

OUR CONTRIBUTION

Northumbrian Water Group's Environment,
Social and Economic Impact Report

FOR THE YEAR ENDED 31 MARCH 2018





OUR CONTRIBUTION

NORTHUMBRIAN WATER GROUP'S ENVIRONMENT, SOCIAL AND ECONOMIC IMPACT REPORT

CONTENTS	PAGE
WELCOME	<u>4</u>
WATER FORUMS ANNUAL ENVIRONMENT REPORT	<u>6</u>
OUR VISION AND VALUES	<u>8</u>
OUR CAPITAL ASSETS	<u>10</u>
OUR BUSINESS ACTIVITIES AND OUTCOMES	<u>12</u>
OUR CAPITALS JOURNEY	<u>14</u>
OUR CONTRIBUTION STORY IN 2017/18	
Key data & case studies	<u>24</u>
Our key data	<u>27</u>
Case studies	<u>30</u>
Innovation Festival	<u>43</u>

NORTHUMBRIAN WATER GROUP'S ENVIRONMENT, SOCIAL AND ECONOMIC IMPACT REPORT

ABOUT US:

Northumbrian Water and Essex & Suffolk Water are part of Northumbrian Water Limited, which is a member of Northumbrian Water Group Limited (NWG).

We provide water and sewerage services in the north east of England under the brand name Northumbrian Water (NW) and water services in the south east under the brand name Essex & Suffolk Water (ESW). We serve 2.7 million people in the north with water and sewerage services and 1.8 million people in the south with water services.




CUSTOMERS SERVED
2,700,000
IN THE NORTH


CUSTOMERS SERVED
1,800,000
IN THE SOUTH

WE HAVE IDENTIFIED FIVE CAPITALS THAT WE RELY ON AS A BUSINESS:



Financial Capital



Manufactured Capital



Natural Capital



Human and Intellectual Capital



Social Capital

WELCOME FROM HEIDI

I'M PLEASED TO INTRODUCE OUR SECOND 'OUR CONTRIBUTION' REPORT, WHICH LOOKS AT OUR INFLUENCE AND IMPACT ON THE WIDER ECONOMY, ENVIRONMENT AND SOCIETY. IT ALSO OFFERS KEY EXAMPLES OF OUR LONG-TERM VISION - INVESTMENT IN OUR COMMUNITIES AND OUR PEOPLE - IN WHICH WE TAKE GREAT PRIDE.

When we launched our first Our Contribution report in 2017 we sought to assess our current practices and understand the impact we make on our five identified capitals ([see page 10](#)). Moving forward this 2018 report represents the next stage in our journey as we seek to better monitor, understand and deliver against the capitals.

Our core function is to supply drinking water to 4.5 million people in the north east and east of England; and safely take away the wastewater from 2.7 million people in our northern area. We do not believe that this essential service is the limit of our role or ambition and the contribution we make is so much wider than this. Whilst we recognise the importance of financial returns, to be a business that is truly resilient, every capital matters for the sustainable future of Northumbrian Water Group.

It is well understood that we are a company with significant resources, with billions of pounds worth of assets and millions more being invested every year, alongside thousands of skilled and experienced staff with a supply chain that impacts across our region. Our business is manufacturing, education, land management, service-led and overall essential to the lives of our customers.

“We are continuing our commitment to provide a resilient first-class service to our customers whilst protecting and where possible enhancing the environment”

From our conservation teams, to leakage technicians; regulatory team to sewerage maintenance operators; our customer advisors to chief executive; we all have a role to play and a responsibility to lead.

We are taking on this challenge openly and honestly. Our journey to measure our impact across the five capitals means investigating what data and information we have, what we are missing and providing assurance over its accuracy. This is not a simple process, nor is it one that fits within a simple regulatory practice and whilst we have data that we could already use, this doesn't cover the full breadth of the impacts of our business and the additional benefits that our working practices contribute to society. Rather than rush this process we have committed to doing this properly. We will make it happen and we will improve year on year to ensure we are using this information to make the best decisions – for nature, our customers, our communities and our business.



We are continuing our commitment to provide a resilient first-class service to our customers whilst protecting and where possible enhancing the environment. Further understanding our impacts on the capitals will enable us to measure this and share this information with you. We already have great examples of where we have put our vision into action, and whilst the efforts to improve our understanding and reporting are key, I am delighted to be able to demonstrate that our business plans, our strategies and our day to day activities already reflect so much of what we are seeking to achieve.

Understanding how we depend on and interact with our capitals will enable us to reap the benefits of successfully managing those interactions with potential benefits for our business, society and the natural world. In the same way in which we understand the importance of sound management of financial capital, I believe it makes good business sense to understand the value of all the capitals upon which we rely and impact. By reporting in this way, we are taking significant steps forward to being able to do that.

I hope you enjoy this report and keep monitoring us on our journey.

Heidi Mottram CBE
Chief Executive Officer





WATER FORUMS ANNUAL ENVIRONMENT REPORT

WE HAVE A WATER FORUM FOR NORTHUMBRIAN WATER, AND ONE FOR ESSEX & SUFFOLK WATER.

The Northumbrian and Essex & Suffolk Water Forums are the independent 'Customer Challenge Groups' for NWG's two water companies. We represent a wide range of organisations and sectors and our work provides assurance to Ofwat, the industry's financial regulator, that the company is taking its responsibilities to customers seriously: listening, understanding and acting accordingly.

The company's leadership team certainly take the Forums seriously – they participate in our meetings, listen to our challenges and tweak their plans accordingly, so that they're rooted in customer research and views.

In last year's Our Contribution report, we made several challenges that we are very pleased to see the company has responded to and addressed since then. The most notable is 'For Everyone', their customer inclusivity strategy, which states their ambition to end water poverty by 2030. This will make a really positive difference to the many customers who find themselves in circumstances that make them more vulnerable than others.

There are some great examples that we've seen this year of how the company has put customers at the heart of its thinking when making decisions that contribute to the five capitals covered in this report. They include:

- Good customer engagement in 'Our Finances Explained' workshop, where customers were given the chance, in a very open and transparent way, to delve into the money side of how the company works
- The investment in managing surface water in the Killingworth and Longbenton areas of the North East, which will benefit customers by reducing the risk of flooding. We visited the site this year and were impressed by the work being done. That said, we would like to see the company do more to engage with local people about the benefits it will bring as there appears to be low awareness
- The company's strong belief in the power of partnerships to make progress and create better outcomes for customers and the environment – their catchment partnerships are fantastic examples of this

- The continuing work with Flo, the vehicle that is taken around the regions to give an opportunity to customers who live more remotely to meet and talk to some of the team that supplies their water services
- The good resilience that the company showed when the so-called 'Beast From The East' cold spell arrived last winter – the people who work for the company showed just what a difference a culture of empowerment makes, as they were motivated and able to sort out problems for customers
- The Innovation Festival – as well as involving customers, it was focused on moving thinking forward for areas that are really important to customers, such as reducing leakage and flooding.

We're pleased to see that, at this year's Innovation Festival, one of the areas the company is focused on is encouraging more children to take up and pursue science, technology, engineering and maths (STEM) subjects – this was one of the challenges we put to them last year.

For the coming year, we would like to challenge the company in two key areas:

- Keep focusing on being resilient to the weather – to take what they learned from the Beast From The East to stretch themselves even further and be as resilient as they can for customers
- Maintain their industry-leading thinking to move the whole industry forward, so that their positive influence goes beyond their own customers.

The DNA of the company, as expressed through its values, is a strong foundation to build on and we look forward to seeing what it achieves in the next 12 months.

Jim Dixon

Water Forums Chair
On behalf of the Forums for Northumbrian Water and Essex & Suffolk Water





OUR VISION

OUR VISION DESCRIBES WHAT WE ARE STRIVING TO ACHIEVE, WHICH IS:

TO BE THE NATIONAL LEADER IN THE PROVISION OF SUSTAINABLE WATER AND WASTE WATER SERVICES



OUR VALUES

AS IMPORTANT AS OUR CLEAR DIRECTION AND GOALS IS OUR CLEAR SENSE OF VALUES. WE HAVE MADE A COMMITMENT TO FIVE CORE VALUES, DESCRIBED BELOW, AND THESE ARE THE PRINCIPLES WHICH DEFINE HOW WE WILL WORK TO ACHIEVE THE VISION.



The values describe our main principles, qualities and attributes. They are the set of guiding principles which collectively define who we are, what we do and how we do it. They make us different from the rest and allow us to make decisions and take actions to drive us towards our vision.

CUSTOMER FOCUSED

We aim to exceed the expectations of our external and internal customers.

