



Advancing the urban water sector

A framework and roadmap for coordinated action

Public report prepared for the Urban Water Reform Committee

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About this report

This work was commissioned by the Urban Water Reform Committee (UWRC) to investigate priorities and actions to advance the urban water sector through coordinated actions and efforts. The report was developed by Aither and involved extensive consultation with UWRC members, as well as other sector stakeholders.

Since the report was first delivered in 2019, the National Water Reform Committee (NWRC) endorsed the proposed principles and framework, and work has been undertaken in support of identified priorities and actions. This is a public version of the report delivered in 2019. It has been edited to remove personal and sensitive information, and to improve readability for publication.

1. Introduction

This section introduces the report and the case for action in the urban water sector, as a way of providing context for the priorities and actions identified.

1.1. Project context and overview

The Productivity Commission's triennial assessment of the National Water Initiative (NWI) was released in 2017. It made the overarching conclusion that the Commonwealth, state and territory governments should recommit to a renewed NWI through the Council of Australian Governments (COAG) by 2020.

In response, the National Water Reform Committee (NWRC) established an NWI Renewal Pathway Group. Consistent with the Productivity Commission's assessment, urban water management was identified as a priority, and subsequent work has progressed through the Urban Water Reform Committee¹ (UWRC) in response.

In March 2019, the NWRC agreed terms of reference for a consultancy to develop options for progressing urban water reform. Aither was engaged to deliver this task with the scope to: consult widely with governments, regulators and utilities; and identify specific priorities and actions for improving the urban water sector, for consideration by the UWRC and NWRC.

This report proposes a framework, priorities and actions for advancing the urban water sector through national collaboration and coordination. The report reflects the feedback provided by the UWRC, with changes made to priorities and actions, and further guidance on the approach to implementation.

The purpose of this project is not to recap previous studies, provide detailed analysis on specific issues, or catalogue each stakeholder consultation and viewpoint. Rather, the purpose of this report is to cut through existing analysis, collate and reflect contemporary views and issues, and propose a way forward that is pragmatic and reflects the interests and needs of stakeholders. The extensive stakeholder consultation process and existing reports, including the Productivity Commission's triennial assessment, form the evidence base for this report and have been referenced throughout.

The priorities and actions proposed in this document complement existing national reform commitments made through the NWI, and are in no way intended to supersede or replace existing reform commitments.

1.2. Why advancing the urban water sector is important

Australia is committed under Sustainable Development Goal 6 to ensuring the availability and sustainable management of water and sanitation for all. Safe, affordable and reliable urban water

¹ The UWRC is a sub-committee of the NWRC.

services underpin health and wellbeing, economic productivity, and liveability in metropolitan centres, cities and towns across the country.

In the driest inhabited continent in the world, the Australian urban water sector has evolved to provide high quality, affordable and reliable water, wastewater and stormwater services to over 20 million customers each day (IA 2017a). Foresight and commitment to ambitious reforms have laid the foundations for a largely effective and responsive urban water sector based on the structural separation of policy, service delivery, and regulatory roles, with (mainly) corporatised utilities held to account by regulators.

However, ongoing and emerging challenges demand attention to ensure water security and advance the urban water sector. Climate change will increasingly alter urban environments, including through reduced inflows, higher temperatures, and increased flood risks. Growing urban populations will continue to increase demand for water and wastewater services in metropolitan areas, while many regional and remote communities continue to experience service delivery challenges. As stated in the Productivity Commission's triennial assessment:

'Given the challenges of population growth and the impact of climate change there is a need to ramp up reform in urban water management to ensure the demands of Australia's growing cities can be met efficiently and that water services remain affordable' (PC 2017; p.175).

Urban water infrastructure assets in Australia have an estimated value of \$170 billion, with \$4.5 billion invested in capital expenditure in 2017-18 and the investment need is likely to grow into the future (BoM 2019). Given this, even modest increases in the prudence and efficiency of investments and delivery of services can equate to significant benefits and improvements to customers, communities and the Australian economy.

The role and value of urban water as both an essential service, and also as natural capital that shapes cities and communities and contributes to quality of life, is becoming better understood. Customers increasingly expect high quality and affordable services that also contribute to liveability, health and environmental outcomes. This creates new challenges and raises questions about the evolving role and function of water utilities, how much customers are willing to pay for things like improved liveability, and how discipline around prudent and efficient expenditure can be maintained.

Advancing the urban water sector means providing safe, secure and resilient water, wastewater and stormwater and drainage² services to all Australians in an economically efficient and sustainable manner – contributing to our growing economy, meeting the diverse and growing needs of customers and communities, and providing security and resilience in the face of climate change.

Achieving this vision will require governments, utilities and regulators to work collaboratively and effectively to address the following challenges and opportunities:

- growing population (predominantly in metropolitan areas), and declining populations in some regional areas
- climate change impacts on the variability, timing and volume of rainfall, and on evapotranspiration as a result of higher temperatures (with different impacts in different geographies)
- ageing infrastructure, increasing maintenance, and increasing renewal and replacement costs

² Henceforth referred to as 'stormwater' for simplicity.

- providing affordable essential services while addressing infrastructure needs, and supporting liveability and other beneficial outcomes (where efficient and appropriate to do so)
- optimising infrastructure investment under uncertainty through enhanced planning, and independent and transparent decision-making.

While the management of water resources is principally the responsibility of states and territories, national direction, coordination and funding have historically supported collaboration between jurisdictions in the delivery of water reforms (including COAG 1994, National Competition Policy 1995, and NWI 2004). There is an opportunity to work across jurisdictions to tackle common challenges and deliver against shared priorities and actions, and a role for a national forum and collaborative efforts to drive improvement.

