

# **DELIVERING THE DESIRED BENEFITS OF WATER REFORM THROUGH PROGRAMME MANAGEMENT**

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## **ABSTRACT**

Delivering health and wellbeing benefits to the community and the environment is the main objective of the Three Waters Reform Programme. Maintaining focus on these benefits amid the dual challenges of transition and transformation will be fundamental to the success of the reform and will underpin the Water Service Entities' (WSEs') ongoing social license to operate; the customer's willingness to pay will be directly linked to the perceived benefits being delivered by each WSE. Drawing on experience gained from providing programme management services to United Kingdom and Australian water companies, the authors will describe how programme management techniques can be adopted to optimise benefit realisation (including broader outcomes, secondary benefits, etc.) when operating in a regulatory compliance-focused environment. The paper compares the different approaches adopted by successful water companies, with a particular focus on the outcomes and benefits frameworks used in various international jurisdictions - including the United Nations Sustainability Goals Framework, and Six Capital Framework - with the Four Capitals approach that forms part of New Zealand's Living Standards Framework, to determine which approach is most likely to deliver on the objectives of water reform. The paper draws on the experience (successes and failures) of Scottish Water who recently converted to a Net Zero framework approach in favour of the prevailing United Nations Sustainability Goals Framework approach.

## **KEYWORDS**

**Programme management, regulation, benefits realisation, six capitals, Living Standards Framework, UN sustainability goals**

## **INTRODUCTION**

The Three Waters Reform (the "Reform") represents a generational opportunity to protect and enhance the lives of the citizens of New Zealand.

What is being proposed is both transformative and complex, therefore defining and establishing a consistent and transparent framework for agreeing and measuring the outcomes being delivered within each of the four new Water Service Entities (WSEs) is vital in sustaining public confidence through the reform process.

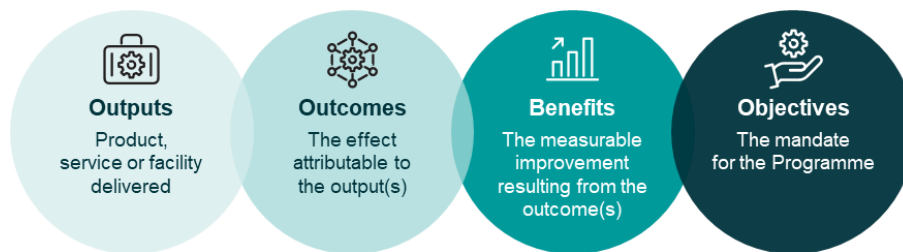
This paper focusses on the challenges and opportunities available from developing large complex capital investment programmes and how diverse benefits

frameworks have been successfully used in other jurisdictions to meet these challenges.

This paper also discusses the key building blocks in prioritising and developing evidence led capital programmes and how this enables the delivery strategy to innovate to deliver the benefits. For example, the inclusion of a modularisation strategy with reform represents a significant opportunity to not accelerate the health benefits but also maximise social and environmental outcomes.

## BACKGROUND

Programmes are predominantly focused on delivered benefits, where benefits are those improvements that align with strategic objectives. The success of any programme is therefore heavily dependent on understanding the logical link between initiatives (and the outputs they generate), the resulting outcomes, and how those outcomes deliver a measurable improvement (benefit) and to whom (beneficiaries) in alignment with objectives, as shown in Figure 1.



*Figure 1: Benefits Logic and Terminology:*

Delivering health and wellbeing benefits to the community and the environment are integral to meeting the objectives of the reform. There is potential for WSEs to materially shift the dial on these benefits, if they can focus investment in the right areas, operating at the system level with full awareness of how their investment decisions can improve the overall wealth of New Zealanders.