RESULTS DRIVEN

We take personal responsibility for achieving excellent business results.

ETHICAL

We are open and honest in meeting our commitments, with a responsible approach to the environment and our communities.

CREATIVE

We continuously strive for innovative and better ways to deliver our business.

ONE-TEAM

We work together consistently, promoting co-operation, to achieve our corporate objectives.



OUR CAPITAL ASSETS

THERE ARE FIVE AREAS THAT WE RELY ON FOR OUR GOODS AND SERVICES, THESE ARE KNOWN AS THE FIVE CAPITALS.



1. FINANCIAL CAPITAL

Financial capital is the funds available for business activities, whether generated by an organisation's own operations and investments or provided by financial institutions



2. MANUFACTURED CAPITAL

Manufactured capital comprises material goods or fixed assets which contribute to the production process.



3. NATURAL CAPITAL

Natural capital represents the renewable and non-renewable environmental resources that all individuals and organisations are dependant on.



4. HUMAN AND INTELLECTUAL CAPITAL

Human and intellectual capital consists of people's health, knowledge, skills and innovation.



5. SOCIAL CAPITAL

Social capital is the networks, relationships and connections between people, communities and institutions.

In our 2017 Our Contribution report, we introduced to you the capitals that we rely on as we go about our business as a water and wastewater company. The explanations of those capitals are shared above. The work that we have been doing over the past year has re-confirmed that these five diverse capitals are the key areas for our business; and our interaction with them provides the basis for the value we create for our customers and society.

We depend on the capitals to greater and lesser degrees depending on the areas of the business that we are considering, but the fundamental principle does not change, and that is that natural and social capital is at the heart of our organisation. The natural world provides the resources that we depend upon to deliver our services; and society provides our many and varied customers who rely upon the services that we are able to provide.

We have continued to work with experts in the field to better understand the data that we need to guide our decision making; and to enable us to share and ultimately value the impacts – both positive and negative – that we have on the capitals. We are still early in our journey, and hope the rest of this report provides a useful insight into our direction of travel.



“We have continued to work with experts in the field to better understand the data that we need to guide our decision making”



OUR OUTCOMES

Our business outcomes are aligned to these themes and encapsulate our long-term goals and what we aim to achieve, as shown in Table 1.

TABLE 1:

THEME	OUTCOME
	<ul style="list-style-type: none"> • We deliver water and sewerage services that meet the needs of current and future generations in a changing world • We supply clean, clear drinking water that tastes good • We provide a reliable and sufficient supply of water • Our customers consider the services they receive to be value for money • Our customers are well informed about the services they receive and the value of water • We provide a sewerage service that deals effectively with sewage and heavy rainfall • We provide excellent service and impress our customers
	<ul style="list-style-type: none"> • We help improve the quality of rivers and coastal waters for the benefit of people, the environment and wildlife • We protect and enhance the environment in delivering our services, leading by example
	<ul style="list-style-type: none"> • We are an efficient and innovative company • Our finances are sound, stable and achieve a fair balance between customers and investors
	<ul style="list-style-type: none"> • Our people are talented, committed and inspired to deliver great services to customers • Our people act in line with our values • We are seen as a great place to work • Our workplaces are healthy and safe
	<ul style="list-style-type: none"> • We are proud to contribute to the success of local communities • We work in partnership towards common goals
	<ul style="list-style-type: none"> • We are a company that customers trust

OUR BUSINESS ACTIVITIES

Table 2 summarises our key business activities, grouped according to core water, wastewater and customer functions. These core business areas are supported by cross-cutting functions such as procurement. The key activities described in Table 2 cover the majority of our operations and capture the main drivers of impact and value creation for society.

TABLE 2: SUMMARY OF NWG'S KEY BUSINESS ACTIVITIES

BUSINESS ACTIVITY	KEY ACTIVITIES
WATER SERVICES	
Catchment management	<ul style="list-style-type: none"> • Encourage environmentally sensitive farming • Undertake ecosystem restoration and management • Implement sustainable drainage systems (SuDS)
Raw water abstraction	<ul style="list-style-type: none"> • Operate reservoirs, boreholes and river outtakes • Manage land around reservoirs
Water supply and network	<ul style="list-style-type: none"> • Operate water treatment works • Manage land around water treatment works • Transport water through the water network to customer taps
WASTEWATER SERVICES	
Wastewater network and catchment management	<ul style="list-style-type: none"> • Transport wastewater from customer sites to wastewater treatment works • Sustainable wastewater in the catchment <ul style="list-style-type: none"> • Implement SuDS • Undertake ecosystem restoration and management
Wastewater treatment and discharge	<ul style="list-style-type: none"> • Operate wastewater treatment works • Manage land around wastewater treatment works • Discharge treated wastewater to the environment
CUSTOMER SERVICES	
Customer service	<ul style="list-style-type: none"> • Engage customers • Encourage improved customer water efficiency • Run 'Love your drain' campaign to reduce pipe blockages • Support indebted and vulnerable customers
SUPPORTING FUNCTIONS	
Procurement	<ul style="list-style-type: none"> • Purchase goods and services from local, national and international suppliers
Fleet and logistics	<ul style="list-style-type: none"> • Road, rail and air travel to support construction, maintenance, and other business activities
Buildings and facilities	<ul style="list-style-type: none"> • Ensure supply of energy and materials to offices and other facilities (excluding core water and wastewater infrastructure) for everyday operations • Construct new facilities
Workforce	<ul style="list-style-type: none"> • Provide employment • Support employee training and development • Promote employee health, safety and wellbeing
Community	<ul style="list-style-type: none"> • Encourage and manage employee volunteering • Oversee community and charitable investment



OUR CAPITALS JOURNEY

WE'RE ON A JOURNEY TOWARDS BEING A BUSINESS THAT EMBRACES THE FIVE CAPITALS APPROACH TO DECISION-MAKING – AN APPROACH WE ARE TAKING BECAUSE WE BELIEVE THAT IT WILL HELP US, OUR CUSTOMERS AND OUR STAKEHOLDERS IN THE LONGER TERM, BY CREATING VALUE AND ADDING STRENGTH, OR 'RESILIENCE', INTO EVERY ASPECT OF OUR WORK. IT WILL HELP US UNDERSTAND AND IMPROVE OUR IMPACT ON SOCIETY, THE ENVIRONMENT, THE ECONOMY AND OUR COLLEAGUES.

Traditionally, businesses use money – or financial capital – to create value by delivering their products or services in the way customers expect them. We have a deep understanding of all elements of our money and how we use and invest it. When we make decisions, we understand the impact that it will have on the financial side of things. And we formally report our progress each year in our Annual Financial Statements

The five capitals approach basically involves understanding four other types of valuable capital that we use: natural capital; human and intellectual capital; social capital; and manufactured capital – as outlined in section 4.

The difference with these other four capitals is that in the past we have not traditionally measured them or used them effectively to inform our decision-making. We are on a journey to change this – so that we have a well-rounded, holistic view of our performance as a business.



OUR CAPITALS JOURNEY TOWARDS MAKING BUSINESS DECISIONS BASED ON OUR IMPACT ON THE 5 CAPITALS, TO CREATE VALUE AND BUILD RESILIENCE



We have chosen not to focus on the monetary value of our impacts yet. We need to first ensure that we concentrate on determining what is the most important data for us to collect that shows a clear link through to the impact and dependency areas identified last year. We need data that will effectively show us the scale of or impacts – both positive and negative; will enable year on year monitoring; and will be high enough quality to use to change and improve our decision making across the business.



OUR CAPITALS JOURNEY CONTINUED

IN OUR REPORT ‘OUR CONTRIBUTION 2017’ WE DESCRIBED THE FIRST CHAPTER IN OUR STORY: THE START OF OUR JOURNEY, WHICH WE UNDERTOOK USING EXPERT ADVICE FROM PRICEWATERHOUSECOOPERS (PwC).

1. An understanding of which of the capitals are impacted by what we do, by mapping our key activities and outputs against the outcomes for society, the environment and the economy. We found that there were 13 priority areas where we have an impact, which we either want to increase or reduce, as appropriate.
2. An understanding of the size of impact that our activities have on each of the capitals.

The 13 priority areas are listed below.

