



CRC for
Water Sensitive Cities

‘Next practice’ governance for water sensitive cities

Better governance for complex decision making



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Milestone Report

Better governance for complex decision making (Project A3.1)

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Executive Summary

The concept of Water Sensitive Cities (WSC) highlights the multiple values that water provides for different aspects of urban life. This includes having living urban streams, green spaces to relax in and to cool urban heat islands, using water wisely, and fostering a culture that appreciates the role of water in liveable places. Current governance arrangements are designed to optimize supplies of drinking-standard water and to remove wastewater and stormwater. Future water governance arrangements will therefore need to be reconfigured in order to support the wider goals of WSC.

The challenge for the *Better governance for complex decision-making* project (A3.1) is to find ways to make space for new flexible governance characteristics in existing (and notoriously inert) governance arrangements. Governance systems in a city function under the influence of institutional legacies, organizational cultures, and local politics. Therefore, each city will need to evolve their governance arrangements to support their own journey and suit their version of a WSC.

Governance arrangements will need to be designed so that flexible infrastructure systems can provide fit-for-purpose water for the economic productivity, social and cultural activities, and environmental processes that make a liveable city. These governance arrangements will also need to adjust to changes in water use needs, values, and operational conditions as prevailing technologies, community attitudes and climatic conditions alter in the future. Such flexibility will be achieved by a governance system that enables experimentation with new water service needs and delivery systems, and seeks out the 'next' practice governance arrangements that can support these emerging solutions.

This report explores current water and environmental policy and governance literature to determine where the most appropriate intervention points for pursuing governance change may lie. In doing so, the research distils a broad framework for understanding how governance change may be sought and steered in directions more supportive of WSC principles and practices. Three main avenues for intervention are identified:

- Strengthening linkages to translate practice innovation into policy options
- Collaborative effort to integrate policy objectives and align policy instruments across jurisdictions and sectors, and
- Finding the institutional flexibility to change tack as the journey progresses.

Published studies into these three avenues are drawn on to provide guiding principles, factors for success, policy instruments, and other insight into how governance systems might be redesigned. The framework presented provides a platform for building upon these findings through further case study research, to find the 'next' practice governance for equipping cities to move on a trajectory toward WSC.

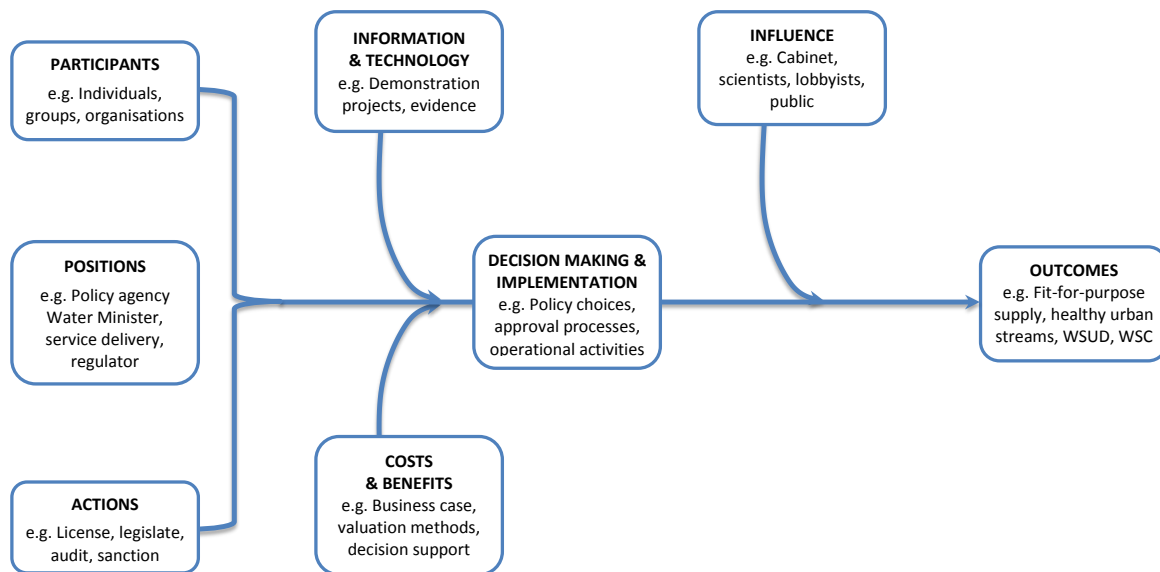
Introduction

Understanding governance

Water governance supports the management of water in cities in two major ways: by providing processes to agree and formalise objectives and goals for the use of water resources, and establishing the administrative arrangements to distribute, manage and regulate the resource to achieve those goals. The first of these governance tasks is achieved by establishing a range of water management functions (policy, regulation, strategic planning, service delivery), and statutory organisations with operating principles and planning processes to support these functions. The second aspect of water governance involves designing a range of governance mechanisms to ensure water is used and managed in accordance with the goals and objectives set. This could range from water allocation and licensing laws, requirements for considering water in the approval process for land development, or protecting the quality of drinking water by regulating water suppliers. While there are many other influences on governing water resources, these two aspects provide the basic institutional foundations for managing water.