## SIX CAPITALS APPROACH

For many years now, mature water companies operating in established regulatory environments overseas have understood the importance of considering non-financial benefits in their investment decision-making and communicating their performance across a broad range of measures to their customers in terms of the benefits they deliver. Recently, there has been some consolidation around the Six Capitals Approach (Jane Gleeson-White, 2021), which seeks to "account" for benefits, expressed in monetary terms across six capital measures, one financial (Financial Capital) and five non-financial; Manufactured, Natural, Social, Human, and Intellectual Capitals.

A key feature of the six-capitals approach is that each capital (financial and non-financial) is expressed in monetary terms, allowing different impacts to be directly compared. This approach relies on accurate quantification of non-financial capitals to ensure that the comparisons are valid. Willingness to pay studies, avoided cost calculations, or even shadow prices, are common approaches to assign a monetary value to the non-financial capitals.

The six capitals approach has gained broad support in the UK, not least because it provides organisations with the ability to consider non-financial benefits, within a financial framework consistent with the UK Treasury Green Book, utilising existing tools such as cost benefit analysis to inform decision making once all capitals have been converted to a common currency.

## LIVING STANDARDS FRAMEWORK APPROACH

Aotearoa’s Living Standards Framework is ultimately a policy analysis and advice framework, used by Treasury to assess the impacts of policies on three levels; our individual and collective wellbeing; our institutions and governance; and the wealth of Aotearoa New Zealand

At level 3, there is close alignment between the Six Capitals and the Living Standards framework in terms of coverage (see Figure 2), however Treasury take a different approach to valuing non-financial benefits.

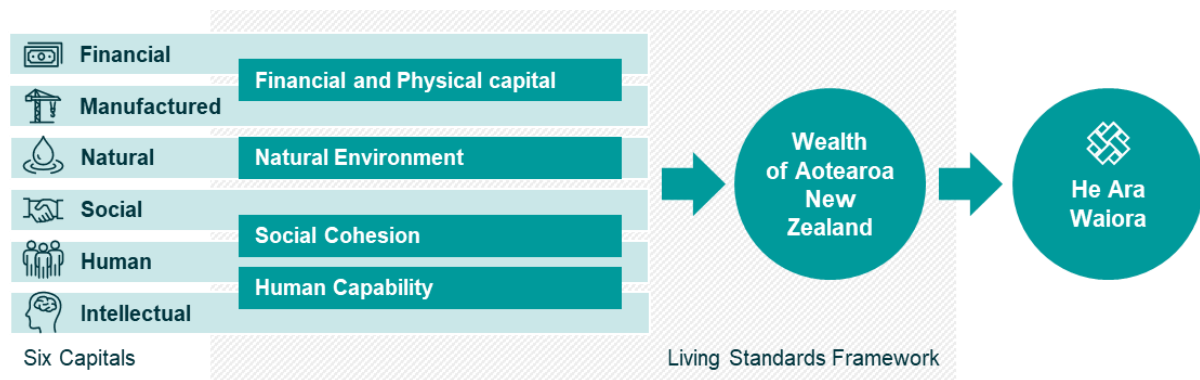


Figure 2: Six capitals and Living Standards Framework alignment

Previously expressed as the Four Capitals, level 3 of the framework provides an approach for valuing the wealth of Aotearoa New Zealand across four categories: the Natural Environment, Financial and Physical Capital, Human Capability, and Social Cohesion. Treasury recognise that although the non-financial categories contribute to economic production processes – and so can be at least partly measured by their market or shadow prices – “...we value these aspects of wealth for more than their contribution to economic production. As such their full value is not captured by their prices”.

So, how to incorporate these non-financial benefits in decision-making if it’s not possible (or not desirable) to convert them to a common currency? The approach involves adopting a programme management approach, supported by advanced benefits management techniques, to create an operating environment where decision-making can focus on benefit optimisation, informed by modelling to show the benefit impact of each initiative. The sections that follow will expand upon this approach.

