

# INVESTING IN SCOTLAND'S WATER INDUSTRY: IMPROVEMENTS DELIVERED IN 2010-15



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## Introduction



Scotland's communities are enjoying real benefits of sustained investment over the last five years. Drinking water quality and levels of service to customers have reached their highest levels ever, and many improvements have been made to reduce the impact of our activities on the environment.

Water is central to our national identity, from our lochs and reservoirs to the very origins of our industries, and the food and drink on our tables. Taking good care of our water resources and becoming a Hydro Nation is crucial to delivering the Scottish Government's Purpose of creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.

Scottish Water is Scotland's national provider of public water and sewerage services. It delivers safe, clean, clear drinking water to customers the length and breadth of Scotland and removes and treats waste water before discharging it to the environment – every day of the year. In doing so, it ensures that drinking water is fresh and safe to drink and the environment is protected.

Customers have seen marked improvements in services since Scottish Water's creation in 2002. Improvements continue to be made such that customers now receive levels of service that are comparable to the leading water companies in England and Wales.

The improvements Scottish Water is required to make are specified by Scottish Ministers and set out in Directions.<sup>1</sup> This report summarises Scottish Water's progress in delivering the improvements that were required during the 2010-15 period and shows how these have contributed to the Government's Purpose and Strategic Objectives.

The Output Monitoring Group<sup>2</sup> is publishing this report following the completion of the 2010-15 period on 31 March 2015.

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<sup>1</sup> The Direction may be viewed at: <http://www.scotland.gov.uk/Topics/Business-Industry/waterindustryscot/latest-news/swdirections>

<sup>2</sup> OMG comprises the main stakeholders in the water industry: Scottish Government (SG), Scottish Water (SW), the Water Industry Commission for Scotland (WICS), Scottish Environment Protection Agency (SEPA), Citizens Advice Scotland (CAS), Scottish Public Services Ombudsman (SPSO) and the Drinking Water Quality Regulator (DWQR). The Group is chaired by the Scottish Government and operates under terms of reference agreed by Ministers.

## Improving services: The Ministers' Objectives 2010-15



Scottish Ministers determine the objectives for the water and sewerage industry in Scotland following public consultation.

Quality and Standards is the planning process by which the improvements are set. Quality and Standards 3, the planning period which has just completed, covered a nine year period from 2006 to 2015.

The improvements are expressed as Ministers' Objectives and cover improvements to:

- Drinking water quality and water resources;
- The environment;
- Standards of service to customers;
- New capacity to support economic growth; and
- Climate change mitigation and adaptation.

*Ministers' priorities for the water industry in Scotland were designed to achieve the maximum affordable improvements in public health and standards of environmental protection whilst supporting economic growth.*

Ministers published a report covering the delivery of improvements in the first four years in January 2011<sup>3</sup>. They published their objectives for the period 2010-15 in October 2009<sup>4</sup>.

The objectives were designed to:

- achieve the maximum affordable improvement in public health and standards of environmental protection;
- support housing and economic growth in communities across Scotland through investment in new water and sewerage capacity;
- recognise the industry's capacity for efficient delivery by setting the investment programme to £500m per year and programming it in a manner so as to avoid excessive peaks and troughs; and
- achieve these outcomes while ensuring that customers receive value for money and that water charges rises were less than the rate of inflation.

<sup>3</sup> Investing in Scotland's water industry: Improvements delivered in 2006-10  
<http://www.gov.scot/Resource/Doc/917/0112271.pdf>

<sup>4</sup> The objectives are set out in 'The Scottish Water (Objectives for 1<sup>st</sup> April 2010 to 31<sup>st</sup> March 2015) Directions 2009', as amended. The Direction may be viewed at: <http://www.scotland.gov.uk/Topics/Business-Industry/waterindustryscot/latest-news/swdirections>

## Monitoring progress

Scottish Water's progress in delivering the improvements is monitored and reported on by the 'Output Monitoring Group'. The group brings together key water industry stakeholders. It meets every three months and publishes its quarterly monitoring reports on the Scottish Government's website<sup>5</sup>. The Water Industry Commission for Scotland also publishes annual reports focussing on Scottish Water's performance against the targets set during the Strategic Review of Charges for the 2010-15 period.