NATURAL	FINANCIAL & MANUFACTURED	HUMAN & INTELLECTUAL	SOCIAL
1. Greenhouse gases 2. Air pollution 3. Ecosystem services & land use 4. Flood attenuation 5. Water and sewage pollution 6. Water resource management and use 7. Waste disposal (incl. sludge)	8. Economic output	9. Training, education and knowledge 10. Employee health and wellbeing	11. Customer engagement and wellbeing 12. Traffic 13. Community investment

AT THIS POINT, EARLY IN OUR JOURNEY, ALL WE COULD REPORT WAS AN INDICATION OF THE RELATIVE SIZE OF IMPACT (HIGH, MEDIUM, LOW), RATHER THAN ABSOLUTE NUMBERS. THIS SITUATION LED NATURALLY TO THE NEXT STAGE IN OUR JOURNEY – WORKING OUT HOW TO GET MORE PRECISE, QUANTITATIVE DATA ABOUT THE IMPACTS WE HAVE ON THE FIVE CAPITALS.

Following many internal and external one-to-one discussions, we held a workshop in February 2018, with members of our team representing all the different parts of our business. Crucially, we agreed our vision for how we measure and monitor our impact on the capitals; and it was very clear that that we were keen to make a rapid start, even if this meant starting small. This steered us towards thinking about what short-term opportunities there were, and we found three:

The journey now continues as we focus our efforts into these three areas, gathering data, trying out new approaches and then improving them as we progress. The graphics of the three ‘roadmaps’ and their descriptions, on the next few pages, give a flavour of what we will be doing this year and next. The three are inter-connected, and by working on all three at the same time we feel that we will make significant progress by the end of 2019.

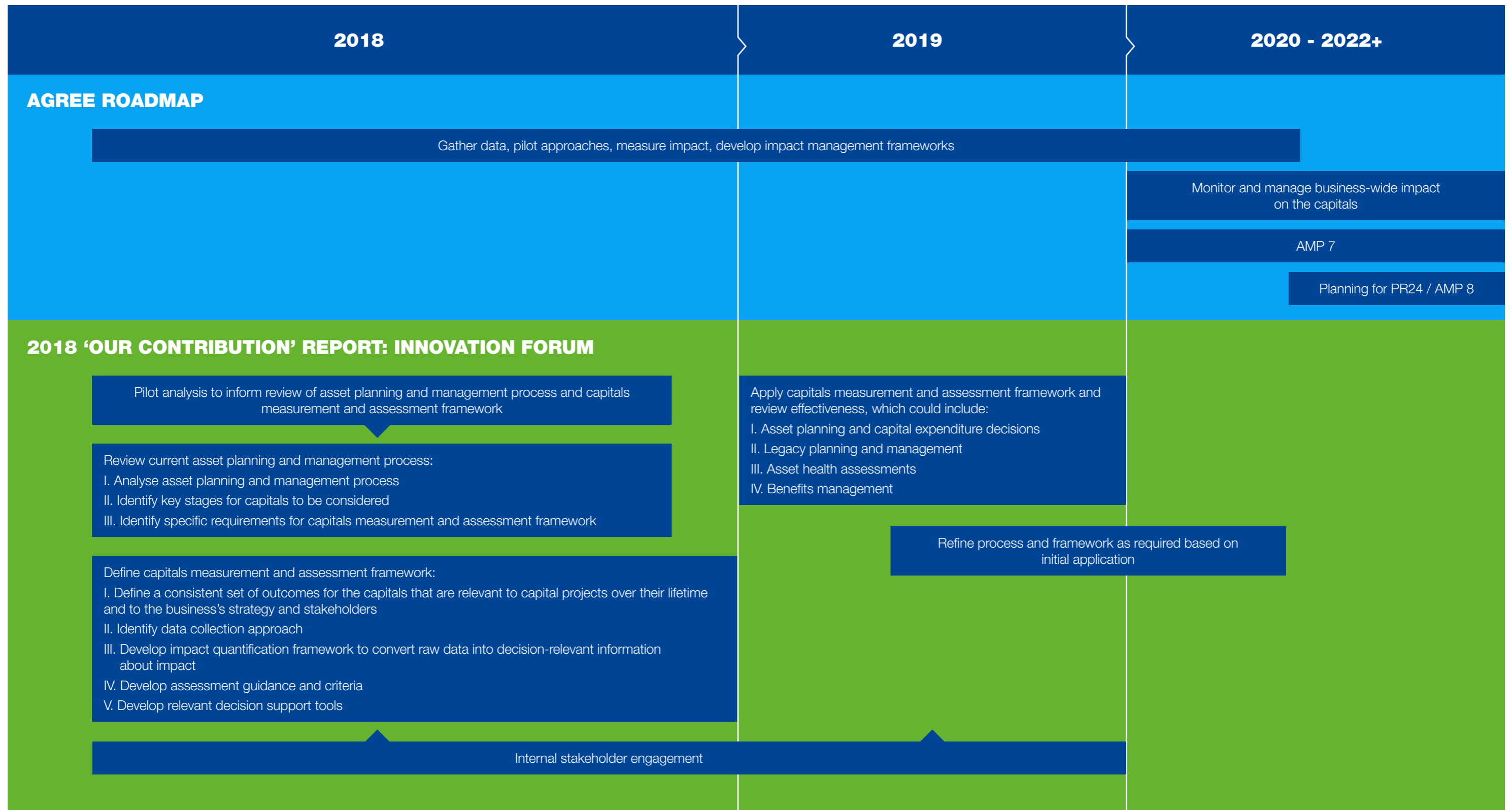
1 Find the best way of including the impact on the five capitals in the process we use to make decisions about our ‘capex’, which is the money we spend on buying, upgrading or maintaining our water and wastewater assets, such as pipes and treatment works. This will help us make well-rounded decisions.

2 Include new capitals-related data in our Management Information (MI) and Business Intelligence (BI) systems, so that we understand and can report on our progress.

3 Focus on external reporting of our progress and engage with stakeholders so they understand the five capitals journey we are on. This one is very much linked to, and reliant on, the other two.



INVESTMENT SPENDING (CAPITAL EXPENDITURE) DECISIONS

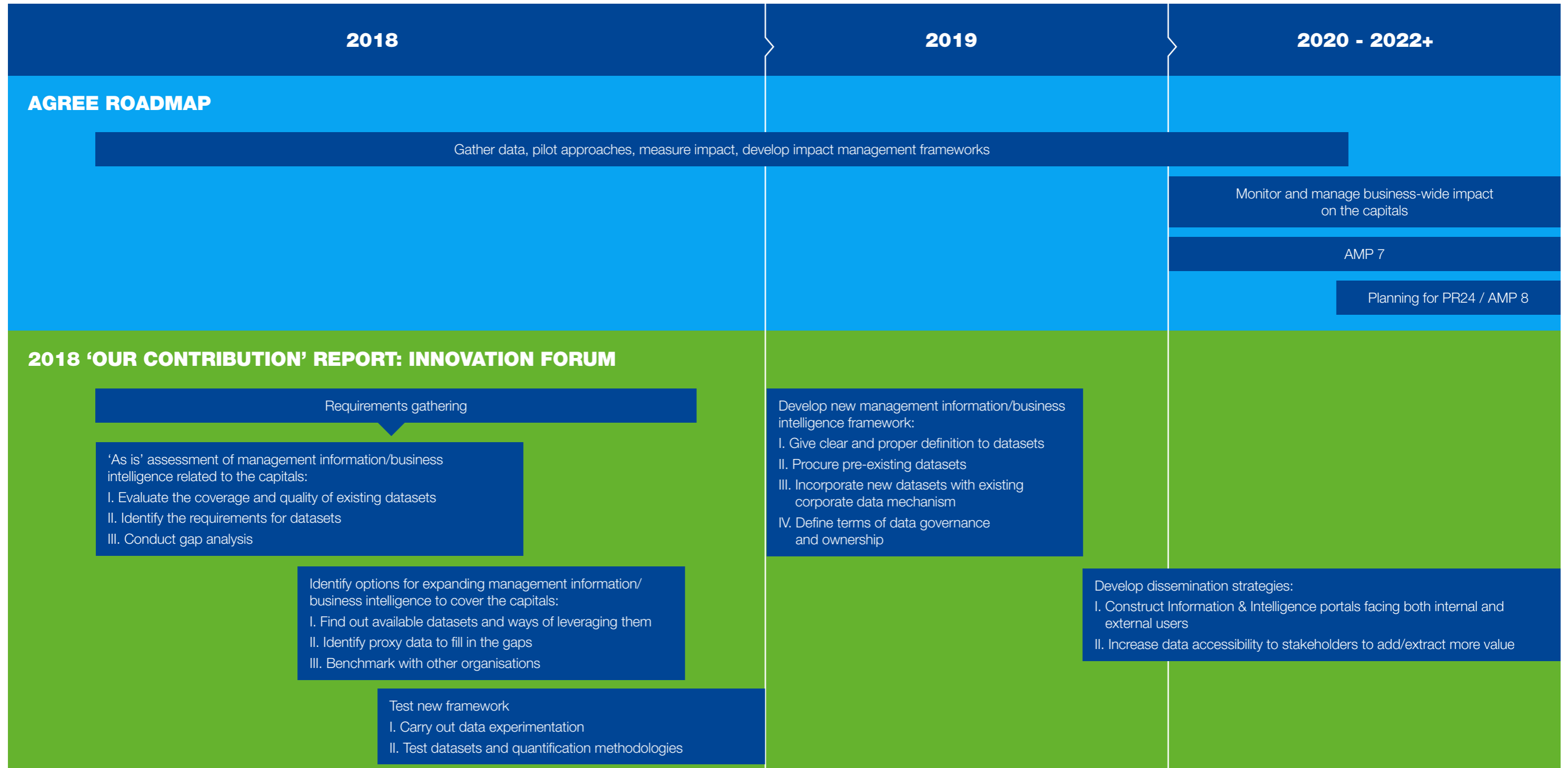


We already have a clearly defined process and framework for our teams to use when making decisions about our investment spending. Therefore, the first step we need to take during 2018 is to review this process and identify what needs to happen – from an activity, data and information point of view – so that in future we have a process that includes a consideration of our impact on all five capitals.