## **GRASPING THE OPPORTUNITY PRESENTED BY THE THREE WATER REFORMS**

In our experience of delivering large public sector programmes, the majority are emergent programmes, characterised by retrofitting an organisation to a collection of initiatives that are already underway. Uniquely, the reform process represents an excellent opportunity for a genuine vision-led programme approach; where the programme is established early, and initiatives are identified and analysed based on their ability to contribute to a single set of programme benefits. Doing so will alleviate some of the complexity and noise associated with emergent programmes, which necessarily must attempt to reconcile initiatives, each with their own set of benefits (which can be conflicting), into a coherent programme. Stopping or pausing in-flight initiatives or accelerating others at cost, is a feature of emergent programmes.

Pursuing a vision-led programme approach must be the goal of the WSEs tasked with delivering on the objectives of reform. This approach will maximise the short-term positive impacts immediately beyond the transition date of the 1st of July 2024 (as the right current initiatives are prioritised) and will support improved efficiency over the medium to long term (as the right future initiatives are identified), which will be a key focus of the Economic Regulator. Other advantages include being able to clearly communicate with customers on the improvements that matter to them and aligning the workforce behind a common purpose.

The other opportunity provided by the reform is consistency. Providing the WSEs with a common purpose will be a key part of the entity establishment process. Our assumption is that letters of expectation, outlining a common approach to measuring performance will be an output of the transition process. The extent to which these letters specify strategic objectives and benefits for the WSEs to align with will determine the level of consistency across the sector post transition. The Water Industry Commission for Scotland (WICS) for example, in 2006, directed Scottish Water by introducing Overall Performance Assessment (OPA); a points-based system to monitor the level of service that Scottish Water provides to its customers. This enabled them to measure the service they provided to their customers and gauge how they were performing as a business in comparison to other UK water companies in England & Wales who first introduced the measure in 1999. The initial set of 12 indicators supported a target setting mechanism and by 2010 this expanded to 17 indicators moved more to a benchmarking comparison, although targets are still set on it.

Overtly aligning these objectives with the Wealth categories of the Living Standards Framework and expressing the desired benefits using language consistent with the measures underpinning the Living Standards Framework dashboard, would embed the Living Standards Framework as the strategic North Star for delivering against the intent of the reform.

Given the ever-improving alignment between the Living Standards Framework and He Ara Waiora and the common foundation shared by He Ara Waiora and Te Mana o te Wai, adopting the Living Standards Framework as the strategic North Star during transition and transformation (and as the performance framework post-establishment of the economic regulator) would represent a more mature, sensitive approach compared with the prevailing Six Capitals approach.

# METHODOLOGY: ESTABLISHING THE BENEFITS FRAMEWORK ALIGNED WITH THE LIVING STANDARDS FRAMEWORK

## Benefit Management Phases

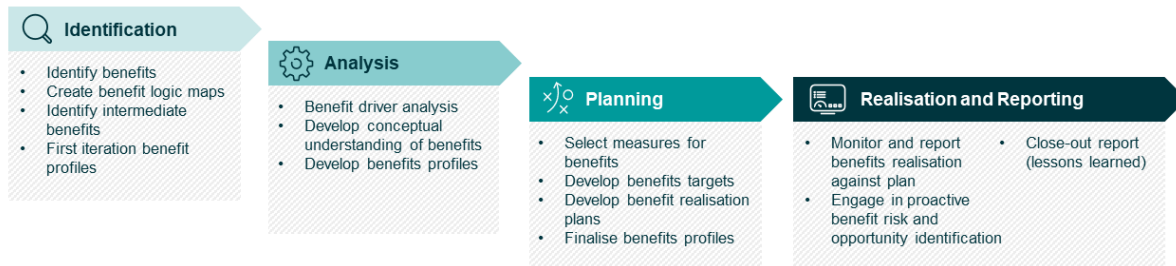


Figure 3: Benefits Lifecycle

## BENEFIT IDENTIFICATION

Benefits Identification is focused on identifying and defining the benefits of the programme(s) and owner(s). In a programme environment the process involves identifying a discrete number of benefits that contribute to one or more objectives. It may be necessary to distinguish end benefits from intermediate benefits at this point; intermediate benefits have a shorter realisation time horizon and are therefore useful for demonstrating progress against the end benefits, and as result are useful for managing stakeholder expectations.

