



CRC for
Water Sensitive Cities

Pursuing sustainable urban water management through co-governance

A case study of Marrickville Council

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Pursuing sustainable urban water management through co-governance: A case study of Marrickville Council

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Executive summary

Achieving sustainable urban environments requires an alternative approach to urban water management. Sustainable urban water management (SUWM) is one such approach that recognises the importance of involving stakeholders in decision-making processes. Scholars have proposed numerous mechanisms for engaging and collaborating with stakeholders. This report focuses on “co-governance”, which describes an inclusive and deliberative approach that emphasises public involvement in the planning, design and management of traditionally governmental functions. The academic literature highlights the importance of co-governance. Such participatory processes can improve governmental accountability and lead to efficiency gains. They may also serve to build trust and mutual understanding between relevant stakeholders, and empower local citizens to take ownership and responsibility for the provision of public services.

Despite these justifications, very few studies have explored the nature and extent of co-governance in contemporary urban water management practices. This report has sought to address calls for empirical contributions by examining one Australian local government’s experience with co-governance in the delivery of SUWM. A qualitative case study approach was used to investigate the historical and contemporary processes that influenced the formation of local co-governance initiatives, and to analyse the factors that contributed to both the success and failure of such initiatives. Marrickville Council was selected as a case study for this research. The selection was based on the Council’s long history of community involvement in SUWM, including recent attempts at co-governance for improving stormwater quality. After tracing the evolution of the Council’s co-governance practices from the early 1990s, the report explores three attempts at co-governance.

The results suggest that co-governance is a complex process that requires considerable effort to sustain in the long-term. Of Marrickville Council’s three attempts at co-governance, only one to date has achieved a true co-governance arrangement. The success of this project was attributed to a highly driven group of locals, an open and willing Council committed to collaboration, and the support of Council leadership. The availability of Council funds was also critical. Although one or more of these factors were present in the other two projects, a series of obstacles ultimately proved more influential. These included the absence or late involvement of key stakeholders, the disinterest or unwillingness of essential participants to assume any ongoing responsibilities, and the presence of conventional project members with a limited understanding of co-governance.

As co-governance is a long-term and resource intensive process, implementing this approach may not be appropriate in all situations. The level of public involvement or mode of collaboration will need to be tailored to the particular parameters of the project and local context. In circumstances where a co-governance approach is deemed appropriate, local governments should consider the three key design lessons that emerged from this case study.

1. **Build institutional capacity:** Internal capacity is critical. The multi-disciplinary group of staff involved in any project need to be appropriately trained and educated on co-governance and community engagement techniques. Additionally, council leadership should actively foster supportive organisational cultures and commitment to collaborative processes.
2. **Analyse and involve all relevant stakeholders:** The form and extent of stakeholder involvement requires careful consideration. Prior to any project, potential stakeholders need to be comprehensively analysed to determine appropriate methods and strategies for engagement. Transaction costs can be minimised through early and continuous stakeholder engagement activities that clearly define expectations and responsibilities.
3. **Build trust, local capacity and long-term commitment:** Trust and local commitment are necessary for sustaining co-governance in the long-term. Council programs designed to build local capacity can also provide a forum for relationship building and the development of local champions. Regular, face-to-face interactions are needed to maintain the momentum and ongoing involvement of non-state participants.

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1 Introduction

Water plays a particularly important role in the pursuit of sustainable urban environments (Wong and Brown, 2009). Urban water systems provide inhabitants with a number of important services including a clean water supply, flood control and sanitation (Mitchell, 2006). The delivery and management of these services has become increasingly difficult in the face of modern-day pressures linked to population growth, climate change and environmental impacts associated with conventional practices (Brown and Keath, 2008; Wong and Brown, 2009; Brown et al., 2009a; van de Meene et al., 2011; Marlow et al., 2013). Globally, urban populations are on the rise, with more than 50 per cent of the world's population now living in urban areas (United Nations Population Division (UNPD), 2015). This trend is particularly significant in Australia, with 89% of the population residing in urban areas in 2014 (UNPD, 2015). Such growth is problematic, particularly in relation to the increasing demand for urban water services and its implications for water availability (McDonald et al., 2014). This threat to water security is further exacerbated by the impacts of climate change. Studies have documented changes in the frequency, intensity and duration of many extreme weather and climate events (such as heat waves, droughts, and heavy rainfall events), with increasingly variable and extreme climate conditions expected in the future (Intergovernmental Panel on Climate Change (IPCC), 2013). In Australia, projected increases in the frequency of heat waves and short-lived intense rainfall events are likely to negatively impact freshwater systems (IPCC, 2013). These changes, coupled with the degradation of waterways resulting from traditional management practices (such as the damming of rivers and the over-allocation of water resources) and aging water infrastructure, pose ongoing challenges to the sustainable management of water resources (Brown and Keath, 2008; Chanan et al., 2009; van de Meene et al., 2011; Marlow et al., 2013).

Like in most modern cities, Australian governments and urban communities largely operate within the traditional urban water management paradigm (e.g. Farrelly and Brown, 2014). Under this model, large-scale and centrally managed infrastructure systems seek to deliver safe, reliable and low-cost water supply, drainage and wastewater management services (Brown et al., 2009a). This separation of services across the urban water cycle is represented physically through water systems infrastructure, and institutionally through distinct service provision, operation and maintenance responsibilities (Wong and Brown, 2009, p. 673). While traditional approaches have provided urban populations with access to clean drinking water, flood control and public health protection, the delivery of such services has produced a number of adverse impacts including water pollution, ecosystem disturbance, high energy and chemical usage, and costly maintenance (Mitchell, 2006). Traditional practices have also been criticised for the creation of rigid institutional settings incapable of responding to the complexity and uncertainty of emerging sustainability challenges (Brown and Keath, 2008). In light of these shortcomings, numerous scholars have contended that traditional urban water management systems are no longer appropriate (e.g., Mitchell, 2006; Wong and Brown, 2009; Marlow et al., 2013; Farrelly and Brown, 2014).

Sustainable urban water management (SUWM) has been proposed as an alternative approach for managing urban water systems and achieving more sustainable outcomes (e.g. Pahl-Wostl, 2007; Brown and Keath, 2008; van de Meene et al., 2011; Marlow et al., 2013). SUWM has been described as both a philosophical and technical approach that seeks to deliver the most appropriate use of water from all stages of the urban water cycle and thereby enhance sustainability outcomes (Brown and Farrelly, 2009; Marlow et al., 2013). This overarching paradigm encapsulates a range of concepts, including 'integrated urban water management' (e.g. Mitchell, 2006), 'total water cycle management' (e.g. Brown et al., 2009b), and 'water sensitive urban design' (e.g. Wong, 2006). These concepts encourage the use of diverse and locally appropriate water supply technologies at centralised, decentralised and hybridised scales (Brown et al., 2009a), for the purposes of achieving a more 'natural' water cycle, improved water security and greater resource efficiency (Marlow et al., 2013). As an example, SUWM practices can range from rainwater tanks on individual households, through to city-scale indirect potable reuse schemes that involve the return of treated recycled water to water supply storages (Wong and Brown, 2009, p. 677).

Achieving SUWM requires governance approaches that prioritise flexible, inclusive and collaborative decision-making practices (van de Meene et al., 2011). Under the traditional urban water management paradigm, water

users are simply viewed as consumers and afforded minimal input in the governing process (e.g. Chanan et al., 2009, p. 1016). The consequent disconnect between urban water practitioners and communities produces sub-optimal management regimes that do not account for socio-political realities (Farrelly and Brown, 2014). Sustainable approaches to urban water management require the input and cooperation of multiple stakeholders, as no single actor can address the complexity of modern-day challenges alone (e.g. van Rijswick et al., 2014; Wen et al., 2015). This highlights the necessity of end-user involvement in governance activities. In particular, developing governance structures that effectively address local needs and circumstances require urban water practitioners to collaborate with community members throughout the planning, design and management of urban water services (Yu et al., 2012). This co-governance approach challenges the traditional hydro-social contract, which describes an implicit arrangement that permits government agents to manage and deliver urban water services on behalf of, and in isolation from, broader civil society (Lundqvist et al., 2001; Farrelly and Brown, 2014). Transitioning towards more sustainable urban water environments necessitates a fundamental restructuring of the hydro-social contract to recognise and explicitly define the functions and responsibilities of relevant non-state actors (Wong and Brown, 2009).

Despite growing academic and industry support, widespread practice of SUWM has yet to be realised (e.g. Brown and Keath, 2008; van de Meene et al., 2011; Marlow et al., 2013). Scholars have identified a wide range of social and institutional barriers constraining adoption (e.g. Farrelly and Brown, 2011). These include restrictive regulatory frameworks, fragmented organisational roles and responsibilities, insufficient resources and professional capacity, lack of political will, limited long-term planning and inadequate community engagement (Brown and Farrelly, 2009; Brown et al., 2009b). Of these, engaging stakeholders in governance activities presents one of the largest challenges to achieving SUWM (e.g. Pearson et al., 2010). Yet such involvement is becoming increasingly necessary, particularly at the local level where resource constraints continue to reduce the capacity of local governments (Dollery et al., 2014). Despite such recognition, the scholarship in this area remains wanting. In particular, few studies explore the nature and extent of co-governance in contemporary urban water management practices (Yu et al., 2012). This lack of empirical knowledge raises the **research question**: *what role does co-governance play in sustainable urban water management?* To answer the question, this report aims to examine one Australian local government's experiences with co-governance in relation to urban water management. The **objectives** of this research are to:

- (1) characterise the historical and contemporary practices of co-governance within a particular local government;
- (2) investigate the factors that facilitated or constrained the implementation of co-governance arrangements within a particular local government; and
- (3) identify key design features to support local governments when developing future co-governance arrangements.

The remainder of this report is organised into four chapters. The next chapter provides a review of the SUWM, public participation and co-governance fields of scholarship. This is followed by a description of the research design, data collection and data analysis methods undertaken by the author. The fourth chapter presents key findings and provides a discussion of the process factors influencing the implementation of co-governance arrangements. A series of design features are also considered in this chapter. The fifth chapter concludes this report with a number of lessons to guide local governments in the development of co-governance arrangements for realising sustainable urban water environments.

2 Literature review

In order to address the research question and objectives posed, this literature review explores three distinct areas of scholarship related to community involvement in governance activities. The breadth of this review does not permit consideration of the complexities of the term ‘community’ (see, e.g., Agrawal and Gibson, 1999). Accordingly, the term is used generally to describe any group of people with characteristics in common. This literature review begins with an examination of the sustainable urban water management literature to understand the important role played by communities in achieving more sustainable practices. The emphasis on community engagement prompts a consideration of the broader literature on public participation. The review reveals the existence of numerous typologies for characterising different levels of participation. Also evident is a growing body of literature evaluating the strengths and limitations of participatory processes. Despite the favourable rhetoric evident in both areas of scholarship, there appears to be a limited empirical understanding of how to design and implement effective participatory governance structures for urban water management, particularly within the Australian context. Accordingly, the review turns to the public administration and policy literature to understand different modes of government-society collaboration. Three manifestations are examined: co-production, co-management and co-governance. Despite a growing appreciation for each of these approaches, which are ultimately characterised as forms of co-governance, the literature review highlights the lack of and need for empirical contributions examining how co-governance arrangements are developed and sustained in practice.

