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Designing cross-sectoral collaborations for integrated urban and water planning

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Designing cross-sectoral collaborations for integrated urban and water planning
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Contents

Introduction

What is the purpose of this document?

Water plays a central role in shaping the form and function of a city. As we grow, renew and upgrade our urban environments and infrastructure systems, water sensitive urban design solutions and green infrastructure offer an opportunity to enhance the sustainability, resilience and liveability of Australian cities. But effective design and implementation of water sensitive solutions require new systems of planning and governance (Frantzeskaki, 2019). The place-based nature of water sensitive solutions undermines a 'cookie-cutter' approach to urban and infrastructure planning, dictating a shift to collaborative approaches between urban and water sectors that can closely integrate urban and water outcomes in any given context.

Collaborative governance or, in the context of this paper, cross-sectoral collaboration between urban and water sectors, is about sharing information, activities, capacities, resources, and decision making, by organisations and actors in two (or more) sectors, to achieve a set of outcomes that wouldn't be achieved separately (Bryson et al., 2015). Establishing such collaborations is a complex task, and sustaining them over time comes with significant challenges and transaction costs. In the absence of any systematic guidance, most collaborations between the urban and water sector in Australia so far have relied heavily on the perspectives, experiences, knowledge and the goodwill of the people involved to grow and survive (Stoker et al., 2018). But the lack of guidance has also led to collaboration processes that are established on an ad-hoc basis, with poor upfront planning, and falling short of delivering on their intended outcomes. This paper offers some guidance for designing cross-sectoral collaborations (or collaborative governance) for delivering water sensitive solutions.

What does this paper cover?

This paper discusses key principles and considerations in designing collaborative governance for integrated urban and water planning. It is not a recipe or a 'how-to' guide, but rather highlights some of the key elements that need to be designed/planned in a collaborative approach, as well as tools or tips to assist with that.

Who is this paper for?

This paper was developed for urban and water practitioners—individuals or organisations, across different levels of government, infrastructure planners, utilities, developers, businesses, NGOs and civil society—who aim to establish cross-sectoral collaborations for integrated planning. But it can be broadly useful in other contexts where collaboration is both desired and difficult to establish.

How does a practitioner use this paper?

This paper discusses a series of elements for establishing cross-sectoral collaborations. Practitioners can use these elements to guide the diagnosis of existing collaborations, or to help establish new collaborations.

How was the paper developed?

This paper was developed from synthesising both the academic and grey literature on collaborative governance, as well as practice-based knowledge of urban and water practitioners in Australia. It draws on extensive interviews with 42 industry practitioners across different states. The authors of this paper then presented emerging insights at two practitioner workshops, and sought feedback from participants—once at the early stages of the development of the document (June 2019), and once towards the end (April 2020).

Key considerations in designing collaborative governance

In establishing collaborative governance, key elements to consider are (Bryson et al., 2015; Emerson et al., 2012; Ansell and Gash, 2008):

1. The '**why**': Why are the collaborations needed? What drivers are present? What benefits can be gained?
2. The '**what**': What is the context within which we collaborate? What are the enablers, constraints, opportunities and challenges?
3. The '**who**': Who should be involved in the collaborative process? What role should different actors play?
4. The '**how**': What should the collaboration process look like? What structures, strategies and processes are needed to have a well-functioning collaboration?

Articulating the 'why' establishes the rationale for collaboration, and clarifies upfront the incentives to engage in a collaborative process. The incentives could range from solving an implementation challenge in urban and water servicing, to delivering greater community benefit through integrated infrastructure solutions. Understanding the context (the 'what') assists with identifying and unpacking the issues that need to be dealt with, the opportunities to leverage, and the challenges to overcome in a collaboration process. Identifying the participants in the collaborative process (the 'who') enables us to engage with the right people and organisations with different levels of influence on the uptake and implementation of water sensitive solutions, and with different stakes and interests in the collaborative process and its outcomes. Finally, the last element for consideration (the 'how') helps with designing the collaborative structures, and devising strategies and processes to sustain collaborative efforts over a period of time.