## BENEFIT LOGIC MAPPING

Benefit logic mapping is a tool for understanding the logical connection between project outputs and the fulfilment of strategic objectives. Benefit logic maps serve as a useful communication tool for understanding the investment rationale of the programme and its projects.

In the early stages of Programme Identification, the Benefit Logic Map will address only the Objectives and the Benefits (i.e., the right-hand side), as it is too early to identify initiatives or projects (that generate outputs and outcomes). The Programme Definition process will identify candidate initiatives/ projects that will be assessed based on their contribution to the programme benefits.

Once complete the fully populated benefit logic maps can be used to understand project attribution to benefits. Weightings can be applied for use in benefit realisation planning. Benefit logic maps also provide a framework for evaluating project change requests against benefits and strategic objectives.

Benefit Logic Maps are important because benefits do not typically happen in isolation, and there are cause and effect relationships between programme elements. Failure to deliver a specific output may appear to have a minor effect from the project perspective but have a massive impact on benefits realisation. A rigorous approach to benefit logic mapping is required to ensure benefits are traceable to project outputs and that the logic is robust.

Ultimately, successful benefit realisation depends on understanding the logical link between the intervention (if operational), the assets that are being created (if capital), and the strategic objectives that they support, and understanding the factors that may influence each benefit.

Articulating the logic link between outputs, outcomes, benefits, and objectives in a visual form will support stakeholder engagement and expedite internal approvals. The resulting Benefit Logic Map will inform Benefit Value/Driver Analysis and support production of the draft Benefit Profiles at the Benefit Analysis phase and finalisation of the same at the Benefit Planning phase.

## **BENEFIT PROFILES**

A Benefit Profile is a document that captures key information to be used throughout the benefit management process. Draft benefit profiles are created at benefit identification stage and are refined and finalised at the end of the benefit planning stage. The final Benefit Profiles should contain:

- The full benefit description
- Measures (primary, secondary, tertiary)
- Current state (baseline) and target for each measure
- Data sources for each measure
- Frequency of reporting
- Roles & responsibilities for benefit delivery and benefit reporting
- Risks & Dependencies

A Benefit Profile describes a single benefit or dis-benefit, with its attributes and interdependencies and supports the building of a detailed benefits realisation plan.

## **BENEFIT ANALYSIS**

Benefit Analysis involves quantifying the scale of benefits, assessing attribution, and proving that identified measurements will work and are appropriate.

## **BENEFIT DRIVER ANALYSIS**

Value/driver logic mapping is the recommended method for determining benefit attribution. Mapping benefit drivers identifies the key factors that increase or decrease a benefit, using logic trees. The process of benefit value/driver mapping:

- Enables a clear definition of the benefit and its scope to be developed
- Provides clear and on-going traceability of benefit logic
- Assists in the identification of potential lead and lag benefit measures
- Identifies extraneous influences on benefits for benefit realisation monitoring and reporting.

Figure 4 represents an example Value/Driver logic map for a notional 'Improved Watercourse Quality' benefit.

