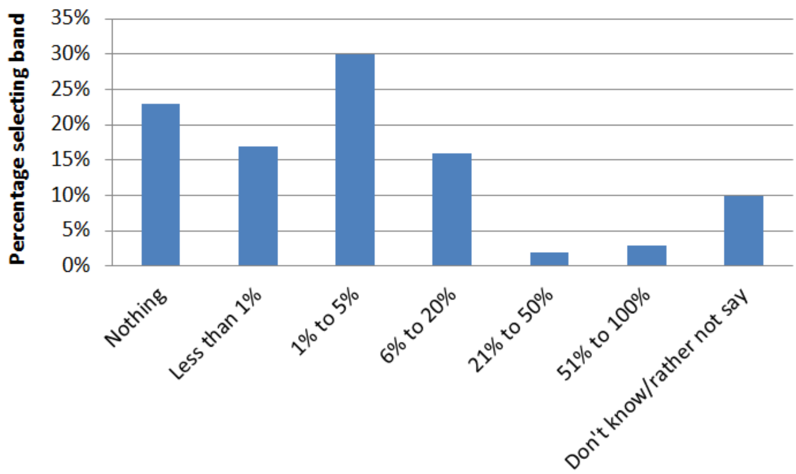


**Figure 6 - R&D and Innovation expenditure as a % of turnover (bands)**

These responses can be compared with average business expenditure on R&D as a percentage of turnover for the wider economy (0.48%) and for the manufacturing sector (0.79%). Just over 50% of water sector respondents reported spending a higher percentage of turnover on R&D than the average for the manufacturing sector[2]. However, the question in the survey used in this study refers to 'R&D and Innovation' whereas the above quoted comparative data focuses on 'R&D' alone. It may be that including 'innovation' broadens the activities included by respondents to the water sector survey and therefore increases the percentage of turnover relative to just considering 'R&D'.

The whole of the water sector employs an estimated 1,072 FTE staff working in R&D and Innovation[3]. This can be compared to data for the total Scottish economy of 13,178 FTE R&D staff[4].

This comparison suggests that the water sector employs 8% of the total R&D staff based in Scotland.

As previously highlighted, the different interpretation of 'R&D/Innovation' and 'R&D' between the water sector survey and the Scottish Government reported BERD data means that the comparison should be treated with caution. Notwithstanding this limitation, it is clear that there is significant activity in R&D and Innovation in the water sector in Scotland.

# 5 Current economic performance measures

This section provides a summary of the current economic performance measures for the whole Scottish water sector. The sample data from the survey has been grossed up to estimate totals for the identified population of 412 companies plus Scottish Water. A description of the methodology used is provided in Appendix C. The total sector data has then been segmented into:

- The Scottish based supply chain providing technical water sector products and services
- Scottish Water (including Business Stream) plus the main large water retailer, Castle Water[5]

The performance of the water sector covers turnover, total jobs (F/T + P/T), exports and Gross Value Added (GVA). With each of these metrics, performance of the water sector is compared with the equivalent value for the whole Scottish economy and the contribution of the manufacturing sector to the Scottish economy. The manufacturing sector was selected as a comparator as it is an important sector to Scottish Enterprise from an economic development perspective. Viewing key performance

[2] Business Expenditure on Research & Development (BERD) in Scotland 2017, National Statistics/ The Scottish Government, Table 30, p. 84 - https://www2.gov.scot/Resource/0054/00544541.pdf

[3] Estimate is based on a sample of 83 respondents identifying that 249.5 FTE jobs involved R&D/Innovation. This was grossed up to a population level of 412 (excluding outlier data in the calculation of the average data)

[4] Business Expenditure on Research & Development in Scotland 2017, National Statistics/ The Scottish Government, Table 15, p. 51 - https://www2.gov.scot/Resource/0054/00544541.pdf

[5] Note that the figures used for these two companies have been sourced from publicly available accounts and not via the confidential survey

statistics of the water sector in comparison to the manufacturing sector provides an indication of the relative contribution of each to overall economic performance of Scotland. Whilst the water sector contains some manufacturing companies it is made up of companies covering 21 2-digit Standard Industry Classification codes and is therefore much broader than the manufacturing sector.

## 5.1 Turnover

The estimated turnover for the water sector in the last financial year is summarised below.

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailer | Total Scottish water sector |
|---|---|---|---|
| **Turnover** | £1,862 million | £1,864 million | £3,726 million |

**Table 4 - Scottish water sector turnover**

To put this level of turnover into context, the water sector can be compared with the total turnover of businesses in Scotland of £267,944 million, and the total turnover of the manufacturing sector in Scotland of £37,242 million[6]. Therefore, in terms of turnover:

- The water sector accounts for 1.4% of total Scottish turnover
- The water sector's turnover is equivalent to 10.0% of the turnover of the manufacturing sector

## 5.2 Jobs

The estimated current jobs for the water sector is summarised below.

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailer | Total Scottish water sector |
|---|---|---|---|
| **Total jobs (F/T + P/T)** | 12,028 | 4,573[7] | 16,601 |

**Table 5 - Scottish water sector jobs**

The jobs data shown for the supply chain and key water processors are a combination of full time and part time employees. The Scottish Water data identified was for Full Time Equivalent (FTE) jobs and therefore the actual total Scottish water sector jobs (including full time and part time jobs) will be greater than the number shown.

Within the supply chain and key water processors the total number of jobs consists of 94% full time and 6% part time based on the sample of data collected.

[6] Business Statistics in Scotland 2018, Data Tables, The Scottish Government, - https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/alltables

[7] Of the 4,321 FTE Scottish Water jobs include in this total, 340 are with Business Stream

To put this number of jobs into context, the water sector can be compared with total employment in Scotland in 2018 of 2,143,410, with 191,180 in the manufacturing sector[8]. Therefore, in terms of jobs:

- The water sector accounts for 0.8% of total jobs in Scotland
- The number of jobs in the water sector is equivalent to 8.7% of total manufacturing sector jobs

The population estimates for jobs are calculated using standard economic impact practices of removing large outlier data before an 'average number of jobs per company' is calculated. This means that should other (non-interviewed) companies in the population be at the scale of a large outlier then their contribution to total jobs (and turnover) would not be accounted for.

## 5.3 International Exports

The estimated current scale of water sector exports is summarised below.

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailer | Total Scottish water sector |
|---|---|---|---|
| **International Exports** | £168 million | £1.5 million | £169.5 million |

**Table 6 - Scottish water sector international exports**

To put this data into context, the water sector exports can be compared with total Scottish exports of £32,440 million and exports from the manufacturing sector of £17,610 million[9]. Therefore, in terms of exports:

- The water sector represents 0.5% of total exports from Scotland
- The water sector's exports are equivalent to 1.0% of the exports of the manufacturing sector

## 5.4 Gross Value Added

Gross Value Added is derived by combining individual company data on total jobs (full time and part time) with sector average GVA per job data applicable to that company[10]. The estimated current scale of water sector GVA is summarised below.

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[8] Business Statistics in Scotland 2018, Scottish Government, Table D - https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/alltables

[9] Export Statistics Scotland 2017, Scottish Government, 30th January 2019 - https://www2.gov.scot/Topics/Statistics/Browse/Economy/Exports/ESSPublication (Note the latest published data available is for 2017 and therefore the comparison with the survey data is likely to cross over different financial years. The figures should therefore be regarded as indicative)

[10] Scottish Annual Business Statistics 2016, Scottish Government, 2018 - https://www2.gov.scot/Topics/Statistics/Browse/Business/SABS . Note the latest GVA data from this report is for 2016. Comparisons with water sector data is, therefore, indicative only

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailer | Total Scottish water sector |
|---|---|---|---|
| **GVA** | £968 million | £772 million | £1,740 million |

**Table 7 - Scottish water sector GVA**

Of the £772 million GVA generated by Scottish Water and the larger water retailer (Castle Water), 98% of this amount can be attributed to Scottish Water.

To put this level of GVA into context, the water sector can be compared with total Scottish economy GVA of £139,338 million and with manufacturing sector GVA of £14,669 million[11]. Therefore, in terms of GVA:

- The water sector accounts for 1.2% of total Scottish GVA
- The water sector's GVA is equivalent to 11.9% of the GVA of the manufacturing sector

## 5.5 Summary of current water sector economic performance

The current performance of the water sector in Scotland is summarised in the table below.

| Performance metric | Supply chain and key water processors | Scottish Water/ larger water retailer | Total Scottish water sector |
|---|---|---|---|
| Turnover | £1,862 million | £1,864 million | £3,726 million |
| Jobs | 12,028 | 4,573 | 16,601 |
| International Exports | £168 million | £1.5 million | £169.5 million |
| GVA | £968 million | £772 million | £1,740 million |

**Table 8 - Summary of the Scottish water sector economic performance**

Scottish Water and the large water retailer, Castle Water, account for just over 50% of total water sector turnover but only 28% of jobs. This is consistent with the relatively lower labour intensity of Scottish Water where much of the activity is undertaken by capital equipment rather than labour. Whilst the total GVA of Scottish Water and Castle Water is less than the GVA of the supply chain and key processors, the GVA per job of Scottish Water is higher, partly reflecting the relative lower labour intensity of Scottish Water.