For this period, the WICS introduced a new measure known as the Overall Measure of Delivery (OMD). This provides a high level measurement of Scottish Water's overall progress in delivering its investment plan to achieve Ministers' objectives.

The OMD score starts at 0 and rises to 250 once all the required outputs of the investment plan are complete. The graph below shows the planned and actual delivery of the investment over the five-year period. The green shaded area represents +/- 2.5% of the OMD score. Performance is considered to be "on target" if it was within the green band.

Scottish Water has achieved or exceeded its OMD target in each year of the period. As is to be expected in a large programme, some elements have been completed early while others have been delivered later than planned. At 31 March 2015, the OMD score was 239.1 indicating that a number of projects remain to be completed. Further details are provided on page 10.

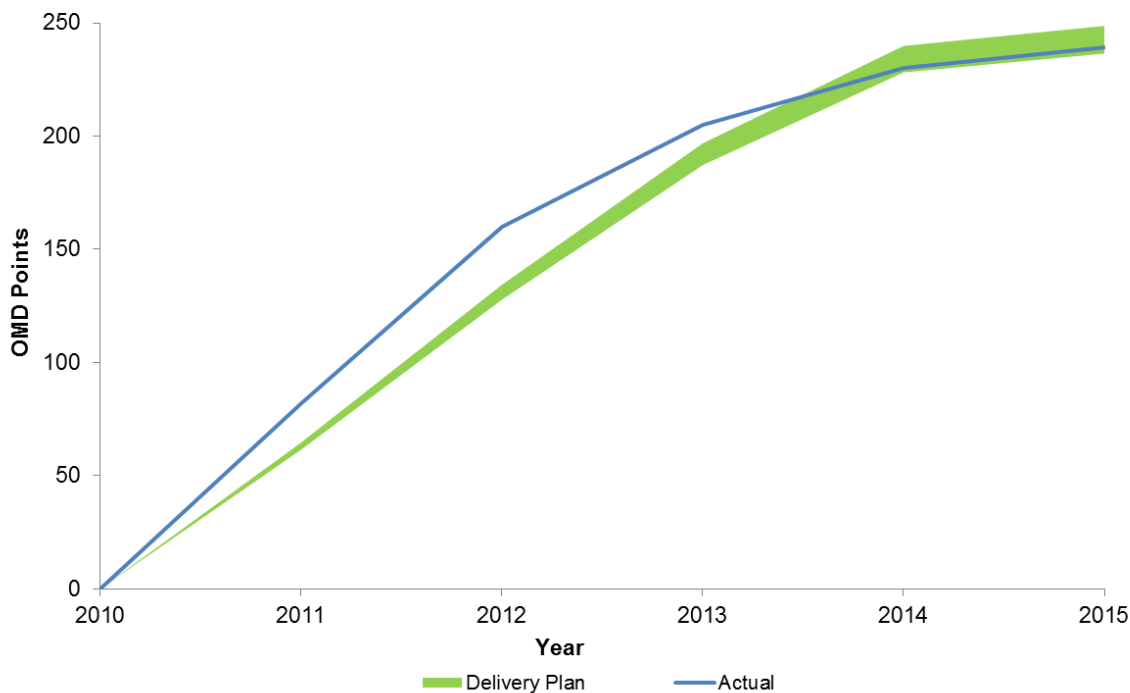


Figure 1 - 2010-15 OMD Performance against Scottish Water's Delivery Plan

<sup>5</sup> <http://www.scotland.gov.uk/Topics/Business-Industry/waterindustryscot/qs3>

## Determining the cost of improvements

As economic regulator, the Water Industry Commission for Scotland (WICS) is responsible for determining the lowest reasonable overall cost of delivering services, including improvements, to customers. It does this as part of the process of setting charges for water and sewerage services, the 'Strategic Review of Charges'.