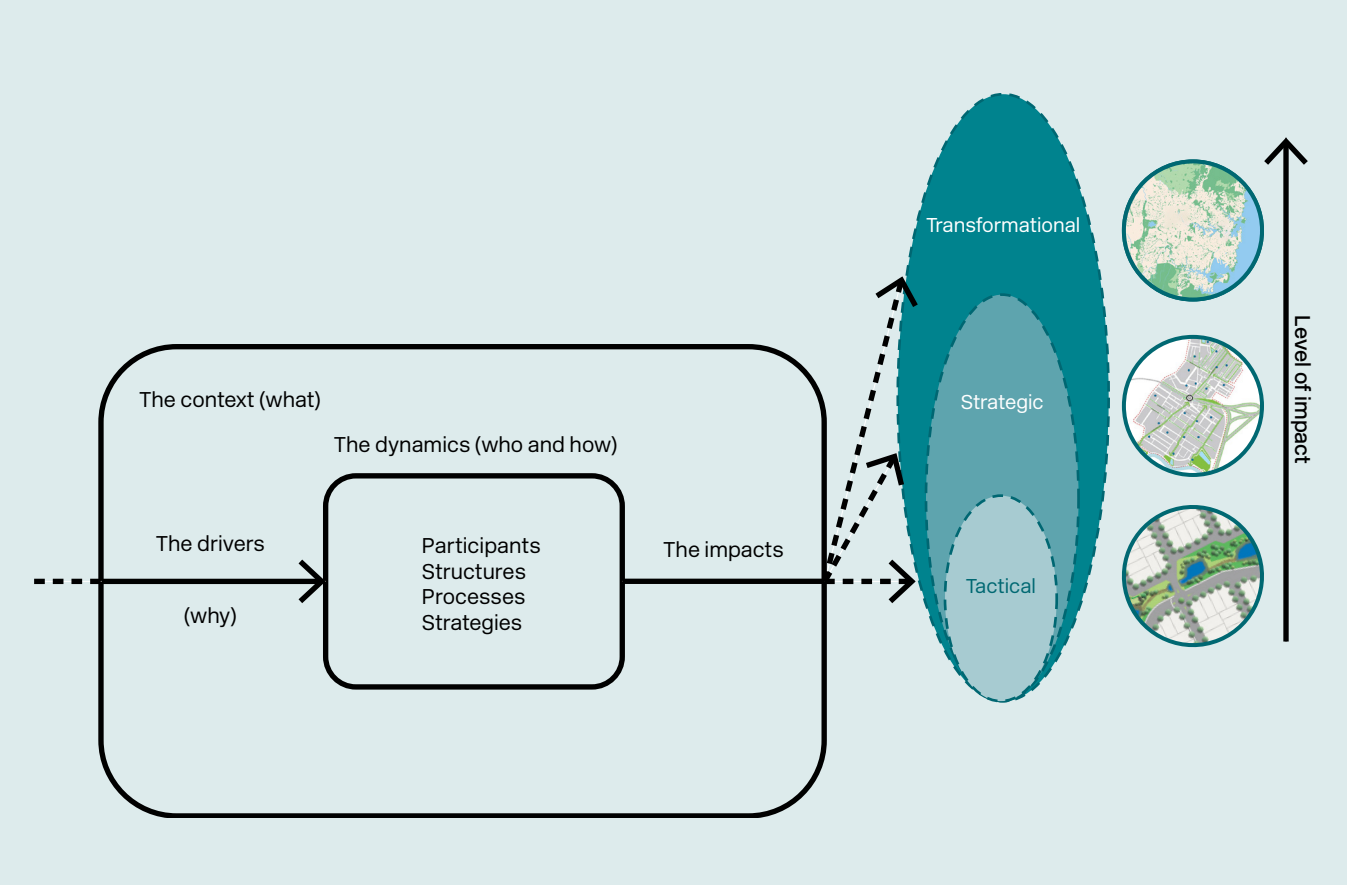

Figure 1. Areas of consideration in designing collaborative governance

In considering the intended level of impact from the collaboration process, we might consider the business-as-usual (BAU) to be conventional servicing and infrastructure delivery. In that case, different organisations mainly interact to coordinate their activities, resolve any issues that arise and/or comply with requirements for stakeholder consultation. This typically facilitates a standard set of solutions that often result in highly impervious urban environments serviced by centralised water supply and wastewater systems. Effective collaborative governance will need to be set up when we intend outcomes beyond conventional servicing; for example, increasing urban greening, amenity, or closing the water cycle. From here, three levels of impact may be intended:

A. **Tactical impact**: This refers to impacts beyond conventional servicing (e.g. increased urban greening), but only within a specific project and at a local scale, rather than at the system or sectoral level (Stoker et al., 2018). Examples of these are the Aquarevo (Vic) and Currumbin Ecovillage (Qld) projects, which focused on delivering greater outcomes beyond conventional servicing, without changing the entire system of urban and water servicing in their respective jurisdictions. To deliver tactical impact, alternative approvals or implementation arrangements may be sought to facilitate one-off innovations, without necessarily changing broader institutional processes and structures.

B. **Strategic impact**: This refers to impact at the level of a major program of work, or sub-system, which has the potential to substantially influence servicing at the system level (Malekpour et al., 2017). An example is Fishermans Bend (Vic) which, if successful, could have lasting influence on the way urban renewal is undertaken in Victoria. This level of impact may be delivered through influencing corridor or precinct scales (e.g. master plans, precinct structure plans). Alternatively, strategic impact may be effectively realised through a strategic approach to the continuous delivery of multiple projects with a tactical level of impact.

C. **Transformational impact**: This refers to systems level impacts that can fundamentally shift the way we plan for urban development and infrastructure delivery (Linnenluecke et al., 2017). Historical examples of this exist; for example, in the large-scale roll out of sewerage systems in Australian cities. More recently, water sensitive urban design measures are increasingly becoming BAU within planned greenfield growth areas, particularly in metropolitan Melbourne (Beza et al., 2019). Transformational impact is achieved when policies and planning start to change at a high level (e.g. state, regional) to enable the delivery of water sensitive solutions. This needs to be accompanied by significant changes in governance arrangements, organisational capacity and cultures, and decision making processes at different stages of planning, design and implementation.

Practitioners should consider the why, what, who, and how alongside the intended level of impact in mind. For example, for tactical impact at the level of an individual project versus transformative impact at the level of an entire sector, we will need different incentives, have to deal with different issues within our context, should engage different actors, and should set up different collaborative processes and structures.

The rest of this paper discusses the different elements that practitioners should consider when designing collaborative governance. The paper also gives some tools and tips that can help practitioners in the process.

1. ‘Why’ collaborate

Cross-sectoral collaborations are often time consuming and resource intensive. So it is important to first establish ‘why’ the collaboration is being set up. This may involve unpacking the existing drivers of collaboration, as well as articulating the benefits of collaboration. Without establishing the rationale for collaboration, it would be difficult to commit to a long-term process and work through the challenges that are likely to arise (Barrutia and Echebarria, 2019).

Drivers of collaboration

In a conventional servicing scenario, there is often **coordination** between individuals and agencies. People and organisations may interact with each other through standardised procedures and routine guidelines, with no intention to seek outcomes that are radically innovative or substantially depart from BAU servicing options. In urban development projects, for instance, there is often a standard level of coordination between urban planners and water authorities as part of precinct structure planning. In routine circumstances, this coordination does not lead to significant cross-agency collaborations.

Collaboration happens when BAU solutions and outcomes are not viable, when they come at a very high cost, or they are not desired. Research interviews with a range of practitioners in Australia’s urban and water sectors showed different drivers could initiate collaborations: necessity, innovation and vision.

Necessity-driven collaboration happens when BAU solutions are not viable or are too expensive, dictating an alternative approach that departs from conventional solutions. This often happens in projects where there are technical difficulties with implementing conventional solutions. Sunbury South in Melbourne is an example, where an elevated plateau and deeply incised valleys, coupled with a highly stressed waterway, have made traditional drainage solutions highly expensive and opened up opportunities for alternative solutions (Victorian Planning Authority, 2019).

Necessity-driven collaboration is likely to result in place-based tactical impact at a local scale. But if the necessity is felt strongly enough by different actors across different jurisdictions, it could also lead to strategic or transformational impact (Novalia and Malekpour, 2020). An example is the necessity to increase the resilience of urban infrastructure systems as a result of a natural disaster heavily impacting on the functioning of conventional infrastructure.