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[11] Regional gross value added (income approach) reference tables, ONS, Dec 2018 (Tables 1 and 6) - https://www.ons.gov.uk/economy/grossvalueaddedgva

A summary of the economic performance of the water sector compared to the total Scottish economy and the manufacturing sector is provided in the table below.

| Economic performance metric (current) | Scottish water sector | Comparison with total Scottish economy | Comparison with Scottish manufacturing sector |
|---|---|---|---|
| Turnover | £3,726 million | Represents 1.4% of total Scottish economy turnover | Equivalent to 10% of manufacturing sector turnover |
| Jobs | 16,601 | Represents 0.8% of total Scottish economy jobs | Equivalent to 8.7% of manufacturing sector jobs |
| Exports | £169.5 million | Represents 0.5% of total Scottish economy exports | Equivalent to 1.0% of manufacturing sector exports |
| GVA | £1,740 million | Represents 1.2% of total Scottish economy GVA | Equivalent to 11.9% of manufacturing sector GVA |

**Table 9 - Summary comparison of the Scottish water sector economic performance**

The proportionate comparison of water sector GVA is relatively high with respect to the proportion of jobs in both the overall economy and with the manufacturing sector. This suggests that the water sector generates more GVA per job than the overall Scottish economy and the Scottish manufacturing sector. The GVA per job for the whole water sector is estimated to be £104,813[12]. The GVA per job excluding Scottish Water and Castle Water is £69,312[13]. The GVA per job of the manufacturing sector is estimated to be £76,729[14]. Therefore, the higher levels of GVA per job of the total water sector are driven by the inclusion of Scottish Water's performance. The high level of GVA per job of Scottish Water is a function of the high level of capital investment in infrastructure that enables services to be delivered with relatively lower levels of employment.

At £169.5 million, water sector exports are low relative to proportions of turnover and jobs of the overall economy and in comparison to the manufacturing sector. This will be, in part, due to segments of the water sector having a low propensity to export such as locally based construction companies,

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12 Calculated by dividing total water sector GVA of £1,740 million by total water sector jobs of 16,601

13 Based on analysis of the sample data and excludes outlier data

14 Calculated by dividing the manufacturing GVA of £14,669 million (from earlier section 5.4) by total manufacturing jobs of 191,180 (from earlier section 5.2)

pipe, drain and sewer cleaning companies, companies that focus on supply to domestic oil & gas producers in the North Sea, and the utility Scottish Water. The sub-categories of the water sector that have a higher propensity to export, in order of the most likely, are:

- Bottled water producers *(note, this has a relatively low representation in the sample)*
- Water features and swimming pools *(note, this has a relatively low representation in the sample)*
- Smart management of water, sensors, instrumentation, data analytics and related services
- Consultancy to the water sector and supply chain
- Resource management, reuse and recycling (including sludges)
- Water supply and treatment
- Contaminated water and wastewater treatment (including filtration, UV treatment, etc.)
- Catchment management and flood prevention
- Groundwater, boreholes and irrigation

# 6 Recent trends in turnover, jobs and exporting

This section presents data on recent trends in Scottish water sector performance in terms of turnover, jobs and exports. The total water sector is segmented in a slightly different way compared to section five. As historic publicly available performance data is not available for the large water retailer, Castle Water, only Scottish Water is shown separately from the data for the supply chain and key water processors.

Note that, as GVA is derived from job data, the growth rate of water sector GVA is not calculated separately. The growth rate of jobs is therefore a reasonable indicator of the growth in GVA.

## 6.1 Turnover trends

Respondents were asked to provide their views on the overall historic trend in water sector turnover of their company comparing the last financial year with the performance four years ago (giving a three year period over which the trend is assessed). The response is summarised in the figure below.

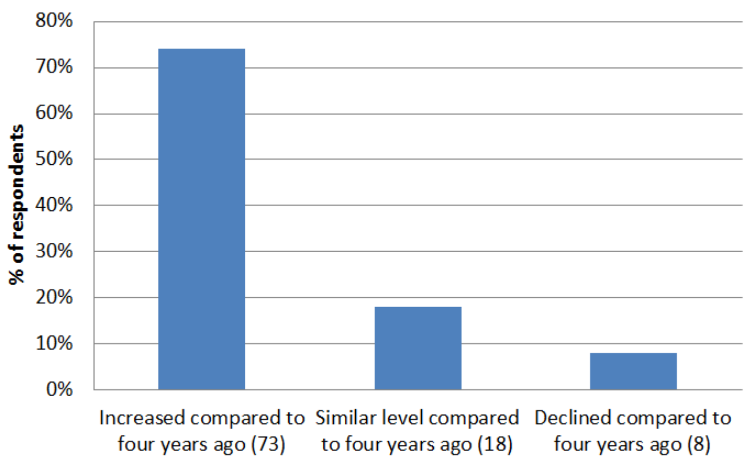


**Figure 7 - Recent trends in water sector turnover**

In addition to information about current water sector turnover, survey respondents were asked to provide historic water sector turnover data to enable a three year trend to be calculated. The individual company responses were aggregated to give total current and historic figures for the sample. A total of 72 companies provided both current and historic turnover data, upon which the estimated growth rates are based. Data for Scottish Water was sourced from published Annual Reports. The growth rates calculated on this basis are summarised in the table below.

| | Estimated growth rate in turnover, comparing performance over the last three years |
|---|---|
| Water sector (excluding Scottish Water) | 36.2% |
| Scottish Water | 19.9% |
| **Total water sector (including Scottish Water)** | **29.5%** |

**Table 10 - Estimated growth rate in turnover of the water sector**

These turnover growth rates can be compared with the Scottish wide growth rate over the period 2015 to 2018[15]. In 2018 the total turnover of enterprises was reported as £267,944 million. In 2015 the equivalent data was £267,343 million and therefore the growth rate in turnover over that period is 0.2%.

The water sector turnover growth rate can also be compared with the turnover growth rate of the Scottish manufacturing sector. In 2018 the total turnover of the manufacturing sector in Scotland was reported as £37,242 million. In 2015 the equivalent data was £34,940 million and therefore the growth rate in turnover over that period is 6.6%.

The recent growth rate in turnover of the water sector in Scotland is clearly considerably higher than the average for the manufacturing sector and the overall Scottish economy.

The research identified that 54% of water sector turnover was from sales to water utilities. Part of the reason for the significant growth in turnover may be linked to Scottish Water's spending growth over the same period. From 2014/15 to 2017/18 the total capital investment by Scottish Water increased from £470.0 million to £646.7 million (a 37.6% increase)[16]. The Scottish Water Business Plan 2015 to

[15] Business Statistics in Scotland 2018, Data Tables, The Scottish Government, Table E. Total Scottish Turnover of enterprises in Scotland - https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/alltables

[16] Scottish Water Annual Report and Accounts 2017/18, page 23 - https://www.scottishwater.co.uk/en/Help-and-Resources/Document-Hub/Key-Publications/Annual-Reports

2021[17] outlines the cycle of capital investment forecast by Scottish Water. Over the period 2015 to 2021, capital investment of over £3.5 billion is forecast.

## 6.2 Job trends

Respondents were asked to provide their views on water related jobs at their company comparing the last financial year with the situation four years ago (giving a three year period over which the trend is assessed). The response is summarised in the figure below.

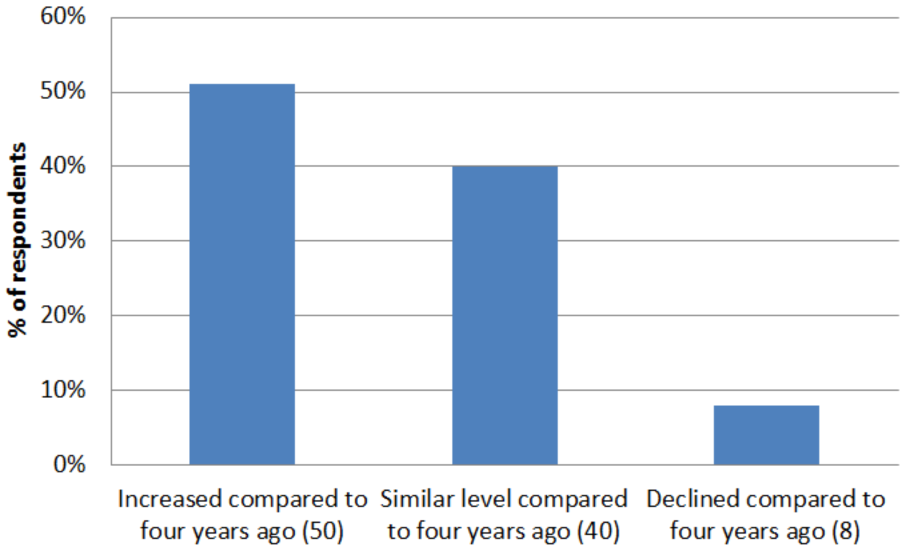


**Figure 8 - Recent trends in water sector jobs**

In addition to information about current water sector jobs, survey respondents were asked to provide historic water sector jobs data to enable a three year trend to be calculated. The individual company responses were aggregated to give total current and historic figures for the sample. A total of 116 companies provided both current and historic jobs data, upon which the estimated growth rates are based. Data for Scottish Water was sourced from published Annual Reports. The growth rates calculated on this basis are summarised in the table below.