The [final determination](#)<sup>6</sup> published in November 2009 was the culmination of the charge setting process for the 2010-15 period. The determination took account of information that was provided to WICS by Scottish Water, industry stakeholders and Ministers' policies on investment and charging.

The final determination established that the cost of delivering Ministers' objectives over the period would be some £2.54 billion in 2007-08 prices. This included a sum of £180 million to cover the delivery of outputs that would be confirmed in the light of detailed studies of networks and discharges - in particular the Glasgow Environment Programme which is informing investment requirements necessary to improve Glasgow's sewerage systems and treatment works. Scottish Water's performance against the final determination for the 2010-15 period will be assessed by WICS in future performance reports.



Improvement Underway - Airdrie Tunnel



Pipe Fittings

<sup>6</sup> [http://www.watercommission.co.uk/view\\_Determinations.aspx](http://www.watercommission.co.uk/view_Determinations.aspx)

## Improvements delivered in 2010-15



Improvement Underway - Fullerton Avenue Flooding Project, Glasgow

Scottish Water's investment programme for 2010-15 comprised more than 3,300 projects delivering improvements to drinking water quality, environmental performance and customer service, and providing additional capacity to service new developments. Highlights include:

- In Edinburgh and parts of Midlothian up to 450,000 customers are now receiving an improved quality drinking water supply with the switch on of the new Glencorse Water Treatment Works, which has been designed to blend into the neighbouring environment and provides a blueprint for the sustainable provision of drinking water;
- In Glasgow, Scottish Water launched its £250 million investment plan to upgrade Glasgow's waste water network to help improve the environment of the River Clyde and its tributaries and tackle flooding; and
- Scottish Water opened its new operations centre where it can monitor the performance of its assets and improve the level of service and response times to customers.

The sections below explain how these 3,300 projects have helped to deliver the Government's Objectives.

### **Our public services are high quality, continually improving, efficient and responsive to local people's needs**

Scottish Water is assessed annually on a wide range of measures relating to the quality of services provided to customers. The annual assessments are published in the Quarter 4 reports<sup>7</sup>.

**Service Standards** - Standards of service are monitored through an industry wide measure called the 'overall performance assessment' (OPA). The OPA comprises a 'basket' of service standard measures, encompassing aspects of service that are most important to customers.

Scottish Water has invested £1.2 billion during the 2010-15 period in maintaining its assets to support the achievement of its OPA targets and maintain service to customers.

*Between 2010 and 2015 standards of service improved by 31%. As a result, service levels are now comparable to the leading water companies in England and Wales.*

*Scottish Water Customer Satisfaction increased from 80% in 2010 to 92% in 2015. Scottish Water has a determined focus to listen to its customers.*

<sup>7</sup> <http://www.gov.scot/Topics/Business-Industry/waterindustryscot/publications/deliveryprogress>

In 2010, service as measured by the OPA totalled 306<sup>8</sup> points out of a maximum score of 418.75. Scottish Water was set a target of achieving a score of 380 by 2015 putting it in the upper quartile for performance for the UK water industry.

Scottish Water has continued to improve service to customers, with OPA performance outperforming its target and achieving a score of 400 in 2014/15. Scottish Water's service performance is now comparable to the leading UK water companies.

Service improvements were noted across almost all of the areas that the OPA measures<sup>9</sup>, including low pressure, leakage, drinking water quality, security of supply and unplanned water supply interruptions due to bursts.

**Leakage** - Lower levels of leakage are beneficial as it reduces the volume of water extracted from the environment and treated, reduces costs and increases the reliability of water supplies to customers. Scottish Water has continued to reduce the level of leakage during the 2010-15 period, from 738 to 544 megalitres per day. Leakage has now reached its economic level which Scottish Water is required to maintain.