Having done this, we will agree how to collect the raw data that we need, and how to convert it into useful insights that will help us make decisions based on our impact. By the start of 2019 we will have a new process and framework to use – and as we start to use it, we will inevitably find ways to refine and improve it further.



DATA IN OUR MANAGEMENT INFORMATION AND BUSINESS INTELLIGENCE SYSTEMS

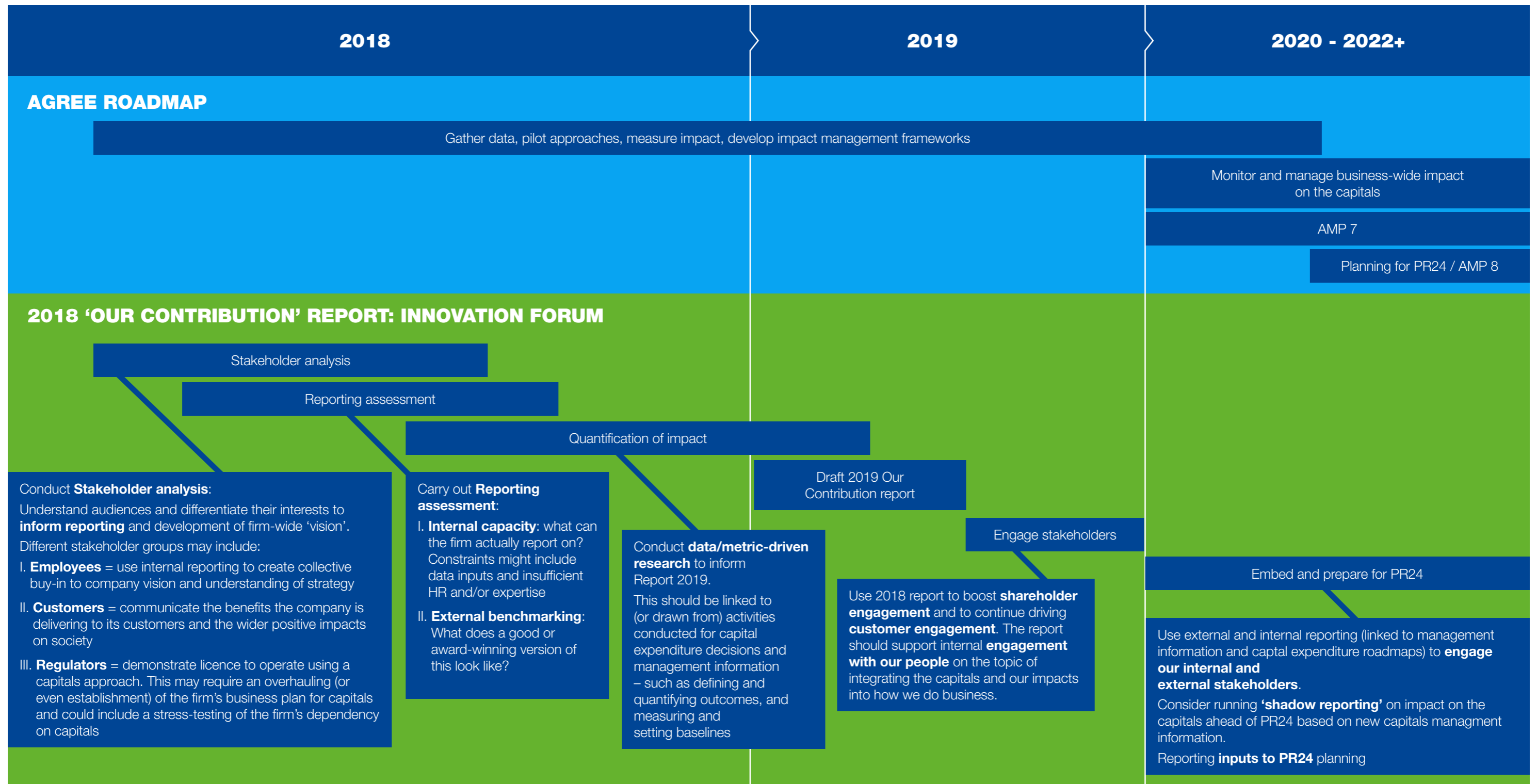


As with the investment spending decision-making process, described above, we need to take time in 2018 to understand the extent to which our management information and business intelligence systems already gather the data we need for taking a capital impact approach. There will be gaps in data, which we will have to find ways to fill and test before including them permanently. Beyond 2019, once the data is readily available on our systems, we will be able to share the relevant information from them with customers, employees and other stakeholders, as appropriate.

This data will enable us to both monitor the impact of our work on the capitals and enable us to improve the impact we make.



EXTERNAL REPORTING AND STAKEHOLDER ENGAGEMENT



We'll start by doing some research and analysis to understand our different audiences, what aspects of our capitals approach they are interested in, and how best to engage with them. We'll be speaking to our employees, our customers and our regulators.

In terms of what we'd like to achieve with each of these three audiences, our aims are:

- For all employees to understand and buy-in to what we're doing and the part they play in the journey that we are on.
- For our customers to get an insight into the benefits of our approach to them and wider society.
- For us to be able to demonstrate to our regulators our license to operate using a capitals approach.

Alongside this, we need to understand what we're actually able to report on at the moment, compared to what we and our audiences would like us to report on in future, and compared to what companies outside the water industry do when they produce a capitals report.

We'll look to close the gap between the two in readiness for our 2019 Our Contribution Report. We'll then be able to use the 2019 report itself to have conversations with all of our audiences.

In the longer term, as we look ahead to our next regulatory price-setting process 'Price Review 2024', or 'PR24', we'll look to integrate our capitals approach.



KEY DATA & CASE STUDIES

IN THIS SECTION WE PRESENT SOME OF THE STORIES WHICH BRING THE WORK WE DO TO LIFE, SUPPORTING DATA AND EXAMPLES OF HOW WE LOOK AT OUR IMPACTS ASSOCIATED WITH THESE AREAS. THIS REPRESENTS CRUCIAL INFORMATION THAT WE USE TO HELP MONITOR PERFORMANCE AND INFORM OUR DECISION MAKING.

We have brought this work to life by sharing case studies, which show some of our highlights over the last year and how important the capitals are to our success as a resilient thriving business.

The case studies also show how our activity and operations interact across multiple capitals and we have used the symbols shown below to explain which of the capitals we feel are represented in each case study.

OVERVIEW AND NEXT STEPS

In making the conscious decision to better understand, verify and incorporate our data on the natural capitals before seeking economic equivalence values, we made the choice to change our way of thinking, understanding and acting. This required careful consideration of our data, its accuracy, usefulness and the gaps.

This has demonstrated that we have considerable social capital impact, with high customer engagement levels and considerable impact in our community investment. On natural capital we have high quality data on areas such as greenhouse gas emissions and water

abstraction, but have gaps in understanding the positive elements of our effective offsetting of emissions from our land management and the value of our investment in conservation and ecology. On human and intellectual capital we have snapshots of excellent data but limited understanding of any long term impacts.

This report recognises the continuing journey which will allow us both to understand the impact we make across the capitals and how we can better use the capitals to inform our decision making. We will continue to work with our key stakeholders, experts in the field and our Water Forums to ensure we focus on the most important elements and learn from what others are doing. We will actively use our partnerships to deliver a positive impact on natural and social capital in our regions.