These institutional foundations define roles and responsibilities for managing and using water, allocate water resources through rights and licenses, and provide protections and penalties against misuse. However, the translation of these rules and regulations into management practice does not always deliver the intended outcomes. Both individual and organisational actors have their own ways of thinking about water issues, and sometimes their agendas may be different or conflicting. As these actors hold power in the form of roles and responsibilities differently, their capacity for agency (i.e. to affect outcomes) produces different interpretations and processes by which rules are translated into practice. These elements, illustrated in Figure 1, combine to form a dynamic system of governance that organizes the use and management of water resources.

Figure 1. Conceptual diagram of water governance



(Adapted from Bettini et al., 2013: 134)

Decision making and implementation

Central to governing are the many decision-making processes that produce water management outcomes. These processes are pursued, individually or collectively, by the various actors (individuals and organisations) who fill governing positions and have their own authorised set of actions. As such, transparency and accountability measures are important for ensuring decision-making and implementation processes deliver outcomes, or can be improved if they fall short.

Participants, positions and actions

This mix of actors, positions and actions creates diverse decisions and decision-making processes, which do not always align or aim for a shared outcome. For example, actors' different interpretations of rules, interactions with other actors, and the legacies and conventions buried in layers of institutional arrangements across multiple jurisdictions and policy domains can all affect the decision making and implementation process in unanticipated ways. One of the key challenges in moving toward a WSC is to ensure shared outcomes are defined and agreed, various institutional frameworks and their policy instruments and implementation processes align toward these goals, and actors are committed to exercising their power and authority in pursuit of these goals.

Influence

There are also other external influences on the decision making process. Various actors without formal roles or responsibilities for water management can still have a large influence over decisions and the implementation of chosen water management solutions. For example, advocacy and lobby groups seek a say in policy making processes, Cabinet processes can veto decisions, and public figures and the media can pressurise or polarise public debate on issues. Accounting for these stakeholders' preferences and influences is a core aspect of policy making. Finding ways to help policy officers with relevant information, compelling narratives, and well-

designed and publically supported policy packages will help initiatives toward WSC to gain traction in this political process.

Information

Relevant information is critical for any decision making process. In the context of water management, this is comprised largely of technical and engineering expertise, though economic, ecological and social and behavioural expertise are becoming increasingly important pieces of the evidence base for decisions. How to ensure this information is packaged and available for timely and informed decision making concerns a large share of evidence-based policy studies.

Costs and benefits

Some of the clear information needs relate to the performance of new technologies with respect to water service provision and broader ecosystem protection/improvement criteria, their economic viability, the behaviours of potential end-users, and the implications for existing regulation frameworks. Often these latter information needs are not part of the monitoring and evaluation of pilot and demonstration projects that develop new technologies, which instead focus on technical performance. As such, these new solutions are not packaged into viable solutions, and can be overlooked in decision making processes. If we are to expedite the transition to a WSC, there is clearly a need to ensure new ideas and solutions are developed to be technically feasible in a process that also addresses other critical aspects of adoption, such as: integration with existing infrastructure, cost/benefit analysis within the budget and business models of responsible organisations; any implications for regulatory approval, operation and monitoring processes; and attitudes and capacity of end-users.

In summary, by understanding urban water governance in this way, the following actions and activities could help to improve decision making, implementation, and the realisation of water management outcomes:

- Provide a process to develop a shared understanding of water management outcomes, and how these contribute to a future city vision.
- Embed and integrate water management principles and align outcomes and objectives in policy frameworks and administrative arrangements, including with other related sectors
- Set clear roles, responsibilities and accountabilities for delivering water services and broader water management benefits, which align with the outcomes
- Set requirements for transparency in planning and decision-making
- Establish monitoring and evaluation cycles of key processes, initiatives, and organisations to capture the evidence-base and enable policy learning
- Determine clear points and processes for appropriate participation of stakeholders and citizens
- Minimise or manage disruptive influences
- Provide clear rules and guidance on trade-off decisions and acceptable risk, including robust methods of option assessment and costing

These guiding principles may help to improve existing decision-making processes, but may not be enough to change assumptions that are embedded within foundational institutional arrangements. For example, existing urban water institutional arrangements across Australian cities have evolved around a public water services provider model with a single utility, or a combination of organisations providing bulk water supply/treatment and retail and or distributor functions. Such a co-evolution of institutions and delivery models leads to current institutional arrangements coming to favour these models. The evidence in water management research suggests that these institutions are acting as barriers to the delivery of new water services and management benefits (Brown et al., 2009), and new service delivery models (Godden and Ison, 2010). As Dovers (2001: 215) notes, '*Institutions are defined more by the past than the present...suited more to yesterday's understandings and imperatives rather than those of today, let alone those of tomorrow.*' As such, more fundamental interventions in these governance arrangements need to be explored.

Governance change and the search for 'next' practice

Because of the hidden nature of many elements and influences on the system, outcomes are not always delivered as anticipated. For this reason, governance is often understood to be a complex adaptive system (Teisman et al., 2009; Cairney, 2012a); a web of complicated linkages and relationships between elements of the system, whose interactions can produce emergent and unexpected system qualities and outcomes. These complex adaptive qualities make interventions to improve the system, for example legislative reforms or the use of new policy instruments, very difficult to design and implement with full knowledge of the outcomes or consequences. Indeed, a study of water governance change by Rijke and colleagues found that, in the context of Australian cities, a general bottom up pattern of governance change emerged, in the formation of new ideas and testing of novel approaches at small scales through informal networks (2013).