1.3. Guide to this report

This report establishes a framework and roadmap for pursuing priorities and actions that can advance the urban water sector. It reflects the need for a sector-wide approach that draws on input from governments, regulators, industry and customers from across the country. The remaining sections of the report are as follows:

- **Section 2 – Principles for engagement:** Provides a set of guiding principles for the participation of the states, territories and the Commonwealth, and outlines the possible roles of the Commonwealth Government.
- **Section 3 – Framework for advancing urban water:** Presents a framework for organising issues and responses, including priorities and actions, in a structured and coherent way.
- **Section 4 – Priorities and actions:** Presents priorities and actions according to the five framework elements presented in Section 3, where:
 - *Priorities* are articulated as (high level) outcomes or goals that reflect the key challenges and opportunities across the sector. They are not specific actions or tasks.
 - *Actions* are the tasks or projects that can be implemented to address priorities.
- **Section 5 – Approach to implementation:** Outlines the proposed approach to implementation, including identifying which priorities and actions could be pursued first.
- **Appendix A – List of consultees:** Over one hundred stakeholders across the country were consulted to support the development of this report. Discussions focused on defining, corroborating and expanding on issues, challenges, objectives, priorities and actions. The full list of organisations consulted is provided at Appendix A.

2. Principles for engagement

This section presents principles for engagement and outlines how the Commonwealth can make a meaningful contribution to advancing the urban water sector. This is necessary to clarify the expectations and participation of states and territories and to ensure the Commonwealth adds value in facilitating and supporting improvements across the sector.

2.1. Principles for engagement

Gaining the agreement of the Commonwealth, states and territories on shared priorities and actions is critical to success. Achieving full agreement to the NWI took time and particular reforms were more challenging to accept for some, arguably because requirements did not sufficiently reflect different characteristics or needs of jurisdictions.

There is a need for any future agreement to address these types of issues. This includes ensuring any commitments are fit for purpose, reflect the current position of different parties, and focus on achieving consistent outcomes rather than consistent or overly prescriptive inputs or processes.

To help achieve this, principles for engagement (on the framework, priorities and actions proposed in this report) for the Commonwealth, state and territory governments have been developed. These principles are:

- The NWRC and UWRC endorse the vision, objectives and core elements of the framework as an initial step, and further discussions should be held on the details of the priorities and their associated actions.
- Participation in actions is based on the needs and interests of each individual jurisdiction (i.e. the Commonwealth and relevant states and territories 'opt in'), reflecting that not all actions and tasks will be of relevance to each jurisdiction.
- Actions should not resort to the lowest common denominator solution; there should be a focus on lifting performance whilst also incentivising leadership and innovation across the sector.
- Priorities and actions should recognise and build on existing efforts by jurisdictions, including reflecting best practice to help others where relevant.
- An open and collaborative approach should be taken to share practices and learn from past experiences.
- Actions should provide sufficient flexibility for states and territories to implement them, including through a focus on outcomes rather than prescriptive approaches.
- Any consideration or provision of future Commonwealth funding should be linked to a clear and agreed vision and set of objectives for the urban water sector, as identified in this document.

It is recommended that these principles are adopted by the UWRC.

2.2. Defining a role for the Commonwealth

The Commonwealth Government can play (and has previously played) a number of important roles in the urban water sector. The following functions were identified as appropriate and meaningful ways to support advancing the urban water sector:

- supporting the establishment and maintenance of national principles, standards or guidelines to support best practice or deliver consistent and improved performance and outcomes
- independent, sector-wide analysis and review, including where topics may be sensitive or politicised at a jurisdictional level or where nationally consistent reporting is beneficial
- monitoring and reporting on implementation to provide transparency and demonstrate and communicate performance improvements across the sector
- provision of data and information to support decision-making (e.g. climate forecasting and climate change tools or resources) and contributing funding for research and development
- facilitating intergovernmental collaboration (e.g. to share knowledge and accelerate innovation)
- providing funding to support policy and institutional reform efforts
- identifying, prioritising, and supporting nationally significant water infrastructure (e.g. through Infrastructure Australia and the National Water Infrastructure Development Fund).

It is suggested that these roles inform the Commonwealth's contribution to national collaboration and coordination.

3. Framework for advancing the urban water sector

This section presents a structured framework for thinking about how to advance urban water. The framework aims to establish a clear vision and objectives for the sector, and to define the core elements requiring focus or improvement to advance urban water management. Actions and priorities presented later in this report have been structured under the elements of this framework.

3.1. The need for a guiding framework

Under the 2004 NWI, the Commonwealth, states and territories committed to a planning, market and regulatory approach to managing water resources and optimising the economic, social and environmental values of water. The vision, objectives and actions agreed at the time were most clearly laid out in relation to general water resources management and, specifically, rural water.

Much less direction and detail was provided for urban water. Numerous reviews since have identified the lack of clarity or agreement on the objectives and direction for urban water as hampering progress. To a large extent, the urban water sector is still grappling with issues identified many years ago, with new and emerging challenges largely a product of existing but intensifying pressures.

A clear vision and set of objectives for the urban water sector is needed to focus reform efforts, and can be linked to the agreed planning, market and regulatory based approach to management. Doing this will help align the roles and contributions of all levels of government, regulators, and utilities, and ensure available policy levers and instruments can be used to best effect.

3.2. Proposed framework

An organising framework has been developed and is presented in Figure 1. The framework includes a proposed vision and set of objectives for the sector, and focuses on five core elements of urban water management: (1) institutional arrangements; (2) planning; (3) service delivery; (4) regulation and; (5) information and knowledge.

The framework has been used in this report to identify and articulate different challenges facing the sector, and similarly place or organise the different priorities and actions in response. Adopting the framework presented below (or similar) can provide an enduring basis for:

- confirming a shared vision and objectives for the urban water sector
- articulating the core elements of the sector, and using them as the basis for organising issues and challenges, and more effectively designing a portfolio of actions in response
- providing an ongoing and consistent basis for iterative development of priorities and actions, reporting progress, and communicating outcomes

- presenting priorities and actions in a way that is compatible with the NWI and existing reform commitments and could be used to support a renewed NWI
- providing a more coherent platform that can be more readily and clearly communicated.