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[17] Scottish Water Business Plan 2015 to 2021 - https://www.scottishwater.co.uk/en/Help-and-Resources/Document-Hub/Key-Publications/Delivery-and-Business-Plans

| | | Estimated growth rate in jobs, comparing performance over the last three years |
|---|---|---|
| Water sector (excluding Scottish Water) | | 25.0% |
| Scottish Water (total) | | 17.3% |
| | *Scottish Water (Regulated water and wastewater services)* | *17.6%* |
| | *Scottish Water (Business Stream)* | *15.6%* |
| | *Scottish Water (Other trading activities)* | *27.7%* |
| **Total water sector (including total Scottish Water)** | | **22.9%** |

**Table 11 - Estimated growth rate in jobs in the water sector**

These growth rates can be compared with both the Scottish wide employment growth rate and the manufacturing employment growth rate over the period 2015 to 2018[18].

In 2018 the total employment in enterprises in Scotland was reported as 2,143,410 jobs. In 2015 the equivalent data was 2,109,110 jobs and therefore the growth rate in employment over that period is 1.6%

The water sector jobs growth rate can also be compared with the growth rate in employment of the Scottish manufacturing sector. In 2018 the total employment in the manufacturing sector in Scotland was reported as 191,180 jobs. In 2015 the equivalent data was 194,780 jobs and therefore the growth rate in jobs over that period is minus 1.8%.

The recent growth rate in jobs of the water sector in Scotland is therefore considerably higher than the average for the manufacturing sector and the overall Scottish economy, with the manufacturing sector actually experiencing a decrease in employment over that period.

As with the increase in turnover, it is likely that the 37.6% increase in Scottish Water capital investment over the same period has driven part of this employment growth.

## 6.3 Export trends

Respondents were asked to provide their views on the overall historic trend in exports related to the water sector of their company comparing the last financial year with the performance four years ago

[18] Business Statistics in Scotland 2018, Scottish Government, Table D - https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/alltables

(giving a three year period over which the trend is assessed). The response is summarised in the figure below.

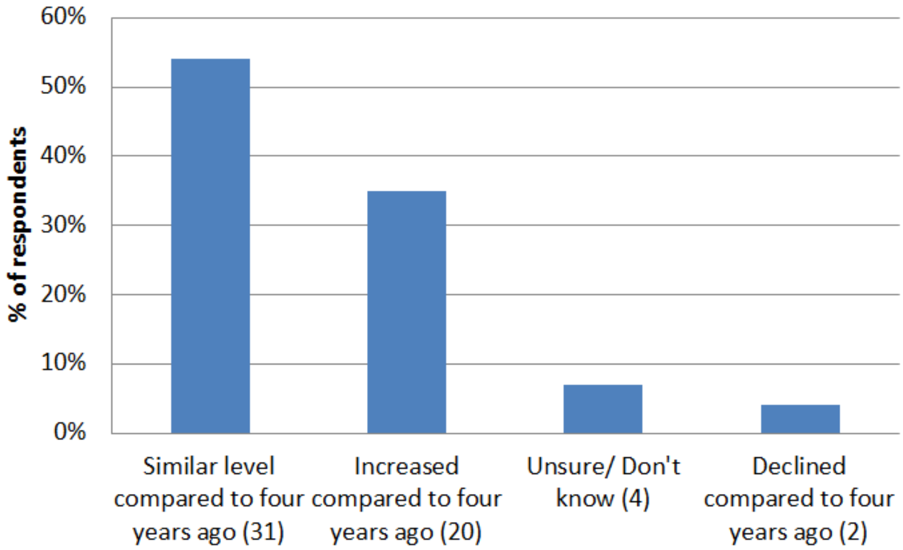


**Figure 9 - Recent trends in water sector exports**

In addition to information about current water sector exports, survey respondents were asked to provide historic water sector exports data to enable a three year trend to be calculated. The individual company responses were aggregated to give total current and historic figures for the sample. A total of 22 companies provided both current and historic export data, upon which the estimated growth rates are based. Data for Scottish Water was sourced directly from Scottish Water and represents activity by Scottish Water International, a division of the Scottish Water Group. The growth rates calculated on this basis are summarised in the table below.

| | Estimated growth rate in exports, comparing performance over the last three years |
|---|---|
| Water sector (excluding Scottish Water) | 28.3% |
| Scottish Water International | 25.0% |
| **Total water sector (including Scottish Water)** | **28.3%** |

**Table 12 - Estimated growth rate in exports of the water sector**

These growth rates can be compared with the latest available Scottish wide growth rate in exports over the period 2014 to 2017[19]. In 2017 the total exports from Scotland was reported as £32,440

[19] Export Statistics Scotland 2017 – data tables, Scottish Government, 30th January 2019 (the latest available data on international exports is 2017 so a comparison can be made with 2014 to give a three

*(footnote continued)*

million. In 2014 the equivalent data was £28,905 million and therefore the growth rate in exports over that period is 12.2%.

The water sector export growth rate can also be compared with the growth rate in exports from the Scottish manufacturing sector. In 2017 the total exports from the manufacturing sector in Scotland was reported as £17,610 million. In 2014 the equivalent data was £14,910 million and therefore the growth rate in exports over that period is 18.1%.

The recent growth rate in exports of the water sector in Scotland is 28.3% (2015 to 2018). Due to the lack of availability of export data for 2018 the nearest comparison can only be made with the period 2014 to 2017. This is not ideal given the difference in period covered by the recent trend data. However, it does provide some indication of 'recent' export growth performance being higher than in the whole economy and in the manufacturing sector, with the caveat that it is not directly comparable.

It should be noted that one company accounted for 58% of the total increase in exports and this 'outlier' performance has a significant impact given that the number of companies providing comparative exports was only 22. This provides some explanation of why the overall water sector growth rate is higher than the overall Scottish economy and the manufacturing sector.

## 6.4 Summary of recent water sector trends

The recent water sector trends are summarised in the table below.

| Performance metric | Supply chain and key water processors | Scottish Water | Total Scottish water sector |
|---|---|---|---|
| Turnover | 36.2% | 19.9% | 29.5% |
| Jobs | 25.0% | 17.3% | 22.9% |
| Exports | 28.3% | 25.0% | 28.3% |

**Table 13 - Summary of recent trends in Scottish water sector performance**

Much of the growth in turnover of the water sector supply chain is driven by significant increases in capital expenditure at Scottish Water. However, this only accounts for part of the effect, as Scottish Water increased capital expenditure by £178m over the three year period to 2018, but the estimated total increase in the turnover of the water sector supply chain and key water processors was £612m over the same period. Therefore, much of the estimated increase in turnover must have been generated from sources other than Scottish Water's capital expenditure budget. This is also relevant to the increase in total jobs.

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year growth period comparison. However, the water sector data is based on the 'last financial year compared with four years ago' and it is likely this data period will typically be 2015 to 2018. Therefore the comparison should be seen as indicative only).

The increase in exports of the supply chain and key water processors was driven significantly by one company, which reported an increase in exports of 58%. The overall number of companies providing current and historic data was low at 22.

The increase in exports by Scottish Water of £0.3m, from a 2015 base of £1.2m, led to reporting of a 25% increase in exports due to activities carried out by Scottish Water International. This is however a very small proportion of the absolute export value for the whole Scottish water sector.

A summary of the recent trends in economic performance of the water sector compared to the total Scottish economy and the manufacturing sector is provided in the table below.

| Economic performance metric (current) | Scottish water sector growth rate | Total Scottish economy growth rate | Scottish manufacturing sector growth rate |
|---|---|---|---|
| Turnover | 29.5% | 0.2% | 6.6% |
| Jobs | 22.9% | 1.6% | (1.8%) |
| Exports | 28.3% | 12.2% | 18.1% |

**Table 14 - Summary comparison of recent trends in the Scottish water sector economic performance**

Recent growth rates in turnover, jobs and export performance have been significantly higher in the water sector than both the whole Scottish economy and the manufacturing sector. Some caution should be applied to the exporting growth rate given that it is based on a low number of responses (22) and one of those represented 58% of the total export growth of the sample.