2.1 Sustainable urban water management

A variety of concepts exist within the urban water management literature to characterise, or benchmark progress towards, the ideal standard of urban water management. One such approach featured extensively in the literature is ‘sustainable urban water management’ (SUWM) (e.g. Larsen and Gujer, 1997; Brown and Farrelly, 2009; Marlow et al., 2013; Belmeziti et al., 2015). Although not precisely definable, SUWM reflects a general aspiration to appropriately manage the entire urban water cycle to enhance community wellbeing, ecological health and sustainable development (Marlow et al., 2013). Central to this broad philosophy is the concept of ‘integrated urban water management’, which describes a comprehensive approach to urban water management that physically and institutionally integrates water supply, sanitation, and drainage systems to create ‘multifunctional’ urban water systems (e.g. Mitchell, 2006). At the citywide scale, the adoption of SUWM can be characterised by the transition towards a ‘Water Sensitive City’ (Brown et al., 2009a). A Water Sensitive City represents the ultimate vision of a sustainable urban water city – one that values resilience, sustainability and liveability (Ferguson et al., 2012). Through a holistic approach to urban water management, Water Sensitive Cities are able to protect, maintain and enhance the multiple ecological, social and economic benefits and services provided by the total water cycle (such as flood protection, carbon sequestration, amenity and intergenerational equity) (Wong and Brown, 2009). Table 1 describes the core principles or attributes of SUWM and related concepts. Collectively these concepts emphasise the importance of local contexts; encourage collaboration; value integration; and promote complex, diverse and flexible physical and institutional arrangements for urban water management.

A core principle underpinning SUWM and related concepts is public participation in urban water planning and decision-making processes (see Table 1). SUWM scholars have continuously advocated for collaborative approaches to urban water governance that include local communities, businesses and other relevant stakeholders in governance activities (e.g. Brown, 2005; Pearson et al., 2010; van Rijswick et al., 2014).¹ Similarly, in a study by van de Meene et al. (2009; 2010), Australian urban water practitioners identified stakeholder and community engagement as an important attribute of future urban water management systems. Such calls for participatory approaches challenge the traditional decision-making model for urban water management (i.e. the traditional hydro-social contract), where technical experts make decisions with limited public involvement and understanding of community perceptions (Farrelly and Brown, 2014). Scholars have suggested

¹ The term ‘governance’ is explored further in section 2.3.3.

that community members are often not recognised as valid decision-makers, and consequently not informed or empowered to meaningfully participate in decision-making processes (Brown and Farrelly, 2009).

Table 1. Key concepts within the urban water management literature and related principles or attributes

Concept	Core Principles or Attributes
<i>Sustainable Urban Water Management</i>	<ol style="list-style-type: none"> 1. All parts of the water cycle need to be considered as an integrated, interconnected system, which includes protecting and restoring waterway health. 2. Multiple purposes for water use (human and environmental) need to be accepted, and supported by diverse, flexible infrastructure. 3. Context matters; therefore all perspectives (environmental, social, cultural, political and institutional) need to be considered. 4. Public participation in planning and decision-making is vital. 5. Programs, projects and policies need to be considered over long-term timeframes guided by a common vision. 6. An interdisciplinary approach is required (e.g. engineers, environmental scientists, social researchers, economists, educators, urban designers and planners working cooperatively). (Brown and Keath, 2008, p. 74)
<i>Integrated Urban Water Management</i>	<ol style="list-style-type: none"> 1. Consider all parts of the water cycle, natural and constructed, surface and subsurface, recognising them as an integrated system. 2. Consider all requirements for water, both anthropogenic and ecological. 3. Consider the local context, accounting for environmental, social, cultural, and economic perspectives. 4. Include all stakeholders in planning and decision-making processes. 5. Strive for sustainability, aiming to balance environmental, social, and economic needs in the short, medium, and long term. (Mitchell, 2006, p. 590)
<i>Water Sensitive Cities</i>	<ol style="list-style-type: none"> 1. Access to a diversity of water sources underpinned by a diversity of centralised, decentralised and distributed infrastructure; 2. Provision of ecosystem services for the built and natural environment; and 3. Socio-political capital for sustainability and water sensitive decision-making and behaviours. (Wong and Brown, 2009, p. 676)

SUWM scholars value participatory decision-making processes for a range of reasons. Stakeholder engagement can improve the quality of decision-making by incorporating multiple sources of knowledge (to better understand specific problems and shape appropriate solutions), and providing opportunities to thoroughly investigate and manage conflict (van Rijswick et al., 2014). It also promotes learning, makes decision-making more transparent, and provides participants with a legitimate sense of ownership over the final decision (Pearson et al., 2010). Relationships between governments and their constituents also benefit from more open and inclusive decision-making processes. In the urban water sector, participatory decision-making processes are widely acknowledged to improve practitioner knowledge and awareness of community perceptions; help define more realistic visions of sustainable urban water futures; encourage stakeholders to share management responsibilities; and build public confidence in institutions (Farrelly and Brown, 2014). These elements of cooperation and trust are key to building successful water governance systems (Ostrom, 2010). Accordingly, and in recognition of the growing inability of traditional decision-making approaches to successfully accommodate the complexity, diversity and dynamism required of SUWM systems – a re-configuration of the hydro-social contract to incorporate broader civil society is necessary (Brown et al., 2009a).

Despite the favourable rhetoric, both scholars and practitioners have observed a limited adoption of SUWM in practice (e.g. Marlow et al., 2013; Australian Water Association, 2015). Ongoing investment in conventional approaches has continued to delay the uptake of SUWM (Wong and Brown, 2009). For example, severe drought conditions at the turn of this century prompted several Australian governments to supplement existing water supply infrastructure with large-scale desalination plants (Chanan et al., 2009). Farrelly and Brown (2011) suggest that such large-scale responses are not unexpected considering the dominance of top-down and market-based governance approaches within conventional urban water management systems. In particular, the

compartmentalisation of water infrastructure and services has led to government structures and decision-making processes that emphasise efficiency and privilege scientific and technical expertise. These socio-institutional elements of traditional urban water management regimes have been identified as barriers to SUWM (see Table 2 for a detailed breakdown). The pervasiveness of these barriers suggests that widespread practice of SUWM will not be realised without a sophisticated and dedicated program of socio-institutional change (Brown and Farrelly, 2009).

Table 2. Socio-institutional impediments to SUWM (based on Brown and Farrelly, 2009; Roy et al. 2008; Brown 2005)

Barrier	Description
Poor governing structures	<ul style="list-style-type: none"> - Numerous departments and agencies operating in isolation with limited inter-organisational collaboration and coordination. - Fragmented and unclear roles and responsibilities within, between and among organisations. - Poor communication processes within, between and among organisations. - Inconsistent regulatory approvals processes, conflicting formal mandates amongst organisations, unclear property rights, and the lack of authority/power of operational organisations to implement SUWM alternatives. - Limited community engagement, empowerment and participation in decision-making processes.
Poor organisational capacity	<ul style="list-style-type: none"> - Insufficient financial and human (i.e. lack of skilled, experienced and knowledgeable individuals) resources to implement SUWM. - Poor development of performance standards and guidelines. - Lack of industry-wide experience and knowledge in implementing/operating integrated, participatory, coordinated and adaptive management. - Little or no monitoring and evaluation. - Inflexible and risk averse management cultures that favour technical (engineering-based) solutions. - Lack of organisational commitment.
Poor political leadership	<ul style="list-style-type: none"> - Lack of a sector-wide vision for a sustainable urban water future and limited long-term planning (e.g. few ongoing programs). - High prioritisation of economic efficiency goals. - Lack of political leadership and public will.

2.2 Public participation

The importance of engaging the public in decision-making processes has long been recognised in academic discourses and policy practices (e.g. Arnstein, 1969; Head, 2007; Cornwall, 2008; Organisation for Economic Co-operation and Development (OECD), 2001; Department of the Prime Minister and Cabinet (Australia), 2010). Within the academic scholarship, public participation and community engagement has been the subject of extensive debate in many fields including public administration (e.g. Bishop and Davis, 2002), health services (e.g. Tritter and McCallum, 2006), urban planning (e.g. Stewart and Lithgow, 2015), and environmental policy (e.g. Collins and Ison, 2009). Evidence from around the world demonstrates a shift in managerial practices towards greater public involvement in governmental decision-making processes (Bishop and Davis, 2002). Society no longer regards authorised decision-makers (such as elected representatives and administrative officials) as capable of making decisions that appropriately account for all interests and perspectives (Fung, 2006). This 'democratic deficit' has led to a greater emphasis on dialogue and deliberation between governments and citizens in formal decision-making processes (Head, 2007; Bochel et al., 2008). The growing recognition of the complexity and inter-connectedness of many problems, and the need to share responsibility among multiple actors to effectively address these issues, has continued to advance the participatory turn in governance processes (Eversole, 2011). In Australia, local governments have taken a leading role in community engagement activities across a wide range of policy areas including health, transport, and planning (Stewart and Lithgow, 2015). The considerable activity at this level reflects a growing appreciation of the benefits of involving citizens in the identification and resolution of problems (Head, 2007). Scholars suggest that citizen involvement can support the inclusion of relevant stakeholders (particularly marginalised groups) and interests in governance processes;

lead to better decisions based on more complete and locally relevant information; build and improve relationships among participants; and, educate and empower stakeholders (Irvin and Stansbury, 2004; Reed, 2008).

The widespread use of participation by a diverse set of actors has contributed to the multiple and often contested definitions of this concept (Cornwall, 2008). Table 3 provides a brief overview of the motives and purposes behind the pursuit of participatory practices by different actors. Over the years, a number of typologies and models have been developed to characterise the different forms and degrees of participation. Arnstein's (1969) ladder of participation is perhaps one of the most influential and enduring models of participation within academic and policy circles. The ladder is based on a conceptualisation of participation as 'a categorical term for citizen power' (Arnstein, 1969, p. 216). Each step or rung on the ladder reflects a different level of participation that corresponds with the extent of power or control that citizens can exert to shape the final outcome (see Figure 1). Numerous authors have suggested alternative terms for the different rungs of this ladder (see Reed, 2008). For example, Pretty's (1995) typology characterises participation based on why and how users participate, ranging from weaker forms of participation – such as 'manipulative' and 'passive' participation – to stronger forms like 'interactive' participation and 'self-mobilisation'.

Table 3. An overview of the motives and purposes behind the pursuit of participatory practices by different actors (based on Head, 2007, pp. 447-8)

Actor	Motivation and/or Purpose
Government	<ul style="list-style-type: none"> - To achieve better informed decision-making. - To more widely share responsibility for the success or failure of an initiative. - To restore a higher level of trust in political institutions and reduce support for alternative protest movements.
Community Groups	<ul style="list-style-type: none"> - To achieve greater voice and influence for the interests they represent. - To be involved in the discussion and resolution of issues that affect their interests. - To achieve better societal outcomes. - To obtain opportunities for revenue growth from the provision of outsourced services.
Business Groups	<ul style="list-style-type: none"> - To maintain positional influence within new forums. - To facilitate any necessary behaviour changes through the development of voluntary industry codes rather than enforceable regulatory standards. - To demonstrate corporate social responsibility.

Over the years, Arnstein's ladder and its variations have been subject to extensive critique (see, e.g., Titter and McCallum, 2006; Collins and Ison, 2009). Scholars have criticised the hierarchical nature of the ladder metaphor, which assumes that higher levels of participation are preferable to those lower on the ladder (e.g. Fung, 2006). This erroneously suggests that citizens only engage in decision-making processes with citizen control in mind, and not achieving such control will always be regarded as a failure (Collins and Ison, 2009). Another criticism relates to the linear notion of participation, which implies that policy problems remain constant, with only the approach taken by actors varying in degree of participation (Bishop and Davis, 2002). In reality, policy problems vary considerably, suggesting that different levels and types of engagement are required in different contexts (Reed, 2008). Other criticisms relate to the complex nature of citizen involvement. Some scholars contend that Arnstein's ladder inappropriately describes the roles and responsibilities of participants in relation to power (Collins and Ison, 2009). Rather, the nature of involvement sought by participants is more likely to vary according to the particular construction of their interests in specific situations and points in time (Titter and McCallum, 2006).