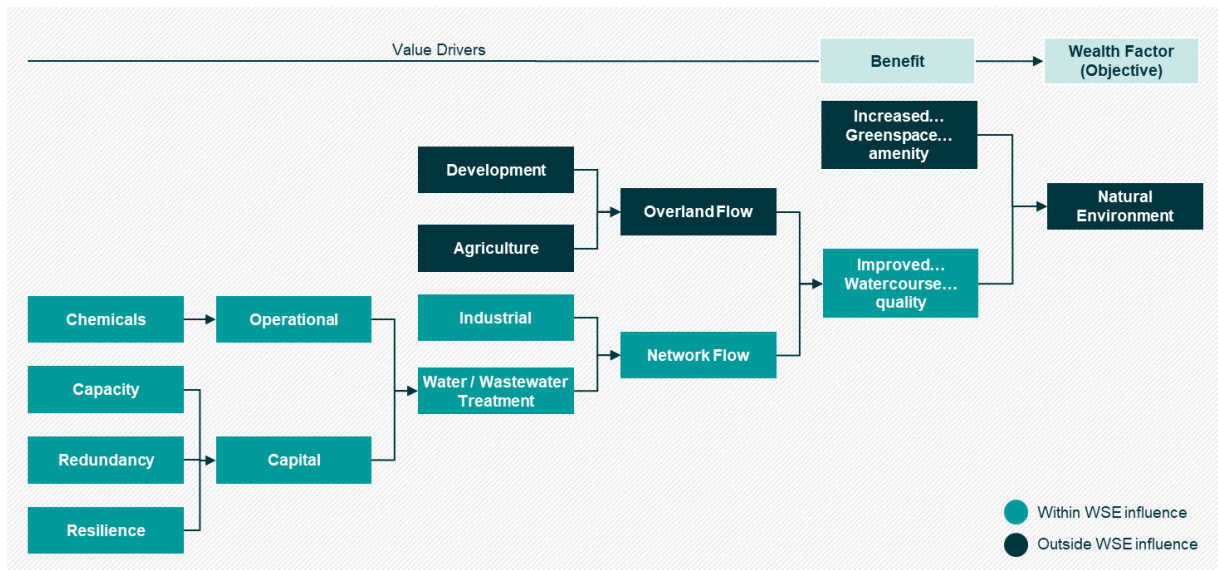


Figure 4: Value Driver Analysis (Natural Environment)

## BENEFITS PLANNING

Benefits planning involves scheduling when the benefits will be realised, by whom, and how they will be measured. The Benefit Realisation Plan provides a complete view of all the benefits, their dependencies and the expected realisation timescales and is derived from the benefits map and benefit profiles.

The Benefit Realisation Plan should be generated from the master programme schedule and key assumptions. It is used to track benefits realisation across the programme and set review controls. The Benefit Realisation Plan should,

- Define what benefits are expected to be delivered
- Identify actions required throughout the benefit realisation phase
- Demonstrate strategic alignment, particularly with the stakeholder engagement strategy
- Identify benefit reviews to formally assess the realisation of benefits
- Identify the key project milestones that drive benefit realisation.

While most benefits will not be fully realised until beyond project closure, the Benefits Realisation Plan is prepared in advance to ensure that:

- All project participants have a clear and consistent understanding of the benefits being delivered by the project and the underlying reason for the investment
- Each water company and its key stakeholders have a common understanding of expected benefits delivered by the project and the programme

In a programme environment only one Benefit Realisation Plan would be necessary for the entire programme.

## **REALISATION AND REPORTING**

Benefit realisation is typically linked to project completion, when the outputs delivered by the project are transitioned into outcomes. However, one of the key areas of focus during delivery is the measurement and reporting of benefits; without regular measurement and reporting the realisation of benefits cannot be managed

It's important to note that benefits realisation and reporting begins early in execution and continues well beyond completion of the programme; ongoing benefit monitoring and reporting post practical completion is recommended as most benefits will not be fully realised until well beyond programme closure. The reporting of benefits through execution ensures that project investment decision-making considers impacts on programme benefits. The monitoring and reporting of benefits enable proactive benefits management to occur.

Benefit monitoring and reporting:

- Establishes performance by tracking benefit realisation against the benefit realisation plan
- Informs benefit risk and issues management
- Identifies opportunities for enhancing and optimising benefits
- Assists with identifying lessons learned (ensuring any lessons are actively incorporated in benefits realisation and as inputs to future benefits analysis to increase accuracy).