Interviewees were not asked to provide the reasons behind any growth in jobs and turnover. However, factors that might be contributing to growth could include:

- The 37.6% growth rate in Scottish Water capital expenditure over the period 2014/15 to 2017/18 (although this accounts for less than one third of the absolute estimated increase in turnover)
- Figure 3 (above) shows that distilleries / breweries / other drinks manufacturers represent one of the key non-water utility markets. The Scotch Whisky Association reports that the GVA of the Scotch whisky industry has increased by 10% over the period 2016 to 2018[20] with a number of new distilleries opening and being refurbished

# 7 Expected future performance and growth plans

Respondents were asked about their expectations for future business performance and to provide details on any plans they had to grow their business over the next three years.

[20] https://www.scotch-whisky.org.uk/newsroom/scotch-whisky-economic-impact-report-2018/

## 7.1 Expected future performance

### 7.1.1 Future turnover expectations

Reported expectations for turnover over the next three years are summarised in the figure below.

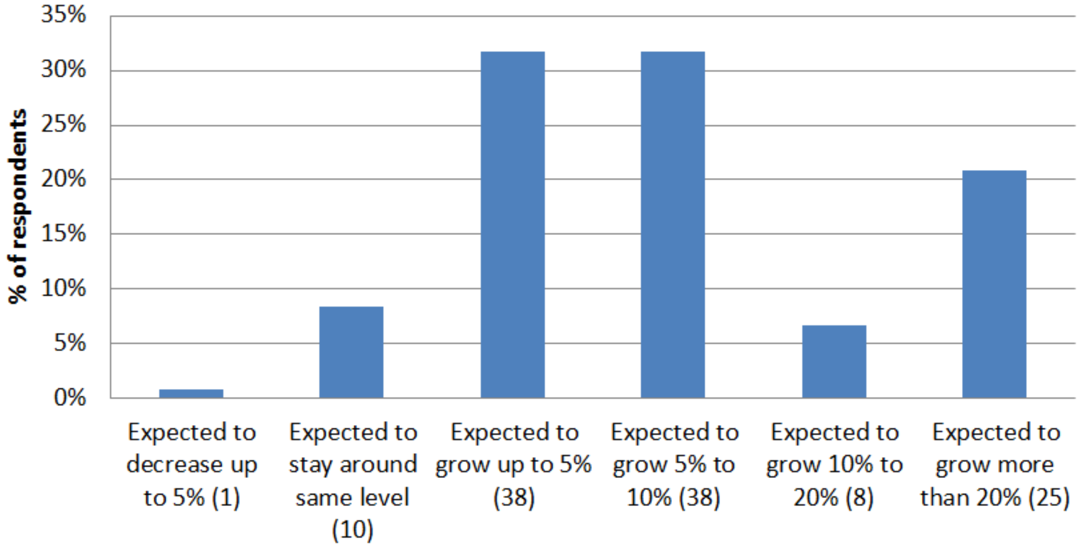


**Figure 10 - Future turnover expectations over the next three years**

Over 90% of companies (109) expect to grow their turnover in the next three years, with over 20% (25 companies) indicating that they expect to grow by more than 20%. Clearly, there is a positive outlook for growth in the Scottish water sector.

### 7.1.2 Future jobs expectations

Reported expectations for jobs over the next three years are summarised in the figure below.

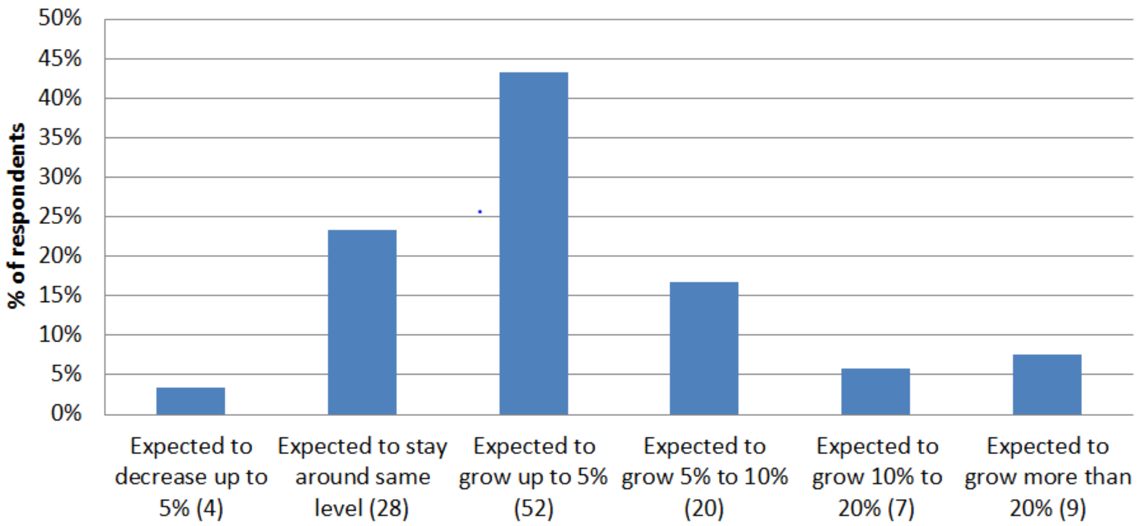


**Figure 11 - Future jobs expectations over the next three years**

Three quarters of respondents expect to increase job numbers over the next three years. Expectations for jobs growth are more constrained than expectations for turnover growth. This is consistent with the reported actual performance for the previous three years where the rate of growth for turnover was higher than that for jobs. This is an indicator of increasing labour productivity.

### 7.1.3 Future export expectations

Reported expectations about exports in the next three years are summarised in the figure below.

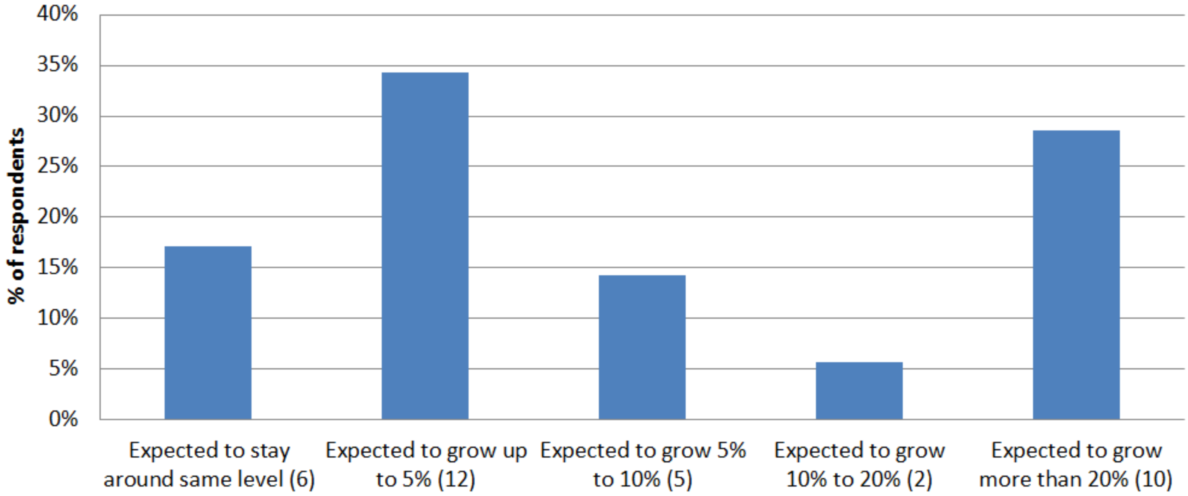


**Figure 12 - Future export expectations over the next three years (existing exporters only)**

Future expectations for exports are shown only for those companies that currently trade internationally. Of these, 83% expect to grow exports in the next three years with 29% expecting growth to be greater than 20%.

Although 35 respondents answered the above question about future expectations for export, an earlier question identifies that there are 37 of the 123 companies that trade internationally. Of the remaining 86 non-exporters, 10 indicated aspirations to begin exporting in the next three years (12% of non-exporters).

Both current exporters and those that plan to export were asked to identify the top three countries in terms of export opportunities. The responses to this are summarised below.