It is suggested that the NWRC consider adopting this framework to support further work on urban water reform as an initial step.



Figure 1 Framework for advancing the urban water sector

4. Priorities and actions

This section outlines the priorities and actions and provides supporting information and context from existing urban water reports and the consultation process undertaken for this project.

4.1. Element 1: Institutional arrangements

The COAG Water Reform Framework (1994) laid the way for significant institutional, structural and governance reforms across the urban water sector, with states and territories agreeing to the separation of policy, regulation and service delivery (including through corporatisation of utilities). States and territories have largely completed these reforms with separate policy agencies, corporatised utilities, and environmental, health and economic regulators (with varying mandates and geographic coverage). The Productivity Commission's 2017 triennial assessment of the NWI discussed the benefits of these reforms:

The separation of service delivery from policy making and regulation through the corporatisation of water utilities, and the introduction of independent economic regulation in many major urban areas, has improved efficiency, increased the transparency of investment decisions and promoted more efficient pricing. The [Productivity] Commission has previously estimated that Australia's GDP was about 0.35 per cent higher over the 1990s due largely to institutional and pricing reforms in the urban water sector. If gains of this magnitude have been maintained through to today, this would represent an annual economic gain of over \$5 billion (in today's dollars). (PC 2017; p. 10)

However, there is still unfinished business with regard to the COAG 1994 and 2004 NWI reforms that should be implemented as part of ongoing efforts (as identified in the Productivity Commission's 2017 Inquiry), and there is scope for additional improvement in this area. Resilient and effective institutional arrangements were identified by many stakeholders as a prerequisite for safeguarding long-term water security and better leveraging opportunities for Integrated Water Cycle Management (IWCM)³ and appropriate provision of stormwater infrastructure. Specifically, stakeholders suggested:

- More could be done to clarify the roles of governments and utilities to support effective planning for major (system-wide) supply augmentations, as well as water efficiency and non-infrastructure options. This includes clarifying who is responsible for making major water planning decisions.
- Improved institutional arrangements are needed for planning and delivering liveability outcomes, with utilities balancing their core role of delivering water services with growing expectations to

³ IWCM in this report refers to the coordinated management of water, wastewater and stormwater (and the infrastructure that supports these services) across the water cycle to maximise social, economic and environmental benefits (this typically includes considering alternative and/or decentralised options where beneficial).

support wider social and environmental outcomes (e.g. through stormwater harvesting and recycling for urban greening).

- Governance and institutional settings were barriers to managing escalating flood risks (due to climate change and urban development) from stormwater, as well as to capitalising on opportunities for harvesting and reuse, and ensuring appropriate funding and cost recovery for stormwater infrastructure.⁴

These issues are consistent with concerns raised in PC 2017 (and submissions to the inquiry), which included highlighting poor and opaque roles and responsibilities for system-wide planning, policy bans that prevent all options from being considered, and concerns that institutional arrangements are not always sufficient; particularly under extreme circumstances.

Addressing these issues is critical to delivering against the vision and objectives articulated in Section 3 and will benefit customers and communities through safe, reliable and affordable services. Large scale investments in times of drought, such as the Millennium Drought, potentially require long lead times for planning and implementation with involvement from different stakeholders and institutions to ensure services continues to deliver for customers and communities. Providing water security at the lowest possible cost will be an important and complex task for the future years (IA 2017b). There is potential upside in improving institutional arrangements, with clearer roles and responsibilities supporting greater consideration of IWCM options (where there is a net benefit), generating additional benefits beyond core servicing.

In response, there is a clear case for exploring how institutional arrangements might be improved to better support the vision and objectives of the urban water sector. This does not necessarily mean a commitment to major reforms, and any changes would need to provide clear benefits over costs. However, there is enough evidence that Priority 1 (below) is not being satisfied and a suite of 'no regrets' low cost actions have been proposed in response. The proposed actions start with understanding and scoping the problem, then reviewing and investigating possible changes and improvements if there is a compelling case for change (i.e. change would be beneficial).

Priority 1: Resilient and effective institutional arrangements in metropolitan areas⁵

Action 1.1: Develop an institutional framework that separately identifies policy, regulatory and service delivery roles for water, wastewater, stormwater and IWCM functions.

Action 1.2: Use the institutional framework to inform a stocktake of current roles and responsibilities, and levels of service across each jurisdiction for water, wastewater, stormwater and IWCM functions.

⁴ These issues are consistent with recommendations 6.1 and 6.2 of the Productivity Commission's 2017 Inquiry.

⁵ This priority focuses on metropolitan areas, however similar issues are also present in regional areas. Action 5 proposes a wider ranging program to address issues (including institutional) in regional areas.

Action 1.3: Using the stocktake, commission an independent review to investigate the appropriateness of current institutional arrangements in light of current and emerging challenges, and help develop the case for change. This should cover (but not be limited to) the following key areas (1) supporting effective system-wide and local level decision-making, (2) delivering 'core' water, sewerage and stormwater services, and (3) delivering IWCM and liveability outcomes consistent with the objectives outlined in Figure 1.

- **Scope (1.1 - 1.3):** The scope of the institutional and governance arrangements stocktake and independent review should include:
 - identifying gaps and duplication in roles and accountabilities, at the system and local scale, including with regard to wider urban planning and development
 - identifying actual or potentially blurred roles and accountabilities
 - identifying areas where collaboration is required to achieve objectives and describing the extent to which this collaboration is occurring
 - making recommendations and sharing lessons from across jurisdictions to improve institutional arrangements in order to deliver on the vision and objectives outlined in Figure 1.
- **Interdependencies:** Clear institutional arrangements inform the roles and responsibilities of regulators and underpin effective planning and investment decisions. Undertaking this action would support several actions under planning below but could be pursued in unison. It is proposed that this action is implemented prior to and informs any substantive work under Action 7.1.