Our Innovation Festival proved a successful vehicle for considering the capitals in our everyday activities, as demonstrated by the case studies, and in our Innovation Festival 2018 we will be working with Durham University and the Water Hub to consider what nature can do for business and how to better engage people in the importance of that – putting the focus on natural capital in our business development.

SUCCESSSES AND PROGRESS

We have informative, useful and accurate data on our engagement with customers and how we try and provide the best service to them and help those who find themselves struggling.

We have great data on our community investment so what we really need to look at on the social capital is how we can pick out the most relevant parts of the data – what will really make us stop and think and make a difference in the way in which we operate. For example, on flooding we can easily report on the number of properties flooded; but not on the full impact of the work we are doing with partners to ensure we try and stop that flooding occurring again.

We know what our annual GHG emissions are and we are making annual improvements. We are really proud to be able to say that 100% of our sewage sludge is converted to biogas and then into renewable energy. We have great information on the impact of our work on bathing waters and other water courses; and the impact of our water efficiency programme – all of which demonstrate continued progress.

CHALLENGES AND FUTURE DEVELOPMENT

Looking at the dependency and impact areas that are key to NWG we have a mixed level of data currently available to report on. We do not as yet have quantified data across all of these areas that is sufficiently assured to give us the confidence to share it publicly.

Some of the really important areas for us to work on are how we can quantify the impact of the way in which we manage our water abstractions; how to fully understand the benefits of our change in approach to fleet management, whilst still recognising the negative impact from the fleet; we don't have a complete picture about the number of people visiting our sites and the benefits accrued from that; we know how many staff are engaged in training opportunities but what are the long-term outcomes from this?

We also must not forget the intrinsic value associated with our sites – those that are of international importance for their nature conservation value – we are talking with experts about how we can ensure this vital contribution is not lost in this process of trying to account for and value our impacts.

In all of these areas we have some of the data and some really good, verifiable data, but we do not believe it currently paints a truly holistic picture of what we do – this is a big challenge for us to make sure we really do focus in on the areas we know are the most important to us and our stakeholders.



UTILITY OF THE YEAR

UTILITY OF THE YEAR IN THE UTILITY WEEK AWARDS - ONE OF 25 AWARDS WON IN 2017/18



100%

OF SEWAGE SLUDGE TO BIOGAS AND THEN INTO



RENEWABLE ENERGY



2,074
WATER RANGER PATROLS

COMPLETED TO PROTECT OUR RIVERS UP 84%



203
MEGALITRES

PER DAY LEAKAGE DOWN 2.3% IN ESSEX & SUFFOLK, UP 2.5% IN NORTHUMBRIAN



2017 MOST TRUSTED

WATER COMPANY ACCORDING TO CUSTOMERS



100%
BATHING WATERS

REPRESENT SUFFICIENT STANDARD OR BETTER



GREENHOUSE GAS EMISSIONS

DOWN 12.9% TO 163.5KT CO₂



22
LOST TIME ACCIDENTS

IN 2017 UP 5 FROM 2016

£125,000

RAISED TO SUPPORT

WaterAid



2,939

REFERRALS

MADE FOR CUSTOMER DEBT SUPPORT DOWN 25%



OUR KEY DATA

AS DESCRIBED, THE NEXT STAGE OF OUR JOURNEY IS TO IMPROVE AND GATHER DATA THAT SHOWS THE SIZE OF THE IMPACT ON EACH OF THE PRIORITY AREAS WE IDENTIFIED, THEN REPORT OUR IMPACT EACH YEAR ALONG WITH OUR FINANCIAL RESULTS.

For some of these areas, we already gather and audit data and report our performance in our Annual Report. For others, we do gather data but it's not audited or reported on.

NWG KEY IMPACT & DEPENDENCY AREAS	AREAS FOR DATA DEVELOPMENT	AREAS OF REPORTED DATA	OUTCOME		ANALYSIS
			16/17	17/18	
NATURAL CAPITAL					
GHG emissions	GHG emissions	GHG emissions (kt CO2)	187.7	163.5	●
	% renewable energy used		To be developed		●
	% of sewage sludge to biogas and then into renewable energy	% of sewage sludge to biogas and then into renewable energy	100%	100%	●
Ecosystem services & land use	% engagement in target drinking water catchments		To be developed		●
	No. of Water Ranger patrols	No. patrols completed to help protect our rivers	1137	2074	●
Water & Sewage pollution	% bathing waters meeting sufficient standard or better	Bathing water quality compliance (no. of sufficient bathing waters)	100%	100%	●
	No. pollution incidents	Pollution incidents (category 3)	102	58	●
	Leakage MI/d	Leakage MI/d (Northumbrian Water)	133.82	137.1	●
		Leakage MI/d (Essex & Suffolk Water)	68.08	66.2	●
Flood attenuation	Flooded properties (internal)	Properties flooded internally	119	96	●
	Flooded properties (external)	Properties flooded externally	839	944	●
	Repeat sewer flooding	Repeat sewer flooding (in the last 10 years)	46	38	●
	Flooding reactive mitigation		To be developed		●



NWG KEY IMPACT & DEPENDENCY AREAS	AREAS FOR DATA DEVELOPMENT	AREAS OF REPORTED DATA	OUTCOME		ANALYSIS	
			16/17	17/18		
NATURAL CAPITAL						
Air pollution	Tonnes of CO2 not emitted due to AAD plants		To be developed		●	
Water resource management & use	Water saved / day via water efficiency programme	Households water saving MI/d	0.55	0.88	●	
	Annual investment in water efficiency	Amount invested in Water Efficiency Programmes (£ thousands)	1,607	1,424	●	
	% customers engaged with about water efficiency	Number of customers engaged	29,066	48,453	●	
Waste disposal	Sewage treatment plants waste sent to landfill	% of sewage sludge sent to landfill	0%	0%	●	
HUMAN & INTELLECTUAL CAPITAL						
Training, education and knowledge	Number of young people engaged in our employability programmes	No. young people supported through our employability activity	N/A For further development	>7,000	●	
	Number of Apprentices Employed	No. people sponsored on internships & sponsored apprenticeships	N/A	42	●	
		No. apprentices employed	N/A	41	●	
		Employees undertaking upskilling/development under apprenticeship standards	N/A For further development	>200	●	
		Number of post graduate research students supported	No. students sponsored	30	20	●
		% employees participated in Just an Hour	% people volunteering their time	53.2	52.4	●
Employee health and wellbeing	Number lost time accidents	Number lost time accidents	17	22	●	
	% proud to work here	Employee engagement survey participation (%)	71	80	●	
	% employee turnover	Employee retention (%)	89.18	91.48	●	

NWG KEY IMPACT & DEPENDENCY AREAS	AREAS FOR DATA DEVELOPMENT	AREAS OF REPORTED DATA	OUTCOME		ANALYSIS	
			16/17	17/18		
SOCIAL CAPITAL						
Customer engagement & wellbeing	% compliance with water quality	Overall drinking water quality compliance (%)	99.929	99.938	●	
	Number customers receiving support for debt management	Number of referrals made	3,918	2,939	●	
	Position in CC Water Trust Ratings	Position in CC Water Trust Ratings	1	1	●	
Traffic	Net promoter score	Net promoter score	46	44	●	
	E-commute project		To be developed		●	
Community investment	Amount spent with local contractors	Total amount spent by group with local contractors (£m)	175	175	●	
	Direct financial contribution to environmental, community & charitable NGOs	Direct financial contribution to environmental, community & charitable NGOs (£)	613,566	623,897	●	
	% Profits Donated	% Profits Donated/ Contributed to Community, Charities, Volunteering and Environmental Activities	1.22	1.26	●	
	Visits to Historical Sites	Visits to owned historical sites - the Museum of Power, Tees Cottage and Ryhope Engines Museum		23,512	26,459	●
		Visits to Ecological Sites	Visits to managed sites (Kielder Leisure)	408,000	426,000	●
Branch Out Donations	Visits to supported sites		93,200	100,700	●	
	Branch Out Donations	Branch Out Donations (£)	56,679	60,037	●	
	Branch Out Leverage	Matched funding leveraged by our Branch Out donations	x7.7	x5.9	●	
Community Foundation Donations	Amount donated through the community foundation		23,576	25,153	●	

ANALYSING OUR DATA

We have rated any area where we are developing clear, auditable and appropriate data as amber alongside new measures in Human & Intellectual Capital that cannot yet be fully analysed. Going forward these ratings will more accurately reflect the data and new measures that allow for better analysis will be introduced.