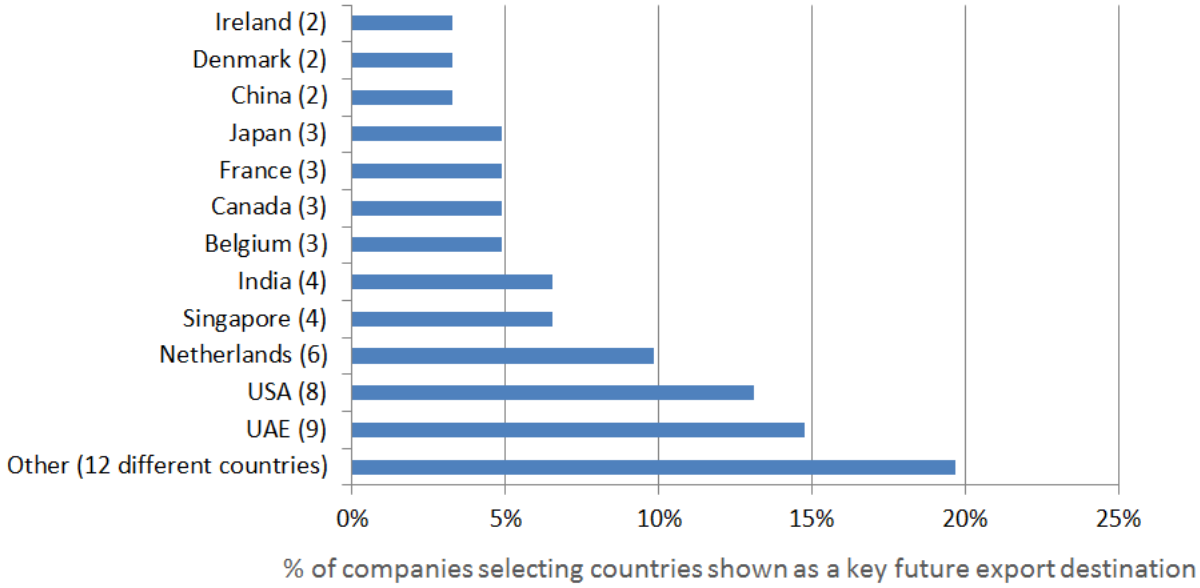


**Figure 13 - Target markets for export growth in next three years (existing and new exporters)**

The UAE and USA were the most frequently mentioned countries that are expected to be the source of future export growth. This is consistent with the earlier analysis of existing export regions where almost half of current exporters provide products and services to the Middle East and one third to North America and the Caribbean.

The specific identification of the UAE could provide a focus for future export support interventions targeting this country and the wider Middle East.

## 7.2 Plans for growth

Companies were asked whether they had any plans to grow the water sector element of the business over the next three years. A total of 78 (63%) respondents confirmed that they did have plans, with the remainder unsure (32%) or indicating that they did not have plans for growth (5%).

Those respondents that did have plans to develop the business were then asked to select, from a range of options, the activities that would form the basis of these future growth plans. The relative frequency of the different options selected is shown in the table below.

| Activities to support growth plans | % of Respondents |
|---|---|
| Skills development | 73 |
| Marketing & sales (e.g. new marketing material/websites, attending trade exhibitions, etc.) | 62 |
| Investment (e.g. purchase of new manufacturing equipment) | 45 |
| Innovation – product development/ innovation | 41 |

| | |
|---|---|
| Innovation – process innovation (e.g. introducing new methods of working to improve efficiency) | 38 |
| Exporting outside the UK – as an existing exporter looking to expand | 27 |
| Exporting outside the UK – as a new exporter | 14 |
| Other growth plans | 14 |
| Unsure | 4 |

**Table 15 - Future plans for growth**

Feedback on options for growth is discussed in more detail as follows:

- Skills development was selected by 73% of respondents as the most important issue when asked about plans for business growth. With regard to skills, the two most mentioned specific challenges were:
  - a loss of skill sets as the workforce ages
  - the gap in capability as the industry continues to use more digital technologies

  The predicted shortfall of workers in utilities over the next 10 years has been well documented in key industry reports[21] and this sentiment was reiterated in our qualitative discussions with respondents. Not only is an aging workforce an issue but the lack of technical skills, with particular emphasis on emerging digital systems, were highlighted – it was recognised that disruptive technologies will enable the water sector to extract greater information and efficiencies. Compounding the issue is the possible post Brexit disruption in the flow of skilled workers and talent from the EU.

  To address these issues, respondents suggested the following actions:
  - The need for more apprenticeship schemes
  - Specialist training provision to upskill existing staff, particularly in relation to new technologies
  - More recruitment of higher skilled workforce, such as graduates, post graduate and PhDs
- Marketing and sales was highlighted by 62% of respondents with plans for growth. There was consistent mention of the need for the industry to adopt new marketing strategies, with particular emphasis on more effective use of digital media to promote the business, products and services. Digital channels such as YouTube were mentioned as a means to promote innovations and opportunities (including career opportunities) to both a wider audience and more diverse talent pool. There was, however, an acknowledgment that the industry had been slow to adopt such approaches and now needed to accelerate efforts. More traditional

[21] The Energy & Utilities Workforce Renewal and Skills Strategy, Energy & Utilities Skills Partnership, February 2017.

approaches to raising brand awareness, such as participation in industry trade shows, conference and events were also mentioned. Some respondents highlighted the use of partnering to access markets, including Tier 1 service providers already on frameworks with water utilities.

- In terms of investment plans, the purchase of new equipment and upgrading of existing equipment to increase process efficiency were most frequently identified as priorities for the industry. As the industry regulator continues to apply pressure on utilities to increase efficiencies (in order to protect the interest of consumers) the supply chain continues to strive to develop process efficiencies by investment in equipment. One way to increase efficiency is to reduce energy consumption. With energy prices set to continue an upward trend, some respondents did highlight possible plans to look at energy reducing measures. This included more efficient processes but also extended to serious consideration given to electrification of fleet vehicles. Other investment plans included increasing stocks of equipment that could be rented out to customers.
- Plans for product innovation centred on introducing new technologies to the client in situations where clear evidence of demand existed. Digitisation of products and processes was again a frequently highlighted area for production innovation – particular the use of mobile technologies to increase information capture and exchange.
- In terms of process innovation, improving efficiency was most often mentioned as the key plan for development. Greater automation, digitisation and the use of new control packages and processes were highlighted as areas of priority.
- Expanding existing export markets and entering new export markets was highlighted as a growth option by some respondents. For existing exporters, this can involve replicating successful operations in other territories by directly employing staff. For others the use of partners and distributors is viewed as a more appropriate option. Section 7.1.3 (above) provides more detail about the countries viewed as being the main source of export growth.

## 7.3 Drivers and Barriers to growth

The water industry is capital intensive and dependent on complex supply networks. It is well known that in the utilities segment of the industry, investment and asset management periods and cycles have the greatest impacts in terms of business opportunity and growth within the supply chain. The utility Asset Management Plans (AMP) result in periods of high growth followed by what can be very dramatic ramp downs. Amongst other issues, this can result in workforce recruitment issues during peak periods and loss of skills and talent during a ramp down. The AMP cycle in England is currently 2015 to 2020 (5 years) and in Scotland is 2015 to 2021 (6 years).

This cyclical nature of the industry can also impact innovation and efficiency. Regulatory authorities in both Scotland and England & Wales have sought to use investment periods to facilitate innovation to, for example, improve efficiency and reduce leaks and minimise impact on the consumer. However, respondents stated that there was pressure for innovation (products and business practice) to pay-back within the investment cycle. This could be hampering the development and uptake of innovations that have longer pay-back periods.

Feedback from respondents suggests that water utilities are different in terms of how they operate; for example, the degree to which they encourage innovation from the suppliers. Some water utilities can be a real driver for growth by clearly defining the challenges they face and having processes in place to enable all parts of the supply chain to bid with solutions. Others are regarded as risk averse to innovation and have limited processes in place to allow adoption from the supply chain. Even in situations where the water utilities have processes in place to support innovation, it was highlighted that barriers exist when trying to move from a pilot project to commercial procurement of a solution. One respondent suggested that Tier 1 framework contractors acted as gatekeepers in this process and that more involvement of operational staff was required during pilot innovation projects.

The availability of suitably skilled staff was discussed briefly in section 7.2. A significant number of respondents highlighted specific job roles and areas of experience where they have difficulty recruiting and retaining people with the correct skills. This includes civil engineers, mechanical engineers, electrical engineers, service engineers, skilled welders, fabricators, flood risk modelling and water modelling specialists. One respondent expressed the view that getting the right people was more about attracting those with the correct attitude, personality and willingness to travel.

Getting onto the frameworks of Scottish Water and the other UK water utilities was also highlighted as a barrier to growth. Even once on the frameworks, competing against some of the large Tier 1 contractors can prove difficult. One respondent suggested a preference be given to Scottish based suppliers for Scottish Water contracts, but this is not feasible under current state aid rules.

Brexit was mentioned by several respondents as resulting in customers holding back on investment decisions.

# 8 Key findings and implications for Scottish Enterprise

This section summarises the key findings outlined in the report and identifies the main implications for Scottish Enterprise as an economic development agency.

## 8.1 Key findings

1. The water sector, as defined, consists of a group of companies offering a diverse range of products and services to a range of market segments. Whilst most of the companies identify with the water sector, a significant minority do not naturally associate themselves as being part of the water sector. Instead these companies align themselves with other supply or customer sectors such as construction or oil & gas.
2. Three quarters of the turnover reported by respondents can be classed as water sector turnover. Of this 54% is sales to water utilities and 46% is from sales to other sectors.
3. A total of 62% of water sector turnover (excluding Scottish Water) is from sales to customers based in Scotland. Customers based in the rest of the UK account for 31% of turnover and 7% of turnover is from exports. Just under one third of water sector companies export.
4. The EU and the Middle East are the most common export markets for the water sector.
5. Water sector companies report a high level of employee engagement in R&D and Innovation, with over 1,000 FTE jobs carrying out these activities.