Yet, when governance change is conventionally pursued, the focus is usually on institutional or administrative restructure reforms. If we understand governance as a complex system, it is not surprising that the desired outcomes of such reform are rarely achieved, given the difficulty in predicting how the system will respond, or how institutional change will be translated into practice change. A study of water policy reform literature found that while organizational and regulatory changes are often pursued because they offer tangible change 'products,' they are less likely to support or enable systemic governance change. The authors propose this is because the level of social innovation tends to be lower in formal institutional reform processes (Moore et al., 2014). By contrast, engagement processes which shift the locus of power, and the influence of efforts by policy entrepreneurs to read the political landscape, offer stronger though less tangible prospects for stimulating transformative change. Table 1 summarises the findings of this study, ranking the explanatory themes for policy innovation that emerged from the study by the number

of articles which identified the theme as playing a role in reforms that had been observed.

Table 1. Core explanatory themes for innovation in water policy

Explanatory theme	Description
Policy entrepreneurs/ change agents (n = 12)	Individuals, inside or outside government, who invest time, energy, reputations and other resources to advocate for policy proposals or influence policy change
Networks and collaboration (n = 10)	Groups of peers, connected formally or informally, who pool resources and self-organise to influence policy change
Social learning (n = 6)	Collective learning experiences that stimulate ideas, collate knowledge and experience, and foster cooperation
Adaptive, integrated approaches (n = 5)	Decision-making which accounts for issues and objectives from other policy domains, and considers new information
Legal and political reforms (n = 3)	Conventional tools of policy change, such as legislative reform
Niche experiments (n = 3)	Small-scale experiments are used to test ideas, manage risks, and monitor outcomes of proposed policy objectives and instruments

Adapted from Moore et al, 2014.

Of the studies examined by Moore, the majority focused on reform of regulations or governance mechanisms and the social conditions underlying technological change. However as Table 1 indicates, these themes offer less satisfactory explanations of how policy change comes about than those of shifting underlying principles of management practice (adaptive and integrated approaches) or exploring what change agents (individuals and networks) do which creates fundamental institutional change. Some scholars have argued that a search for 'best' practice tends to keep the focus on improvements within existing logics and cognitive frames (Prahalad, 2004). This assertion supports Moore's findings; that the source of practice innovation is assumed to rest in tweaking existing rule structures and incorporating new technologies. Prahalad and colleagues (2004) argue that looking at the outer boundaries of current understanding and assumptions to find innovations leads to the fundamentally new paradigms or 'next' practice that breaks from current institutional constraints.

It is important to note that Moore and colleague's systematic literature search found only 39 articles which met their criteria as a study of innovative water policy reform. This finding is largely indicative of a wide range of definitions for policy innovation (Jordan and Huitema, 2014; Moore et al., 2014). Nevertheless, the situation highlights a paucity of research on what enables the water policy changes that can lead to new governance arrangements. Based on Moore's results, stimulating the policy and governance change needed to support 'next' practice will call for a higher reliance on informal processes, such as the efforts of change agents and networks, than the traditional technological changes and formal institutional reforms.

Taking a policy perspective

There are a growing number of studies on the indirect influences that affect institutional change, such as individual champions, leaders and entrepreneurs or collective learning and influencing processes. However these studies tend to fall short of providing a direct catalyzing process through which these agency influences can drive structural change (Dovers and Hezri, 2010). These current research efforts have identified qualities of leaders and change agents (Huitema and Meijerink, 2010; Taylor et al., 2011), networks (Sorensen and Torfing, 2011), and learning processes (Huntjens et al., 2011; Bos et al., 2013a). However, specific guidance on how and where to apply these potential mechanisms of governance change is still sparse (Dovers and Hezri, 2010). Given the complexity of governance processes, jurisdictional differences and diverse contextual conditions, such an aim requires substantive research across a range of contexts.

To attempt to narrow such an expansive research agenda, this research adopts policy processes as the focal point for following governance change. Policy processes, while dynamic and context specific, follow common patterns and procedures across jurisdictions, scales of government, and public issues. The process of policy making therefore provides a common conduit around which to craft advice on how and where interventions can be made to induce the institutional changes underlying shifts in governance approach.

Policy is the main instrument of government, it sets the agenda and provides the means of allocating resources to address a problem or deliver public services (Althaus et al., 2013). Policy can be used to describe a whole range of government actions (and inactions) (Cairney, 2012b) and takes place in a crowded and contested space, emerging from a melting pot of ideas and agendas, from players with divergent stakes and influences. While many factors may drive change processes, such as focusing events ('crises') and the actions of change agents, short of a social revolution policy processes provide the avenue by which fundamental institutional change will be realized. The content of a policy—the stated intention of an organization or government—often provides the catalyst for governance change. A line in a Ministerial speech, or a document outlining a comprehensive program of intended reforms, affords the legitimacy to pursue a different path to the one currently followed. Thus, the policy process offers a major key to unlocking governance transitions to support more water sensitive cities (Dovers and Hezri, 2010; Huitema and Meijerink, 2010; Moore et al., 2014).