Leakage detection

*Leakage has reduced by 25% during 2010-15 – enough to supply 600,000 households every day.*

## Increasing Sustainable Economic Growth

**New Strategic Capacity** - Scottish Water provides additional water and waste water strategic capacity, as and when required, to support the Scottish Government's purpose of increasing sustainable economic growth. At the end of the period, Scottish Water confirmed that it had provided additional water capacity for around 52,000 customers and waste water capacity for approximately 31,000 customers, so meeting the Ministerial requirement for the 2010-15 period.

*Additional capacity was provided to meet all the domestic strategic requirements of new development.*

## A Healthier Scotland

**Drinking water quality** - During the 2010-15 period, improvements were made to drinking water assets in order to protect or improve the quality of drinking water provided at customers' taps. Some 2,900km of drinking water mains were cleaned, upgraded or replaced. 58 water treatment works were improved to comply with the standards set in the European Commission's Drinking Water Directive

Overall, some 950,000 customers have benefitted from improvements to the look, taste and quality of their drinking water.



Carbarns Water Treatment Works

<sup>8</sup> The components of OPA changed between 2006-10 and 2010-15, Scottish Water scored 306 points under the new methodology in 2009-10, but when assessed on the old 2006-10 methodology Scottish Water's OPA score would have been 291 points.

<sup>9</sup> There was a small deterioration in our Category 1&2 water environmental pollution incident measure, but all other OPA categories were either already at maximum or improved over the five-year period.

Improvements were made across Scotland, including a new water treatment works to supply customers in Unst in Shetland with high quality, clear, fresh drinking water. In the Borders, Scottish Water opened a new water treatment works to provide clear and fresh drinking water to the communities of Innerleithen, Cardrona and Walkerburn. Scottish Water has enhanced the water supply with respect to plumbosolvency control for over 450,000 customers in 12 regulatory water supply zones.

Scottish Water has also undertaken significant investment during 2010-15 to improve the reliability of water supply to thousands of customers.

Scottish Water has been working with land managers within the catchment which supplies Forehill water treatment works to help reduce the amount of pesticides in the watercourses, through the Sustainable Land Management incentive scheme. Financial assistance has been provided for selected items to improve and protect source water quality within a catchment, going beyond expected land management practice.

## A Greener Scotland

**Environmental protection** – During the 2010-15 period improvements were made to waste water assets in order to protect or improve the environment and to comply with a number of European Directives.

81 waste water treatment works were improved either to comply with existing licence requirements or to meet new and more stringent requirements and a total of 150 unsatisfactory intermittent discharges (mainly storm overflows from the sewer network) were improved.

During 2010-15, Scottish Water completed major waste water projects in Airdrie and Dunoon to help protect the natural environment and opened a new waste water treatment works at Caddonfoot as part of a package of investment to protect the environment of the River Tweed. Scottish Water also launched a major investment programme to improve Glasgow's waste water infrastructure, helping to improve the natural environment of the River Clyde and its tributaries and tackle climate change and flooding.

A £51 million storm water management system, one of the biggest ever of its kind, was completed in Ayrshire in a bid to substantially improve water quality in the River Irvine and Kilmarnock Water and the bathing waters of Irvine Bay.

### CASE STUDY

*In Edinburgh and parts of Midlothian up to 450,000 customers are now receiving an improved quality drinking water supply with the switch on of the new Glencorse water treatment works, which blends into the neighbouring environment and provides a sustainable blueprint for the future.*

### CASE STUDY

*The Cowdenbeath Wetlands Project uses natural processes to treat storm water that previously spilt directly to the Lochgelly Burn. Screened storm water now flows via a storage tank to the wetland area. The gravel bed is artificially aerated to provide the conditions needed by the micro-organisms to treat the water so that it can be returned to the burn. The wetland was built on an area of derelict ground and provides a valuable habitat for wildlife. It is estimated that this innovative approach will use half the amount of carbon used in traditional treatment whilst raising the water quality of the burn from 'seriously polluted' to 'Good' status.*