6. Water sector turnover is estimated to be £3.7 billion, which represents 1.4% of total Scottish company turnover. Scottish Water and the large water retailer, Castle Water, account for half of water sector turnover.
7. Water sector jobs are estimated to be 16,601 (equivalent to 16,245 FTE), which represents 0.8% of total employment in Scotland. Scottish Water and Castle Water account for 28% of jobs in the water sector.
8. Water sector exports are estimated to be £170 million, which represents approximately 0.5% of total Scottish exports. Scottish Water and Castle Water account for half of water sector turnover, but only 1% of water sector exports.
9. Water sector GVA is estimated to be £1.7 billion, which represents approximately 1.2% of total Scottish GVA. Scottish Water and Castle Water account for £772 million of total water sector GVA (with Scottish Water contributing 98% of this £772 million).
10. The water sector generates more GVA per job than the overall Scottish economy. The high GVA per job performance is partly due to the relatively low labour intensity of Scottish Water.
11. Exports from the water sector are low relative to the proportion of turnover and jobs of the overall Scottish economy. Significant parts of the water sector have a low propensity to export, such as Scottish Water, water retailers and construction companies. Other parts of the sector demonstrate the ability to export and desire to grow those exports.
12. Water sector turnover is estimated to have grown by 29.5% over the past three years. This compares to a growth rate in total Scottish turnover of 0.2% over the same period. Part of the water sector growth is driven by an increase in capital expenditure by Scottish Water, but this only accounts for one third of the estimated increase in water sector turnover.
13. Water sector jobs are estimated to have grown by 22.9% over the past three years. This compares to a growth rate in total Scottish employment of 1.6%. The increase in Scottish Water capital expenditure will have driven part of the water sector jobs growth but, as 46% of turnover comes from non-water utility customers, then growth has also been driven by other customer segments (such as distilleries, breweries and other drinks manufacturers).
14. Water sector exports are estimated to have grown by 28.3% over the past three years. This compares to a growth rate in total Scottish exports of 12.2%. The data used to estimate the change in water sector exports is based on a relatively small sample of 22 responses. One of the respondents is responsible for 58% of the total increase in exports and this finding should be treated with some caution.
15. Over 90% of water sector companies expect to experience turnover growth over the next three years with 20% expecting to grow by more than 20%.
16. Three quarters of water sector companies expect to increase the number of jobs over the next three years. Expectations for the scale of jobs growth are more constrained than for turnover growth and this is consistent with reported historic performance. This is an indicator of improving labour productivity.

17. Over 80% of current water sector exporters expect to grow exports over the next three years with almost 30% expecting growth to be greater than 20%. 12% of non-exporters indicated that they plan to start exporting in the next three years.
18. The UAE, USA and the Netherlands are the most commonly identified countries as attractive markets for future export growth.
19. Just under two thirds of companies indicated they have plans to grow the water sector element of their business. Skills development, marketing & sales and investment were the top three activities identified for implementation in support of these growth plans.
20. Issues around skills development include difficulty in recruiting specific skills and positions, such as various types of engineer, welders, etc. One frequently mentioned area was the need for skills to support digital marketing.
21. The cyclical nature of water utility spending plans was frequently cited as a barrier to growth making it hard to plan beyond contract employment and invest in a sustainable workforce.
22. Successfully bidding to be included on water utility frameworks is seen as a barrier to growth as is establishing relationships with existing Tier 1 framework contractors
23. Brexit was also mentioned by a number of respondents as being responsible for some customers delaying investment plans and, therefore, being a barrier to growth.

## 8.2 Implications for Scottish Enterprise

1. As 46% of water sector turnover is from sales to non-water utility customers and some water sector companies view water utilities as being risk averse in their approach to innovation, there may be an opportunity to support the sector in addressing the innovation challenges of non-water utility customers. This could involve sectors such as oil & gas, distilleries, breweries, other drinks manufacturers and the public sector (NHS and local authorities). This may offer a first entry market for new innovations with relatively lower barriers than water utilities.
2. The Middle East is the second most popular current export destination for current water sector exporters. The UAE is the top country, identified by current and potential new exporters, as the most attractive market in terms of future export growth. Scottish Enterprise and Scottish Development International, could consider identifying or developing interventions that could help facilitate access to markets in the Middle East and the UAE in particular.
3. Skills development is identified as the top activity to support growth plans and the availability of skills is identified as a key barrier to growth. Scottish Enterprise could consider working with public sector partners, such as Skills Development Scotland, to identify or develop interventions that could address skills needs, including actions to continue to improve the attractiveness of the sector as a career destination.

4. Marketing and sales activities are seen as very important to support growth plans. A frequently highlighted need for support within this area relates to improving the capability of water sector companies to utilise digital marketing tools & practices. This is not unique to the water sector and consideration could be given to raising awareness of existing opportunities to address this such as Scottish Enterprise's Expert Support – Marketing (Domestic and International) products.
5. Branding any interventions as 'water sector' is likely to engage most, but not all, of the target sector. A significant number of companies classed as water sector companies view their core business as being in other sectors such as oil & gas, construction etc. This should be considered when engaging with the sector.

## Appendix A – Survey questionnaire

# Scottish Enterprise: Water Market Survey

## Introduction

This survey is being carried out by market research consultants Optimat Limited on behalf of economic development agency Scottish Enterprise to investigate the water sector in Scotland. The survey is targeted at Scotland-based companies that provide products and services for water supply, treatment and use within the water sector and / or other sectors that make significant use of water (e.g. the drinks industry). Scottish Enterprise has identified your company as a supplier of water related goods and services and would therefore like to invite you to participate in the survey by complete the following questionnaire.

The survey will be used by Scottish Enterprise to better understand the scale of the water sector in Scotland across a range of metrics — including jobs, turnover, exports — as well as its nature in terms of key export markets and end-use customers. It will also help to determine the near-term outlook for the sector by soliciting feedback on plans for innovation and investment. The results of the survey will help to inform the development of Scottish Enterprise’s programme of support for the water sector including, where necessary, potential new support services that may be of relevance to your company. A copy of the final report produced by Optimat for Scottish Enterprise can be sent to participants who indicate their desire to receive it at the end of this questionnaire.

Given the question areas included in the survey that I have just mentioned can I check if you would be the most appropriate person to speak with about this?
INTERVIEWER: IF NOT PLEASE ASK FOR CORRECT PERSON'S AT RESPONDENT ORGANISATION'S DETAILS AND CONTACT THEM. IF REFUSED GATHER DETAIL OF REFUSAL
Would you be willing to take part in this research by completing a survey with me?

## GDPR Statement

Participation in the survey is completely voluntary. The data collected via this survey will be controlled and processed by market research consultants Optimat Limited. Scottish Enterprise will as data controller and have access to company specific information gathered via the survey. All data will be held securely in line with Optimat and Scottish Enterprise's data privacy policies, which are available to view online from the following websites:
https://www.optimat.co.uk/privacy-policy.html
https://www.scottish-enterprise.com/help/privacy-notice

A report will be produced using the aggregated, sector-level results of this survey. No individual company will be identified in this report without your specific written permission and no company level data, opinions, etc will be included within its contents.

By taking part in this survey you agree to the use of your anonymised data for this research.

Q1 Please tick the box below to show you understand the above and give permission for your data to be processed in this way

☐ I agree to participate in this survey

If you do not wish to participate in this survey please close your browser window.

## Your details

Respondent Please complete the following information:

| | |
|---|---|
| Your company name | |
| Name of person completing survey | |
| Job/role title | |
| Contact phone number | |

Q2 Which of the following best describes your main business activity(s) relevant to the water sector? *Please tick all that apply*

- ☐ Water supply and treatment
- ☐ Contaminated water and wastewater treatment (including filtration, UV treatment etc.)
- ☐ Energy generation using water (including anaerobic digestion, water source heat pumps and hydro-electric)
- ☐ Resource management, reuse and recycling (including sludges)
- ☐ Catchment management and flood prevention
- ☐ Distribution – water pipelines, drains, tanks and plumbing
- ☐ Mechanical equipment for industrial processing (including pumps, valves, filters, energy efficiency equipment, etc)
- ☐ Water efficiency products and processes
- ☐ Smart management of water, sensors, instrumentation, data analytics and related services
- ☐ Pipe, drain and sewer cleaning
- ☐ Water incorporated into products (e.g. bottled water)
- ☐ Freshwater aquaculture (but not marine)
- ☐ Groundwater, boreholes and irrigation
- ☐ Water features and swimming pools
- ☐ Construction, repair & maintenance contractors to the water sector
- ☐ Consultancy to the water sector and supply chain
- ☐ Other specialist products & services (specify)
- ☐ Business is not related in any way to water sector

Please specify other

| |
|---|
| |

## Employees

Q3 Are you able to provide the exact number of full-time and part time staff you employ within Scotland?