As illustrated in Figure 1, focusing on the decision-making processes encompassed by policy making offers a means of exploring how this variety of interests and drivers impact on change. Acknowledging the limitations of understanding policy as a linear decision-making process (Laing, 2015), this report seeks to explore how the various influences on this process can prompt innovation to occur and be realized through

the dynamic formation and implementation of policy. This ambition aligns with Dovers and Hezri's call for more attention to be paid to the '*mechanics of policy and institutional change*' (2010: 227).

Review of water and environmental governance literature exploring questions of what role policy processes play in governance changes surfaces a number of recurrent themes, including the need:

- To connect practice innovations (technological advances, demonstration projects, new management approaches) with 'governance experimentation' to explore and test the impacts of technological developments on existing institutional frameworks. This is seen as a necessary step to facilitating greater uptake and the mainstreaming of these innovations (Farrelly and Brown, 2011; Bos et al., 2013b)
- To integrate policy objectives across policy domains and levels of government, so as to align policy mechanisms toward delivery of objectives and minimize perverse implementation outcomes (Dovers, 2005; Dovers and Hezri, 2010)
- For adaptive approaches to decision-making, so as to manage complexities and uncertainties, and avoid 'lock-in' to particular approaches or technologies (Polasky et al., 2011; Huntjens et al., 2012)

The following sections discuss this literature around the above themes, to refine understandings of what these particular aspects of policy making offer in terms of intervention points to support innovative thinking and practice, and in so doing provide catalysts for governance change.

Policy innovation

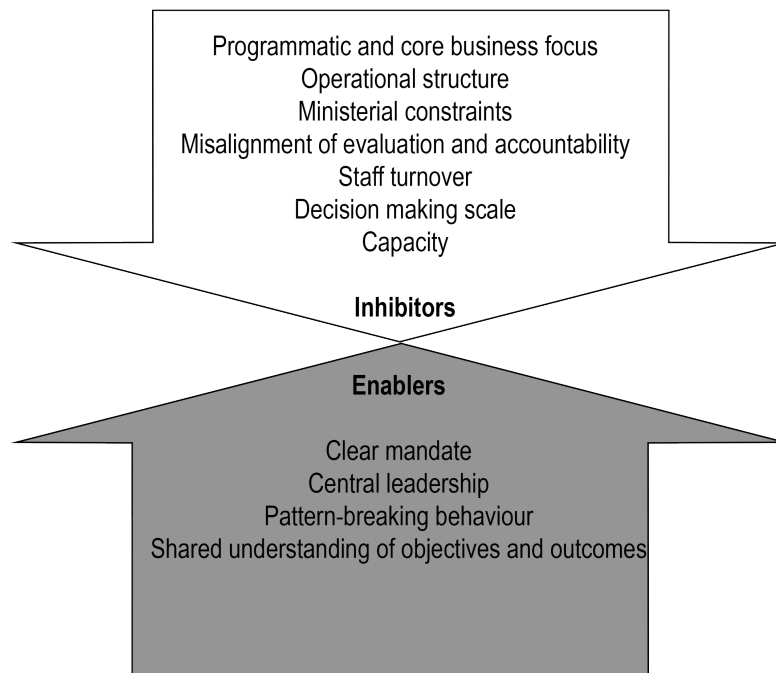
Historically, water management literature has focused on the technical innovation process needed to support more sustainable urban water management. Studies have identified institutional barriers as a major challenge to developing and mainstreaming new solutions to address water resources management issues and service delivery needs (Blomquist et al., 2004; Hussey and Dovers, 2007; Brown and Keath, 2008; Medema et al., 2008; Winz et al., 2014). A common conclusion drawn is that technical and managerial advances do not always translate into policy change and thereby institutionalize the new approaches as common practice (Farrelly and Brown, 2011). Thus, technological innovation does not automatically instill a need for change in legislative and regulative frameworks, policy reform processes, political narratives, or the attitudes and behaviors of citizens.

These observations speak to the need to draw better linkages between technical innovation and policy development. The policy-practice gap is well recognized, but often thought of in linear terms; either practice does not follow policy change, or policy does not take up innovative new solutions and help to embed them as standard practice. As neither technological innovation nor policy development processes themselves are linear, the relationship between the two is also less straightforward. Insight from policy literature identifies the narrow opportunities for considering the evidence base of policy options and the tendency toward tried-and-tested solutions (Head, 2010). In parallel, studies from water management literature note the lack of consideration many practice experiments give toward their implications for policy and governance (Bos et al., 2013b), and yet the role for policy to enable the diffusion and mainstreaming of these innovations is strong (Farrelly and Brown, 2011).

Drawing the policy-practice gap closed will require closer collaboration between policy officers and technical experts. Policy makers often need to know about viable options and solutions in short timeframes, while champions of new technologies and approaches need to understand the policy and regulatory impact of their novel solutions. Many forms of linkages to foster these interactions between policy officers and experts are already known. At an individual level there are many mechanisms that provide these linkages within Australia's urban water sector, such as membership in associations, capacity building programs, communities of practice and of course personal relationships. A diverse range of 'bridging organisations that connect relevant organisations and foster structured or unstructured science-policy partnerships are also well known in each jurisdiction. The weakness appears to exist in program or project based collaborations between key organisations, where the full range of learning outcomes of such processes are not captured and used to inform similar projects or relevant policy processes. Thus, while the 'network' elements of governance provide the carriers of linkages, more attention to fleshing out the technological and institutional content of linkages are needed (Elzen et al., 2012).