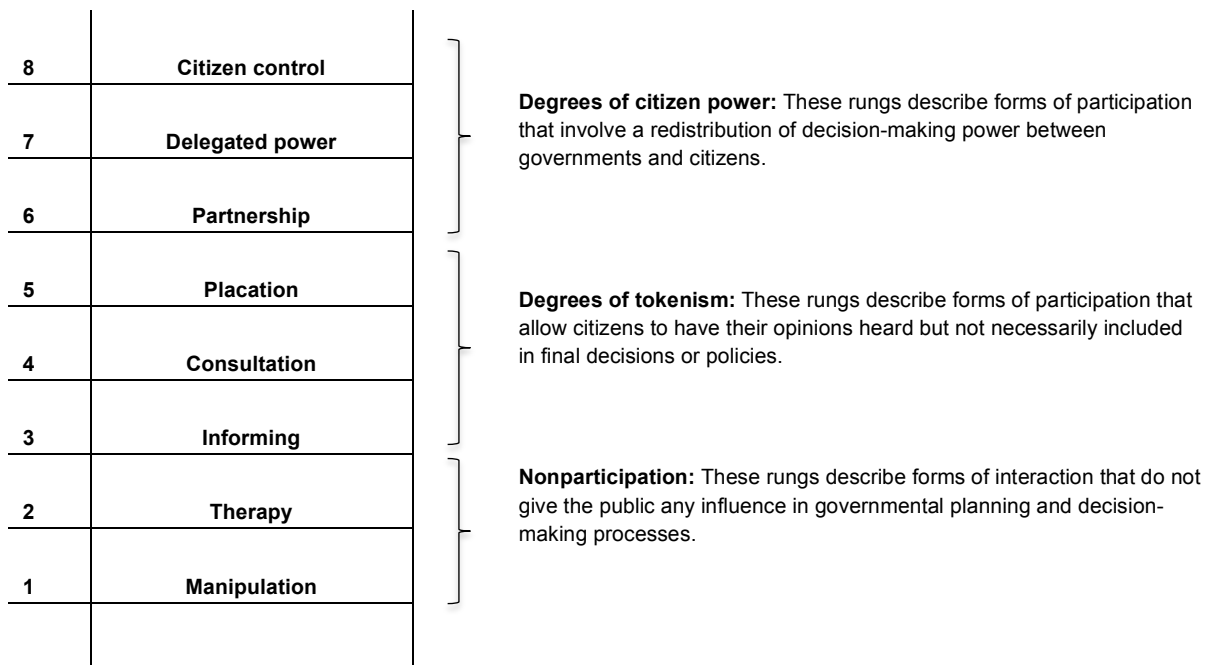


Figure 1. Ladder of citizen participation (based on Arnstein, 1969, modified Figure 2, p. 217)

More recent conceptualisations of participation have sought to describe participation processes without imposing a hierarchy or direction (e.g. Bishop and Davis, 2002; Ross et al., 2002). Such schemas possess a descriptive rather than normative character. For instance, Bishop and Davis (2002) identified five types of participation based on OECD practices (see Table 4). Their classification reflects an understanding of participation as a discontinuous set of practices that are selected according to the nature of the problem, available resources and a political judgement about the importance of the issue. Each form of participation is associated with particular policy objectives and a set of policy instruments (see Table 4). Ross et al. (2002) took a similar approach in their typology of participatory approaches in Australian natural resource management. They identified nine types of participation: individual management (no participation), community-based management, community collective activity, composite stakeholder bodies, shared management, stakeholder-based planning or negotiation, consultation, information, and agency or corporation management (no participation). Their typology classifies the main forms of participation according to the nature of the task and desired outcomes; and makes differentiations where relevant according to differences in tenure, the duration of the process (ranging from one-off decisions to ongoing management), and the relative roles and levels of influence between government and public actors. Like Bishop and Davis (2002), Ross et al. (2002) recognise that each type of participation has its strengths and weaknesses. Whilst each typology offers useful guidance on the design and outcome of participatory processes, their widespread utility is somewhat limited to the specific spatial and temporal contexts in which they were derived. The constant development of new practices or understandings of participation suggests that typologies need to evolve to ensure their ongoing relevance. Other issues relate to the separation of categories. Each type of participation tends to be treated as separate and mutually exclusive, which ignores the dynamic relationship that can exist between different forms of participation (O'Faircheallaigh, 2010).

Table 4. Map of Participation Types (Bishop and Davis, 2002, Figure 5, p. 27)

Participation type	Objective	Key Instruments
Consultation	<ul style="list-style-type: none"> – to gauge community reaction to a proposal and invite feedback – consultation is only participation when information gathered can influence subsequent policy choices 	<ul style="list-style-type: none"> – key contacts – surveys – interest group meetings – public meetings – discussion papers – public hearings
Partnership	<ul style="list-style-type: none"> – involving citizens and interest groups in aspects of government decision-making 	<ul style="list-style-type: none"> – advisory boards – citizens advisory committees – policy community forum – public inquiries
Standing	<ul style="list-style-type: none"> – allowing third parties to become involved in the review process 	<ul style="list-style-type: none"> – review courts and tribunals – open and third party standing – statutory processes for social and environmental impact assessment
Consumer Choice	<ul style="list-style-type: none"> – allowing customer preferences to shape a service through choices of products and providers 	<ul style="list-style-type: none"> – surveys, focus groups – purchaser/provider splits; – competition between suppliers – vouchers – case management
Control	<ul style="list-style-type: none"> – to hand control of an issue to the electorate 	<ul style="list-style-type: none"> – referendum – ‘community parliaments’ – electronic voting

The typologies discussed so far reveal two distinct debates in the public participation literature. Van der Heijden and ten Heuvelhof (2012) characterise these debates in relation to two perceptions of public participation: one as a ‘virtue’, and the other as a ‘mechanism’. The ‘virtue’ perspective is characterised by the work of Arnstein (1969) and Pretty (1995). This body of work is mostly normative and considers participation as inherently good (Cornwall, 2008). The literature often features democratic principles and ideals – participation is typically considered critical to democracy and necessary to enhance the legitimacy of decision-making processes and outcomes (Michels and De Graaf, 2010). The ‘mechanism’ perspective, by contrast, gives greater emphasis to the functional and substantive aspects of public participation (van der Heijden and ten Heuvelhof, 2012). The typologies of Bishop and Davis (2002) and Ross et al. (2002) sit within this body of work. The focus of this literature is on the implementation of public participation and its effect on policy and decision-making practices (Collins and Ison, 2009). Questions of who participates, how participants interact, and the impact of participation are common lines of inquiry (e.g. Fung, 2006). Other features of this body of work include evaluative frameworks and criteria to assess public participation processes (e.g. Head, 2007; Bohnet, 2015).

In line with the ‘mechanism’ perspective, many scholars have studied public participation processes and outcomes. For instance, a study by Michels and De Graaf (2010) provides evidence of the democratic effects yielded by citizen involvement in policy making. The results of two case studies in Dutch municipalities revealed that citizen involvement increased public engagement and encouraged citizens to feel more responsible for public matters, promoted mutual understanding among participants with diverse viewpoints, and contributed to a greater legitimacy of decisions. Similarly, studies of participatory processes in water management have shown that public participation can support decision-making and lead to more creative solutions, improve relations among participants, and prevent decisions from being legally challenged later down the track (Huitema et al., 2009). Other studies reveal instances of disconnect between rhetoric and practice. Scholars have observed that despite widespread government support, there is little evidence to suggest that participatory processes have involved substantial power sharing (e.g. Head, 2007). Cook et al. (2013) suggest that most practices amount to consultation, with communities exerting very little influence on decision-making processes. Such outcomes have been attributed to institutional structures that inhibit meaningful interaction, such as government-maintained control over engagement processes (through funding, service contracts and regulation) and limited coordination

arising from bureaucratic silos; as well as unequal power relations, politics, and limited capacity or motivation of citizens to participate effectively (Head, 2007; Stewart and Lithgow, 2015). Other studies have examined the impact of design choices on participatory outcomes (e.g. von Korff et al., 2010). In particular, poorly designed processes can lead to ‘wrong’ decisions, increased conflict and wasted resources (e.g. Irvin and Stansbury, 2004).

As a consequence, many scholars have sought to define the necessary ingredients for effective public participation processes. Drawing on 10 case studies from 3 different environmental policy arenas, Webler and Tuler (2006, p. 718) suggest that “good processes reach out to all stakeholders, share information openly and readily, engage people in meaningful interaction, and attempt to satisfy multiple interest positions.” Similarly, Reed (2008) argues that best practice participation processes are underpinned by a philosophy of empowerment, equity, trust and learning. Such processes identify relevant stakeholders early on and ensure their representation throughout the entire process. They are also characterised by clear objectives, the use of contextually appropriate methods of engagement, a high level of facilitation, and the integration of local and scientific knowledge. Reed (2008) also contends that the long-term success of participatory processes depends upon the extent to which they are institutionally embedded. Similar propositions have been raised in the context of Australian urban water management. For instance, Russell and Hampton (2006) suggest that the benefits of genuine public involvement can only be attained through transparent processes that clearly set out the scope and terms of user input and influence. Ideal processes are thought to provide ongoing opportunities for open discussion and social learning. Overall, these ingredients provide no guarantee of success in practice. Contextual conditions play a critical role (Head, 2007). Additionally, ‘success’ is a value-laden concept and its evaluation will vary according to the perspectives of participants (Webler and Tuler, 2006).

A survey of empirical investigations into public participation within the Australian urban water sector reveals very limited forms of community engagement. The development of participatory mechanisms appears to be ad hoc and confined to specific urban water management issues, such as water recycling (e.g. Hurlimann and Dolnicar, 2010). In these instances, engagement tends to be treated as a matter of persuasion rather than as opportunities for discussion and debate (Russell et al., 2008). Examples of participatory arrangements involving power sharing are particularly rare (Stenekes et al., 2006). Several international commentators in water policy and management have highlighted the lack of empirical investigation into the circumstances and conditions of public participation that lead to improved outcomes, suggesting that further research is needed (van der Heijden and ten Heuvelhof, 2012; Bohnet, 2015). More broadly, the partial and somewhat contradictory evidence of the effectiveness of community engagement suggests that participation is no panacea (e.g. Cornwall, 2008; Bohnet, 2015; Eversole, 2011; Irvin and Stansbury, 2004). Alternative co-governance arrangements that adopt devolved forms of decision-making, and facilitate ongoing and inclusive dialogue between different actors may be needed to overcome the social and institutional barriers to participation (Bochel et al., 2008; Eversole, 2011; Head, 2007).

2.3 Modes of collaboration in the public sector

A survey of the literature reveals different forms of citizen or community involvement in the delivery of public services (such as housing, social services, environmental services and urban regeneration). Pestoff (2012, pp. 15-18) recognises three manifestations, namely: *co-production*, which refers to an arrangement where citizens produce their own services with limited state involvement; *co-management*, which describes a collaborative arrangement between state and non-state actors to deliver public services; and *co-governance*, which refers to an arrangement where state and non-state actors participate in decision-making and the planning of public services. These phenomena are not mutually exclusive and can occur in combination (Brandtsen and Pestoff, 2006). Each concept can be distinguished according to the scale or level of interaction involved. For instance, co-production is typically focused on the activities of individuals, whilst the meso-level phenomenon of co-management deals primarily with interactions between organisations (Brandtsen and Pestoff, 2006). Additionally, each concept loosely corresponds with different phases in the policy cycle. Co-governance can be found on the ‘input side’ of the policy cycle – focused on the formulation of public policy, whilst co-production and co-management take place on the ‘output side’ – focused on the implementation of public policy (Pestoff, 2012, p. 18). While these concepts

describe different types of cooperation between state and non-state actors (Brandsen and Pestoff, 2006), the usage of these terms has not been consistent across different service sectors or countries, leading to some conceptual confusion (Pestoff, 2012). In an attempt to provide some clarity, the remainder of this section briefly explores the nature and usage of each term in the literature. It is argued that co-production and co-management are better understood as forms of co-governance (cf. Brandsen and Pestoff, 2006).