4.2. Element 2: Planning

Planning and investment decision-making⁶ are critical for delivering the right mix of infrastructure and non-infrastructure (e.g. demand management) responses to cost effectively meet service standards for wastewater and stormwater, and to maintain water security. The Millennium drought uncovered planning deficiencies and resulted in costly and sub-optimal investment decision-making (PC, 2017). Despite COAG adopting National Urban Water Planning Principles, there is no formal requirement to comply with them and more needs to be done to avoid past mistakes and most efficiently meet future needs (PC, 2011).

There was strong agreement amongst stakeholders that responding to climate change and population growth are the biggest challenges, and effective planning is a critical part of the solution. For metropolitan areas there is stakeholder support for the following improvements to planning:

- ensuring that all options are on the table when it comes to planning and investment decision-making (this includes potable reuse options, as well as demand-side solutions)
- embedding urban development (land use) and transport planning into water supply-demand planning and utility decision-making

⁶ Investment decision-making has been considered under planning, noting that service delivery by utilities and economic regulation also plays a key role in investment decision-making.

- ensuring robust appraisal and investment decision-making to deliver the right infrastructure (at the right scale, space and time).

For regional areas, planning and investment decision-making is equally important. In addition to the actions and priorities identified below, there is a clear role for improved information and capabilities to support planning and investment decision-making for many smaller regional providers (with further actions identified under elements 3 and 5).

National coordination and collaboration can help support planning and investment decision-making through embedding good planning principles, improving climate and population forecasting (as inputs to planning), and supporting improved economic appraisal through setting best practice frameworks for economic valuation and investment decision-making. A series of priorities and actions responding to these items have been identified below.

Water security emerged as a key theme in consultations and there is scope to improve the standard of planning through a mix of collaboration and knowledge sharing and improved transparency around water security planning and decision-making. Although new reporting processes have been proposed, they are considered to be generally aligned with current practices and would bring consistency and transparency to water security planning nationally with minimal effort. Ensuring water security is necessary to deliver safe and reliable services for customers and effective water security planning is needed to drive efficient investment and maintain affordability.

Priority 2: Improved planning that addresses the risk of climate variability and change, and caters for population change

Action 2.1: Establish an urban water security working group.

Action 2.2: Agree scope of and commence jurisdictional reporting on water security to improve system-wide planning, transparency and information sharing.

- **Scope (2.1 – 2.2):** The urban water security working group would focus on:
 - sharing lessons and best practice on key urban planning challenges including responding to climate change, planning for population growth and managing demand in cities, and best practice approaches to adaptive planning, flood mitigation, building resilience and engaging the community in the discussion on service standards, augmentation and demand management options (and their triggers) and the trade-offs between costs and service standards.
 - Refining and agreeing the process for water security reporting. This could draw on state-based water plans (minimising efforts) and be aggregated to provide a national report on the state of urban water security and promote improved planning and management. There may also be a case to use National Urban Water Planning Principles as the basis for reporting, as proposed in PC 2017 (p. 187).
 - The scope of the working group and reporting process could potentially be further extended to focus other components of the water sector including emergency management, reporting on emissions and climate adaptation, and resilience of wastewater and stormwater services.
- **Interdependencies:**

- The outcomes of the institutional arrangements review are relevant to this action, Action 1.1 should help to inform Action 2.2.
- Addressing uncertainties in relation to water supply (inflows, evapotranspiration) and demand (including in the context of population growth) will be further informed by actions proposed under the information and knowledge element. Planning is underpinned by good information.

While planning and governance 'within' the urban water sector has been a key focus, there is a growing need to better integrate urban water planning with wider urban land-use planning and transport planning – particularly in metropolitan areas where significant in-fill and greenfield developments are occurring.

Failing to incorporate wider urban planning into water supply and investment planning can lead to sub-optimal outcomes (e.g. with regard to the sequencing or timing of investments, or through foregone opportunities to support city-shaping and liveability outcomes). This results in higher costs to customers for service provision and loss of additional benefits that can be supported through integrated planning. Stakeholders from across different levels of government, as well as regulators and utilities identified this as an issue where national collaboration could be useful. The COAG National Urban Water Planning Principles 2008 provide national guidance on urban water planning and could be used as the basis for review and further guidance on better integrating urban water planning with land-use planning. This could further extend to better capturing planning and delivery implications for both centralised and decentralised options, and the role of IWCM.

Priority 3: Timely and coordinated delivery of new or upgraded infrastructure consistent with land use planning

Action 3: In metropolitan areas, review the barriers and opportunities for new or upgraded water infrastructure to be delivered to align with long-term land use planning (this includes water supply, stormwater and wastewater infrastructure).

- **Scope:** Informed by Action 1, UWRC develop terms of reference to investigate barriers and opportunities to better align urban water planning with land-use planning, with a focus on:
 - efficiently servicing population growth in in-fill and greenfield areas
 - ensuring all options are on the table
 - better leveraging IWCM opportunities through early coordination and planning with relevant planning and development partners
 - identify opportunities, including through existing Commonwealth infrastructure funding programs (e.g. City Deals) to include urban water planning and needs.

- **Interdependencies:** The effectiveness of urban water planning is intrinsically linked to governance and institutional arrangements, service delivery and regulation. Clear institutional arrangements are needed to make effective planning and investment decisions, while utilities and regulatory frameworks will need to evolve to accommodate centralised and decentralised options and the role of water in supporting wider liveability and environmental outcomes. The Productivity Commission’s research paper *Funding and Financing Integrated Water Cycle Management* (expected completion in 2019) should be considered in the scoping of this action, as should the scope of the proposed institutional arrangements stocktake proposed under Action 1.