Innovation-driven collaboration happens when champions among the stakeholders advocate for alternative solutions and engages other actors to set up collaborative efforts towards an innovation agenda. An example of this is the Currumbin Ecovillage on the Gold Coast which was initiated by the developer who was willing to differentiate the development in the marketplace through sustainable housing and landscape design, featuring water sensitive solutions (see CRC for Water Sensitive Cities (CRCWSC), 2018a). The collaborative process involved the council and other actors in designing and implementing innovative water servicing solutions instead of conventional infrastructure solutions.

Innovation-driven collaborations often involve champions who are ready to absorb a large part of the transaction costs in the collaborative process (Edelenbos and van Meerkerk, 2015). Depending on the intended level of impact those champions envisage, the level of influence they have, the level of influence of the other actors they engage, and the strategies they use to drive outcomes, innovation-driven collaborations could deliver different levels of impact, from tactical to transformational.

Vision-driven collaboration happens when one or a few organisations with decision making power have a vision for better and broader outcomes beyond BAU (e.g. incorporating Indigenous voices, knowledge and experiences into urban and water planning), and drive other organisations and individuals into collaborative efforts to achieve the vision. Vision-driven collaboration often happens in iconic projects with greater public visibility such as Fishermans Bend in Melbourne (see Department of Jobs, Precincts and Regions, 2019), but this does not need to be the only case. Community expectations for the future of an urban area (e.g. greening of urban spaces) could also create a vision around which collaborations could be mobilised.

In identifying the drivers, practitioners might find these questions or prompts helpful:

- Does your context pose unique conditions that require a new way of servicing?
- Is there scope for trialling an innovative solution?
- Is there a particular agenda (political or organisational) that can be leveraged for the project?
- Has state or local government prioritised the area under development? For example, is the area located within an urban renewal precinct, activity centre, strategic site, National Employment and Innovation Cluster etc.?
- Is there shared vision around the project? Is there public visibility?

What is (are) the key driver(s) for collaboration?

- A necesssity?
- An innovation agenda?
- A vision?

It should be noted that in any given project context, multiple drivers of collaboration can co-exist. Also, the drivers of collaboration may evolve over time. For example, for Fishermans Bend (Vic), collaboration started as a necessity to resolve technical challenges imposed by physical site conditions (e.g. low-lying flood-prone area), but subsequently the collaboration shaped a vision to turn the opportunity into a blueprint for urban redevelopment in a city with global liveability status.

Benefits of collaboration

One of the key tasks in establishing the 'why' is to articulate desired benefits and outcomes of the collaborative process (i.e. to clarify what we want to achieve through collaboration that we wouldn't be able to achieve alone). The literature sometimes refer to this as 'collaborative advantage' (Huxham and Vangen, 2013).

Practitioners may consider two types of benefits for a cross-sectoral collaboration: substantive benefits (i.e. direct outputs from collaboration) and process benefits (i.e. broader capacities that may be built through collaboration) (Frantzeskaki et al., 2014).

Substantive benefits may include:

- adopting fit-for-purpose urban water solutions
- adopting solutions with greater community benefits beyond basic servicing (e.g. ecosystem health, urban greening)
- resolving an implementation challenge involving water sensitive solutions
- developing new standards and governance instruments for integrated planning.

Process benefits may include:

- reconsidering problems and solutions, costs and benefits for responsible agencies
- considering more strongly within organisations the broader community benefits (e.g. wellbeing, ecosystem health)
- creating a shared vision for integrated and improved community outcomes
- increasing trust among stakeholders
- coordinating better among stakeholders towards improved outcomes
- bringing diverse perspectives, skills and competencies to address the confronted issues
- enhancing the capacity of individuals, organisations and sectors for working with innovative solutions (upskilling through information sharing and dialogue)
- resolving conflict through dialogue
- creating a multiplier effect for a broader transition in the urban and water sectors.

What are the benefits from the collaborative process?

- Substantive outputs?
- Broader process outcomes?

2. ‘What’ constitutes the context

Contextual analysis

A key part of analysing the project context is to understand the enablers and barriers of collaboration. It is about identifying the internal and external conditions within and surrounding the collaborative process that may influence how the collaboration is likely to perform. This may include:

- the biophysical context – e.g. available water resource, physical site conditions, extreme weather events, or other environmental crises
- the institutional context – relevant planning, policy and legal frameworks, mandates, vulnerabilities to political change
- broader socio-economic context – e.g. property market, community profile
- prior efforts to address the issues under consideration; prior collaborative attempts
- pre-existing relationships between project partners and power dynamics
- opportunities or key intervention points for departing from BAU solutions – e.g. rezoning land, political change, change of organisational leadership, legislative change.

Enablers and barriers

When designing collaborative governance, it is crucial to identify and closely assess the enablers and barriers to collaboration. Enablers are those factors that can be harnessed, leveraged and proactively used to drive the collaborative process and overcome challenges. Identifying barriers at the outset, on the other hand, helps with building a degree of preparedness to minimise, circumvent or overcome issues that can negatively impact on the collaborative process.

Research has shown that some of the **enablers** of cross-sectoral collaborations are (Ansell and Gash, 2008; Kabisch et al., 2016; Dorst et al., 2019):

- clearly articulated outcomes as part of policy goals, as opposed to high level aspirations
- top-down directive (e.g. enabling policy) as well as bottom-up demand for innovation (e.g. community expectation)
- community vision and active advocacy for better community outcomes, which offers a form of mandate for the publicly owned organisations to work towards them
- independent and non-partisan institutional or governance bodies that support cross-agency collaboration
- greater understanding and transparency around costs and benefits of BAU solutions in the long-term (e.g. costs and benefits of conventional water servicing under extreme climate change scenarios)
- greater appreciation of net-positive trade-offs and best-value outcomes for community among public agencies
- broader perceived remit for public agencies, beyond conventional siloed responsibilities
- pre-existing demonstration projects and collaborative processes that provide proof-of-concept of the effectiveness of a collaborative approach
- champions within organisations driving cross-organisational engagements
- an organisational culture that fosters innovation and collaborations, as well as a proactive and adaptive approach to planning in response to external drivers
- financial commitments by the parties involved in the collaborative process.