Cowdenbeath Wetlands Project



**Climate Change Mitigation and Adaptation** - Over the 2010-15 period, Scottish Water has reduced its energy consumption by 5% and has managed to cut its operational carbon emissions by 18% since 2006/07. Scottish Water has doubled its renewable energy capacity to 50 GWh and diversified its portfolio to include hydro, wind, photovoltaic (PV) and combined heat and power (CHP). These renewable assets will generate an annual saving of around £6 million for customers. Scottish Water already hosts 350 GWh of third party wind turbines on their estate and they continue to work with developers to increase this, with Scottish Water and its customers benefitting from rental payments and the potential to purchase renewable energy at a discount.



Scottish Water Wind Turbine

A further 12 projects were undertaken to understand the impacts of climate change on Scottish Water's ability to provide secure and reliable water and sewerage services in the future.

## A Stronger Scotland

**Flooding** - Experience gained in the delivery of previous investment programmes has shown that detailed studies are key tools for identifying appropriate solutions.

A total of 320 projects were undertaken to assess the vulnerability of, and protect where necessary, Scottish Water's assets from the risk of flooding. A further 72 studies were undertaken to understand the risk to homes and businesses of flooding from sewers including 5 projects which have been undertaken in partnership with 11 Local Authorities.



Camalachie Burn Overflow

## A Smarter Scotland

**Delivering Greater Innovation** - In its final determination 2009, the Water Industry Commission provided finance to enable trials to be undertaken into new technologies and operating practices which might lead to a more sustainable and lower carbon industry in the longer term. These activities encouraged joint working with Regulators and other stakeholders. The trials covered sustainable land management with SEPA, implementation of alternative technologies to tackle cryptosporidium in public water supplies with DWQR, and a household water efficiency trial to understand water usage in the home and the scope for water efficiency measures.



Circular Piano Key Weir Black Esk Reservoir  
– a world first

## Out-performance



### **Service levels substantially higher than those required in the Final Determination**

Out-performance can also be delivered through higher service levels as well as through delivering for less than the amounts set out in the WICS final determination. Scottish Water has consistently outperformed the targets set for the 2010-15 period. As well as outperforming the Overall Performance Assessment target, Scottish Water has:

- Increased customer satisfaction, with scores that have been 10-14% higher than target over the last three years;
- Reduced pollution incidents by over 60% over the last 5 years; and
- Reduced the complaints referred to the former Waterwatch or the Scottish Public Service Ombudsman by over 90% since 2010.

## Projects remaining at the period end



Improvements at Stirling Waste Water Treatment Works to provide capacity for growth.

As in any large scale investment programme, some projects were not fully completed at the end of the period. From a total of over 3,300 projects, 120 projects remain to be completed at March 2015. Of the projects remaining, 83 were initiated before March 2015 for delivery in the 2015-21 period in order to provide continuity of investment while 37 are projects due but not delivered by March 2015. Within these 37 there are important projects to upgrade water and waste water treatment works and the Output Monitoring Group will closely monitor the delivery of these remaining elements of the improvement programme from the 2010-15 period.

A summary of the delivery position at 31 March 2015 is shown at Annex A.

## Improving the delivery of objectives



Scottish Water van on Skye

The Output Monitoring Group has reviewed the delivery of the outputs in the context of the improvements identified at the end of the last regulatory period as set out in its report<sup>10</sup>. It has made an assessment of the scope for further improvements.

### ***Lesson 1: Continuity of investment***

The Output Monitoring Group recognises that limiting the size of the programme and ensuring that project delivery is planned in a manner so as to avoid excessive peaks and troughs is key to delivering effective and efficient investment. Planning projects to span planning periods has been used, in part, to deliver this objective.

The Output Monitoring Group also recognises that effective plans can only be delivered where time is allowed to enable studies to be undertaken to ensure that customers receive the right solution. This follows its conclusion that in previous periods the pressure to deliver a study and a solution within the same period had led to rushed projects. The Output Monitoring Group welcomes the rolling investment review, introduced by the Water Industry Commission in its final determination of charges 2014. This will allow a mid-point review of investment requirements in 2018 that arise from studies completed by that date and an initial assessment for delivery priorities in the 2018-21 period.