The ultimate goal of benefit monitoring and reporting is to provide assurance to the WSEs that the programme is on track to deliver the benefits desired by the reform. Achieving this desired level of maturity and sophistication will take some time and investment, but the resulting strategic alignment across the WSEs will support the establishment of something that;

- Provides ongoing clarity of purpose for the providers of 3-Waters services
- Creates trust in the reform
- Ensures that investments in health and social benefits are targeted and impactful
- Can be recognised by others as a leading approach, with respect to improving the wealth of New Zealanders

## **BUILDING THE CAPITAL PROGRAMME**

Building an evidence-led capital programme where the benefits framework is clearly defined is one of the key outputs from the WSEs' business planning process. The process covers development of long-term investment projections, a review of charges, development of key stakeholder and regulatory objectives for the shorter term.

An evidence-led capital programme is required to identify all the investment that will deliver asset improvement; this approach blends low cost, high value operational interventions alongside capital investment. Simultaneously, the programme identifies improvements in asset intelligence which will allow robust decisions to prioritise future investment in subsequent plans. The capital



programme is developed to deliver strategic projections covering long-term plans for delivering services to customers over an extended period, for example Scottish Water builds its plans over a 25-year horizon. Figure 5 shows how their investment supports key areas of customer expectations.



*Figure 5: Scottish Water business planning objectives based on customer expectations*

In building an evidence-led capital programme, it's vital for the WSEs to work closely with customers, moving away from traditional bilateral agreements with key stakeholders, which often lead to competing demands and short-term improvements in quality. By changing the approach towards multi-lateral agreements, the WSE, Regulator, and customer groups all work together to achieve the shared vision. This helps WSEs and stakeholders in understanding the required investment needs and priorities, ensuring they are robust and supported by customer research and other joint studies and investigations.

## **CUSTOMER ENGAGEMENT**

Scottish Water sought to improve their understanding of what constitute a benefit to their customers by conducting a detailed customer research programme. By involving customer targeted activities, speaking with customers to find out what they think, listening to their views and building these into its plans, customers' relative priorities for further service improvements were identified and the findings were used to priorities investment at the planning stage, to better align with their customer's priorities (see Figure 6).

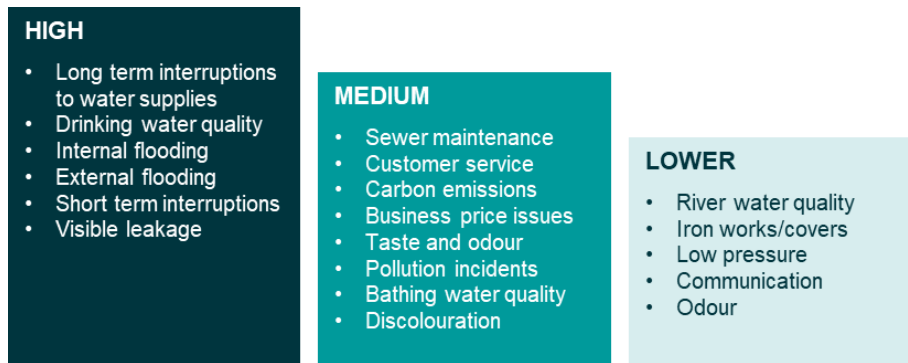


Figure 6: Scottish Water customers' priorities

## EXECUTION STRATEGIES

Once there is agreement on a strategic vision and customer priorities, WSEs can begin to effectively identify the interventions and the delivery approach required by the supply chain in order to achieve the benefits and outcomes identified through the Investment planning and prioritisation process. The creation of execution strategies enables evidence-led promotion of investment needs, moving from an output-based contract to a scope-based contract. This process is part of the evolution of capital programmes and the continual improvement culture of delivering efficiently for customers through having increased control of scope and service risk. For example, Scottish Water and their Alliance Partners have designed new ways of working which result in a reduction of overall cost from Start on Site by 30% and getting to site an average of 50% quicker. Improvements have been made by analysing the way teams work together (e.g., fully integrated teams, streamlined practices) as well as how the projects are managed (e.g., starting critical tasks earlier, refinement of deliverables required and a revised governance gateway approach).