Lack of the above items may represent a barrier to collaboration. Other **barriers** may be (Kabisch et al., 2016; Ferreira et al., 2020; Productivity Commission, 2020):

- the narrow scope of financial regulations and statements of obligation, hampering the adoption of innovative solutions and collaborative approaches
- narrow KPIs focused on efficiency and affordability, instead of delivering best-value outcomes for community
- lack of capacity, resources and skills among organisations to deliver on visionary policy aspirations
- risk aversion (perceived or actual) towards new governance arrangements and alternative urban and water solutions
- organisational culture that encourages a narrow focus on its role, reinforcing organisational silos and overlooking broader community outcomes
- differences in professional norms, language, cultures and willingness to engage with different professions, making it difficult to develop shared understandings.

Case study: Brabham, Western Australia

Brabham is a greenfield development (220 ha), located 23 kilometres north-east of Perth CBD on the Swan Coastal Plain in one of Perth's growth corridors. The residential development is expected to house about 12,000 people. The site has a high groundwater table, particularly in winter. This requires the importation of fill for development, with severe impacts on existing vegetation and the site's natural hydrology.

To identify innovative technical solutions that could address those development issues, the Department of Communities (the land owner) and Peet Pty Ltd (the developer) engaged the CRCWSC in 2018 to facilitate a co-design process with key stakeholders (CRCWSC, 2018b). Some of the potential solutions identified involved maintaining established trees, creating room for water through lightweight housing, and harvesting water discharged as a result of urban development and land use change. But to realise those solutions on the ground, there was a need for further collaboration to influence the planning and approval process.

This technical **necessity** led to the formation of the Brabham Action Learning Partnership in 2019, as a coordinated forum with members mainly from the Department of Communities, Peet, the Department of Water and Environmental Regulation and the City of Swan, and facilitated by the CRCWSC. Through the collaborative process, the Partnership carefully assessed the contextual conditions and discussed pathways for implementation over a period of several months (Tawfik et al., 2020). The collaborative process led to an agreement on a planning pathway for using subsoil drainage water as a non-potable water supply source for irrigating public open space. As such, the collaboration in the form of a coordinated forum has so far managed to deliver **tactical impact** in a specific project within a local context, but is also able to generate momentum for ongoing collaborations and delivering strategic impact in the future.

3. ‘Who’ should be involved

It is important to identify the stakeholders that need to be involved in the collaborative process, and the roles they might play. Stakeholders are individuals or organisations that are affected by decisions/actions/outcomes, or who have the power to influence them (Reed et al., 2009), either immediately or down the track. They may be individuals or organisations, representing themselves, a public agency, a business, an NGO, a community group, or the broader public. They bring to the table their own perspectives, values, attitudes, backgrounds and experiences, as well the interests, mandates and missions of the agencies they represent (Beierle and Cayford, 2002).

Identifying stakeholders is often an iterative process, and various methods have been developed to guide the process (see for example Reed et al., 2009; de Vicente, 2016). It is crucial to note that it helps to identify relevant stakeholders within the context of the intended level of impact. For example, if the intent is to deliver tactical impact, engaging a limited set of stakeholders with influence on local outcomes might be sufficient; whereas delivering strategic or transformational impact might require engaging with a broader set of stakeholders with influence at large scale policy and planning (e.g. at the metropolitan or state level).

Stakeholder mapping

Stakeholders can be categorised in different ways, to identify how to engage with them and what roles they might play in the collaborative process. One useful way of categorising stakeholders is based on:

1) their extent of *influence* on the collaborative process, its substantive outputs, and on other stakeholders
2) their extent of *interest* in the collaborative process or its substantive outputs.

Influence is the ability or capacity of stakeholders to drive actions at any stage of the project from planning to implementation, to help or hinder the collaborative process, or to influence other stakeholders. It is important to determine the extent of influence based on the intended level of impact. For example, for a strategic level impact, we might consider metropolitan or state actors to have a high degree of influence; whereas for tactical impact, local actors might be more relevant.

In identifying stakeholders’ influence, you may consider:

- political dynamics and power relations among or across levels of government (e.g. election year, agency restructures), and within communities
- the nature of existing interagency or multi-stakeholder networks (i.e. strong/well-connected or weak networks) and working relationships (to determine the trustworthiness and legitimacy of other stakeholders), and
- who the decision makers and influencers are in each stage of the project (e.g. developers, urban planners, asset managers, etc.).

Interest represents stakeholders’ stakes in the outcomes of the collaborative process or their willingness to actively participate in the collaborative process. For example, a state government agency might be particularly interested in motivating and facilitating collaboration among other agencies under its watch, whereas a community group might be particularly interested in what comes out of the collaborative process as substantive outputs (e.g. investment in urban greening).

Drawing a simple matrix with ‘Influence’ and ‘Interest’ on the two axes can be a useful heuristic tool for thinking about the role different stakeholders might play. Each axis will have extreme ends on each side: ‘Low influence’ versus ‘High influence’ and ‘Low interest’ versus ‘High interest’. This results in four quadrants for the matrix (see Figure 2). It’s then a matter of placing each stakeholder on one of the quadrants.

Stakeholders who are highly influential and have a high interest are well placed to lead the collaborative process. They could pool resources, skills and expertise and bring other stakeholders into the collaborative process. Collaboration leaders could be from government agencies, businesses, civil society, or a combination of those (van Ham and Klimmek, 2017). Brabham (WA), for example, was led by the state government and the developer (Tawfik et al., 2020). Upper Merri Creek sub-catchment planning (Vic), on the other hand, was led by water agencies (Yarra Valley Water and Melbourne Water).

Stakeholders with low influence but high interest in the collaborative process or its outcomes can be appropriately positioned as partners, and empowered to play a meaningful role. Often, stakeholders who have access to greater resources can play a stronger role in the collaborative process, and therefore influence the direction and the outcomes of collaborative governance. To have genuine collaboration, it is crucial that collaboration leaders empower under-resourced stakeholders to act as key partners. In the Upper Merri project, for instance, Traditional Owners were positioned as genuine partners and their interests and inputs were actively sought throughout the process. This led to decision making embracing natural and cultural values as a critical element. Without such partnership, there was a risk that Indigenous voices would remain marginalised and their interests overlooked in the collaborative process.

Stakeholders with low interest and low influence can be considered as associates; they could be informed and consulted at various stages of planning and implementation.