KEY

Unsatisfactory performance on this measure and more work is needed in this area. ●

Satisfactory performance but below our ambition - an area we will be focusing on. This could also mean that our measure does not provide the level of insight we want. ●

Good performance on this measure. ●



CASE STUDIES

WE HAVE INCLUDED A SERIES OF NEW CASE STUDIES IN THIS YEAR'S REPORT. HERE'S AN OVERVIEW OF THEM, AND WHICH CAPITALS THEY HAVE AN IMPACT ON – DEMONSTRATING HOW ONE PROJECT CAN IMPACT ON MANY CAPITALS. WHILST WE HAVE NOT SPECIFIED THE ROLE OF FINANCIAL CAPITAL WITHIN THE CASE STUDIES, IT WRAPS ROUND ALL OF OUR PROJECTS - ENABLING AND ENHANCING OUR INVESTMENT IN THE OTHER CAPITALS.

FINANCIAL CAPITAL

NATURAL CAPITAL

- British black bees
- Eels at Hanningfield
- PhD Research and Funding
- Rainwise
- North Morpeth sewer project
- Murton Gap solution
- Refill
- The moss tree
- Data to battle leakage
- Innovation Festival



HUMAN & INTELLECTUAL

- PhD Research and Funding
- Innovation Festival
- Alexa skills and Artificial Intelligence
- The moss tree
- Data to battle leakage
- Inclusivity awareness
- Powered by Water
- Innovation Festival
- Expanding skills through apprenticeships



MANUFACTURED CAPITAL

- North Morpeth sewer project
- Murton Gap solution
- Rainwise
- Refill
- The moss tree
- South Tyne sculpture trail
- Innovation Festival



SOCIAL CAPITAL

- Museum of Power
- South Tyne sculpture trail
- Powered by Water
- North Morpeth sewer project
- Murton Gap solution
- Inclusivity awareness
- Innovation Festival
- Refill
- The moss tree
- Data to battle leakage



BRITISH BLACK BEES AT ABBERTON RESERVOIR



WE HAVE WORKED IN PARTNERSHIP TO REINTRODUCE THE NATIVE BRITISH BLACK HONEY BEES TO ESSEX, WHICH WERE LONG THOUGHT TO BE EXTINCT. THIS EXCITING CONSERVATION PROJECT CONTRIBUTES TO OUR NATURAL CAPITAL BY IMPROVING BIODIVERSITY AROUND ABBERTON RESERVOIR IN ESSEX.

Recent DNA testing found that these bees had actually survived the disease that was thought to have wiped them out in 1922. In August 2017, we introduced three beehives and queen British black bees at the reservoir – as they produce more queens, we will give them to local beekeepers, who we will train so that more colonies are created and sustained. In the first year of this long-term project, we expect around 40-50 new queens to be established.

We'll measure success on the number of queen bees established from our Abberton hives, the number of new colonies established locally, and the number of local beekeepers we train.

The native bees are ideally suited to our climate – flying at lower temperatures makes them more successful than other species in foraging for food and mating. They're also ideal for this project, as they will help reduce the number of pests and pathogens imported into the UK honey bee population and other pollinators.

We're proud to be working with Essex Wildlife Trust, the Bee Improvement and Bee Breeders Association (BIBBA) and a local volunteer beekeeper. Over time, we want more groups and beekeepers to get involved so we can expand the initiative over a bigger and bigger area – a dedicated Facebook page 'essex4bees' has been set up to help with this.



“In the first year of this long-term project, we expect around 40-50 new queens to be established”



SOUTH TYNE SCULPTURE TRAIL



A MAJOR NEW 12KM WATER MAIN NOW RUNS ALONGSIDE THE STUNNING SOUTH TYNE NATURE TRAIL TO PROVIDE A SECURE FRESH WATER SUPPLY TO HOMES AND BUSINESSES IN TYNEDALE. WE HAVE PARTNERED WITH THE COMMUNITY OF LAMBTON, NORTHUMBERLAND, TO CREATE SOCIAL CAPITAL BY FINDING AN EYE-PLEASING ALTERNATIVE TO THE 16 CONCRETE VALVE MARKER POSTS THAT WERE NEEDED AS PART OF THIS WORK.

The idea that emerged from discussions with local residents was to create a series of sculptures that fit with the trail's environment. We asked acclaimed local artist and blacksmith, Graeme Hopper, to build 16 metal sculptures; and he involved children at Whitfield CofE School in designing them. He describes the sculptures that he's made at his County Durham workshop them as "deconstructed viaducts", inspired by nearby Lambley Viaduct.

Graeme enthused, "It was great to work with the kids at Whitfield and they had loads of ideas and great designs, which are now hanging in my workshop and inspiring the works. The 16 viaduct structures are inlaid with animals, plants, landmarks...all the imagery that they came up with when we met."

We will start installing the artwork in early summer 2018, along with plaques that describe each one, what inspired it and its history. They will then be available for everyone to enjoy as they use the trail. Headteacher Katherine Ayre is "delighted that our pupils have had the chance to work on this project that will enhance our community and become a source of pride for them and their families for generations".

“Pupils have had the chance to work on this project that will enhance our community and become a source of pride for them and their families for generations”



MUSEUM OF POWER



THE MUSEUM OF POWER IN LANGFORD, ESSEX, WELCOMES THOUSANDS OF VISITORS EACH YEAR AS WELL AS MANY OF OUR COLLEAGUES, WHO VOLUNTEER TO DO IMPROVEMENT WORKS THERE AS PART OF OUR 'JUST AN HOUR' SCHEME. WE ARE PROUD TO SUPPORT THIS VALUABLE ASSET FOR THE LOCAL COMMUNITY, WHICH CONTRIBUTES TO OUR SOCIAL CAPITAL.

The museum's setting is the 1920s Langford steam pumping station – now a Scheduled Ancient Monument. Its star exhibit is a 1931 steam engine called 'Marshall', the sole survivor of three engines that supplied most of Southend's drinking water until they were replaced in 1963 with three semi-automatic, electrically-operated versions. Marshall was returned to steam operation for the first time in 50 years in April 2011, thanks to the hard work of a dedicated team of volunteers. As a result, the Institution of Mechanical Engineers awarded the museum 'Engineering Heritage Listed Status' in 2013.

The original works, which were designed to provide a daily supply of seven million gallons of drinking water, were closed in the late-60s when new facilities were built on the same site. They then lay unused until 1996 when ESW, Maldon District Council and museum organisers collaborated and got the go-ahead for a visitor attraction.

Set in seven acres of grounds, with the River Blackwater running through, the museum is home to a fascinating array of power-related exhibits, as well as a model village and miniature railway. It hosts a number of special themed events throughout the year, as well as regular school visits.

Dick Waylen, Chairman of the Museum of Power said: "We are incredibly proud to welcome thousands of visitors to the Museum of Power every year, and we are grateful for the support from Essex & Suffolk Water which allows us to operate in such a fantastic location. It is wonderful to be able to bring our fascinating industrial heritage to life, and hopefully this will inspire generations for many years to come."

"It is wonderful to be able to bring our fascinating industrial heritage to life, and hopefully this will inspire generations for many years to come."



EXPANDING SKILLS THROUGH APPRENTICESHIPS



MORE THAN 200 OF EXISTING EMPLOYEES ARE FURTHERING THEIR CAREERS BY TAKING PART IN APPRENTICESHIP PROGRAMMES. ONCE CONSIDERED AN OPTION SOLELY FOR PEOPLE UNDER 25, APPRENTICESHIPS ARE INCREASINGLY USED FOR PEOPLE OF ALL AGES LOOKING TO EXPAND THEIR SKILLS OR RETRAIN.

Paul Walker, an area manager in Customer Field Services, is now studying towards a Chartered Management Degree Apprenticeship with Teesside University.

He said: "I'm passionate about professional development. I think it's crucial in your personal and business life, and the next natural progression for me was a degree, so the opportunity to achieve that through the apprenticeship route, where I work and study at the same time, is fantastic."

"Expanding my understanding of the theory of what I do and want to do in the future, while actually working, and also learning from the other students, who are applying the knowledge in different businesses, is a really great way to bring all that knowledge together and develop my skills."


200+
EMPLOYEES
IN APPRENTICESHIP PROGRAMMES



INCLUSIVITY AWARENESS TRAINING



OUR STRATEGY TO MAKE SURE WE PROVIDE A SERVICE THAT'S INCLUSIVE OF ALL OUR CUSTOMERS, REGARDLESS OF THEIR SITUATION OR MEANS, LOOKS AT

It's vital that our frontline teams understand that some customers are in situations that make them vulnerable, and that there are ways we can help them. Therefore, in 2017 we invested in an online training course for our frontline teams, building our human and intellectual capital to deliver an unrivalled experience for these customers.

Beforehand, we asked our people what they wanted to develop their understanding of – the most pressing were mental health, asylum seekers/refugees, those with poor English language skills, and the eligibility criteria and processes for benefits.