Looking ahead, Quality and Standards 4B, the next plan, will cover the period from 2021 to 2027. This planning period now aligns with those for the Water Framework and Flood Risk Management Directives, both of which are key drivers of investment.

### ***Lesson 2: Improving monitoring arrangements***

In previous periods, the OMG monitoring framework focussed on 23 quarterly programme outputs and 25 annually measured targets. Whilst the programme outputs are clearly linked to outcomes such as Improved Drinking Water Quality, there was less transparency as to how these linked to Ministerial Objectives and Scottish Water's Delivery Plan.

<sup>10</sup> <http://www.gov.scot/Topics/Business-Industry/waterindustryscot/SWI>

For the 2015-21 period, monitoring arrangements will link clearly to Scottish Water's Delivery Plan and to Ministerial Directions by using common categories and wording. This will improve transparency on delivery performance against the Ministerial objectives.

At the end of the 2010-15 period, the numbers of outstanding projects remaining to be delivered, at 37, was small relative to more than 3,300 capital investment projects delivered by Scottish Water over the period. However, it is noted that these outstanding projects include important upgrades to water and waste water treatment works. Scottish Water and the Outputs Monitoring Group have implemented changes to seek to minimise delays to programmes and that identify where any delays are occurring as early as possible so mitigating action can be taken.

### ***Lesson 3: Delivering Greater Innovation***

In a changing climate and a growing need for services, it is important that innovative solutions are found to lessen the requirement for new investment and/or use of expensive treatment. As noted in this report, there have been a number of projects, often working in partnership with other stakeholders to understand whether there are new technologies or more sustainable ways of delivering services. The advent of the three-year rolling investment review will assist in delivering innovation by allowing investment needs to be confirmed after a period of study. Going forward, all parties in the water industry have a role to play in promoting innovation.

### ***Lesson 4 – Communications***

As evidenced by the quarterly monitoring reports<sup>11</sup>, significant improvements have been made to services delivered to customers. Whilst customers expect services to be maintained to a high quality, it is important that effort is made to communicate and engage with customers to explain how their actions can impact on these services and why behavioural change would be beneficial (for example, through water efficiency and addressing internal plumbing leaks and by avoiding flushing household fats and wipes down sewers). Greater communication with customers is planned for the 2015-21 period.

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<sup>11</sup> Delivery Reports may be found on the Government's website at: <http://www.gov.scot/Topics/Business-Industry/waterindustryscot/publications/deliveryprogress>

## Conclusions



Difgen valves, Denny

Overall, the Output Monitoring Group recognises the benefits that Scottish Water has delivered for customers and the environment across the 2010-15 period.

Scottish Water has met its overall measure of delivery target throughout this period. As a consequence of this, Scottish Water has delivered major improvements to the quality of the drinking water that it supplies to its customers, in the wastewater it discharges to Scotland's environment and, through the provision of new capacity, has enabled economic growth.

The Output Monitoring Group also recognises that significant improvements have been delivered in relation to customer service, with customers now benefitting from standards of service that are comparable with the leading UK water companies.

It is normal in a large investment programme of this type for some elements to be delivered ahead of, and others behind, the planned delivery dates. The Output Monitoring Group has sought explanations from Scottish Water where projects have been delayed. Scottish Water has provided explanations and has assured the Output Monitoring Group that there is a strong focus on delivering the remaining elements of the programme to ensure that benefits to customers are delivered as soon as possible. The Output Monitoring Group has agreed specific monitoring arrangements for these delayed projects to ensure appropriate scrutiny of delivery.

Looking ahead to the 2015-21 period, the Output Monitoring Group will build on the lessons learnt to ensure that the Scottish water industry continues to deliver efficient and effective services for the benefit of its customers and Scotland's environment.