A large proportion of governance literature is dedicated to strengthening these collaborative or ‘network governance’ mechanisms. A pertinent study by Blackman (2014) examining explicit attempts at whole-of-government program delivery by various Australia Federal Government departments and agencies identifies key factors which inhibited or enabled organisations to work collectively across their departmental and jurisdictional boundaries, illustrated in Figure 2. Blackman’s study found that these barriers and enablers are not opposite of one another, i.e. if one is removed, the other is not necessarily strengthened. Given this, work to remove barriers may be helpful, but efforts will still need to build the supportive enabling factors to be successful. As a useful starting point for these collaboration capacity building efforts, the interviewees in Blackman’s study noted that pattern-breaking behavior and central leadership were the most powerful enabling factors, while programmatic and core business focus and the operational structures of line manager relationships were the most prominent barriers to effective collaboration.

Figure 2. Inhibiting and enabling factors to cross-boundary working



Adapted from Blackman (2014)

Yet, policy change will not automatically lead to the transformative practice and governance changes needed to realize water sensitive cities. Numerous policy changes, often made by in-coming governments, are testament to the lack of real impact that policy change may have, despite best efforts at implementation. Policy changes tend to disrupt the status quo for a short period of time, but may not drive significant shifts to institutional structures or the outcomes. As Shilling et al note (2009), those policies closer to the status quo tend to gain support over more radical proposals. Therefore, while most water management literature calls for radical change (Moore et al., 2014), the cumulative benefits of incremental policy changes should not be discounted as a strategy for building water sensitive cities.

Focusing on the frequency or extent of policy change is therefore not a particularly useful path toward understanding how fundamental governance change comes about. The task of defining what policy change looks like in practice can be highly problematic (Capano, 2009; Moore et al., 2014), due to difficulties establishing the causal chains between intervention and impact, the time lags between these points of the policy process, and the short-term cycle of budgetary and political influences. Rather than focusing efforts at differentiating and explaining policy dynamics in terms of the scope of change or impact, policy innovation studies seek to understand the source of both incremental and radical changes, asking from where new ideas and approaches emerge, how these novel ideas change the existing policy content, and their impact post-implementation (where it can be measured).

Policy can be considered as innovative in three respects, according to Jordan and Huitema's (2014) review of the policy innovation literature: being inventive in the content and mechanisms of the policy, representing an innovation in the sense of widespread diffusion of the policy approach, and/or innovative in the projected or real effects or outcomes. Using this typology of innovative policy provides a way of asking where new policy ideas will come from (invention), how they will spread (diffusion), and whether they will have influence in changing practices (outcomes). These questions will be key to understanding how governance change may come about for a water sensitive city: where will new ideas come from to deal with the increasingly complex water management challenges ahead (and how can this creativity be better supported); how can viable solutions be legitimized and mainstreamed; and what policy mechanisms will deliver the water use outcomes and encourage the behaviours that water sensitive citizens need to be striving for?

As Ansell and Torfing (2014) argue, while the New Public Management movement of public sector reforms in the 1980s prompted a focus on innovation, it was within a narrow frame of 'in-house' innovation through marketization of service delivery or bureaucracy-driven institutional reforms. These authors contend that such approaches to innovation miss significant opportunities presented by cross-boundary collaboration, such as incorporating new thinking and diverse experimental knowledge, implementation capacity, and financial resources. They argue for design-orientated collaborative efforts, where arenas conducive to joint problem definition, mutual learning and joint ownership are fostered and may produce co-created innovative solutions. This framing of innovation broadens the outcomes of innovation beyond the content of products and services developed, but also adds value in the form of shared experience of participants *within* the innovation process. Ansell and Torfing (2014) claim that this switches the focus of innovation from developing somewhat arbitrary best practices, to helping practitioners co-create and mutually adopt 'next practice.' This will be particularly important for the ongoing journey towards water sensitive cities.

In summary, insight from policy studies suggests that various forms of policy innovation are needed to bring about fundamental governance reforms. These include:

- Experimentation with new policy instruments, designs and objectives to both better incorporate technological advances as well as support more effective and efficient solution delivery
- Greater sharing and translation of these successful policy designs across jurisdictions to incrementally shift governance arrangements, and
- Striving for outcomes that depart significantly from current practice to challenge the appropriateness of current objectives and accelerate governance reforms.

It is clear that all these forms of policy innovation will require enhanced collaboration to successfully shift beyond business-as-usual. Inventive policy designs will require closer relationships between technological advancement and policy development processes. Greater investment in collaboration across jurisdictions is needed to ensure the best available information, knowledge and implementation experience are informing the development of new policy initiatives. While finding the authority and trust required to trial new ideas that challenge the status quo will rely on on-going partnerships. The vectors for such collaborative efforts are well-known: peer networks, bridging organisations, partnership projects, and leading, championing and boundary spanning individuals. Greater investment in developing the technological and institutional content linkages for these 'network' governance mechanisms to connect, share and translate systems will create the inventive, outcomes focused policy that delivers solutions beyond business-as-usual that will substantiate the need for governance change.