Stakeholders with high influence and low influence can be actively motivated and engaged as levers for the collaborative process and its outcomes. This recognises that, despite their low interest, these stakeholders can play a critical role in making or breaking collaborative efforts due to their high degree of influence. For example, if a local level project is not solely focused on local tactical impact, but is in fact aiming to develop a blueprint for delivering new developments and strategic outcomes, then it needs to engage with metropolitan and state agencies with decision making power and influence over strategic outcomes, even if the interest of those agencies in the local project might be limited.

Categorising stakeholders within the matrix is not a static process. Stakeholders might create or adopt new roles or break down previous roles as collaboration proceeds over time (Wittmayer et al., 2017).

Identifying champions

Leadership is key to the success of the collaboration. Identifying champions who can play a leadership role in establishing and maintaining collaborations is crucial.

Champions could be organisations who take on the central coordination role for collaborative governance or individuals within organisations who take on the responsibility of driving the collaborative process.

A range of empirical research projects have identified the characteristics of champions or leaders in the context of collaborative governance (Bryson et al., 2015; Edelenbos and van Meerkerk, 2015; McIntosh and Taylor, 2013). These include:

- builds trust across a large group of stakeholders
- brings a collaborative mindset
- spans boundaries to break down and work across silos
- frames a shared vision relevant to a large group of stakeholders
- understands and speaks to diverse interests and value propositions, and represents a collective (rather than individual) perspective for their organisation
- has a reputation for breadth and depth in expertise, knowledge and experience of the issues (T-shaped professional)
- exhibits personality traits such as confidence, enthusiasm and persistence.

Having multiple leaders in the collaborative process ensures there will always be someone available to guide and facilitate the process if circumstances change.

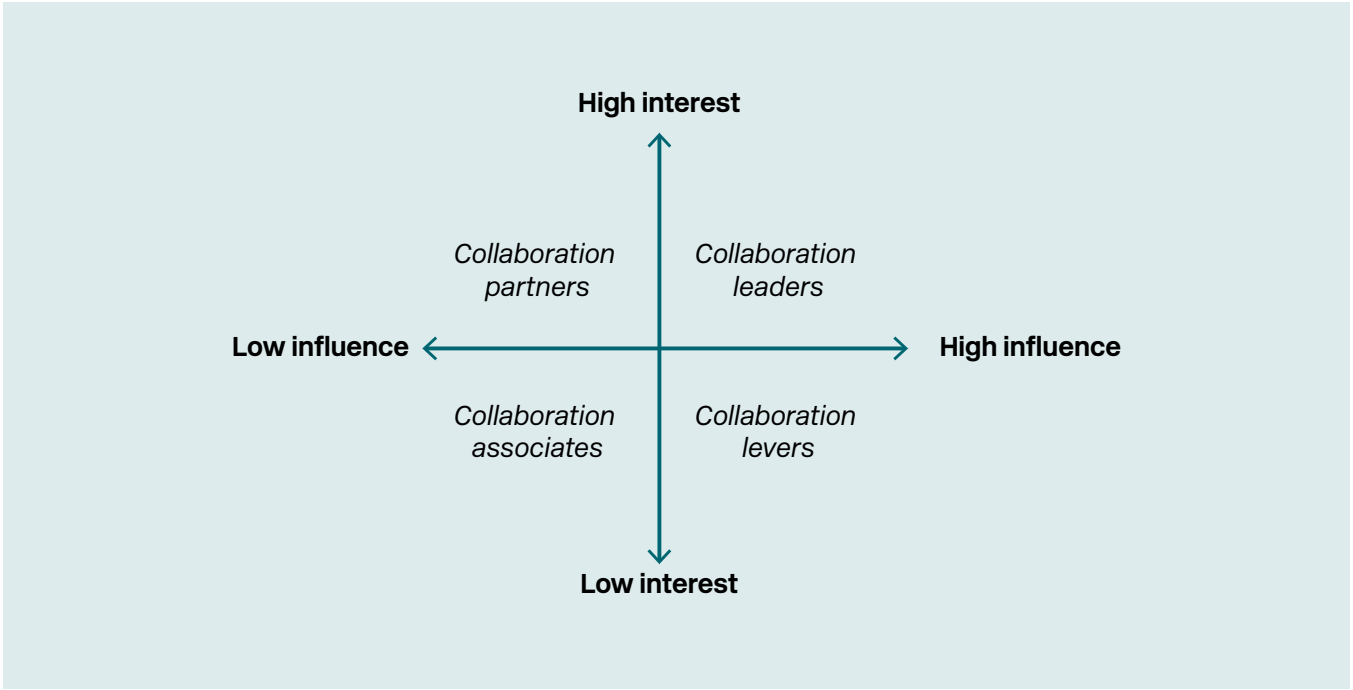

Figure 2. A heuristic tool for categorising stakeholder roles in collaborations

4. ‘How’ to collaborate

This section highlights key considerations for setting up structures and processes that guide how the collaboration proceeds.

Collaborative structures

Collaborations can take different forms (e.g. coalition, working group, taskforce, etc.) and there can be different levels of integration between the agencies involved in the collaborative process (McGuire, 2006). Here, we present an ideal–typical framework that conceptualises different levels of collaborations based on the extent of integration between the participants in the collaborative process (e.g. extent of resource sharing, responsibility sharing). In reality, collaborations might not always fit neatly into these levels. Also, collaborations might start from one level and move towards other levels over time. The levels, however, can help with identifying where stakeholders are at in a collaborative process, and where they should aim to be, depending on the desired outcomes and the intended level of impact.

The levels of collaboration based on different levels of cross-agency integration are:

Level 1: **Standard coordination**. Individuals and agencies act independently, with limited stakeholder engagement (e.g. confined to intermittent coordination). Agencies adhere to minimum compliance standards. This level of integration often happens in conventional urban water infrastructure planning, where the context does not pose a significant challenge dictating cross-agency collaboration, and there is no innovation agenda or a vision for outcomes beyond BAU urban form and water servicing.

Level 2: **Informal forums**. Informal connections and collaboration between individuals are formed. Individuals share information and ideas in an informal capacity through working relationships or professional networks, but the collaboration doesn’t extend to the rest of their organisations. Informal forums could build momentum for higher levels of collaboration but, on their own, they might not be able to deliver significant impact beyond BAU.