- ☐ Able to provide this information — Answer Q4a and Q4b
- ☐ Not able to provide specific staff numbers — Answer Q5a and Q5b

Q4 How many full-time and part-time employees does your organisation currently have based in Scotland? *This should not include any contractors or temporary staff*

Q4a Full-time (more than 30 hours per week) ☐

Q4b Part-tme (less than 30 hours per week) ☐

Now go to Q6

Q5a If possible, please estimate the number of full-time staff you currently employ within Scotland.

| | | | |
|---|---|---|---|
| ☐ 0 | ☐ 26 to 50 | ☐ 151 to 200 | ☐ 750 to 1000 |
| ☐ 1 to 5 | ☐ 51 to 75 | ☐ 201 to 250 | ☐ 1000+ |
| ☐ 6 to10 | ☐ 76 to 100 | ☐ 250 to 499 | ☐ Rather not answer |
| ☐ 11 to 25 | ☐ 101 to 150 | ☐ 500 to 749 | ☐ Don't know |

Q5b If possible, please estimate the number of part-time staff you currently employ within Scotland.

| | | | |
|---|---|---|---|
| ☐ 0 | ☐ 26 to 50 | ☐ 151 to 200 | ☐ 750 to 1000 |
| ☐ 1 to 5 | ☐ 51 to 75 | ☐ 201 to 250 | ☐ 1000+ |
| ☐ 6 to10 | ☐ 76 to 100 | ☐ 250 to 499 | ☐ Rather not answer |
| ☐ 11 to 25 | ☐ 101 to 150 | ☐ 500 to 749 | ☐ Don't know |

## Turnover

Q6 Are you able to provide the exact turnover generated by your operations in Scotland within the past financial year?

- ☐ Able to provide this information — Answer Q7a
- ☐ Not able to provide specific turnover — Answer Q8a

Q7 What is the turnover generated from the organisation based in Scotland in the last financial year? *Please write this as a full number e.g. 700k should be written as 700,000*

Q7a Turnover: Generated in Scotland ☐

Now go to Q9

Q8a If possible, please estimate the turnover generated by your operations in Scotland within the past financial year.

- ☐ Pre-trading or £0
- ☐ Less than £50K
- ☐ £50K to £249K
- ☐ £250K to £500K
- ☐ £500K+ to £1m
- ☐ £1m to £2m
- ☐ £2m to £5m
- ☐ £5m to £10m
- ☐ £10m to £15m
- ☐ £15m to £20m
- ☐ £20m to £30m
- ☐ £30m to £40m
- ☐ £40m to £50m
- ☐ £50m to £100m
- ☐ £100m or more
- ☐ Rather not answer
- ☐ Don't know

## Markets & Exports

Q9 Which of the following markets contributes to the turnover of your Scottish operations? *please tick all that apply:*

- ☐ Sales of water sector products and services to water utilities — Answer Q10a
- ☐ Sales of water sector products and services to customers that are not water utilities — Answer Q10b and Q11
- ☐ Sales of products and services not related to the water sector — Answer Q10c

Q10 What proportion of the turnover from your Scottish operations is attributable to following markets (as selected in the previous question)?
*Please provide an approximate percentage written as a whole number (e.g. 75% should be written as 75). If 0, please write 0 or leave field blank. Total should add up to 100%*

| | | | |
|---|---|---|---|
| Q10a | Sales of water sector products and services to water utilities % | | % |
| Q10b | Sales of water sector products and services to non-water utility customers % | | % |
| Q10c | Sales of products and services not related to the water sector % | | % |
| Q10d | Total (Should not be more than 100%) | | % |

Q11 Which of the following (non-water utility) sectors do you supply water products and services to? *Tick all that apply*

- ☐ Distillers/ breweries/ other drinks manufacturers
- ☐ Food manufacturing
- ☐ Oil and gas
- ☐ Chemicals, life sciences and pharmaceuticals
- ☐ Other manufacturing and construction
- ☐ Leisure & tourism
- ☐ Building utilities (facilities) – commercial
- ☐ Energy generation (e.g. hydro companies)
- ☐ Domestic/household
- ☐ Public sector (specify) — Answer Q11a
- ☐ Other (specify) — Answer Q11b
- ☐ Don't know
- ☐ Rather not answer

Q11a What is your main type of public sector customer [ ]

Q11b What is your other type of customer [ ]

Q12 Which geographical areas do your Scottish operations sell water related products and services into? *Please tick all that apply*

- ☐ Scotland — Answer Q13a
- ☐ Rest of UK — Answer Q13b
- ☐ Rest of world — Answer Q13c and Q14

Q13 What proportion of the sales from your Scottish water sector operations are attributable to the following geographical areas?
*Please provide an approximate percentage written as a whole number (e.g. 75% should be written as 75). If 0, please write 0 or leave field blank. Total should add up to 100%.*

| | | |
|---|---|---|
| Q13a | Scotland | [ ] % |
| Q13b | UK outside Scotland | [ ] % |
| Q13c | Rest of world | [ ] % |
| Q13d | Total (should add to 100%) | [ ] % |

If company does not sell to "rest of world" now go to Q15

Q14 Which of the following overseas geographical markets do you currently sell water related products and services into?

- ☐ EU
- ☐ Other Europe, including Russia
- ☐ Middle East
- ☐ Africa
- ☐ Indian sub-continent
- ☐ China, Japan or any other East Asian country
- ☐ North America and Caribbean
- ☐ Central and South America
- ☐ Australia or other Oceania
- ☐ Other not listed (specify)

Specify other not listed

Q15 Do you plan to begin or increase exports of water sector products and services in the next three years?

- ☐ Yes, plan to begin exporting Go to Q16
- ☐ Yes, plan to increase exports Go to Q16
- ☐ No, do not plan to change level of exports Go to Q17
- ☐ Unsure/ Don't know Go to Q17

Q16 Please identify your top three target markets for increasing your exports of water products and services?
*Please select up to three countries.*
*Please note these target countries for future export growth could be existing countries you already sell into or new countries – we are looking to identify where the main growth opportunities are for your company*

- ☐ Australia
- ☐ Belgium
- ☐ Brazil
- ☐ Canada
- ☐ China
- ☐ Denmark
- ☐ France
- ☐ Germany
- ☐ Ireland
- ☐ Italy
- ☐ Japan
- ☐ Netherlands
- ☐ Norway
- ☐ Poland
- ☐ Singapore
- ☐ Spain
- ☐ Sweden
- ☐ Switzerland
- ☐ UAE
- ☐ USA
- ☐ Other (please detail)
- ☐ Unsure/ Don't know
- ☐ Rather not answer

Please list any other country/countries not listed above

## Current R&D/Innovation activity

Q17 What percentage of your total turnover from your Scottish operations is currently invested in R&D/innovation?

- ☐ Nothing
- ☐ Less than 1%
- ☐ 1% to 5%
- ☐ 6% to 10%
- ☐ 11% to 20%
- ☐ 21% to 30%
- ☐ 31% to 40%
- ☐ 41% to 50%
- ☐ 51% to 60%
- ☐ 61% to 70%
- ☐ 71% to 80%
- ☐ 81% to 90%
- ☐ 91% to 100%
- ☐ Rather not answer
- ☐ Don't know

Q18 Are you able to provide the exact number of full-time and part time staff you employ within Scotland that are engaged in R&D / innovation?

- ☐ Able to provide this information — Answer Q19a and Q19b
- ☐ Not able to provide specific staff numbers — Answer Q20 and Q21

Q19 How many full-time and part-time employees, based in Scotland, are engaged in R&D/ innovation activities?

Q19a Full-time (more than 30 hours per week) ☐

Q19b Part-tme (less than 30 hours per week) ☐

Now go to Q22

Q20 How many full-time staff based in Scotland would you estimate are engaged in R&D activity?

- ☐ None
- ☐ 1 to 5
- ☐ 6 to 10
- ☐ 11 to 15
- ☐ 16 to 20
- ☐ 21 to 25
- ☐ 26 to 30
- ☐ 31 to 35
- ☐ 36 to 50
- ☐ 51 to 100
- ☐ 101 or more
- ☐ Rather not answer
- ☐ Don't know

Q21 How many part-time staff based in Scotland would you estimate are engaged in R&D activity?

- ☐ None
- ☐ 1 to 5
- ☐ 6 to 10
- ☐ 11 to 15
- ☐ 16 to 20
- ☐ 21 to 25
- ☐ 26 to 30
- ☐ 31 to 35
- ☐ 36 to 50
- ☐ 51 to 100
- ☐ 101 or more
- ☐ Rather not answer
- ☐ Don't know

# Recent historic performance related to water sector

Q22 How long has your business been trading?

☐ Trading for four or more years — Go to Q23a

☐ Trading for less than four years — Go to Q33a

Q23 Which of the following options best describe the performance of your Scottish water sector operations over the past four years?

| | | Declined compared to 4 years ago | Similar level compared to 4 years ago | Increased compared to 4 years ago | Unsure/ Don't know |
|---|---|---|---|---|---|
| Q23a | Turnover related to water sector products and services | ☐ | ☐ | ☐ | ☐ |
| Q23b | Jobs related to water sector products and services | ☐ | ☐ | ☐ | ☐ |
| Q23c | Exports related to water sector products and services | ☐ | ☐ | ☐ | ☐ |

Q24 Are you able to provide the exact employee, turnover and export figures for your Scottish water sector operations as of four years ago?