2.3.1 Co-production

The concept of co-production was initially developed in the 1970s to describe potential partnerships between government service providers and non-state actors (such as citizens, volunteers, community organisations, and clients or service users) in the production of public services (Ostrom, 1996; Alford, 2002). Reduced governance capacity at local and national levels, and the growing complexity and cost involved in service provision, have limited the effectiveness of traditional service providers (i.e. public agencies) in delivering public services (Joshi and Moore, 2004, p. 41). Ensuing discontent with traditional top-down conceptions of policymaking and service delivery provoked a fundamental reinterpretation of these processes to recognise a role for citizens and users in the planning and delivery of public services (Bovaird, 2007). The opportunity for synergy between the activities of citizens and the activities of governments is arguably, one of the most significant promises offered by co-production (Ostrom, 1996; Alford, 2014). A report by the OECD (2011) highlights a growing practical interest in co-production as a more efficient, effective and sustainable way for delivering improved public services. Governments around the world have begun to engage in co-production in order to strengthen citizen involvement; improve the quality, effectiveness and outcomes of public services; and increase productivity and reduce costs (OECD, 2011).

The scholarly interest in co-production is particularly prominent within the field of public management and administration (see, e.g., Brandsen and Pestoff, 2006; Bovaird, 2007; Ryan, 2012; Osborne and Stokosch, 2013; Poocharoen and Ting, 2015). Early conceptions of co-production were constructed narrowly, focused on arrangements between individuals and state agencies (Ostrom, 1996), with community roles confined to the delivery of public services (Osborne and McLaughlin, 2004; Joshi and Moore, 2004). Other formulations recognise a wide variety of co-productive activities, undertaken by multiple and diverse (i.e. public, private and civil) individuals and/or collectives, across the full span of the service cycle – planning, design, commissioning, managing, delivering, monitoring and evaluation (Bovaird, 2007; Alford, 2014; Pestoff, 2014). Such activities may include, for example, individuals picking up litter (i.e. individual co-production), communities managing a neighbourhood rain garden (i.e. group co-production), or river health monitoring programs operated by waterway managers and community volunteers (i.e. collective co-production) (Yu et al., 2011). These broader interpretations of co-production tend to encompass the concepts of co-management and co-governance (Brandsen and Pestoff, 2006). The elasticity evident in its varied definitions highlights the multifaceted nature of co-production (Needham, 2008; Alford, 2014; Watson, 2014). Despite differences in emphasis, each understanding imparts the notion that user involvement transforms the delivery of public services (Brandsen and Pestoff, 2006). Co-production envisages a two-way relationship between state and community actors that goes beyond mere consultation by involving users in more systematic exchanges to produce public services (Pestoff, 2014). This shared character of the production process is critical to the concept of co-production, ensuring greater user influence and ownership (Brandsen and Pestoff, 2006).

The practice of co-production around the world has received some scholarly attention (e.g. Ostrom, 1996; Joshi and Moore, 2004; Pestoff, 2006), although a comprehensive empirical understanding of the phenomenon remains lacking (Brandsen and Pestoff, 2006; Bovaird et al., 2015). Case study research by Bovaird (2007) reveals a number of benefits from citizen and community co-production. The author found that co-production widened the practical choices available to users and resulted in the transfer of some power from professionals to users. Additionally, the necessary division of risks among parties led to the development of mutual relationships underpinned by high levels of trust. This latter benefit highlights the potential of co-production as a ‘therapeutic tool’, capable of building trust and communication between participants (Needham, 2008, p. 223). Such positive relations encourage citizens to become more involved and can lead to greater activism in other areas (Ostrom, 1996). By revealing citizens’ needs and preferences, and providing a platform to negotiate effective means to

resolve identified issues, co-production also serves an important 'diagnostic' function (Needham, 2008, p. 223). However, co-production is no panacea (Bovaird, 2007). Arrangements that work well in one setting may be unsuitable in another (Alford, 2014). Bovaird (2007) finds that problems often arise that can undermine the benefits of co-production (such as conflicts between co-producers with differing values, unclear division of roles, free-riders, and community or volunteer burnout). Other significant concerns relate to the potential dilution of public accountability and the highly political nature of achieving greater co-production, which necessarily involves a redistribution of power among stakeholders. Professionals may also resist such efforts, particularly where it requires a relinquishment of their powers.

2.3.2 Co-management

Scholarly and practical interest in co-management is particularly significant within the field of natural resource management (e.g. Singleton, 2000; Plummer and Fitzgibbon, 2004; Carlsson and Berkes, 2005; Berkes, 2009). The development of collaborative arrangements among diverse stakeholders for the management or use of a natural resource recognises that resource management is too complex a task to be confined to a single state agency or group of local users (Carlsson and Berkes, 2005). By sharing responsibilities among a range of actors, co-management seeks to take advantage of the capacities and incentives of states and communities in order to improve the likelihood of success in an area where both states and communities alone have failed (Singleton, 2000). Such justifications often emphasise arguments of efficiency and equity (Castro and Nielsen, 2001; Plummer and Fitzgibbon, 2004). Scholars contend that the combination of different sources of knowledge at different scales leads to the production of high quality and less costly information for basing management decisions (Berkes, 2009). Other arguments suggest that local monitoring and enforcement activities are more effective, while state oversight introduces some measure of accountability (Singleton, 2000). By involving resource users, co-management is thought to enable those most affected by a management decision to influence how those decisions are made (Castro and Nielsen, 2001). This can improve the legitimacy of the system and encourage users to exceed compliance requirements (Singleton, 2000).

Co-management has been defined in many and varied ways in both the literature and practice (e.g. Castro and Nielsen, 2001; Carlsson and Berkes, 2005). According to Berkes (2009, p. 1693), the term refers to "a range of arrangements, with different degrees of power sharing, for joint decision-making by the state and communities (or user groups) about a set of resources or an area." This suggests that co-management can be understood as a continuum ranging from the simple exchange of information, through to systems of governance composed of a variety of actors (Carlsson and Berkes, 2005). This latter form of co-management suggests a close correspondence with the concept of co-governance. Indeed, scholars often use the two terms interchangeably (see, e.g., Berkes, 2009, p. 1692; Dodson, 2014, p. 521). Whilst co-management may involve the sharing of decision-making power and responsibility, co-governance implies the devolution of decision-making authority to a collaborative entity made up of government and community stakeholders (Dodson, 2014). In any event, the similarity between the two concepts demonstrates that co-management is more than mere consultation or ad hoc public participation and requires some form of institutionalised arrangement where users are able to participate in decision-making (Berkes, 2009). The concept is constantly evolving and becoming increasingly complex, with recent scholarly contributions merging the principles and practices of adaptive management and co-management (e.g. Armitage et al., 2009). The resultant concept of 'adaptive co-management' recognises the complexity and uncertainty of modern day challenges and draws attention to management approaches that emphasise learning-by-doing and collaboration among different actors and across different levels (Huitema et al., 2009).

Like co-production, co-management should not be viewed as a panacea for all societal problems (Carlsson and Berkes, 2005). Ensuring co-management interventions are effective in practice can be difficult given the challenging social conditions in which they must operate: competing stakeholder interests and values, ongoing resource conflicts, and complex social relationships regarding resource use and management (Armitage et al., 2009). A study by Castro and Nielsen (2001) found that co-management regimes have been responsible for instigating new resource conflicts or causing old ones to escalate, as well as reinforcing existing inequalities and further marginalising local communities and resource users. Other studies have examined the difficult balance that must be struck between state and community co-management functions and responsibilities to ensure public

agencies are not captured by private or special interests (Singleton, 2000). These issues highlight that resource management regimes do not occur in isolation, but are in fact embedded within a wider institutional context that shape how such activities unfold (Carlsson and Berkes, 2005; Plummer and Fitzgibbon, 2004).

2.3.3 Co-governance

The notion of 'governance' has become increasingly prevalent within scholarly and political circles (e.g. Kooiman, 2003; Lange et al., 2013; United Nations, 2016). The many and varied uses of the term has resulted in multiple understandings of governance (e.g. Treib et al., 2007). In a general sense, governance can be understood as the practices through which societies are governed (Meadowcraft, 2007). The concept recognises that governments are but one of many societal actors involved in governing. It is often argued that changing economic, social and political conditions have altered the capacity of the state to deliver public services through traditional 'command and control' approaches (Kooiman, 2003). In relation to local governments, such altered capacity is reflected in the fact that local authorities are no longer monopoly service providers and now share many of their responsibilities with other actors (Dollery et al., 2014). The concept of governance captures the alternative arrangements that have emerged in response to the limitations of traditional government models, and the growing diversity and complexity of modern societal problems (Kooiman, 2003). These arrangements are often characterised by complex government-society interactions that occur at multiple levels (Lange et al., 2013). This focus on multi-actor interactions suggests that a core component of governance is societal steering and coordination of interdependent actors (Pierre and Peters, 2000; Kooiman, 2003; Treib et al., 2007).

Kooiman (2003) distinguishes between three modes of governance that exist in various 'mixtures' throughout society: hierarchical governance, self-governance and co-governance. Hierarchical governance refers to top-down governance, typically characterised by state and market interventions. Self-governance refers to situations in which societal actors are capable of governing themselves. This form of governance is characterised by a high degree of autonomy. Co-governance describes a mode of governing in which different societal actors come together for a common purpose and typically stake part of their identity and autonomy in the process. These governance structures possess a certain degree of equality regarding how participating actors relate to each other. Governing tends to occur 'horizontally'. Actors communicate, collaborate and co-operate without a central or dominating governing actor. Kooiman (2003, p. 97) regards this mode of governance as the most important of the three because it has the potential to address growing trends towards "societal interdependence and inter-penetration."

Co-governance has received increasing scholarly attention over the past two decades (e.g. Johnson and Osborne, 2003; Somerville and Haines, 2008; Tsujinaka et al., 2013; Birnbaum, 2016). It has surfaced within academic debates in a number of fields, particularly public administration (e.g. Martin, 2011; Dollery et al., 2014) and natural resource and conservation management (e.g. Head and Ryan, 2004; Jacobson and Robertson, 2012). Whilst the theoretical literature is still developing, certain attributes have become apparent. A key component of co-governance is direct societal involvement in the core functions of government (Ackerman, 2004). This form of governance is characterised by inclusive and deliberative participatory structures in which state actors collaborate with non-state stakeholders through collective decision-making processes (Birnbaum, 2016; Ansell and Gash, 2008). It requires government authorities to devolve real power and ensure a genuinely equal partnership with non-state participants (Somerville and Haines, 2008). The literature reveals numerous manifestations of co-governance such as networks, public-private partnerships and co-management (Kooiman, 2003). This latter characterisation, as well as the very breadth of co-governance suggests that it is more appropriately characterised as an overarching concept, capable of capturing co-production and co-management (cf. Brandsen and Pestoff, 2006). This view is supported by broad understandings of governance as a term that encompasses different aspects of the governing process (Ansell and Gash, 2008, p. 548), where production and management are two such aspects that usually refer to the more instrumental and practical features of implementation (Pestoff, 2012, p. 18).

A number of scholars around the world have observed a growing trend towards co-governance (e.g. Head and Ryan, 2004; Somerville and Haines, 2008; Birnbaum, 2016). This trend is particularly evident in the local

government sector, where resource constraints have continued to drive a move away from traditional governmental structures towards various forms of local co-governance (Dollery et al., 2014; Røiseland, 2010). In the British context, Somerville and Haines (2008) identified a wide variety of arrangements that can be associated with local co-governance. The authors found 'community forums', where citizens can come together and deliberate, to be the most common arrangement. The outcomes of these non-governmental arenas often provide an important input within co-governance arenas. Other arrangements include 'area committees', 'parish' or 'town councils', 'neighbourhood management groups' that organise local service delivery, tenant management organisations that are partially responsible for local service provision, and 'devolved' or 'community budgeting' groups that provide information to assist local governments with expenditure decisions. These examples illustrate the multiple capacities in which locals can participate – as residents, tenants, service users, or general members of the public.