Policy integration

The multi-faceted roles played by water in society and ecosystems, as well as its physical properties, mean water resources have a critical part to play in many aspects of liveable cities. Water therefore needs consideration in a multitude of policy domains (van der Brugge et al., 2005). For example: water is an essential service with implications for public health and equity of access concerns; it is critical to the health of urban waterways; it is essential for industrial cooling processes including in the generation of energy; it is needed to keep public open space green, cool and beautiful, and thereby citizens socially and mentally healthy; and the balance of the water cycle is a key concern in the land use changes of growing cities. Finding the best strategies for engaging with the stakeholders of multiple policy domains to incorporate water considerations into policy and legislative frameworks will be an important step toward managing water in cities in more sensitive ways. Policy integration is therefore a key step in the process toward governance change.

Policy integration has long been recognized as a key component of environmental management (Dovers, 2005) and a first principles for sustainable development aspirations more generally (Lenschow, 2002; Lafferty and Hovden, 2003). From a governance perspective, policy integration can be considered under the terms whole-of-government, connected or joined-up government (Ross and Dovers, 2008), or viewed as a form and outcome of policy learning (Nilsson, 2005). The concept is fundamentally about connecting goals, functions and processes horizontally across governments, and ensuring interpretations through vertical processes of implementation do not compromise the aligned goals (Lafferty and Hovden, 2003). The literature ranges across the anticipated benefits of such integration efforts, from enabling more comprehensive and consistent coordination of policy delivery to synergistic effects and finding win-win solutions (Jordan and Lenschow, 2010).

However, the aspiration of coordinated policy development and delivery challenges the traditional machinery of government (departments and their functions), as particular policy domains are allocated to and specialised within particular agencies. These organisations tend to operate in isolation and through hierarchical systems of policy implementation. While processes for integration do exist, such as inter-departmental and Cabinet committees or Ministerial councils, bureaucratic politics playing out within and between agencies and policy domains can result in policy vetos. These influences operate in parallel to party politics and external lobbying influences on the policy process. In addition, in most jurisdictions, the environment portfolio does not have a clear or strong constituency to provide it with political strength, as opposed to, for example, primary industries, with its clearly organised mining and agricultural interests (Ross and Dovers, 2008). The cumulative result of these influences on the policy development process is an inherent separation of

sustainable balance and development goals, producing a tendency to find trade-offs rather than goal synergies (Crowley and Coffey, 2007).

Nevertheless, through the influence of the sustainable development agenda in the late 1990s and the environmental directives of the European Union, there have been some efforts and advances in environmental policy integration, largely at the national level. While these efforts have been piecemeal and wane according to government priorities (Jordan and Lenschow, 2010), they include policy instruments designed for a range of intervention points in policy processes, as illustrated in Table 2.

Table 2. Summary of environmental policy integration instruments

Intervention points	Aims	Instruments	Current usage/lessons
Agenda setting	Influence policy goals and objectives	Administrative or legislative requirements for issue consideration (e.g. sustainable development)	Favourable institutional settings alone are insufficient (i.e. minimal veto points)
		Whole-of-government strategies/plans	Predominantly 'soft' instruments (e.g. white papers)
Policy formation	Structure interactions and coordination of policy making process and decision making	'Machinery of coordination' administrative structures/procedures	Central ministries or committees supporting innovation are short lived
		Policy appraisal and assessment methods	Appraisal and assessment methods used intermittently Procedural powers of environment departments not strengthened
Policy implementation	Shift resources to support cross-sectoral issues Innovate integration instruments	Green budgeting Environmental tax/levy	Pursued as an add-on rather than as a process that challenges the investment rationale for public funds Also employed at lower levels of administration, i.e. not a Department of Finance or Cabinet level
		Policy delivery autonomy	Federalist systems show innovation in integrated policy instruments
Policy evaluation	Monitor the impact of policy instruments across relevant domains/sectors	Environmental monitoring systems (e.g. State of the Environment reporting)	Good data difficult to access Causality difficult to trace
		Organisational monitoring, evaluation and audit systems	Policy planning and evaluation in core economic sectors (e.g. industry, transport, agriculture) are immune to environmental policy scrutiny and appraisal

Summarised from Jordan and Lenschow (2010)

In addition to the above procedural based interventions, Jordan and Lenschow also suggest an addition set of possible integration instruments, based on institutional cognitive and political logics. These include network building instruments that act as informal institutional coordination mechanisms; instruments to engender learning processes to influence actor interests, interpretations and implementation practices; and political interventions that target constellations of power and focus on reform of

bureaucratic cultures and routines toward greater integrative practice. However, Jordan and Lenschow acknowledge that this latter instrument has few empirical examples.

In a study of environmental policy integration in six Australian States and territories, Ross and Dovers (2008) identified a number of strategic, structural and procedural success factors, along with a number of barriers and gaps hindering policy integration. The study also provided insight into the policy leadership and capacity required to instigate integration efforts. These are summarised in Table 3.