Level 3: **Coordinated forums**. Actors establish coordinated collaborative forums where knowledge is shared and ideas are discussed about a topic (e.g. maintenance of water sensitive infrastructure). Compared with informal forums, there is some structure, coordination and regularity in coordinated forums. But resource and capability sharing does not occur at this level, and it is unlikely to deliver high level impact (strategic or transformational) through the collaborative process at this level.

Communities of practice and some industry networks might fall within this level. They could involve Information Networks, Developmental Networks, and Outreach Networks (Agranoff, 2004).

- Informational Networks involve a group of stakeholders who come together for the sole purpose of information exchange and exploratory discussions on solutions to a problem.
- Developmental Networks involve information sharing, as well as education and capacity building initiatives to enhance organisational capabilities in addressing shared problems.
- Outreach Networks involve information sharing as well as strategic thinking around engaging other stakeholders outside the network.

Level 4: **Temporary structures**. Dedicated temporary structures are established on an ad-hoc or ‘as needed’ basis (e.g. temporary taskforce, working group). Unlike the forums already discussed, agencies involved in temporary structures begin to commit resources to the collaborative planning effort and establish terms of reference. Stakeholders often dismantle these structures when the purpose is accomplished. This level of collaboration might be able to deliver tactical or strategic impact.

Temporary structures often take the form of Action Networks.

Action Networks involve collective action by formally adopting network-level strategies and delivering them through the network. If a taskforce is set up as part of this, the core agency would centrally coordinate the network. But this does not mean that strategic activities will only be carried out by the central agency. In fact, evidence suggests that in highly functional networks, the central agency plays a coordination, facilitation and operational role, while strategic activities are led through members of the network (McGuire, 2006).

Level 5: Ongoing structures. Formal and ongoing collaborative governance structures with clearly defined roles and responsibilities are mandated and embedded in practice (e.g. a statutory authority). The Greater Sydney Commission is an example of such ongoing structures, and was set up to work with other urban actors and agencies (e.g. councils, developers, water authorities, transport providers, etc.) to plan the Greater Sydney metropolitan region (Greater Sydney Commission, 2020).

Table 1. Levels of collaboration in relation to levels of impact

Increasing level of cross-agency integration

Increasing level of impact

	Level 1: Standard coordination	Level 2: Informal forums	Level 3: Coordinated forums	Level 4: Temporary structures	Level 5: Ongoing structures
Tactical impact **(Project level)**			✔ Informational, Developmental or Outreach Networks	✔ Action Networks	
Strategic impact (Program level/ Sub-system level)				✔ Action Networks	✔ Action Networks
Transformational impact (Sector level/ system level)					✔ Action Networks

Once a suitable collaborative structure is identified, it's time to agree on some of its key elements:

- the nature and the scope of the problem to address
- the desired outcomes
- the mission of the collaborative structure (e.g. information sharing, education and capacity building, strategic action, etc.)
- the composition of the collaborative structure, clearly articulating roles and responsibilities, as well as terms of reference at the outset
- the collaborative process (e.g. frequency of meetings, methods of communications, etc.)
- the required resources, for both the functioning of the collaborative structure and for each organisation involved
- the decision making process (e.g. consensus, majority, etc.)
- information sharing, the type of data required, and who will be responsible for providing that data
- interim evaluations to make sure the process is on track and moving towards the desired direction.

These agreements can be informal or formal. Informal agreements allow for flexibility and rapid adaptation to changing conditions, but could lack the required accountabilities. Formal agreements enable more accountabilities, but could create lock-in and rigidity against changing circumstances, if they don't accommodate those changes.

Case study: Upper Merri Creek, Victoria

The Upper Merri Creek sub-catchment planning project involves integrated water management for greenfield and infill growth in Melbourne's north. The area features established suburbs, rural landscapes, creeks and bushland, governed by three local councils (Hume, Whittlesea and the Mitchell Shire). As urban development continues due to population growth in the coming years, land uses will change from rural to urban and from low to high density, exerting pressure on existing infrastructure and the natural environment (Foundry, 2019).

Understanding the long-term costs and benefits of conventional water servicing, as well as stakeholders' **vision** for an urban development process that would deliver improved social and environmental outcomes, encouraged stakeholders to establish a collaborative process and work through solutions that could protect the highly valued waterways and natural landscape. Participants in the collaborative process included the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, Yarra Valley Water, Melbourne Water, three councils, and the Victorian Planning Authority. They established a two-tiered structure made up of a steering committee and working group (**temporary structures**), to pilot a collaborative planning approach to integrated water management. Traditional Owners were appropriately positioned as key **collaboration partners** and their interests and concerns were actively sought in the decision making process; for example, by explicitly including cultural flow assessments. The Victorian Planning Authority was also engaged, to influence implementation and support **strategic impact** beyond the Upper Merri project alone.

The collaborative process is ongoing and has so far delivered a range of **process benefits**, such as improving coordination between participants and creating a multiplier effect for other collaborations. The partnership aims to produce an integrated water management plan for the sub-catchment using place-based solutions with greater community outcomes than basic service delivery.

Photo credit - Digby Richardson, Melbourne Water

Collaboration management strategies

A meta-analysis of more than 100 publications on collaborative governance (Ansell and Gash, 2008), as well as the CRCWSC's empirical work in Australia, identified the following ingredients that will influence whether or not a collaborative process would sustain over time and achieve its intended outcomes effectively:

Incentives to participate: Members of a collaborative structure need to see a clear connection between their participation in the process and achieving their intended outcomes or level of impact. This could help overcome the burden of transaction costs and motivate participants to get engaged and remain engaged throughout the process.

Shared goals and understanding: At an early stage during the collaboration, stakeholders need to identify and articulate what they can achieve together. This includes a shared understanding of the problem at hand and key issues to address, vision and mission, the intended level of impact, as well as the range and diversity of potential solutions (Ferguson et al., 2013).

Effective trust building: Collaborations do not always start from a place of trust. Accordingly, it helps to have the early phases of a collaborative process focusing on building relational capacity among collaborators, acknowledging that trust building could be a long-term process, and requiring mutual understanding and efforts. The participants in a collaborative process need to get to know each other as individuals and as representatives of their organisations. For trust to grow and evolve, there might be a need for informal networks and spaces of interaction, in which communication barriers could be broken down, opportunities for mutual gain could be freely explored, and respect could be built over time (Edelenbos and van Meerkerk, 2015).