Planning and investment decision-making should be undertaken with regard to net public benefits, and cost-benefit analysis is a critical tool for enabling this to happen. Cost-benefit analysis has long had bipartisan support and is enshrined in economic appraisal frameworks and guidelines at the national (e.g. the Infrastructure Australia Assessment Framework) and state level (e.g. provisions in various state treasury and finance business case and investment proposal evaluation guidelines).

However, the extent and influence of economic appraisal of water infrastructure projects is not consistent across Australian jurisdictions or infrastructure programs. This reflects differences in governance arrangements, funding sources, and economic regulatory frameworks. For example, cost-benefit analysis is regularly undertaken for water infrastructure projects in rural areas where government funding is being sought, but investments by service providers (funded through user charges) are not always informed through cost-benefit analysis or independently reviewed.

Even where cost-benefit analysis is undertaken, there is no guarantee that it will be considered in decision-making or that it is done in a manner that reflects best practice. While there are national and state guidelines, they are often transport-sector focussed which leads to a range of issues in the water sector including how benefits are valued. Where this occurs, and sub-optimal investments are made, society is ultimately burdened with the costs of inefficient decisions, for example through less funding available for other critical needs, or higher taxation.

There was support from consultations for guidelines to inform investment decision-making using best practice cost-benefit analysis. The guidelines would also inform investment decisions for IWCM; an issue that a number of stakeholders called for more clarity on.

Priority 4: Invest in the right infrastructure at the right scale, place and time taking into account the full suite of economic, environmental and social costs and benefits

Action 4.1: Develop best practice guidelines for investment decision-making in the urban water sector.

Action 4.2: Define separate expenditure thresholds for a) business cases to be made public prior to investments occurring and b) business cases being independently reviewed by an appropriate entity (noting that state-based review thresholds are in place in a number of jurisdictions).

- **Scope (4.1 & 4.2):** The best practice guidelines should:
 - provide guidance on community engagement as part of investment decision-making

- describe a process to identify the full suite ('long-list') of infrastructure and non-infrastructure options (including demand management) to meet a defined service need
 - provide guidance on incorporating real options into decision-making
 - include a process to assess the long-list referred to above with a preference for rapid economic assessment as opposed to multi-criteria analysis
 - identify the full suite of economic, social and environmental costs and benefits (including water restrictions, flood mitigation, amenity, water quality and environmental impacts)
 - provide guidance on valuing economic and social costs and benefits (includes methodology guidance and parameter values where possible)
 - account for climatic and other sources of uncertainty by applying probabilistic appraisal methods such as Monte Carlo analysis.
- **Interdependencies:** There are links to supply planning and it may be worth considering whether the guidelines, once finalised, are incorporated into the National Urban Water Planning Principles.

4.3. Element 3: Service delivery

Service delivery captures the operation and performance of water utilities, including delivery of water, wastewater and stormwater services.

Water and wastewater utilities in less populated regional areas face challenges in delivering services unlike those faced in metropolitan areas and larger regional centres. In some regional areas, the population is declining, which means that already small customer bases are shrinking.

Many regional and remote communities are serviced by an ageing water and wastewater infrastructure network. Replacing or upgrading these assets and then maintaining them will come at considerable cost and often it will simply not be affordable for regional communities to pay for upgrades through their water and wastewater bills.

There are also deficiencies in expertise or capacity in many regional areas, and it may be difficult to attract and retain skilled staff. There are also challenges associated with keeping up with the pace of change in relation to treatment technology, asset management and changing customer demands, and water quality can be an issue in many locations.

Despite the importance of the challenges facing regional water utilities, tracking expenditure and the performance of smaller regional utilities is difficult. Where monitoring of expenditure and performance does occur, the results are not always published. From the information that is available, it is clear that this is not a matter of simply increasing funding for water infrastructure (though this is important), but also about improving policy, planning and institutional arrangements in regional areas. There may be a case for joint funding or co-investment between different levels of government (federal, state and local) to support the latter as a matter of national interest and under Australia's commitment to Sustainable Development Goal 6.

Stakeholders were unanimous in their support for doing more to improve delivery of services and operation of utilities in regional areas. While this was often raised with regard to New South Wales and Queensland, there was interest from (and challenges in) a range of other jurisdictions and there is

likely to be benefits for many jurisdictions. Action 5 will not be relevant or of interest to all jurisdictions.

Priority 5: Build capacity and improve operation of regional service providers to raise performance and ensure security and quality of services

Action 5: Develop regional service delivery improvement and capacity building program scoped by relevant states and territories, covering water, wastewater and stormwater services.

- **Scope:** includes but is not limited to:
 - leveraging existing work where available, to commission/undertake a comprehensive assessment of asset condition
 - leveraging existing reporting frameworks, develop a reporting framework to improve the transparency of the costs of water and sewerage provision in regional areas (allowing monitoring over time and more informed decisions about the gap between capacity to pay and other funding)
 - examine the case for increasing funding for continuous improvement opportunities to build capacity, improve operations and raise performance overall. Link to existing programs where possible and appropriate.
 - develop best practice guidance on business planning and asset management for regional service providers. This should focus on improving security as well as resilience and emergency management.
- **Interdependencies:** There are several other actions and priorities that will support improved outcomes in regional areas, however a dedicated scope of work as outlined above appears warranted.

In metropolitan areas there is a growing emphasis on better tailoring services to customers through improved customer engagement. This has seen a shift in focus to how utilities can best meet customer needs and consideration of the broader role that utilities can play in supporting wider community objectives (such as liveability). An increasingly nuanced approach to service delivery, as well as regulation and planning is needed in response. Actions under Elements 1 through 5 will help to address this need.

The *National Urban Water Utility Performance Reporting Framework* (NPR) is also of relevance to both regional and metropolitan service providers, and national performance reporting is seen by most stakeholders as a valuable tool for providing transparency and driving competition by comparison. However, many stakeholders also noted that improvements are required to clarify its purpose and objectives, and improve its utility. Additionally, expanding reporting requirements to smaller providers was viewed as an opportunity to lift performance (so long as reporting requirements are reasonable).