☐ Yes, able to provide actual figures — Go to Q25a

☐ Not able to provide figures but could estimate percentage change — Go to Q31a

☐ Not able to provide either actual figures or estimated percentages — Go to Q33a

Q25 How many full-time and part-time employees did your organisation did you have based in Scotland four years ago?

Full-time (more than 30 hours per week) ☐

Part-tme (less than 30 hours per week) ☐

Q26 What was the turnover generated from the organisation based in Scotland four years ago?

Turnover: Generated in Scotland ☐

Q27 What percentage of turnover generated from the organisation based in Scotland four years ago was from water related products and services?

Percentage from water related products and services ☐

Q28 What percentage of turnover generated from the organisation based in Scotland four years ago was from water related products and services?

Percentage from water related products and services ☐

Q29a and Q30a are only asked to companies who export If respondent does not export go to Q33a

Q29 What was the export figure generated from the organisation based in Scotland four years ago?

Exports: Generated in Scotland [ ]

Q30 What percentage of the exports generated from the organisation based in Scotland four years ago was for water related products and services?

Percentage of exports for water related products and services [ ]

Go to Q33a

Q31 Please indicate the growth / decline of your company's water sector operations over the past four years in percentage terms.
*Please write the percentage as a whole number e.g. Growth of 75% should be written as 75 or a decrease of 75% should be -75. If 0 please write 0 or leave blank do not write anything else.*

| | | | |
|---|---|---|---|
| Q31a | Turnover related to water sector products and services | [ ] | % change |
| Q31b | Full-time jobs related to water sector products and services | [ ] | % change |
| Q31c | Part-time jobs related to water sector products and services | [ ] | % change |

Following question is only asked to companies who export companies who do not export should go to Q33a

Q32 Can you estimate the percentage change in the number of exports of the company four years ago compared to the last financial year?
*Please write the percentage as a whole number e.g. Growth of 75% should be written as 75 or a decrease of 75% should be -75. If 0 please write 0 or leave blank do not write anything else.*

Exports related to water sector products and services [ ] % change

# Expected future performance

Q33 Please indicate your performance expectations for your Scottish operations over the next three financial years, as attributable to water sector products and services.

| | | Expected to decrease more than 10% | Expected to decrease 5% to 10% | Expected to decrease up to 5% | Expected to stay around same level | Expected to grow up to 5% | Expected to grow 5% to 10% | Expected to grow 10% to 20% | Expected to grow more than 20% |
|---|---|---|---|---|---|---|---|---|---|
| Q33a | Turnover | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Q33b | Jobs | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Q33c | Exports | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Q34 Do you have any plans to develop the water sector element business over the next three years?

- ☐ Yes, have plans to develop the business — Go to Q35a
- ☐ No plans to develop business — Go to Q36
- ☐ Unsure/Don't know — Go to Q36

# Future Plans

Q35 Please indicate your plans for growing your Scottish water sector operations by selecting from the following options. *Please tick all that apply*

- ☐ Investment (e.g. purchase of new manufacturing equipment) — Answer Q35a
- ☐ Innovation – product development/ innovation — Answer Q35b
- ☐ Innovation – process innovation (e.g. introducing new methods of working to improve efficiency) — Answer Q35b
- ☐ Exporting outside the UK – as a new exporter — Answer Q35c
- ☐ Exporting outside the UK – as an existing exporter looking to expand — Answer Q35c
- ☐ Skills development — Answer Q35d
- ☐ Marketing & sales (e.g. new marketing material/websites, attending trade exhibitions, etc) — Answer Q35e
- ☐ Other growth plans — Answer Q35f
- ☐ Unsure

Please specify your other plans for growth:

Q35a What are your organisation's INVESTMENT plans to develop the water sector element business over the next three years?

Q35b Innovation: What are your organisation's INNOVATION plans to develop the water sector element business over the next three years?

Q35c Exporting: What are your organisation's EXPORTING plans to develop the water sector element business over the next three years?

Q35d Skills development: What are your organisation's SKILLS DEVELOPMENT plans to develop the water sector element business over the next three years?

Q35e Marketing & sales: What are your organisation's MARKETING & SALES plans to develop the water sector element business over the next three years?

Q35f Other: What are your organisation's OTHER plans to develop the water sector element business over the next three years?

## Support and provision of report

Q36 Would you like to be contacted by Scottish Enterprise to make you aware of support services relevant to your organisation?

- ☐ Yes — Go to Q36a
- ☐ No — Go to Q38

Q36a Are you the best person for this initial contact?

- ☐ Yes — Go to Q38
- ☐ No — Go to Q37a

Q37 Please provide the contact information for the most appropriate person for this initial contact

| | | |
|---|---|---|
| Q37a | Name | |
| Q37b | Job title | |
| Q37c | Email | |
| Q37d | Telephone | |

Q38 Would you like to receive a copy of the report produced from this research study?

- [ ] Yes would like a copy of the report (please provide email address)
- [ ] No do not want a copy of the report

Please provide the email address this should be sent to:

Q39 Do you have any final comments or additional information to add?

- [ ] Yes Answer Below
- [ ] No Thank and close

Please write the comments below:

**Thank you for competing this survey, the results of which will improve Scottish Enterprise's understanding of the water sector and its future programme of support.**

If you require any further information about this research you can contact:
John Taylor, Senior Consultant at Optimat at the following email
John.taylor@optimat.co.uk

## Appendix B – Data sample summary

A total of 412 companies were identified as constituting the population of water sector companies based in Scotland.

A total of 123 of these companies were interviewed (95%+ by telephone with the remainder via online survey). This represents 30% of the population.

Data gathered for estimates of performance include:

- Current turnover, jobs and exports – data from 103 companies (25% of the population)
- R&D/Innovation Full Time Equivalent jobs – data from 83 companies (20% of the population)
- Recent trend data for turnover – data from 72 companies (17.5% of the population)
- Recent trends data for jobs – data from 116 companies (28% of the population)
- Recent trend data in exports – data from 22 companies (5% of the population)

Note that only 30% of the sample stated that they currently export and only a proportion of these provided historic export data, in some cases because they were either not trading four years previous or were only recently involved in exporting.

## Appendix C – Methodology for calculating GVA and population level data

An estimate of GVA for the sample was calculated by combining job data and sector average GVA per job data calculated using data sourced from the Scottish Government publication: Scottish Annual Business Statistics 2016[22]. This contains data for a number of years with the latest being for 2016.

This method was selected as more respondents provided actual job numbers, rather than using range values, compared to the case with turnover data. A total of 103 respondents provided data on full time and part time jobs that was subsequently used in the calculation of GVA.

The GVA per job data was calculated for 21 different two-digit Standard Industry Classification (SIC) codes that matched the activities carried out by the companies responding to the survey. The two-digit SIC codes for each company were sourced from Companies House (except in a very small number of cases where no entry could be found and in these instances a review of the company website was used to determine the relevant two-digit SIC code). The two-digit SIC code of each company was sense-checked against information held about its main water sector related activity. A total of 16 of the 103 companies were reassigned a more appropriate two-digit SIC code following this check.

For each two-digit SIC code, the GVA per job data was calculated by dividing the relevant 'Gross Value Added' figure by the 'Total Employees' figure.

A GVA figure for each company was calculated and totalled to give an estimate for the sample of 103 companies. An average per company was then calculated to be used in estimating the GVA for the total population of 412 companies. To exclude outliers from the calculation of the average, any value above the 'average plus twice the standard deviation' was removed from the calculation. In a normally distributed sample this would mean that 95% of the data was within +/- twice the standard deviation around the average.

This average GVA figure was then multiplied by the total population less the sample number (including outliers) (412-103). This provided an estimate of the GVA for those companies in the population not providing data. Finally, this was added to the GVA estimate for the sample (including outliers) to give an estimate for the whole population. An estimate for the GVA of Scottish Water and Castle Water was calculated separately and added to the total.

A similar approach was used to 'gross-up' the sample data on turnover, jobs, exports and FTE R&D/Innovation related jobs to a population estimate. There was a minor additional calculation included when going from sample to population for turnover and jobs data. This was to add in data for two companies that did not participate in the research but Scottish Enterprise was able to provide an estimate of both turnover and jobs. The population not providing data was therefore reduced by two when using the average 'turnover per company' and 'jobs per company' from the sample to gross up to a population estimate.

[22] https://www2.gov.scot/Topics/Statistics/Browse/Business/SABS

Business Growth | Economic Development | Technology Commercialisation

**Head Office:**

Optimat Limited

Torus Building, Rankine Avenue,

Scottish Enterprise Technology Park,

East Kilbride

G75 0QF, United Kingdom

**Tel:** +44 (0)1355 272 800

**Email:** resource@optimat.co.uk

**Web:** www.optimat.co.uk