A number of arguments have been advanced in the literature to justify the importance of co-governance. Scholars have contended that open processes of communication and debate between relevant stakeholders can improve the quality of decisions by ensuring consideration of all relevant arguments and experiences (Birnbaum, 2016). Such inclusive and transparent processes can also improve governmental accountability (Ackerman, 2004). By shifting state responsibility to a broader range of stakeholders, co-governance can contribute to efficiency gains and allow governments to contemplate societal outcomes that would otherwise be impossible to achieve on their own (Head and Ryan, 2004). Scholars have also highlighted the civic and social advantages of co-governance. Processes of collaboration may serve to build trust, mutual respect and understanding between state and non-state actors (Birnbaum, 2016). Additionally, co-governance can empower local citizens and encourage a greater sense of ownership and responsibility for the provision of public services (Dollery et al., 2014).

The realisation of these benefits can be difficult to achieve in practice. Birnbaum (2016) highlights the potential stalling effects created by conflicts between different actors that may flourish under inclusive and deliberative governance arrangements. This can prevent or delay the attainment of important actions or agreements. Other challenges relate to power imbalances between different actors, which make it difficult for less powerful actors to become meaningfully involved in governance activities (Martin, 2011). This can be particularly problematic at the local government level. According to Somerville and Haines (2008), true equality between public authorities and local communities rarely occurs in practice. Different local interests are often not well represented, and those that are tend to hold particularly weak positions due to their lack of resources, limited organisational influence and status as unpaid volunteers. Other scholars have questioned claims of the cost-effectiveness of co-governance arrangements and their ability to produce high-quality decisions. In relation to resource management, decision-making often requires additional administrative and research support (Head and Ryan, 2004). Otherwise, decisions reached may lack technical merit (Jacobson and Robertson, 2012). These critiques also highlight issues of capacity. State and non-state participants may lack the necessary skills and experience to make co-governance work, and acquiring such skills can be time-consuming (Somerville and Haines, 2008).

The scholarly discourses surrounding co-governance have been highly influential in making the case for co-governance. The justifications for co-governance are apparent. However, the evidentiary support for such claims are not as clear. Several commentators have highlighted the limited empirical understanding of the efficacy of co-governance arrangements (Birnbaum, 2016; Dollery et al., 2014). Additionally, very little is known on how co-governance processes are developed and sustained (Dodson, 2014). These knowledge gaps are particularly evident in relation to urban water management, where scholarly understandings of co-governance remain limited. The analytical framework for co-governing devised by Yu et al. (2011; 2012) provides an important theoretical contribution in this area. The framework outlines a number of variables that can be considered in the analysis and design of co-governance arrangements for decentralised water systems. These include the water resource, technology dimensions, provider and end-user characteristics, water-related policies and practices, and relevant national and international discourses. This report seeks to address calls for empirical contributions by examining one Australian local government's experience with co-governance in the delivery of sustainable urban water management. This research will examine the processes through which local co-governance initiatives are formed and analyse the factors contributing to both the success and failure of such initiatives. The research design and methods for data collection and analysis are outlined in the next section.

3 Methodology

3.1 Research design

A qualitative case study approach was used to understand the role of co-governance in advancing sustainable urban water management (see Figure 2). Qualitative research was considered appropriate as it provides complex and detailed understandings of a particular problem or issue (Creswell, 2013). By directly engaging with individuals involved in co-governance initiatives, qualitative research techniques provide an important mechanism for capturing complex co-governance processes, and explaining how they are developed and sustained in practice. Given the limited empirical understanding of co-governance in the literature, case study research was used to bound this research and contribute to the existing knowledge gap. The case study method is suitable for investigating a complex social phenomenon in depth and within its real-world context (Yin, 2014).

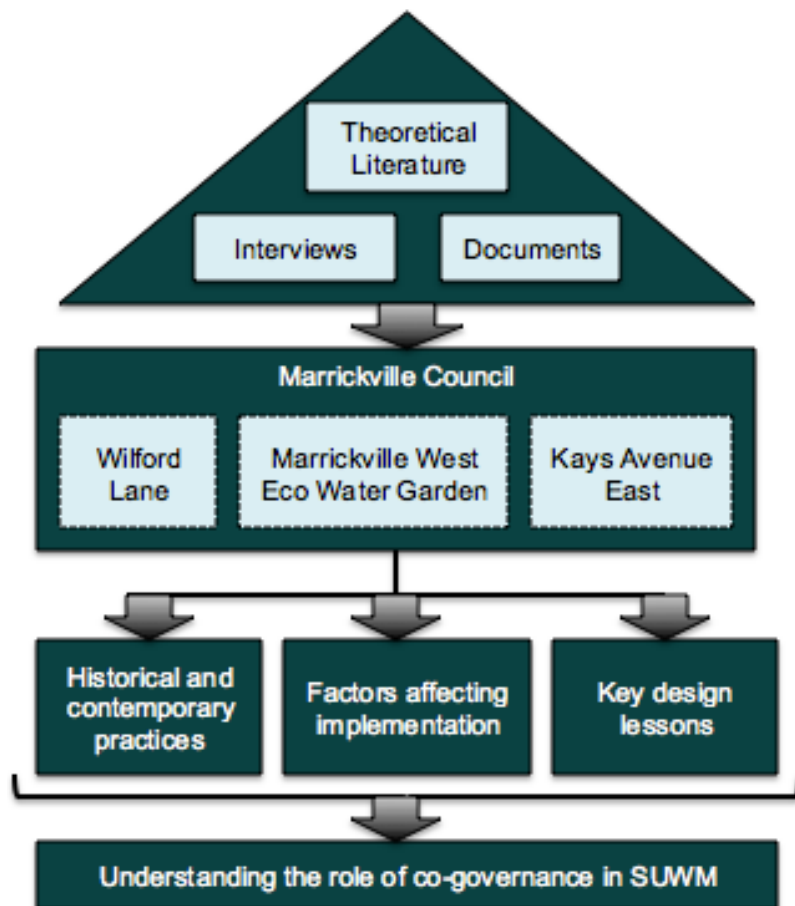


Figure 2. Research Design

The phenomenon of co-governance was examined in relation to an Australian local council. This research chose to focus on local government practices because of their critical importance to enabling the widespread practice of SUWM (Brown, 2008). Marrickville Council was selected as a case study for this research (see section 3.2). The selection was based on the Council's long history of community involvement in SUWM (see, e.g., Marrickville

Council, 2007), including recent attempts at co-governance for improving stormwater quality. The Council is also highly committed to becoming a 'water sensitive community' (Marrickville Council, 2012), and has received notable commendation by the urban water industry for its innovative activities (Stormwater Industry Association of NSW, 2012). The unique and exemplary features of this case highlight the suitability of a single-case design (Yin, 2014). Moreover, the identification of three potential examples of co-governance (Wilford Lane Living Lane, Kays Avenue East Living Lane and Marrickville West Eco Water Garden) supports the use of a single-case embedded design, where each identified example is incorporated as a subunit of analysis. Yin (2014) emphasises that embedded units can improve opportunities for extensive analysis and enhance insights into the larger case. However, the focus must not remain fixed at the subunit level and ignore the holistic aspects of the case. This potential pitfall has been addressed through the objectives of this research, which direct attention towards the historical and contemporary processes underpinning Marrickville Council's co-governance activities (objective 1), as well as individual attempts at co-governance (objective 2).

A hallmark of high quality case study research is the use of multiple sources of evidence (Yin, 2014; Creswell, 2013). In order to enhance the construct validity of this research and develop an in-depth understanding of the case, primary and secondary sources were used (see section 3.3). Primary data was collected through a series of semi-structured interviews with key Council and community members. Each interviewee had firsthand experience with the Council's community engagement and co-governance activities related to urban water management. By directly engaging with Council members, access to a range of internal council documentation was secured. These documents provided detailed accounts of potential contemporary examples of co-governance initiatives. Publicly available strategies and policies related to urban water management and community engagement were also collected. These documents were supplemented by academic literature from a wide range of fields.

An inductive strategy was used to guide data analysis. This involves building patterns and themes from the 'bottom up' by organising data into more abstract units of information (Creswell, 2013). Such approaches are particularly valuable where there is a lack of empirical evidence (Eisenhardt and Graebner, 2007), as in the present study. Specific analytic techniques outlined by Yin (2014), particularly explanation building and time-series analysis (see section 3.4), were used to enhance the internal validity of this research. In particular, the need to attend to all available evidence, clearly state assumptions, and constantly consider alternative interpretations has helped to improve the accuracy of the inferences drawn. These inferences represent analytic generalisations rather than statistical generalisations (Yin, 2014). As this research focuses on a single and unique case of co-governance, it cannot be used to represent or make inferences about co-governance more broadly. Instead, this research has sought to shed empirical light on co-governance through generalizable findings or lessons learned. Such analytic generalisations are posed at a conceptually higher level than the specific case investigated and are believed to be applicable to other local government contexts.

3.2 Case of Marrickville Council²

The Marrickville local government area covers 16.5 square kilometres in the inner-west of Metropolitan Sydney, less than 10 kilometres from the CBD (see Figure 3). This area has, as of the 30th June 2015, an estimated resident population of 84,270 and a population density of 5101.2 persons per square kilometre (Australian Bureau of Statistics (ABS), 2016). The 2011 Census (ABS, 2013) reveals a relatively young, affluent and highly educated population. The majority of residents are employed as professionals. The area is also culturally diverse, with over a third of the population born overseas and speaking a language other than English at home (particularly Greek, Vietnamese, Arabic, Portuguese and Cantonese).

² As of 12 May 2016, the Marrickville Council described in this report no longer exists. Local government reforms have created the new Inner West Council through the merger of the former Marrickville, Ashfield and Leichhardt Councils (NSW Government, 2016).

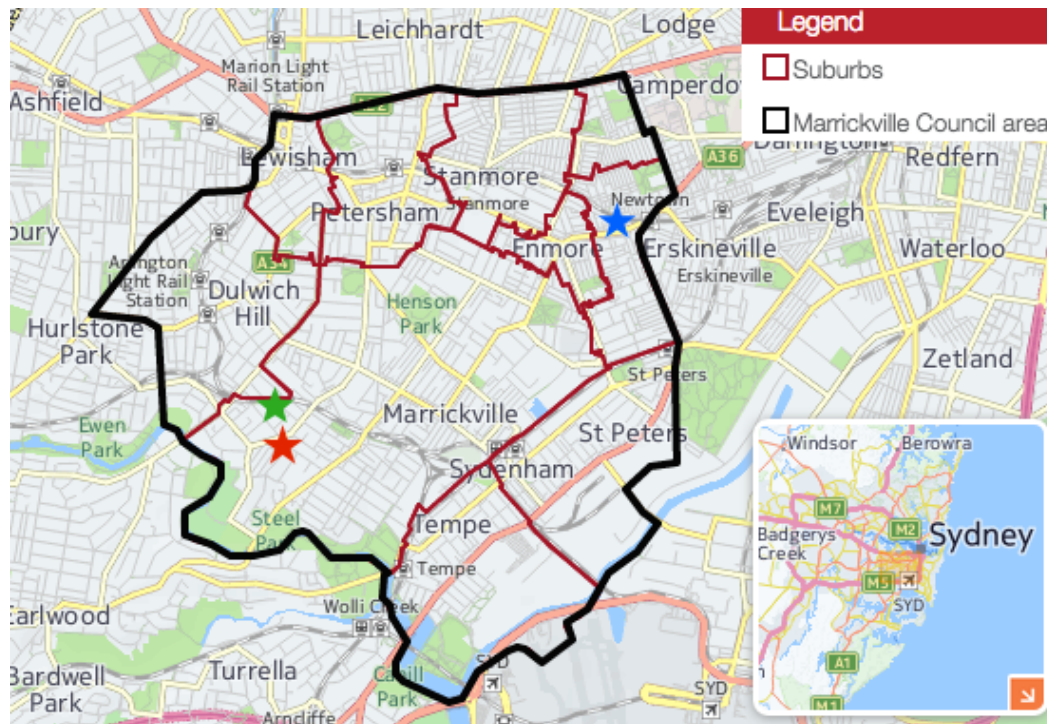


Figure 3. Location of Marrickville local government area and co-governance initiatives (blue star = Wilford Lane; green star = Kays Avenue East; red star = Marrickville West Eco Water Garden). Map sourced from profile.id (2016).