Table 3. Policy integration in Australia – success factors and barriers

	Success factors	Barriers and gaps
Strategic	Clear definition and direction of policy A legislative mandate for policy integration Institutional and transitional mechanisms Ability to react and adapt to international, policy, legal and market changes	Inadequate communication and/or poor comprehension of the policy agenda Policy inertia owing to [perceived] adverse economic impacts Lack of constituency for environmental policy Inability to manage vested interests
Structural	Strong inter-jurisdictional and inter-agency cooperation Clear roles and responsibilities for policy integration (alongside policy implementation) Wide consultation with affected stakeholders Explicit recognition of different stakeholder values and interests	Loss of momentum and persistence Lack of incentives to implement resource intensive policy integration processes
Procedural	Well targeted communication mechanisms Processes for reconciling stakeholder values and interests	Difficulty in expressing a business case for policy integration Lack of knowledge of or access to models of implementation
Leadership	High-level and accessible ministerial and executive support Prominent champions for integration Statements by ministers and executives that policy integration is core business for all agencies	Shortfalls between political intentions, implementation and resourcing Short electoral cycles encouraging short term policy making perspective
Capacity	Effective monitoring, evaluation, audit and review process Adequate skills and resources within units and agencies responsible for coordinating integration	Inadequate quantity or continuity of financial and human resources

Adapted from Ross and Dovers (2008)

In short, the study found that key success factors included political leadership, clear direction, organisational commitment and administrative culture, while the long term embedding of a policy into policy frameworks was a key difficulty, and implementation capacity was a significant gap (Ross and Dovers, 2008). Key areas needing further attention included embedding sustainability in policy development processes (e.g. environmental policy impact assessment), development of an

evidence base and evaluation processes, and strengthening decentralised policy implementation arrangements.

While the results of many policy studies show that policy integration has not yet been institutionalised in administrative structures and processes in any developed nation, the field of practice, and therefore research base, is relatively young; environmental policy integration having gained widespread political support in Government of developed nations in the late 1990s. What the current experience outlined above suggests is that the more effective interventions occur earlier in the policy process, and instruments embedded in administrative structures and routines have greater chance of weathering the policy dynamics created by changes of Government. These studies have collated a suite of policy instruments and strategies which can be used to intervene in policy processes, and embed in organisational and governance procedures, to ensure water management and cognate issues are aligned in policy responses.

Adaptive governance

Not only will the journey to WSC be a long and evolving one, but there is also a need to prepare for the surprises and opportunities that changing environments and operational conditions will create along the way. Adaptive governance has been much discussed in the water management literature (Huitema et al., 2009; Pahl-Wostl and Kranz, 2010; Rijke et al., 2012), but the knowledge and recommendations on how to build better adaptability into governance arrangements and management practices is yet to be distilled. Scholarship on adaptive governance has not yet advanced to the operationalization of its knowledge-base, and empirical examples of adaptive governance regimes are limited. Nevertheless, the exploration of the mechanisms and processes behind adaptive responses in policy and governance regimes will help to advance understanding of how complex adaptive systems can be steered or guided onto a transformative pathway toward water sensitive cities.

Water governance is bounded by complex systems of rules. These institutional settings are predominantly aimed at providing a stable framework for balancing water resource exploitation and protection (Dovers, 2001). Attempting to change the intricate web of rule-sets is a problematic prospect, as the interpretation of these rules in practice can lead to contention and unanticipated impacts as much as certainty and expected outcomes. By their nature, these institutional settings also implicitly seek stability, reliability and maintenance of the status quo. Thus, changing these fundamental structures of governance systems will necessarily be a long-term pursuit, with much experimentation and adjustment along the way.

The context for debates about the values of water, the objectives for its use, and the incentives and sanctions that encourage appropriate behaviours to deliver these objectives, will be variable and specific to each particular city. This context-specificity is a product of local history, multi-scale government arrangements, institutional legacies, local management/organisational culture, and general attitudes toward water in the community.

As water governance systems will need to evolve over time to suit local needs and conditions, the governance arrangements to support a WSC will involve experimentation and adaptation; so that more appropriate governance arrangements can be found, integrated into existing institutional frameworks, and the governance system adjusted to make sure the desired objectives are being achieved.

Decision-making in such a multifaceted context is itself complex (Teisman et al., 2009). Wicked or intractable problems and the unpredictable consequences of responses to them are a reality. Given this, and the context-specificity of governance systems, there is no single recipe for how to design institutions to achieve adaptive governance, and no step-by-step process to follow. Some scholars have long argued that steering, rather than managing, is a more appropriate way to think about governing (Osborne and Gaebler, 1992; Rhodes, 1996; Pierre and Peters, 2005;

Crozier, 2008). Others are skeptical that even steering (setting clear direction with the necessary resources) can be achieved, given the complexity of issues, institutions, influence and uncertainty, and the evidence that public officials have difficulty controlling the various processes they initiate (Boons et al., 2009; Teisman et al., 2009).