A review of the NPR framework is currently in progress and it is understood that several recommendations with relevance to the NWRC and UWRC are included. Rather than proposing additional actions which may overlap or duplicate this process, it is proposed that the UWRC and NWRC consider the recommendations provided in the *2019 Review of the NPR Framework* as the basis for supporting Priority 6.

Priority 6: Improve competition by comparison through enhanced National Performance Reporting

Action 6: The NWRC and UWRC consider and respond to recommendations from the *2019 Review of the NPR Framework*.

Scope, timing and resourcing: Pending recommendations from review.

4.4. Element 4: Regulation

There are varied approaches to health, environmental and economic regulation across the country.⁷ In their simplest form, the three suites of regulation aim to achieve the following:

- **Economic:** Encourage prudence and efficiency through independent oversight of pricing and service delivery outcomes to promote competitive neutrality for public and private sector service providers
- **Environmental:** Mitigate the impact of the urban water sector on the environment
- **Health:** Ensure safe drinking water and mitigate the impact of sewage overflows on public health (based on IA 2016).

A number of previous reports (e.g. Harper 2015, PC 2017) have called for a universal commitment to actions agreed in the NWI including independent economic regulation and full cost recovery-based pricing. These actions remain relevant but are a matter for some state and territory governments to implement under existing agreements.

Looking forward, regulation will need to evolve as the urban water sector changes over time. Climate change and population pressures will demand innovative and alternative solutions which will require different regulatory approaches, and flexibility will be required to meet the long-term interests of customers. There is a potential role for the UWRC to lead this conversation and share new and innovative approaches to regulation (for example the PREMO framework in Victoria, or the Independent Pricing and Regulatory Tribunal's (IPART) review of pricing arrangements for recycled water services). Specifically, there are opportunities to:

- explore the appropriateness of new, customer-centric approaches to economic regulation and outcomes-based approaches to achieving environmental regulations
- build on the NWI pricing principles, consider expanding coverage for wastewater, stormwater and trade waste, and examine the role of developer charges in both signalling appropriate development costs and supporting appropriate selection of centralised and IWCM approaches.

These points were further reinforced through consultations with utilities, where the challenge of competing objectives and obligations across different forms of regulation were viewed as barriers to performing optimally and delivering the best solutions. It was also noted through consultation with

⁷ There are also other regulators in some jurisdictions and the roles and remit of regulators vary by each state and territory.

economic regulators that achieving efficient outcomes across regulatory frameworks needed further attention.

Given this, the following priorities and actions have been identified. However, other actions and priorities specified in this report will be needed to inform how the identified actions below are scoped and delivered (and whether there is still a case for proceeding). As a result, it is proposed that other actions and priorities are delivered first.

The concept of national regulation has been proposed previously and was raised (on occasion) through consultations for this report. There were mixed views on the merits of national regulation and it was considered that this was not a widely supported or practical action at this point in time, however it could be revisited in the future if circumstances change.

Priority 7: Ensure that regulatory frameworks align with current and emerging sector needs and objectives through knowledge sharing around innovative regulatory approaches from Australia and overseas

Action 7.1: Establish an expanded Regulators Forum or Group with economic, health and environmental regulators to share knowledge and insights.

- **Scope:** Pending outcomes from the institutional stocktake and review, and how they relate to regulatory frameworks, establish an agenda for the Regulators Group. This could indicatively consider:
 - the extent to which existing economic regulation frameworks align with the shift to customer-centric service delivery (drawing on leading examples and models applied overseas) and how this aligns with environmental and health regulations
 - opportunities to share lessons to expand the coverage of outcome-based regulation.
- **Interdependencies:** The outcomes of the institutional arrangements stocktake and review can inform the case for convening, and the agenda for an expanded Regulator Forum / Group.

Action 7.2: Consider expanding the coverage of NWI pricing principles to include wastewater, stormwater services, trade waste and developer charges.

- **Scope:** The scope of this action would include the following:
 - Any or all of wastewater and stormwater services, trade waste and developer charges.
 - UWRC agree on whether the NWI pricing principles should be expanded to cover any or all of wastewater and stormwater services, trade waste and developer charges and put to NWRC for consideration.
 - If the NWI pricing principles are to be expanded, convene a Commonwealth led Steering Group on Water Charges to develop expanded NWI pricing principles.
 - Expanded NWI pricing principles endorsed by NWRC (and committed under renewed NWI).

- **Interdependencies:** Pricing principles for stormwater, wastewater and trade waste can draw from the best practice guidelines for economic appraisal which will inform the various costs and benefits that arise from water, wastewater and stormwater. Improving approaches to identifying and valuing costs and benefits for wastewater and stormwater will inform decisions on who pays and how charges are calculated.

4.5. Element 5: Information and knowledge

Good information is a key building block for effective water resource management, and continuing to build and expand knowledge is necessary to improve the urban water sector as a whole. This applies equally to lifting under performance through to supporting innovation and new approaches.

There has traditionally been a strong presence of government supported research and development, including through a mix of cooperative research centres that have developed materials and analysis to support the urban water sector. Additionally, forecasting and analysis from government agencies (e.g. Bureau of Meteorology) is critical for informing urban water planning and management.

Furthermore, states and territories have previously acknowledged that one of the biggest benefits of previous national reform programs (e.g. the NWI) has been the opportunity to participate in a national forum for improved water resource management that elevates issues above local settings and focuses on finding the best solution.

There is scope to better share information, and work across jurisdictions (and stakeholders) to take a more collaborative approach to identifying gaps, commissioning or undertaking work, and sharing outputs. There is also scope to use the framework proposed in this report to sharpen the focus on where greater research and development effort is required.