The course, which was developed by Money Advice Trust, builds awareness of vulnerability and its causes – which could be individual, situational or caused by the actions of a company. It covers how to identify and support vulnerable customers, including how to encourage and handle 'disclosure', i.e. the customer telling us about their situation. Many of our customers' situations are very complex, so handling this complexity was another important part of the training.

The course was appreciated by the 300 employees who completed it last year, and we're pleased with the results. We have definitely seen an increased awareness and understanding of customer vulnerabilities and have been able to point more customers in the direction of the bespoke services that we offer and that they need.

“We have definitely seen an increased awareness and understanding of customer vulnerabilities”



EELS AT HANNINGFIELD



THE EUROPEAN EEL, WHOSE LATIN NAME IS ANGUILLA ANGUILLA, IS A SPECIES UNDER THREAT AFTER A DRAMATIC DECLINE IN ITS POPULATION OVER THE PAST 25 YEARS. THEY MIGRATE FROM THE SARGASSO SEA, IN THE NORTH ATLANTIC, TO EUROPEAN RIVERS, WHERE THEY LIVE FOR UP TO 20 YEARS BEFORE RETURNING TO THE SAME SEA TO SPAWN.

Eel regulations, which came into force in January 2010 to recover eel stocks, have important implications on our natural capital – how we abstract and discharge water.

At our Hanningfield Reservoir we have supported a 4-year project, funded by Defra and delivered by Cefas, to study the behaviour of eels within large bodies of water. It is one part of a research programme to find an improved way of measuring the size of eel populations in England and Wales.

The other organisations that have been involved so far are the Environment Agency, Natural England and Essex Wildlife Trust. Together, so far we've been able to net, tag and then map the movements of 96 eels, which gives us detailed information about the parts of the reservoir where they're most commonly found and how they move around. The resulting research papers that are written will contribute to scientific knowledge in this important area.

Ultimately, the project's goal is to develop a model that can be used to effectively assess the size of eel stocks. It will also be invaluable in helping to improve the things we do to avoid eels getting trapped when entering or leaving our reservoirs, and when we abstract or discharge water.

“The project's goal is to develop a model that can be used to effectively assess the size of eel stocks. It will also be invaluable in helping to improve the things we do to avoid eels getting trapped.”



POWERED BY WATER



HELPING CHILDREN LEARN ABOUT THE IMPORTANCE OF DRINKING WATER, HYDRATION AND AVOIDING SUGARY DRINKS, IS AT THE HEART OF POWERED BY WATER, AND BOOSTS OUR SOCIAL CAPITAL BY CONTRIBUTING TO THE WELLBEING OF OUR FUTURE CUSTOMERS.

We deliver the programme through sporting partners who have their own school programmes in both our operating areas – we provide the materials (workbooks, t-shirts and water bottles) and our partners run the workshops in local schools. They integrate the workshop into their own activities, often adding a special twist to make it memorable, e.g. involving star basketball players, or bringing a recently won cricket trophy.

Powered by Water started in winter 2017 and will run for three years – 32,500 children will take part in the first year.

Sam Blake, Eagles Community Foundation CEO enthused, “working with Northumbrian Water has enabled our Hoops4Health programme to explain not only the direct benefits of hydration to our health but also how we must never take for granted that we have one of the best quality tap waters in the world!”

Christopher Drummond, Essex Cricket's Youth Participation and Growth Manager said: “The importance of drinking plenty of water and staying hydrated is something we make sure all our teams are aware of. That's why we're really pleased to be working alongside ESW to take that message out to young people as part of our work with schools across the county.”

Our thanks to these and our other partners: Sunderland Foundation of Light, Mowden Park Rugby Club, Middlesbrough FC Foundation, and Southend United Community and Educational Trust.

“Powered by Water started in winter 2017 and will run for three years – 32,500 children will take part in the first year”



PHD RESEARCH SUCCESS



A REWARDING ELEMENT OF OUR INVESTMENT IN THE ABBERTON RESERVOIR ENHANCEMENT SCHEME HAS BEEN OUR SPONSORSHIP OF COLLEAGUE KIM WALLIS, A CONSERVATION ADVISOR BASED IN ESSEX, TO COMPLETE HER PART-TIME PHD STUDIES. THE RESULTING HUMAN AND INTELLECTUAL CAPITAL WILL IMPROVE THE EFFECTIVENESS OF OUR FUTURE CONSERVATION PROJECTS, THEREBY GROWING OUR NATURAL CAPITAL TOO.

The thesis that Dr Wallis' successfully completed between 2011 and 2018 with Oxford Brookes University was entitled: 'The Effect of Construction Activity on SPA (Special Protected Area) Waterfowl: A Case Study of the Abberton Reservoir Enhancement Scheme.' She did this whilst also working as a member of our conservation team, who assisted with the project.

Her diligent work has provided new evidence about how sensitive the birds are to disturbances caused by construction work, and has given us a better understanding of what influences the extent of disturbance. She also demonstrated the success of measures we took to minimise the works' impact, which will be useful in future projects and in demonstrating best practice.

Kim's work didn't stop once she'd got her PhD – she has also presented elements of her research to the National Conference of the Chartered Institute of Ecology and Environmental Management. She is set to have other papers published in academic journals, which use parts of the thesis alongside other research that expands on its findings.

Dr Wallis said: “This experience has given me more confidence in my abilities, and my next goal is to become a Chartered Ecologist.”

“This experience has given me more confidence in my abilities, and my next goal is to become a Chartered Ecologist”



MURTON GAP SOLUTION



LOCAL RESIDENTS OF MURTON HAD SUBMITTED OBJECTIONS TO THE DEVELOPMENT OF 3,000 NEW HOMES IN THE SURROUNDING AREA, MURTON GAP, ON THE GROUNDS OF FLOOD RISK. INDEED, THE AREA HAS A HISTORY OF FLOODING, FROM DIFFERENT SOURCES INCLUDING TOO MUCH SURFACE WATER AFTER RAINFALL, AND THE SEWER NETWORK.

We used and increased our social and natural capitals to find a solution that local authorities, developers and the community were happy with.

We worked closely with North Tyneside Council, landowners and developers to find a suitable, sustainable surface water outlet for the site – one that reduces the risk of surface water and sewer flooding downstream, and reduces the amount of surface water that is unnecessarily treated at Howdon sewage works.

By being involved, the developers granted rights of access across land to lay underground pipes and even offered land that enabled us to reduce the flow of water above ground. Both could otherwise have been difficult to secure.

The Murton Gap project has demonstrated how the application of a collaborative approach to water management has secured a long-term, sustainable solution to flood risk management that would not have been achievable by the organisations involved working in isolation.

Active engagement with key stakeholders, together with excellent working relationships and mutual trust, presented the opportunity to identify a partnership solution that maximised the value of wider benefits associated with sustainable stewardship.

“The Murton Gap project has secured a long-term, sustainable solution to flood risk management that would not have been achievable by the organisations involved working in isolation.”



RAINWISE



OUR RAINWISE INITIATIVE REDUCES THE RISK OF CUSTOMERS' PROPERTIES BEING FLOODED, BY PREVENTING SURFACE WATER FROM ENTERING OUR SEWER NETWORK. IT CONTRIBUTES TO OUR NATURAL CAPITAL, BY USING SUSTAINABLE DRAINAGE SOLUTIONS (SUDS) TO MEET THE CHALLENGES OF HEAVIER RAINFALL AND A GROWING URBAN POPULATION.

SuDS are an alternative to building more engineering infrastructure – they include ponds, rainwater gardens and grassed areas that store surface water temporarily.

Rainwise is about using data from planning authorities and the Environment Agency to spot areas that have flooded or may flood in future; then working with the communities to explore the best solutions for them. As well as our physical installation schemes, we raise awareness among parish councils, schools and residents about how they can get involved in creating their own small-scale ones, e.g. installing water butts. This helps free-up capacity in the sewer network.

Rainwise combines with 'SuDS for Schools' – our educational programme that teaches young people about flooding, climate change and biodiversity. The rain gardens and planters we install at the schools can also be used by teachers as part of the curriculum.

We try to get as many other benefits as possible from each Rainwise scheme, including reducing pollution risk, improving biodiversity and wildlife habitats, and green spaces for health and wellbeing.

Rainwise started in 2015 and we've made big strides towards our goal of reducing flood risk for 7,200 properties by 2020 – over 4,000 properties so far, through £40m investment in schemes large and small, across the North-East, which have had customer participation at their heart.