Much of the recent literature advocates in favour of complex systems frameworks (Room, 2011), co-evolutionary governance (Teisman et al., 2009), and resilience/adaptive governance (Boyd and Folke, 2012). These perspectives are seen as a means to better understand governance systems, their social-ecological interactions, implementation impacts and sustainability outcomes. However, these conceptual advances have not yet translated into working examples of adaptive governance or policy-relevant knowledge (Room, 2011; Lubell, 2013). Many studies from a variety of disciplines looking at the problem of complexity in resource management and public policymaking draw conclusions that despite recognizing complexity, the assumption that this can be managed in a stable and reliable way with high levels of certainty is still embedded in traditional management approaches (Boons et al., 2009). Indeed Room (2011) argues that public policymaking practice aspires implicitly to a rationalist framework of high control, as in the gold standard of randomized control trials for new interventions, where all other contextual factors are assumed to play no role in the outcomes of the policy intervention (Room, 2011:5). This practice reality is in contrast to Pierre and Peters' (2005) calls for interventions aimed at steering, but with an appreciation of the complexity and bounded rationality of the governing context, and with an open-minded view of experimentation as the way toward finding solutions (Pierre and Peters, 2005: 2).

The challenge, then, is to help policymakers to move beyond this rational paradigm, by providing skills and techniques to embrace complexity, and to design processes capable of keeping pace with dynamic change, while still retaining legitimacy for professional practice. Hess and Adams (2002) suggest that policymaking should be seen as more a craft than a science. This perspective suggests that more skills and capacity development are needed among policy makers (developing craft skills), and the establishment of new techniques (developing professional craftsmanship). This will require local policymakers, managers, and key decision-makers to incorporate a number of principles into the policy development cycle, and work towards embedding such principles into institutional frameworks to legitimize these policy practices. Institutionalizing new forms of practice or new policy approaches will take time, but the starting point will be experimentation in small, low-costs projects that can incrementally 'de-risk' the larger opportunities and benefits they espouse (Prahalad, 2004).

With policy being such a contested process, crowded with stakeholders and their interests, policy officers are often concerned with managing potential vetoes to policy adoption, so as to deliver on government programs and priorities. This requires substantial skill to read the socio-political landscape of the policy-making context, its

actors, networks, agendas and discourses. To enable 'next' practice governance to be developed, this skill-set will need to be expanded to consider the opportunity costs of current or proposed approaches, and ways to take advantage of emerging opportunities. Policy makers will need a suite of new or adjusted tools to support their contextual analysis skills and to incorporate their knowledge into policy. For example, cost-benefit analysis methods that can value the non-monetary benefits of water need to be robust enough to be trusted and adopted, processes for risk management and risk sharing need to be developed that support greater experimentation while simultaneously safe-guarding public and environmental health. Current CRC projects are already contributing to the development of these policy tools. The challenge is to know when and how they can be used most effectively in policy processes and key governance decisions.

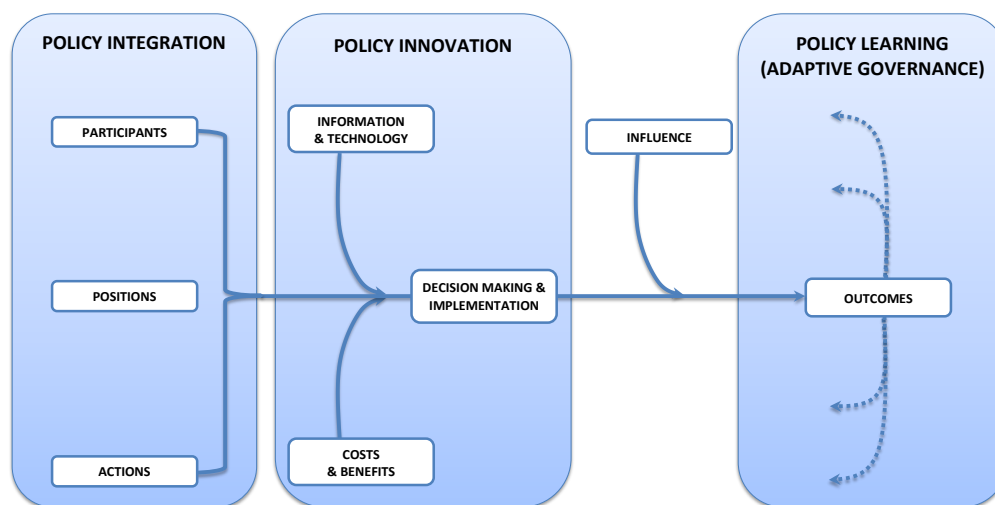
Enabling governance for ‘next’ practice

This report has identified three clear pathways understood to progress change in governance systems:

- Closer interaction between policy processes and practice innovations
- Better alignment of policy goals and delivery instruments, and
- Embedding learning mechanisms and greater flexibility in decision-making and policy implementation processes.
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A conceptual framework for governance intervention through a policy lens is illustrated in Figure 3. Three areas—policy innovation, policy integration and learning and adaptability—provide a platform for building the ‘next’ practice governance approaches for WSC through policy intervention. The framework provides guidance on navigating the complexity of water governance reform, by targeting interventions to better align with governance functions, policy and implementation processes. By gearing governance system components to deliver new and evolving outcomes, cities can enable their own unique transition toward water sensitive and liveable urban landscapes.

Figure 3. Policy perspectives and intervention areas for reconfiguration of water governance



Note: The policy areas highlighted guide the research of *Better governance for complex decision making* (Project A3.1). The research gap in the ‘Influence’ component is addressed by *Strategies for influencing the political dynamics of decision making* (Project A3.3).

Future research will distil successful incentive structures, collaborative practices and policy capacity from empirical research to develop guidance on how to influence a WSC’s governance evolution through these policy intervention areas.

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