Pre-existing collaborations and effective conflict management strategies: Stakeholders are more likely to collaborate where there is a history of cooperation and fruitful mutual interactions. A history of conflict does not necessarily preclude collaboration, and sometimes it can actually incentivise collaboration, particularly where a lack of agreement has imposed heavy costs on all parties, as in the case of policy deadlocks (Klijn et al., 2010). But the dynamics of collaboration in such instances are more difficult to manage. Power imbalances (e.g. different decision making authorities), divergent interests, objectives and value propositions among stakeholders, as well as contradictory institutional logics (e.g. stability versus flexibility, efficiency versus inclusivity, autonomy versus interdependence) can raise tension and conflict among stakeholders (Bryson et al., 2015). In such situations, making sure that all stakeholder groups are fairly represented in the collaborative structure, and facilitating regular interactions to allow for tension to come to the surface and be negotiated is an effective strategy. Also, facilitating forums where decisions will not be made but issues will be discussed and knowledge will be shared (e.g. informational networks) could be an effective strategy in managing conflict and tension in the collaborative process (Agranoff, 2007).

Thorough analysis of potential solutions: Collaborations may be less effective when one or more parties rush towards the solution or come into the process with pre-defined solutions. Collaborations should allow time and resources to fully unpack and assess issues and reach a consensus about potential solutions. One strategy could be producing interim strawman plans and solutions at various stages of the process, and providing opportunities for everyone to scrutinise those interims plan and provide feedback, before a final plan is put together.

Commitment to the process: Stakeholders need to feel confident in the integrity and inclusivity of deliberative procedures. This in turn engenders a shared responsibility for decision making processes, leading to outcomes that all 'own' (Ansell and Gash, 2008). Such ownership could begin with each collaborator allocating dedicated resources (time, effort, funding), however small. This often requires top-down buy-in and support from the leaders of the organisations involved. Transient staff/professionals could create a barrier against building effective commitment to the collaborative process.

Distributed leadership: Distributed leadership is particularly important where legitimacy, authority, resources and ability to influence change are dispersed across multiple individuals or organisations (Barrutia and Echebarria, 2019). Deliberately establishing, or allowing for the emergence of, different leaders with complementary skillsets and resources, spanning vertically and horizontally across levels or organisations to provide formal and informal leadership, is an effective strategy for building credibility and trust, maintaining momentum for collaboration, and managing conflict.

Accountability: A collaboration is more likely to succeed where there are clear accountabilities and measurement systems to track inputs, processes and outputs, and report against planned results and targets (Frantzeskaki et al., 2014). Using formal agreements can help support accountability, but ultimately an accountable collaboration requires strong relationships among collaborating partners and key external stakeholders, as well as the capacity to measure results and use information to improve performance.

Small wins: Intermediate outcomes that produce 'small wins' can help build and sustain momentum for collaboration, as well as encourage trust building and commitment to the collaborative process (Ansell and Gash, 2008).

Adapting the process: An effective collaborative process involves continuous negotiation, learning and adaptation of goals, activities and metrics in response to changing conditions or lessons learnt (Rijke et al., 2013). Collaborative arrangements need to be able to handle change and adapt when required (for example, in the face of disagreements or when goals are no longer appropriate), to maintain their relevance (and therefore, existence) and sustain stakeholder commitment.

Final remarks

Realising the vision of a water sensitive city requires stronger integration between urban planning and water infrastructure planning. Collaborative governance is one of the key mechanisms for operationalising such integration.

Cross-agency and cross-sectoral collaborations are difficult to establish and sustain over time. In reality, many collaborations take place on an ad-hoc basis, heavily relying on the goodwill and commitment of the participants to survive and be effective, rather than sound upfront planning and design. In the absence of a workplan for the collaborative process itself, and without thinking through different issues that constitute a collaboration (the why, what, who, and how), collaborations can fail to deliver on their intended level of impact.

This paper proposed a series of considerations and principles for urban and water practitioners to think about when designing collaborative governance. Given the time consuming and resource intensive nature of cross-sectoral collaborations, it is important to invest in setting up the collaboration for success before commencing activities. Practitioners should systematically consider the four elements described in this paper:

1. Articulate the rationale for collaboration ('Why' collaborate)
2. Understand the existing context, including enablers and barriers, to inform the scope of the collaboration ('What' constitutes the context)
3. Identify who should participate and what role should they play in the collaboration ('Who' should be involved)
4. Develop a collaborative structure that is fit-for-purpose, and consider its ongoing functionality ('How' to collaborate).

These elements are not exhaustive, but they provide a starting point for practitioners seeking to establish an effective collaboration. Each of these elements require dedicated attention, but we recognise that in practice, opportunities for collaboration come up relatively quickly, leaving little time for considered design and planning. Accordingly, practitioners should seek to adopt a proactive approach by identifying upcoming opportunities for collaboration before they occur. This would enable practitioners to commence planning in advance so they are ready to take advantage of opportunities as they arise. Such thinking requires a shift from reactive and siloed planning to anticipatory and cooperative planning, something the water sector in particular is increasingly recognising it needs to change if it is to facilitate broader liveability outcomes.

While not an easy change, recent facilitated collaborative governance experiments, such as those enabled by the Greater Sydney Commission and the Victorian Integrated Water Management Forums, point to the need for such approaches and the potential value of guidance in this area. As we go forward, it is worth complementing the topics discussed here with learnings from such experiments, as well as new insights from international best practices as they become available.

References

Agranoff, R. Leveraging networks: a guide for public managers working across organizations, Washington DC: IBM Endowment for the Business of Government, 2004.

Agranoff, R. Managing within networks: adding value to public organizations, Washington DC: Georgetown University Press, 2007.

Ansell, C. and Gash, A. 'Collaborative governance in theory and practice', J. Public Adm. Res. Theory, vol. 18, no. 4, pp. 543–571, 2008.

Barrutia, J. M. and Echebarria, C. 'Drivers of exploitative and explorative innovation in a collaborative public-sector context', Public Manag. Rev., vol. 21, no. 3, pp. 446–472, 2019.

Beierle, T. C. and Cayford, J. Democracy in practice: public participation in environmental decisions. RFF Press, 2002.