The Council's *Strategy for a Water Sensitive Community 2012 – 2021* (Marrickville Council, 2012) highlights the particular management challenges posed by potable mains water usage, stormwater pollution, and flooding. Each year, the local government area receives 18,750 megalitres of rainfall, which is almost triple the amount of imported potable water that supplies the area. As 76% of this area is covered in hard impervious surfaces, most of Marrickville's rainfall (roughly 71%) flows out of the area as stormwater runoff that is ultimately discharged to the Cooks River, Botany Bay, lower Parramatta River, and Sydney Harbour. Stormwater runoff from roads and roofs is a large source of pollution and contributes to overland flooding, particularly around old creek lines and low-lying former swamp areas. Mainstream flooding of the Cooks River also poses a significant source of inundation. A combination of heavy rainfall and high tides in the Cooks River typically leads to severe flooding in the area. The Council seeks to address these issues through a number of targeted strategies that help deliver SUWM objectives and transform Marrickville into a Water Sensitive City.

Marrickville Council's urban water management activities evince a long history of collaboration. The Council has been an active participant in a range of water-related research programs, such as the Urban Stormwater Integrated Management project, the Cooks River Sustainability Initiative and the Cooperative Research Centre for Water Sensitive Cities (Marrickville Council, 2012). These activities have received significant attention, with the Council considered a leader in SUWM by community groups (GreenWay, 2016) and the urban water industry (Stormwater Industry Association of NSW, 2012; Future Water, 2015). The Council has also been engaging with local communities in SUWM through subcatchment planning processes and related working groups, as well as various advisory and consultative committees (Marrickville Council, 2012). Three potential examples of co-governance have been identified. The Wilford Lane Living Lane, Kays Avenue East Living Lane and Marrickville West Eco Water Garden projects (see Figure 3) each pursued SUWM outcomes via collaborative efforts between Marrickville Council, the State of New South Wales and local stakeholders.

3.3 Data collection

Multiple sources of evidence were used to enhance the rigour and robustness of analytical findings. Data was collected through semi-structured interviews with key Council and community members, and documentary analyses of internal council documents, policies and strategies. These sources were supplemented by secondary literature where available and appropriate. Data triangulation was undertaken in order to corroborate findings. By collectively analysing multiple data sources to develop ‘convergent lines of inquiry’, data triangulation has helped to strengthen the construct validity of this research and ensure that findings are more convincing and accurate (Yin, 2014, p. 120).

3.3.1 Interviews

A combined purposive and snowballing approach was used to identify and recruit participants (Neuman, 2011). Initial participants were recruited from Marrickville Council, based on their active engagement with communities in urban water management activities and their leading involvement in one or more potential co-governance initiatives. These participants also helped identify and recruit other participants from within and outside the Council that had been actively involved in one or more potential co-governance initiatives. In total, 8 participants were interviewed. Of these, 6 were Council employees and 2 were local community members. Given the important role played by communities in co-governance arrangements, an ideal case study would have undertaken further interviews with community members to provide a richer understanding of community perspectives. Whilst other community members were contacted, issues with scheduling prevented them from participating in the research.

Prior to the interview, participants were provided with an explanatory statement setting out the details of the research. Participants were informed of their right to voluntarily withdraw from the study at any time. Data usage and storage procedures were also clearly set out. Participants were assured of the confidentiality of any information provided. This enabled participants to answer questions more openly. All participants consented to the audio recording of interviews, the transcription of audio recordings and the use of anonymous quotations in research publications.

Semi-structured interviews were conducted face-to-face at Marrickville Council offices or the homes of participants. Interviews proceeded in a conversational manner. Discussion was prompted by a series of pre-determined, open-ended questions based on the objectives of this research (see Table 5). This method of inquiry allowed for additional questions that arose naturally during the course of the interview in response to the answers provided by participants. Such opportunities to probe responses served to clarify answers. Notes were taken throughout each interview. All interviews were recorded and later fully transcribed. Interview lengths varied between 20 to 65 minutes.

3.3.2 Secondary documents

Beyond the academic literature, a range of secondary documents were collected and reviewed. Following the interviews, a few Council participants were able to supply copies of internal documents that provided further information on each of the potential co-governance initiatives discussed. These documents included project proposals, management plans, concept designs, communication and engagement plans, and presentations. This source of evidence was supplemented with publicly available documents to verify and augment the details provided by interviewees. Specifically, data was collected on the purpose(s) of the initiative, the parties involved, the processes undertaken and the outcomes achieved (where available). These documents were carefully reviewed in light of the potential biases they may contain. In particular, as access to these documents depended upon the selectivity of Council participants, the collection of documents may be incomplete. It was also recognised that these documents may contain a reporting bias associated with the specific purposes and audiences for which they were produced.

Publicly available documents were also collected through a broad Internet survey. These documents were used to further illuminate and corroborate the changing sophistication of Marrickville Council's community engagement and co-governance activities in relation to urban water management. The bulk of these documents were Council policies, guidelines and strategies. Influential State policies were also examined. Other documents related to the outcomes of Marrickville Council's research collaborations. All of these documents were examined for changes in the nature and extent of Marrickville Council's collaborative practices.

Table 5. Interview questions based on research objectives

Research Objective	Interview Questions	
	Council participants	Community Participants
1. Characterise the historical and contemporary practices of co-governance within a particular local government	<ul style="list-style-type: none"> - How have internal strategies supporting community engagement changed within Marrickville Council over the years? - What made this/these changes possible? 	<ul style="list-style-type: none"> - How have you engaged with Marrickville Council? - How has this changed, if at all, over time?
2. Investigate the factors that facilitated or constrained the implementation of co-governance arrangements within a particular local government	<ul style="list-style-type: none"> - How did the [name of potential co-governance initiative] come to be established? What was your involvement in the initiative? - How were local communities engaged? - What challenges, if any, did you have to overcome? - From the perspective of Marrickville Council, what has the initiative/s achieved? What worked particularly well? - Is there anything you would do differently next time? 	<ul style="list-style-type: none"> - How were you involved in the [name of potential co-governance initiative]? - What challenges, if any, did you have to overcome? - From your perspective, what has the initiative/s achieved? What worked particularly well? - Is there anything you would like to see changed or done differently next time?
3. Identify key design features to support local governments when developing future co-governance arrangements		

3.4 Data analysis

A form of time-series analysis was used to understand the evolution of Marrickville Council's co-governance activities (objective 1). The development of chronological sequences is useful for tracing changes over time and investigating presumed causal events (Yin, 2014). A timeline of Marrickville Council's urban water management strategies and activities displaying some form of collaboration with local communities was compiled from the 1990s. This timeline was then superimposed with internal and external conditions that may have caused or influenced these events. Three strategies were used to enhance the validity and reliability of these assertions. Firstly, these inferences were based on and corroborated through both primary and secondary data sources. Secondly, rival explanations were considered. Finally, the reasoning and evidence behind all causal inferences has been clearly set out in narrative form to enable explanations to be easily tested.

A general qualitative and inductive coding strategy was used to understand the factors that facilitated or constrained the implementation of identified co-governance initiatives (objective 2). Data analysis was conducted using open and axial coding processes (Creswell, 2013). After reading and 'memoing' interview transcripts/notes and internal council documents, data was aggregated into a number of 'categories' or 'codes' of information. Each code identifies a positive or negative factor affecting how the co-governance initiative unfolded. Data was reviewed multiple times to reduce selective bias and ensure data was not overlooked. These codes were then combined and classified into themes representing factors that displayed the highest level of data saturation. This process was repeated for each subunit of analysis. Each analysis was presented in narrative form. A detailed

description and discussion of identified themes was provided. Themes were also tabulated and matched with interview quotations.

Data analysis was conducted across subunits to develop 'naturalistic' (Creswell, 2013) or 'analytic' (Yin, 2014) generalisations that can support local governments in the design of co-governance arrangements (objective 3). The analytic technique of explanation building was used (Yin, 2014). This process involved collectively analysing the themes generated within each subunit to construct a series of design propositions. Each proposition was repeatedly refined and interpreted in relation to the broader academic literature. This research recognises that such generalisations are not conclusive or representative of all situations since they are based on a single and unique case study. Accordingly, these propositions have been carefully crafted as working hypotheses or lessons learned – rather than absolute design principles – that may be used to guide the design of co-governance arrangements in similar situations.

4 Results and discussion

This chapter is divided into three sections. The first section traces the evolution of Marrickville Council's co-governance practices from the early 1990s and provides a brief reflection on key developments. A pictorial representation of this discussion is provided at the end of this section. This is followed by a detailed examination of three recent attempts at co-governance by Marrickville Council. The analyses focus on the factors that enabled and/or constrained these initiatives. The final section discusses key design features or considerations that emerged from the case study.

4.1 Evolution of Marrickville Council's co-governance practices

4.1.1 The 1990s

This period of Council activity is marked by developments at the state and international levels. The *Local Government Act 1993* (NSW) is a key piece of legislation governing the activities of all councils in New South Wales, including Marrickville Council. Under the Act, all Councils are required to regard and promote the principles of ecologically sustainable development in the execution of their responsibilities (ss 7–8). Chapter 6 of the Act prescribes the service functions of councils. These include the provision, management and operation of water, sewerage and stormwater drainage works and facilities (subject to certain exceptions). Councils are also responsible for flood prevention, protection and mitigation services and facilities. In carrying out these functions, councils are guided by the principles set out in Chapter 3, which include public participation. Under Chapter 4, councils are also required to provide members of the public with the ability to influence council decisions through open and well-publicised council meetings, public access to relevant information, and opportunities for public comment on proposals. This Chapter also enables councils to ascertain community opinions through the conduct of polls.

In the mid-1990s, Marrickville Council established the Environmental Services (ES) Team “as a direct response to the Rio Earth Summit in 1992” (Interviewee 1). This highlighted, according to one interviewee, the openness and support of Marrickville's councillors to the concept of sustainability. The ES team is responsible for developing and implementing a range of sustainable practices to protect and enhance the local environment, which includes pursuing best practices in urban water management. In the late 1990s, the ES team became involved in the preparation of stormwater management plans under the NSW Stormwater Trust Program. This program, established in 1997 as part of the NSW Government's Waterways package, required councils to jointly develop plans on a catchment basis and in consultation with all relevant stakeholders, including communities, state agencies and catchment management bodies (NSW Office of Environment and Heritage, NSW OEH, 2011a). The program also included a grants scheme for stormwater projects, and a state wide urban stormwater education program targeting local communities and industry (NSW OEH, 2011b).

Whilst the program succeeded in reducing pollution and enhancing awareness of the importance of stormwater management (Davies and Wright, 2014), the program failed to meaningfully involve local communities in the planning process (Brown et al., 2000). A review of the program by Brown and Ryan (2001, p. 18) found that community engagement techniques were ‘highly ineffective’ and ‘unsophisticated’, mainly involving information provision (e.g. presentations at public meetings) and information gathering (e.g. opinion polls). This was attributed to a lack of council expertise in community engagement and a perceived lack of public interest in stormwater issues. Other obstacles related to the dominance of technical expertise and perspectives, and the catchment-scale focus of the planning process, which made it difficult to engage communities and identify solutions that reflect local community values.