Standardised 'execution strategies' have been developed which replace 'one size fits all' project delivery with defined governance routes, deliverables, processes and resource plans appropriate to the scale and complexity of the projects.

The Execution Strategies are categorised as follows:

- Conveyor Belt – low complexity repeatable projects needing only light touch governance
- Assembly Line – mid complexity and cost projects (see Figure 7)
- Factory – complex, high cost (\$10 - \$40 million plus) projects,

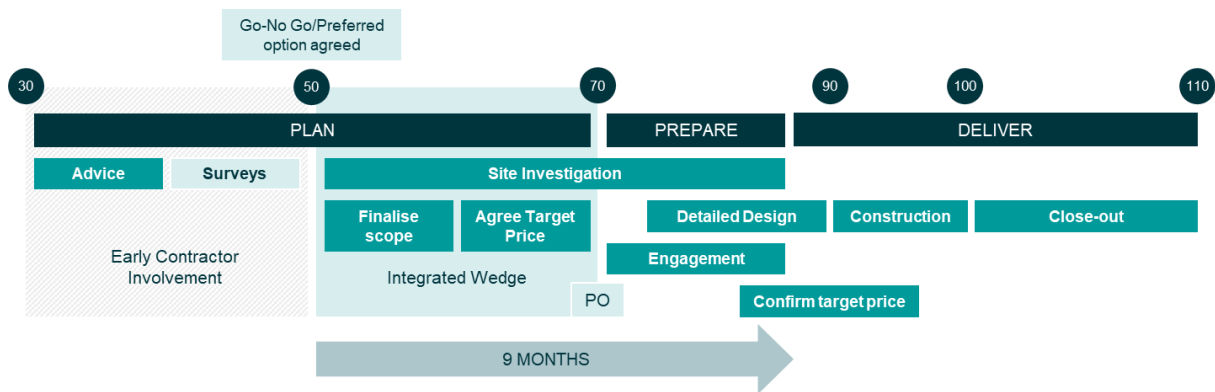


Figure 7: Scottish Water Project Lifecycle

## SUSTAINABILITY APPROACH

WSEs have an important role to play in reducing the global warming emissions generated by a large capital programme. To demonstrate this, water companies are commonly aligned to the UN Sustainability Goals Framework and use the Six Capitals Framework to determine which approach is most likely to deliver on the objectives of Net Zero Emissions. However, annual reports mainly highlight operational carbon emissions associated with the delivery of water and wastewater services (Scope 1 and 2) and rarely include emissions resulting from the capital programme (Scope 3).

'Investment Emissions' is the term used for the emissions embodied within the products and materials procured by the WSE. (These are also known as 'embodied' or 'capital' carbon.) Although they originate within the supply chain, it is demand for those products and materials that drives their associated emissions. Strong relationships, across the supply chain, are vital to identify opportunities to reduce these emissions. Establishing a baseline is a useful starting point. The baseline can be used to develop future targets and serve as a reference against which performance can be measured, both at the individual project level and of the capital programme as a whole. In planning the capital programme, having a reliable baseline enables the WSE to understand the major sources of carbon emissions across the materials and activities that it deploys. This enables the WSE to focus effort more effectively and have evidence to support its' journey to net zero emissions. For example, Scottish Water achieved this by using a Capital Carbon Accounting Tool to gather detailed emissions data and for a water abstraction pipeline at Loch Ness they estimated an embodied carbon emissions of eight tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) in the initial design of the project. They challenged their integrated delivery team to investigate low-carbon solutions, and the final design calculated embodied carbon emissions of just one tCO<sub>2</sub>e. Van Winden and Window (2021) developed a similar approach specifically for assessment of carbon footprints from pipe materials choices for municipal water projects.