Beza, B. B., Zeunert, J. And Hanson, F. 'Chapter 18 - The Role of WSUD in Contributing to Sustainable Urban Settings', in Approaches to Water Sensitive Urban Design: Potential, Design, Ecological Health, Urban Greening, Economics, Policies, and Community Perceptions, A. K. Sharma, T. Gardner and D. Begbie, Eds., Elsevier, 2019.

Bryson, J. M., Crosby, B. C. and Middleton Stone, M. 'Designing and implementing cross-sector collaborations: needed and challenging', Public Adm. Rev., vol. 75, no. 5, pp. 647–663, 2015.

CRC for Water Sensitive Cities, 'Currumbin Ecovillage Rainwater Harvesting', Melbourne, 2018a. Retrieved from https://watersensitivecities.org.au/content/currumbin-ecovillage-rainwater-harvesting/ (accessed October 2020).

CRC for Water Sensitive Cities, 'Ideas for Brabham', Melbourne, 2018b. Retrieved from https://watersensitivecities.org.au/content/ideas-for-brabham/ (accessed October 2020).

de Vicente, J. Visual toolbox for system innovation. Brussels: Climate-KIC, 2016.

Department of Jobs, Precincts and Regions (Vic), Fishermans Bend: Australia's largest urban renewal project, Melbourne, 2019. Retrieved from https://www.fishermansbend.vic.gov.au/ (accessed October 2020).

Dorst, H., van der Jagt, A., Raven, R. and Runhaar, H. 'Urban greening through nature-based solutions – key characteristics of an emerging concept', Sustain. Cities Soc., vol. 49, no. May, p. 101620, 2019.

Edelenbos, J. and van Meerkerk, I. 'Connective capacity in water governance practices: the meaning of trust and boundary spanning for integrated performance', Curr. Opin. Environ. Sustain., vol. 12, pp. 25–29, 2015.

Emerson, K., Nabatchi, T. and Balogh, S. 'An integrative framework for collaborative governance', J. Public Adm. Res. Theory, vol. 22, no. 1, pp. 1–29, 2012.

Ferguson, B. C., Frantzeskaki, N. and Brown, R. R. 'A strategic program for transitioning to a water sensitive city', Landsc. Urban Plan., vol. 117, pp. 32–45, Sep. 2013.

Ferreira, V., Barreira, A. P., Loures, L., Antunes, D. and Panagopoulos, T. 'Stakeholders' engagement on nature-based solutions: a systematic literature review', Sustain., vol. 12, no. 2, pp. 1–27, 2020.

Frantzeskaki, N. 'Seven lessons for planning nature-based solutions in cities', Environ. Sci. Policy, vol. 93, no. October 2018, pp. 101–111, 2019.

Frantzeskaki, N., Wittmayer, J. and Loorbach, D. 'The role of partnerships in 'realising' urban sustainability in Rotterdam's City Ports Area, the Netherlands', J. Clean. Prod., vol. 65, pp. 406–417, 2014.

Foundry, 'Upper Merri Creek Sub-Catchment Issues Paper', Melbourne, 2019. Retrieved from https://uppermerricreek.com.au/introduction-upper-merri-catchment (accessed October 2020).

Greater Sydney Commission, 'Who we are', Sydney, 2020. Retrieved from https://www.greater.sydney/who-we-are (accessed October 2020).

Huxham, C. and Vangen, S. Managing to collaborate: the theory and practice of collaborative advantage. Routledge, 2013.

Kabisch, N. et al., 'Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action', Ecol. Soc., vol. 21, no. 2, 2016.

Klijn, E. H., Steijn, B. and Edelenbos, J. 'The impact of network management on outcomes in governance networks', Public Adm., vol. 88, no. 4, pp. 1063–1082, 2010.

Linnenluecke, M. K., Verreynne, M., De Villiers, M. J. and Venter, C. 'A review of collaborative planning approaches for transformative change towards a sustainable future', J. Clean. Prod., vol. 142, pp. 3212–3224, 2017.

Malekpour, S., Brown, R. R., de Haan, F. J. and Wong, T. H. F. 'Preparing for disruptions: a diagnostic strategic planning intervention for sustainable development', Cities, vol. 63, 2017.

McGuire, M. 'Collaborative public management: assessing what we know and how we know it', Public Adm. Rev., vol. 66, no. December, pp. 33–43, 2006.

McIntosh, B. S. and Taylor, A. 'Developing t-shaped water professionals: building capacity in collaboration, learning, and leadership to drive innovation', J. Contemp. Water Res. Educ., no. 150, pp. 6–17, 2013.

Novalia, W. and Malekpour, S. 'Theorising the role of crisis for transformative adaptation', Environ. Sci. Policy, vol. 112, no. May, pp. 361–370, 2020.

Productivity Commission. 'Integrated Urban Water Management — Why a good idea seems hard to implement', Commission Research Paper, Canberra, 2020.

Reed, M. S. et al., 'Who's in and why? A typology of stakeholder analysis methods for natural resource management', J. Environ. Manage., vol. 90, no. 5, pp. 1933–49, Apr. 2009.

Rijke, J., Farrelly, M., Brown, R. and Zevenbergen, C. 'Configuring transformative governance to enhance resilient urban water systems', Environ. Sci. Policy, vol. 25, no. ii, pp. 62–72, 2013.

Stoker, P. et al., 'Joining-up urban water management with urban planning and design', 2018.

Tawfik, S., Shepherd, S., Smith, B. and Chesterfield, C. 'Brabham Action Learning Partnership: case report', Melbourne, 2020.

van Ham, C. and Klimmek, H. 'Partnerships for nature-based solutions in urban areas – showcasing successful examples', in Nature-based solutions to climate change adaptation in urban areas: linkages between science, policy and practice, N. Kabisch, H. Korn, J. Stadler, and A. Bonn, Eds., Springer, 2017.

Victorian Planning Authority, Sunbury South Precinct Structure Plan and 'Interim' Infrastructure Contributions Plan, 2019. Retrieved from https://vpa.vic.gov.au/project/sunbury-south/ (accessed October 2020).

Wittmayer, J. M., Avelino, F., van Steenbergen, F. and Loorbach, D. 'Actor roles in transition: insights from sociological perspectives', Environ. Innov. Soc. Transitions, vol. 24, pp. 45–56, 2017.

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