4.1.2 The 2000s

The perceived failures of the NSW Stormwater Trust Program led the manager of the ES Team, in collaboration with an interested academic, to secure funding for a new research project aimed at developing a collaborative planning process for urban water management. The Urban Stormwater Integrated Management (USWIM) project, which commenced in 2002 as a partnership between Marrickville Council and Monash University, involved “a multidisciplinary team working closely with the community to identify subcatchment stormwater solutions that reflect the principles of sustainable urban water management” (Thomas et al., 2007, p. 2). The new planning process ultimately produced by this project (see Figure 4) places a large emphasis on community engagement. The process seeks to enhance opportunities for engagement by reducing the planning scale to the subcatchment level, and improve the effectiveness of engagement efforts through early and detailed profiling of the social, physical, institutional and organisational characteristics of the subcatchment (Marrickville Council, 2007).

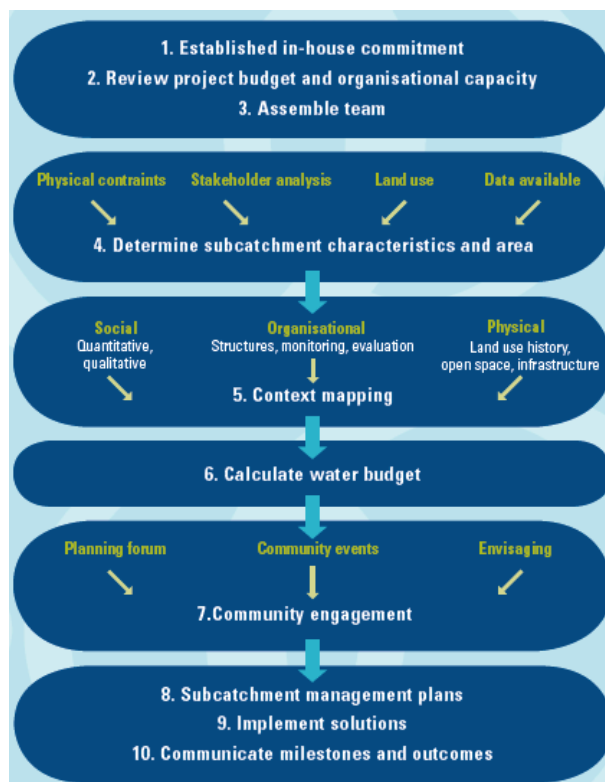


Figure 4. The 10 planning steps of integrated sustainable urban water management (Marrickville Council, 2007, Figure 3, p. 10)

The collaborative planning process was initially trialled in the Illawarra Road Subcatchment in Marrickville South. The features of this process and its outcomes are captured in the *Illawarra Road Subcatchment Management Plan* (Marrickville Council, 2009). After undertaking comprehensive social, physical and organisational profiling of the subcatchment, a series of visioning sessions were held with local residents and Council officers in June 2005 to create the 'Illawarra Road Community Water Vision 2050'. This facilitated visioning process allows participants to discuss local water issues, and collectively build an ideal picture of water management and planning within their subcatchment (Marrickville Council, 2007). A set of interim (2015) and long-term (2050) goals were developed through a two-day planning forum in July 2005. Potential actions were identified and refined through technical analyses highlighting the most feasible options. These options included on-ground works to treat and store stormwater, such as rain gardens and rainwater tanks. Following the planning forum, expressions of interest led to the establishment of the Illawarra Road Sustainable Water Working Group. This group of committed

community representatives provide additional input into the planning process and work with Council to implement many of its programs, including the Marrickville Rainwater Tank Incentive Scheme and the construction of four local rain gardens.

On the whole, interviewees felt that the USWIM project has improved Marrickville Council's connection with their local community. The project revealed the community's limited understanding of stormwater issues. In response, the Council created its urban water education program that includes rainwater harvesting and WSUD workshops, tours and showcases, as well as a range of local festivals and events. Key social findings of the USWIM project, which concluded in 2006, highlighted that the community has the capacity and desire to participate in urban water management (Marrickville Council, 2007). Furthermore, the Council should not make assumptions about community attitudes and behaviour, but instead should undertake comprehensive social profiling to better ensure community acceptance of Council activities and decisions (Marrickville Council, 2007).

The success of the collaborative planning process in the Illawarra Road Subcatchment has encouraged the Council to apply the process to the remaining 20 subcatchments within the Marrickville local government area. To achieve this, the Council created the *Waterevolution Subcatchment Planning* program in 2008 (see Table 6). To date, the program has resulted in the development of 5 additional subcatchment management plans (Marrickville Council, 2016a). The success of the program in engaging local community members has prompted the Council's Environment team to further involve the community through a series of co-governance initiatives, which have involved laneway redevelopments (Wilford Lane and Kays Avenue East living lanes) and the construction of a stormwater biofiltration, storage and irrigation system in a local primary school (Marrickville West Eco Water Garden). Each project is described in section 4.2.

Table 6. The *Waterevolution Subcatchment Planning* program (Marrickville Council, 2009, p. 2; Marrickville Council, 2016a)

Aim	To work across the local government area, in both the public and private domain, to implement sustainable urban water management. To achieve this aim, Council is using a multidisciplinary approach, working collaboratively with the people of Marrickville to achieve the following objectives of Stormwater Management.
Objectives	<ol style="list-style-type: none"> 1. Apply the best practice governance to: <ol style="list-style-type: none"> a. work with the people who live and work in the subcatchments; b. build the organisational capacity, e.g. skill development, data collection and sharing, evaluation and learning; c. integrate projects and planning in order to achieve value for money; and d. communicate progress and results to internal and external stakeholders. 2. Apply the principles of sustainable water management to: <ol style="list-style-type: none"> a. improve the quality of stormwater entering receiving waters; b. reduce the quantity of stormwater entering receiving waters; c. mitigate flooding; and d. use water in fit-for-purpose applications, e.g. irrigation.
Funding	Marrickville Council's Stormwater Management Service Charge
Completed Plans	<ul style="list-style-type: none"> - Illawarra Road Subcatchment (2006) - Tennyson Street Subcatchment (2009) - Riverside Crescent Subcatchment (2010) - Eastern Channel Subcatchment (2011) - Eastern Channel North Subcatchment (2013) - Western Channel Subcatchment (2014)

The latter half of the decade saw increasing collaborative activity focused on improving the health of the Cooks River. In 2005, the Council formed the Marrickville Cooks River Committee in order to work closely with the local community to better manage the Cooks River. The Committee has 9 community members that support and advise Council regarding decisions affecting the Cooks River. Community members have described the Committee as a valuable platform for raising issues with Council and keeping informed of Council activities (see Table 7). The Committee also assists with the coordination, implementation, monitoring and review of activities conducted along the Cooks River and its foreshore, such as regular clean ups and the construction of rain

gardens (Marrickville Council, 2016b). Yet despite these and other efforts associated with improved urban water planning processes, Council officers and interested academics recognised that broader health impacts would require inter-organisational cooperation at the catchment scale. This led to the application and receipt of funding from the NSW Environmental Trust to establish the Cooks River Sustainability Initiative in 2007, a project involving eight Councils within the Cooks River Catchment. The project aimed to improve collaboration between and among Councils and their communities through the application of the USWIM collaborative planning process in 6 subcatchments (see, e.g., Bos et al., 2013a). Prior to the project's conclusion in 2011, participating Councils continued to formally collaborate with each other, and with local communities, through the Cooks River Alliance (Bos and Brown, 2012).

Table 7. The value of the Marrickville Cooks River Committee to local community members

Value	Example qualitative explanations
Source of information	– “I find the Marrickville Cooks River Committee very helpful because it’s a place for the Councillors and Council officers to use as a sounding board about things they’re planning or doing” (interviewee 2)
Forum to raise issues	– “It’s a place for us to raise stuff, about what we would like to see happen or query about things we’re not quite sure is going on” (Interviewee 2) – It “gives me access to all the environmental [officers] and also it gives us the opportunity to put up motions to Council, which we do quite often for different things” (Interviewee 3)

4.1.3 Post 2010

In 2010, the *Local Government Act 1993* (NSW) was amended to require councils to develop long-term Community Strategic Plans. In developing these plans, councils must (as of 2012) comply with the *Integrated Planning and Reporting Framework* produced by the NSW Office of Local Government (NSWOLG). Accompanying guidelines encourage councils to work directly with the public to ensure their ideas and concerns are reflected in the Community Strategic Plan (NSWOLG, 2013). A variety of engagement mechanisms are suggested, including community planning forums and consultative committees. In 2013, Marrickville Council adopted the *Marrickville Community Strategic Plan 2023* (a revision of the earlier *Marrickville Community Strategic Plan 2021*), which identifies the community’s long-term social, economic and environmental goals. Community feedback was sought through online consultation, community surveys, consultation at community events, and advisory and consultative committees. Of note, the community identified Marrickville as ‘a water sensitive community that: supplies water from within its catchment; provides green infrastructure to support ecosystem services; and collaborates to make plans, designs and decisions that are water sensitive’ as a key long-term aspiration (Marrickville Council, 2013, p. 16). To achieve this outcome, Marrickville Council developed the *Strategy for a Water Sensitive Community 2012-2021*. The Strategy identifies four strategic areas and associated actions related to SUWM that can move Marrickville to a Water Sensitive City.

4.1.4 Reflections

The form and sophistication of the practices employed by Marrickville Council to involve its community in urban water management have changed over time (see Figure 5). The 1990s marked a period of compliance with the minimal engagement requirements set out in the *Local Government Act 1993* (NSW). These provisions reflect the ‘tokenistic’ forms of participation described by Arnstein (1969). Similarly, in enabling councils to gauge community reaction and gather information that can influence subsequent decisions, these provisions capture the ‘consultation’ type of participation described by Bishop and Davis (2002). A similar characterisation can be construed for the stormwater management planning process under the NSW Stormwater Trust Program. The increasing activity in the 2000s highlights a growing sophistication in the Council’s approach to engagement. This is evidenced by the many and varied forms of engagement used in the subcatchment planning process, Cooks River collaborations, and development of key Council plans and strategies. These activities highlight a mix of traditional and non-traditional methods of engagement, aligning with Arnstein’s (1969) ‘tokenistic’ forms of

participation and degrees of 'citizen power'. Similarly, the use of surveys, public meetings, community forums, advisory committees and other instruments suggest that Marrickville Council has adopted both the 'consultation' and 'partnership' types of participation described by Bishop and Davis (2002). The initiatives examined in section 4.2 also suggest that Marrickville Council has begun to practise co-governance. However, interviewees suggested that these practices are mainly confined to the ES division, with more traditional engagement practices employed in other parts of Council.

This evolution in practice is also marked by changes in the Council's narrative around community engagement and urban water management. The need to comply with the NSWOLG's *Integrated Planning and Reporting Framework* has made community engagement "*much more embedded*" in Council and led to a shift in internal language that recognises community engagement as "*everybody's business*" (Interviewee 4). The growing importance of community engagement in Council is also evidenced by the appointment of Council officers specialising in community engagement, and widespread staff training on engagement techniques in line with the public participation spectrum developed by the International Association for Public Participation. The Council has also opened up channels for public comment through the development of an online engagement site called 'Your Say Marrickville'. A shift in narrative can also be seen in relation to urban water management. The emphasis in Council plans and strategies has shifted away from stormwater management towards more integrated and sustainable approaches to urban water management. Goals and priorities now reflect principles of 'sustainable urban water management' and 'water sensitive cities', as evidenced in Marrickville Council's *Strategy for a Water Sensitive Community 2012-2021* and its ongoing participation in a leading national research-industry collaboration known as the Cooperative Research Centre for Water Sensitive Cities (CRCWSC).