“Rainwise started in 2015 and we've made big strides towards our goal of reducing flood risk for 7,200 properties by 2020 – over 4,000 properties so far”



NORTH MORPETH SEWER PROJECT



WE COLLABORATE TO MAKE SURE THAT WE PROVIDE THE 13,000 NEW HOMES BUILT EACH YEAR IN OUR OPERATING AREAS WITH THE SERVICES THEY NEED, WITHOUT AFFECTING OUR EXISTING CUSTOMERS.

We use and create social capital, by having early, proactive conversations with local planning authorities and developers; and we positively affect our natural capital by reducing our impact on the environment.

The £2.5m North Morpeth Strategic Sewer project is a great example. The two obvious options for serving new homes would have either had an environmental effect or increased flood risk in the town centre – instead, we worked with planners to design a long-term drainage master plan. This meant factoring-in future house-building plans, not simply the short-term ones.

The resulting strategic sewer follows the route of the town's new bypass and was built at the same time – which saved costs and minimised disruption for the local community.

Our approach avoided the need for extra private sewage treatment works for the new housing estates, which would have discharged an estimated 86,000 cubic metres of treated effluent to a small river.

Our work in Morpeth recently won the Royal Town Planning Institute North East Award for Planning Excellence.

Having recognised the positive impact of our approach, we created a Developer Services Team in 2017 who are working hard, across both our northern and southern regions, to get involved in 'Local Plans' so that we address customers' concerns and reduce the flood risk and environmental impact of new housing developments.



“Our work in Morpeth recently won the Royal Town Planning Institute North East Award for Planning Excellence”



INNOVATION FESTIVAL



OUR INNOVATION FESTIVAL LED TO SOME BREAKTHROUGH IDEAS, THANKS TO THE EFFORTS OF OVER 1,000 PEOPLE, WHO ATTENDED ON ONE OR MORE DAYS FROM 10-14 JULY 2017. REPRESENTING 140 ORGANISATIONS FROM AROUND THE WORLD, THEIR TASK WAS TO FIND NEW WAYS OF IMPROVING THE WAY WE USE SEVERAL OF THE CAPITALS – NATURAL, SOCIAL, HUMAN AND INTELLECTUAL, AND MANUFACTURED.

With six headline sponsors we set about exploring and creating new solutions to some of the biggest challenges we face. We invited major national and global companies, other businesses, universities, schools and members of the public to look at the issues with a fresh perspective.

For each challenge we ran a 'design sprint' – basically a very focused, time-limited way of going from problem to potential solutions. The six sprint themes were:

- 'Keep It Flowing': What do we know about leakage from water pipes and how can we fix it? We led this, alongside a Microsoft-led hackathon that resulted in the new 'data to battle leakage' approach.
- 'Preparing for the Future': How do we upgrade our infrastructure for the 21st Century effectively and affordably? Led by Reece Innovation
- 'Tomorrow's World': What will living and working look like in 2030? Led by CGI; the Alexa Skills project mentioned later in this report came out of this design sprint
- 'How Green is Your City?': What can businesses do to improve the environment in the North East? Led by Ordnance Survey; our Moss Tree project came out of this design sprint, as did our Refill initiative, both of which are detailed later in this report
- 'Rain, Hail or Shine': How can we reduce flooding? Led by IBM
- '21st Century Reach': How can we optimise a mobile workforce for a complex network business? Led by BT

It wasn't all work, work, work... These six key problems were tackled in a true festival environment that also featured live comedy and music, as well as inspirational talks.

1000+
PEOPLE
ATTENDED





ARTIFICIAL INTELLIGENCE/ ALEXA SKILLS



WE ARE TAKING STEPS INTO THE WORLD OF ARTIFICIAL INTELLIGENCE (AI) – BY THE END OF 2018, CUSTOMERS WILL BE ABLE TO INTERACT WITH US VIA AMAZON’S ALEXA THANKS TO AN INNOVATION FESTIVAL DESIGN SPRINT. THE PROJECT IS GROWING OUR HUMAN AND INTELLECTUAL CAPITAL, HELPING US UNDERSTAND AND DELIVER SERVICES IN A WAY THAT FITS WITH HOW PEOPLE WILL WANT TO LIVE AND WORK IN FUTURE.

Our investment in AI will allow customers to simply ask Alexa for information on their bills and meter readings, details of any supply issues in their area, and to even report issues with their water or sewerage services. We have started developing the first ‘skill’ (similar to an app) that Alexa will need for handling such requests. This could aid customers who need extra support as part of our wider inclusivity activity.

This is certainly just the start – as an increasing number of homes have AI at their heart, we will look to make further steps in using it as part of the customer experience.



REFILL



REFILL IS A NATIONAL INITIATIVE THAT GOT SIGNIFICANT MEDIA COVERAGE WHEN IT LAUNCHED IN JANUARY 2018. WE WANTED TO TAKE AN INDUSTRY-LEADING POSITION IN THE BATTLE TO REDUCE THE WASTE PRODUCED BY SINGLE-USE PLASTIC BOTTLES. THIS IS ONE OF THE WAYS WE’RE MAKING THE MOST OF OUR NATURAL CAPITAL.

The campaign started with a conversation with the not-for-profit organisation ‘City To Sea’ at our 2017 Innovation Festival about reducing the use of single-use plastics. There, we spotted that businesses in our regions wanted to take action to engage with their customers on solving this issue. Our Corporate Communications team took the lead in developing and launching the Refill campaign – a national network of high street retailers, coffee shops, businesses and local authorities offering new refill stations for the public to top-up their water bottles for free. We launched in Durham in November 2017 and are now rolling-out the campaign across all of our operating areas – we have more than 250 partners involved so far, and this number is growing rapidly.

Other water companies have followed our lead, joining forces in a water industry-wide approach that is taking the campaign national. The goal is for the network to extend to every major city and town in England by 2021.

People can use a smartphone app to find out where the nearest refill point is, or look out for special signs in shop windows. It’s estimated the scheme will cut plastic bottle use by tens of millions each year, as well as hugely increasing the ready availability of high quality drinking water.



**250
PARTNERS**



“Other water companies have followed our lead, joining forces in a water industry-wide approach that is taking the campaign national”



MOSS TREE



NEWCASTLE IS NOW HOME TO ENGLAND'S FIRST POLLUTION-BUSTING 'MOSS TREE', WHICH WILL PURIFY AIR IN THE CITY CENTRE AND CREATE OPPORTUNITIES FOR RESEARCH INTO THE BENEFITS OF THE PLANT'S NATURAL FILTERING ABILITIES.

The idea came about at the Innovation Festival, in the design sprint sponsored by Ordnance Survey. They are still involved in the project, which is contributing to a combination of human and intellectual capital and natural capital.

After the festival, we worked with Newcastle City Council to find a suitable place to build the 'tree' – a structure that is home to the moss. It includes a water system (mainly harvested rainwater) to provide it with the moisture it needs to survive; and built-in sensors that gather information on pollution including nitrogen oxide, nitrogen dioxide and carbon dioxide, as well as monitoring air humidity, temperature and rainfall.

Its location at the Haymarket, close to the city's bus interchange and busy main roads, is just right for the job it has to do. The way the moss purifies the air is by filtering certain pollutants – it binds them to its surface, cleverly and naturally making them a permanent part of its own biomass.

We'll openly share the data and results with universities and other bodies, which they will be able to use in their own research on tackling pollution. We'll also use the tree to promote the benefits of this nature-inspired technology to local authorities and other partners who might be interested in having their own tree.



DATA TO BATTLE LEAKAGE



WE ALREADY DO LOTS TO BATTLE WATER LEAKAGE IN ESSEX, BUT THERE IS MUCH TO DO TO RETURN LEVELS TO AT LEAST THEIR HISTORIC LOW OF ABOUT 57 MEGALITRES A DAY FROM THE 70 THEY ARE AT THE MOMENT.

Thanks to work that took place at the Innovation Festival, we are exploring an exciting way of using human and intellectual capital to improve our natural capital and efficiency.

The festival included a 'data hackathon' – 60 data scientists spent three days crunching 55GB of data from various sources, from existing information on leakage and ground structure to road traffic statistics and Second World War bombing records. They developed a new data-driven technique that we are now using to identify the places in Essex where we can get the largest reductions in water loss.

We are working with PA Consulting and ISpatial to use this ground-breaking approach for the water industry to tackle leakage, and to adapt it for other parts of the country too.

“60 data scientists spent three days crunching 55GB of data from various sources”



Northumbrian Water Limited
Northumbria House
Abbey Road
Pity Me
Durham
DH1 5FG

www.nwl.co.uk | www.eswater.co.uk | www.welivewater.co.uk

NORTHUMBRIAN
WATER *living water*

ESSEX & SUFFOLK
WATER *living water*