Stakeholder consultation revealed strong support for continued investment in and provision of information and research across stakeholders, and several specific areas where improved information could be of benefit emerged consistently. These were focused on improving:

- sharing of case studies and experiences from across jurisdiction (e.g. many stakeholders were interested in urban water supply in Perth, Victoria's use of the PREMO economic regulatory framework, and approaches to funding and financing IWCM options and implications for pricing and regulation)
- climate forecasting, particularly medium-term forecasting and short term, granular weather forecasting (for heavy rainfall events) to manage flood risks and storages
- information to the wider population to increase 'water literacy' on key topics and help raise the standard of dialogue with customers and communities. Potential topics included:
 - the *value* of water, and benefits provided to individuals and the community through urban water (including environmental, social and economic outcomes)
 - explaining and testing customer responsiveness to water recycling and direct and indirect potable reuse
 - analysis of costs (\$/kl) for different supply and demand side options to inform planning processes and comparisons of alternative options such as desalination, potable re-use, water use efficiency measures, or rainwater tanks.

Priority 8: Improved information, analysis and data to support decision-making, improvement and innovation

Action 8: Develop a knowledge building and sharing program based on information gaps and needs, including but not limited to:

- working with relevant federal government agencies to continue improving forecasting and information flows (e.g. for climate change and weather forecasting)
- Commonwealth led exploratory study to improve community understanding of urban water services and the value of water, and to test and socialise recycling and direct and indirect potable reuse solutions
- sharing case studies and experience from across jurisdictions
- Analysis of costs (\$/kl) for different supply and demand side options to inform planning processes and comparisons of alternative options such as desalination, potable re-use, water use efficiency measures, rainwater tanks etc. This could potentially be led in partnership with utilities and/or the Water Services Association of Australia (WSAA) to help better understand costs and provide inputs to discussions on different approaches and opportunities.
- **Scope:** UWRC could develop a 2 to 3 year knowledge building program based on:
 - identifying opportunities for the Commonwealth Government to lead or commission independent reviews and studies into key issues, noting the opportunity to provide objective information and analysis as an entry point for jurisdictions to tackle issues
 - establishing sub-committees or working groups under the UWRC (coordinated by the Commonwealth) focused on sharing case studies and experience on key topics (noting suggested topics above)
 - working with Australian Government science and research agencies to improve information inputs for urban water management and planning.
- **Interdependencies:** There are multiple interdependencies between the action proposed above and other priorities and actions in this roadmap. This action should be considered a higher order priority as it will help support a range of other actions. Exact interdependencies will be contingent on how the knowledge building program is scoped, and which other actions are also pursued.

4.6. Summary table of priorities and actions

The following table summarises the priorities and actions covered in detail in the preceding sections.

Table 1 Priorities and actions

| |
|---|
| 1. Institutional |
| <i>Priority 1: Resilient and effective institutional arrangements in metropolitan areas</i> |

- Action 1.1: Develop an institutional framework that separately identifies policy, regulatory and service delivery roles for water, wastewater, stormwater and IWCM functions.
- Action 1.2: Use the institutional framework to inform a stocktake of current roles and responsibilities, and levels of service across each jurisdiction for water, wastewater, stormwater and IWCM functions.
- Action 1.3: Using the stocktake, commission an independent review to investigate the appropriateness of current institutional arrangements in light of current and emerging challenges, and help develop the case for change. This should cover (but not be limited to) the following key areas (1) supporting effective system-wide and local level decision-making, (2) delivering 'core' water, sewerage and stormwater services, and (3) delivering IWCM and liveability outcomes consistent with the objectives outlined in Figure 1.

2. Planning

Priority 2: Improved planning that addresses the risk of climate variability and change and caters for population change

- Action 2.1: Establish an urban water security working group.
- Action 2.2: Agree scope of and commence jurisdictional reporting on water security to improve system-wide planning, transparency and information sharing.

Priority 3: Timely and coordinated delivery of new or upgraded infrastructure consistent with land use planning

- Action 3: In metropolitan areas, review the barriers and opportunities for new or upgraded water infrastructure to be delivered to align with long-term land use planning (this includes water supply, stormwater and wastewater infrastructure).

Priority 4: Invest in the right infrastructure at the right scale, place and time taking into account the full suite of economic, environmental and social costs and benefits

- Action 4.1: Develop best practice guidelines for investment decision-making in the urban water sector.
- Action 4.2: Define separate expenditure thresholds for a) business cases to be made public prior to investments occurring and b) business cases being independently reviewed by an appropriate entity (noting that state-based review thresholds are in place in a number of jurisdictions).

3. Service delivery

Priority 5: Build capacity and improve operation of regional service providers to raise performance and ensure security and quality of services

- Action 5: Develop regional service delivery improvement and capacity building program scoped by relevant states and territories, covering water, wastewater and stormwater services.

Priority 6: Improve competition by comparison through enhanced National Performance Reporting

- Action 6: The NWRC and UWRC consider and respond to recommendations from the 2019 Review of the NPR Framework.

4. Regulation

Priority 7: Ensure that regulatory frameworks align with current and emerging sector needs and objectives through knowledge sharing around innovative regulatory approaches from Australia and overseas

- Action 7.1: Establish an expanded Regulators Forum or Group with economic, health and environmental regulators to share knowledge and insights.
- Action 7.2: Consider expanding the coverage of NWI pricing principles to include wastewater, stormwater services, trade waste and developer charges.

5. Information and knowledge

Priority 8: Improved information, analysis and data to support decision-making, improvement and innovation

- Action 8: Develop a knowledge building and sharing program based on information gaps and needs.

5. Approach to implementation

Specific comments on the implementation of each action are provided in Section 4. This section presents further guidance on implementation.

5.1. Agreeing a new national framework

Agreeing a new national framework would help provide the structure needed to organise and drive improvement for the urban water sector in Australia. The framework proposed in Section 3 presents a clear vision and objectives for the sector, and articulates core elements of urban water management, as the basis for identifying issues and focusing effort in response.