## ANNEX A – Outputs Table

	Programme Group	Outputs required	Outputs delivered by March 2015	Outputs due post March 2015	Outputs due by March 2015	Status at March 2015
Drinking water quality	Number of water treatment works improved	83	58	7	18	Behind target
	Measures to protect drinking water quality	268	268	0	0	Complete
	Improvements to raw water sampling and treatment	235	235	0	0	Complete
	Number of lead communication pipes removed	0	394	0	0	Complete
	Number of District Metered Areas subject to investigations	143	143	0	0	Complete
	Number of sites covered by drinking water safety plans	174	196	0	0	Complete
	Improvements to the security of supply	15	13	2	0	Behind target
	Mains rehabilitation (km)	4,146	2,922	1,224	0	On target
	Number of zones with reduced lead levels	64	62	0	2	Behind target
	Compliance with the Security and Emergency Measures Direction	735	689	0	46	Behind target
Environmental Protection	Compliance with waste water licences	326	325	0	1	Behind target
	Number of improved waste water discharges	102	81	10	11	Behind target
	Number of UIDs improved	196	126	70	0	On target
	Non-strategic UIDs and dual manholes addressed	42	35	7	0	On target
	Improvements to the waste water network (properties)	15	15	0	0	Complete
	Surface Water outfalls improved	6	6	0	0	Complete
	Works associated with the Commonwealth Games	68	68	0	0	Complete
	Number of environmental studies undertaken	114	113	1	0	On target
Malodour	Number of sites where malodour is reduced	4	4	0	0	Complete
Flood risk management	Duties under the Flood Risk Management Act	392	389	0	3	Behind target
Customer service	Number of properties removed from low pressure register	2,437	3,086	0	0	Complete
Completion of past investment	Projects from previous periods	313	312	0	1	Behind target

**Number of water treatment works improved:** One of the 25 outputs has been completed, there are now 24 outputs remaining. 17 are late and 7 were planned to span the end of the regulatory period. This programme is forecast to deliver 8 outputs in 2015/16, 10 outputs in 2016/17 and 6 in 2017/18.

**Improvements to the security of supply:** The last 2 outputs in the programme are at Bonar Bridge which is planned to be delivered by March 2017 and Inverness & Nairn which is planned to be delivered in by March 2019.

**Mains Rehabilitation:** A further 1,224 km of mains are to be rehabilitated. The delay reflects the one-year sign off period required to confirm that the mains are operating to the required standards.

**Security and Emergency Measures Direction:** 46 outputs are late. This is a consequence of 131 outputs being added to Scottish Water's original planned target of 604. Outputs are forecast to be completed by March 2016.

**Number of zones with reduced lead levels:** 2 outputs are late at Kaim and Terregles. Kaim was completed in June 2015. Terregles is linked to the completion project at Killylour which is due to complete in March 2016.

**Compliance with waste water licences:** The final output is at Dalmarnock waste water treatment works. The output has been delayed as it can be addressed more cost effectively alongside the investment planned at the works during the 2015-21 period.

**Number of improved waste water discharges:** Of the 21 outputs that remain to be completed, 11 are late and 10 were planned to deliver after March 2015. This programme is forecast to deliver 6 outputs in 2015/16 and 15 in 2017/18.

**Unsatisfactory Intermittent Discharges:** The remaining 70 outputs, which are predominately part of the Glasgow Sewerage Strategy, are planned to be complete during the 2015-21 period.

**Number of environmental studies undertaken:** The remaining output, Fisherrow Sands, was due to span the end of the regulatory period and is forecast to deliver in 2016/17.

**Duties under the Flood Risk Management Act:** 3 flood modelling studies are late. Grangemouth and Dundee are now complete. Edinburgh will be completed by March 2016.

**Projects remaining in the Q&S3a (2006-10) programme:** 1 output is late - Killylour water treatment works, supplying around 35,000 customers. Water is expected to be into supply by March 2016.