Good emissions data can be made available for most elements, such as pipelines, concrete tanks, excavations, tunnelling etc., but can be more challenging for many mechanical or electrical items, such as the pumps, screens and switchboards used routinely within capital projects. In the longer term, WSEs need to focus on the wider supply chain to enable them to quantify this more reliably. Other

opportunities to reduce emission comes from the development of Standard Products which support off-site Design for Manufacture & Assembly (DfMA) for programme efficiencies. Standards Products increase the confidence, quality and reliability in product delivered, contributing to improved quality, compliance, and first-time acceptance. A focus on standard product development supports the achievement of net zero emissions targets, as these products are often of smaller footprint, used within a brown-field environment and adopt low-carbon technologies. This drives genuine whole-of-life cost decisions and sometimes traditional capital interventions but also a mix of both.

## **EFFICIENCY**

All water companies need to make the best use of their existing assets, improving capability through optimisation and operational improvement wherever possible. Good practice involves embracing the principle of cost-effective decision-making, ensuring that decisions are made on the basis of whole-of-life cost efficiency rather than being driven by capital or operational cost efficiency. In building their current capital investment programme, Water companies in the UK recognise the basis used for comparison of relative capital efficiency against other water companies is limited because the approach uses idealised projects, and it is no longer consistently updated. Instead, water companies now apply the concept of an 'Efficiency Frontier' project to understand the practices and behaviours that influence cost. This has resulted in a focus on both effective investment decision making processes and efficient delivery arrangements. Taking this approach can lead to significant efficiency improvements in operating costs and benchmarking shows that the opportunities for on-going improvement in this area are smaller than they have been in the past.

## **CONCLUSION**

Delivering health and wellbeing benefits to the community and the environment is the main objective of the reform programme. Maintaining focus on these benefits amid the dual challenges of transition and transformation will be fundamental to the success of the reform and will underpin the WSEs ongoing social license to operate.

As we've seen, successful water companies in the UK have adopted optimised benefit realisation (including broader outcomes, secondary benefits, etc) when operating in a regulatory compliance-focused environment with a particular focus on the outcomes and benefits frameworks - including the UN Sustainability Goals Framework, and Six Capital Framework.

Uniquely, the reform process represents a golden opportunity for a genuine vision-led programme approach; where the programme is established early, and initiatives are identified and analysed based on their ability to contribute to a single set of programme benefits. Doing so will alleviate some of the complexity and noise associated with emergent programmes, which necessarily must attempt to reconcile initiatives, each with their own set of benefits (which can be conflicting), into a coherent programme. Stopping or pausing in-flight initiatives or accelerating others at cost, is a feature of emergent programmes.

Building an evidence-led capital programme where the benefits framework is clearly defined is one of the key outputs from the WES's business planning process. The process covers development of long-term investment projections, a review of charges, development of key stakeholder and regulatory objectives for the shorter term.

An evidence-led capital programme is required to identify all the investment that will deliver asset improvement; this approach blends low cost, high value operational interventions alongside capital investment. Simultaneously, the programme identifies improvements in asset intelligence which will allow robust decisions to be taken for future investment priorities in subsequent plans.

In building an evidence-led capital programme, it's vital for the WSEs to work closely with customers, moving away from traditional bilateral agreements with key stakeholders, which often lead to competing demands and short-term improvements in quality. By changing the approach towards multi-lateral agreements, the Water Entity, Regulator, and customer groups all work together to achieve the shared vision.

From a sustainability perspective, establishing an 'investment emissions' baseline is a useful starting point, from which future sustainability targets can be developed and performance can be measured, both at the individual project level and of the capital programme as a whole. In planning the capital programme, having a reliable baseline enables the WSE to understand the major sources of carbon emissions across the materials and activities that it deploys. This enables the WSE to focus effort more effectively and have evidence to support its journey to net zero emissions.

WSEs need to make best use of its existing assets, improving capability through optimisation and operational improvement wherever possible. WSEs that embrace the principle of cost-effective decision-making, will ensure decisions are made on the basis of whole life cost efficiency rather than being driven by capital or operational cost efficiency.

It has been shown by experience in the UK that taking this approach can lead to significant efficiency improvements in operating costs and benchmarking shows that the opportunities for on-going improvement in this area.

## **REFERENCES**

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