A national framework does not require uniform policy settings or institutional arrangements. Different jurisdictions will have different starting points and priorities, including across metropolitan and regional areas. The framework presented in this report can accommodate such differences. Jurisdiction specific implementation plans sitting under such a framework could reflect jurisdictional differences, as would a general focus on outcomes.

Agreeing to a framework is a priority and more detailed work on specific actions would benefit from having this in place. Resolving the framework for structuring and communicating these reforms will be beneficial in guiding and prioritising the work that follows, and lead to better decisions about what priorities and actions to pursue.

It is proposed that the first step following this report is for the UWRC to endorse this framework (with refinement if required) as the basis for structuring and scoping collaborative efforts in the urban water sector.

5.2. Sequencing priorities and actions

The portfolio of priorities and actions presented in Section 4 draw from the recent recommendations from the Productivity Commission, and reflects broad consultation with the states and territories and industry stakeholders. They focus on the achievement of the objectives specified in the framework, and are consistent with, reinforce, or extend, existing commitments made under the NWI.

The combined list of priorities and actions presented in this report would require significant effort and resourcing to implement. However, it is not proposed that all actions be pursued immediately.

Strategic sequencing can support quick wins and provides the opportunity to establish momentum and demonstrate early gains from national collaboration. It is also necessary to sequence actions as the outputs of some actions will support the delivery of other actions. Building on the timeframes and interdependencies under each action in Section 4, a first tranche of actions has been identified (see Figure 2 below). These actions focus on improving institutional arrangements, planning and service delivery as well as working to improve information and knowledge across the sector. The actions and priorities related to regulation are to be informed by delivery of other actions and would be delivered subsequently.



Figure 2 First tranche of actions to be considered by the UWRc

In addition to the priorities and actions listed above, there is scope for other actions to be pursued in unison depending on the appetite and resourcing to support implementation. The Commonwealth, states and territories will ultimately need to consider what is proposed in this paper and determine which actions can be readily agreed and pursued and which require further planning and refinement.

5.3. Next steps

National collaboration and coordination has not been a significant driver of change in urban water in recent years. However, it is clear that jurisdictions are dealing with many common challenges and issues, and a number of priorities and actions lend themselves to national collaboration. This report provides a practical way forward by identifying an organising framework, as well as priorities and actions that can be furthered under the auspices of the UWRC.

There are a few next steps required to support implementation. These build on the suggestions and recommendations made throughout the body of the report and are as follows:

1. The UWRC refines (as required) and agrees the:
 - principles for engagement
 - framework for advancing the urban water sector
 - identified priorities.
2. The UWRC considers the first tranche of actions and makes a determination on the feasibility of delivering all (or a subset of the identified actions). This should include consideration of available resourcing and funding, and prioritisation of actions if pursuing all first tranche actions is unfeasible.

The proposal for a renewed NWI would lend further weight to urban water reform, and could provide the means by which to formalise the framework (Section 3) proposed in this report. The actions and priorities in this report have been given indicative timelines of up to four years, with many actions that can be pursued in the next one to two years. A renewed NWI may help support or bolster efforts against the identified priorities and actions, however it should not be considered a prerequisite or requirement for making meaningful improvements. Indeed, making a start on the priorities and actions proposed in this report may help to crystallise the value, scope and nature of a renewed NWI and build momentum.

Numerous stakeholders also noted that Commonwealth funding would help generate support and momentum for action. The important contribution of the urban water sector to national economic productivity and economic growth may provide a case for this contribution.

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Appendix A – Consultation list

This section summarises the list of people consulted for the project. In many cases multiple conversations were had with multiple individuals for each organisation.

| Jurisdiction | Organisation |
|-------------------------|---|
| Commonwealth / national | Department of Agriculture and Water Resources |
| | Bureau of Meteorology |
| | Water Services Association of Australia |
| | Australian Water Association |
| | Infrastructure Australia |
| | Productivity Commission |
| VIC | Department of Environment, Land, Water and Planning |
| | Essential Services Commission (ESC) |
| | Barwon Water |
| | City West Water |
| | Goulburn Valley Water |
| | Yarra Valley Water |
| | South East Water (spoke at WSAA board meeting) |
| | Infrastructure Victoria |
| NSW | Department of Industry |
| | WaterNSW |
| | Infrastructure Australia |
| | NSW Water Directorate |
| | Independent Pricing and Regulatory Tribunal (IPART) |
| | Greater Sydney Commission |
| | Infrastructure NSW |
| | Sydney Water (spoke at WSAA board meeting) |

| Jurisdiction | Organisation |
|--------------|--|
| SA | SA Water |
| | Essential Services Commission of South Australia (ESCOSA) |
| | Local Government Association |
| | Environment Protection Authority |
| | Stormwater Management Authority |
| | Department for Environment and Water |
| | City of Salisbury |
| TAS | TasWater |
| | Office of the Tasmanian Economic Regulator (OTTER) |
| | Department of Treasury and Finance, Tas |
| | Department of Primary Industries, Parks, Water and Environment. |
| ACT | Icon Water |
| | Independent Competition and Regulatory Commission (received written feedback) |
| QLD | Department of Natural Resources, Mines and Energy |
| | QLD Treasury |
| | Queensland Water Directorate |
| | Local Government Association Queensland |
| | Queensland Urban Utilities |
| | SunWater (spoke at WSAA board meeting) |
| | Mackay Regional Council (spoke at WSAA board meeting) |
| | Queensland Competition Authority (spoke with representative at Water Regulators Forum) |
| NT | Department of Treasury and Finance |
| | Power and Water Corporation |
| | Utilities Commission (written feedback) |
| WA | Department of Water and Environmental Regulation |
| | Water Corporation |

| Jurisdiction | Organisation |
|--------------|---|
| | Economic Regulation Authority Western Australia (ERAWA) |
| | Aqwest Water |
| | Busselton Water |

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