Key individuals and a supportive organisational culture have played a critical role in transforming Marrickville Council's practices. Two Council officers in particular can be described as SUWM 'champions'. According to Taylor et al. (2011, p. 412), champions are 'emergent leaders' that play a central role in bringing about change. These officers are highly motivated and committed to achieving SUWM through collaboration with the community. Both local residents interviewed described positive relationships with each officer. From the time of their employment in 2000 and 2003 respectively, these officers have gone beyond their formal responsibilities by working with leading academics to initiate and facilitate the development of the novel USWIM approach to urban water planning. They also actively involved community members throughout this process and continued to do so after the completion of the project through the *Waterrevolution Subcatchment Planning* program. The same officers and academics also contributed to the instigation and development of the Cooks River Sustainability Initiative. The extent of these innovative activities would not have been possible without the support of Council leadership. As one interviewee described, "*we work within a culture that says it's okay to make mistakes, it's okay to try and innovate, and to pilot new things, as long as we learn from those things*" (Interviewee 4). The importance of supportive organisational cultures was recognised by Farrelly and Brown (2011), who highlighted that transitioning towards SUWM requires organisational cultures that embrace experimentation and learning.

A highly active and involved local community has also contributed to the shift in Marrickville Council's practices. Council officers interviewed described their local community as an activist community – one that is politically aware, well educated and willing to try new things. This is evident in the increasing number of working groups and advisory committees that have been established in direct response to community interest. Such willingness to engage with Council has been supported by community perceptions of good faith on the part of Marrickville Council. For instance, in relation to the subcatchment planning process, interviewed residents described Council officers as "*quite genuine about consulting*" (Interviewee 2) and were "*very impressed by their commitment*" (Interviewee 3). Although high levels of community involvement exist within Marrickville, not all portions of the community are as involved in Council's urban water planning processes and on-ground activities. The Council has struggled to engage with members of culturally and linguistically diverse communities. In order to activate their participation, the ES team has partnered with other parts of Council and external groups to develop an education campaign and targeted strategies for engagement (Thomas et al., 2007). This has involved undertaking workshops and tours in various languages, as well as translating materials and retaining interpreters throughout subcatchment planning processes.

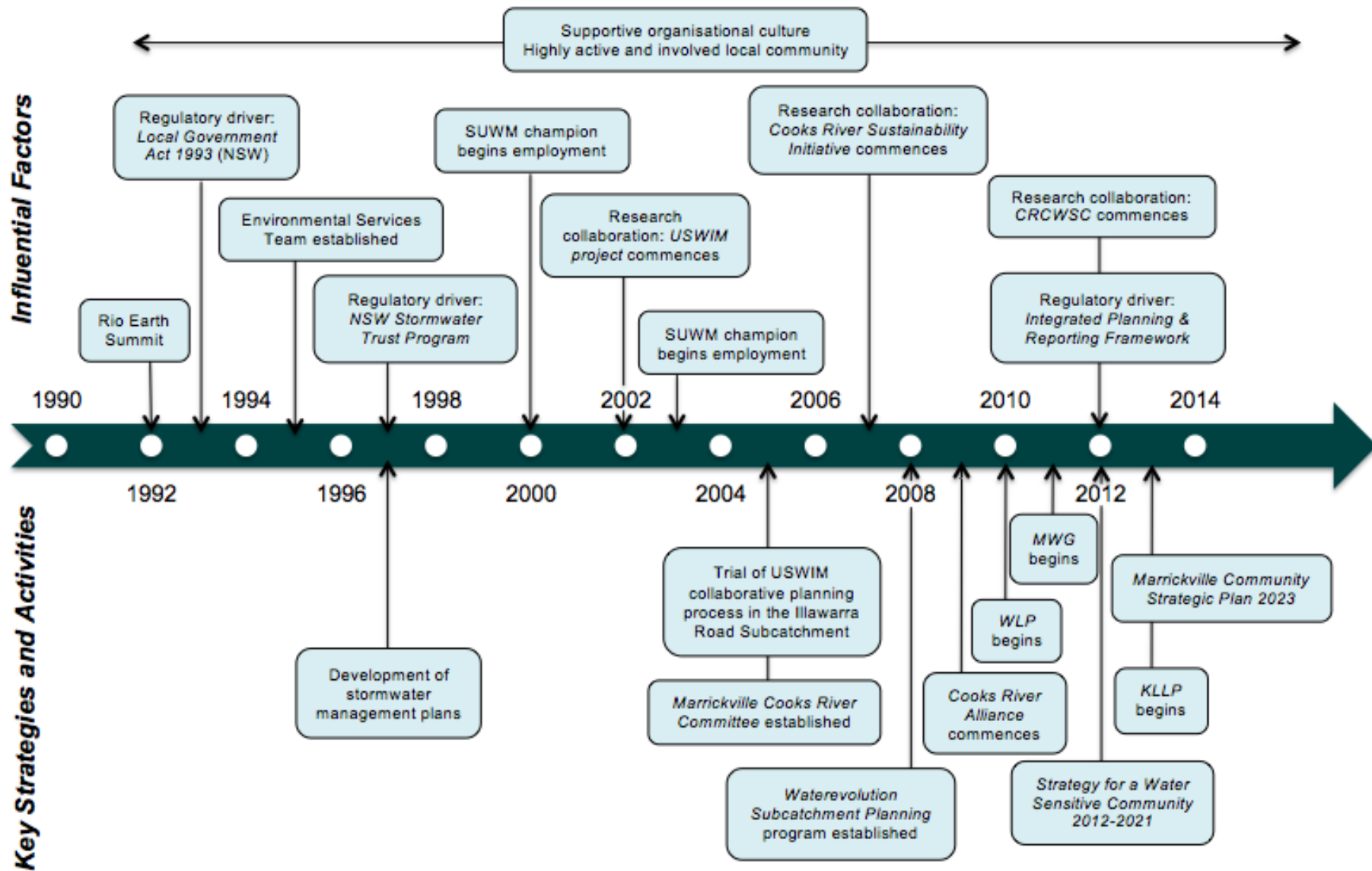


Figure 5. Timeline depicting the evolution of Marrickville Council's co-governance practices. The top half of the figure depicts key conditions that influenced Marrickville Council's practices. A selection of key strategies and activities are highlighted in the bottom half of the figure. WLP = Wilford Lane Living Lane project; MWG = Marrickville West Eco Water Garden project; KLLP = Kays Avenue East Living Lane project.

4.2 Co-governance in Marrickville

Marrickville Council has long recognised that in order to effect significant change in urban water management, the involvement of local communities is required. Two key considerations have driven this conviction. Firstly, Council has been involved in a number of research projects that have demonstrated the benefits of community engagement, including the achievement of better outcomes. Secondly, Council has recognised the limits of what it can accomplish on its own. Council does not have access to the resources or physical land necessary to practise widespread SUWM. As a highly urban and inner-city local government area, very little open space exists for Council to implement on-ground works. Accordingly, Council needs to work with its stakeholders to achieve its goals for a water sensitive community. These considerations have motivated Council to pursue a co-governance approach. Three attempts at co-governance are explored in this section.

4.2.1 Wilford Lane Living Lane Project (WLP)

Wilford Lane is located in Newtown, a highly urbanised commercial and residential area in Sydney's inner west. Prior to the WLP, the laneway faced problems with flooding and illegal activities. The WLP arose as a result of the construction of a residential flat building, which required the laneway (located at the rear of the building) to undergo road widening. A local resident, who was aware of Marrickville Council's innovative water programs and commitment to collaboration, approached a Council officer at a WSUD workshop to determine whether the laneway could be developed into a useable green space. The Council was amenable to the idea. A survey of affected residents, homeowners and businesses was conducted in June 2010. Results revealed an overwhelming preference (78%) for the conversion of the laneway into a green space. In February 2011, a meeting was held with residents who registered an interest in participating in a local working group. A vision for the laneway was developed and agreement was reached on the project's key objectives (see Table 8). Further meetings were held with the local working group to determine the design of the laneway (see Table 8). The local working group expressed an interest in taking over the formal management of the area. This required the group to form a legal entity with appropriate insurance before a lease agreement with Marrickville Council could be finalised. The Council assisted with the group's incorporation as the 'Wilford L.A.N.E. Project', and the development of a Management Plan. Stewardship of the laneway was officially handed over to the group in June 2012. The Council maintains oversight through an ongoing relationship with residents and membership on the Wilford L.A.N.E. Committee. Further details on the WLP are provided in Table 8.

The WLP represents a true example of co-governance. Local residents were involved in all aspects of the decision-making and implementation process, from planning and design, through to construction (via a 'community planting day') and management. As the project contributed to the Council's urban water management responsibilities (through the harvesting and treatment of stormwater, and flood mitigation works), residents were effectively involved in a core function of government (see Ackerman, 2004). Additionally, the formalised co-management arrangement captured by the lease agreement demonstrates a genuine devolution of power (see Somerville and Haines, 2008). The WLP also displays some of the broader societal benefits discussed by co-governance scholars. An evaluation of the WLP highlighted improvements in local capacity and levels of social cohesion, which corresponds with the findings reported by Dollery et al. (2014). The authors highlighted improvements in the ability of participants to work together in pursuit of common goals (i.e. co-governance led to higher levels of social capital). The WLP has also contributed to a reduction in flooding and illegal activity. A site visit in November 2015 revealed a clean and well-maintained space, suggesting that the laneway continues to be carefully managed (see Figure 6).



Figure 6. Wilford Lane redevelopment. Left image: Wilford Lane prior to works, July 2010 (image courtesy of Marrickville Council). Right image: Wilford Lane 3 years after completion of works, November 2015 (image courtesy of Marrickville Council).

The success of the WLP can be attributed to a number of factors (see Table 9). The instigation of the project by local residents was identified as a critical enabling condition. The results of the 2010 survey clearly highlighted the significance of the project to the local neighbourhood. Scholars have recognised that participatory decisions or outcomes that closely align with stakeholder needs and priorities are more likely to stimulate a deep sense of responsibility (Reed, 2008; Birnbaum, 2016). By enabling residents to steer the laneway's transformation into a useable green space, the co-governance process has generated a sense of ownership among the residents and a commitment to take on the ongoing management and care of the laneway. This commitment is still evident years after the completion of works (see Figure 6). Other enabling factors identified by interviewees included Marrickville Council's commitment to educate and involve local communities in SUWM programs. Well-known successes (particularly in relation to subcatchment planning) have established the Council's credibility and trustworthiness, encouraging locals to broach their ideas to Council, as occurred in this case. Berkes (2009) identifies trust as a key determinant of successful co-management and a necessary prerequisite for building working relationships. The WLP confirms this finding. Other enabling factors include the availability of Council funding (via the stormwater charge) and the support of local Councillors. It was suggested that without either, the project would not have proceeded.

Table 8. Wilford Lane Living Lane Project details

Objectives	<ul style="list-style-type: none"> - Develop a process for self-management of a shared community space. - Apply co-governance techniques – Council and the <i>Wilford L.A.N.E. Project</i> stakeholders will plan, design, construct and manage the lane. - Provide a green communal space. - Improve overall laneway conditions. - Mitigate flooding. - Treat stormwater runoff using green infrastructure. - Provide a space for community art projects. - Integrate stormwater treatment and flood mitigation into the streetscape design. - Provide a case study for the Water Sensitive Cities program. - Provide an environmental education resource demonstrating best practice stormwater management. 	
Participants	Marrickville Council, local residents and non-resident property owners.	
Funding	<ul style="list-style-type: none"> - Developer contribution in fulfilment of development application conditions amounting to \$54,000. Developer also covered the costs of lighting in Wilford Lane amounting to \$7,671.40. - Council contributed \$75,000 from the Stormwater Management Service Charge reserve (i.e. the stormwater charge) 	
Project Features	<ul style="list-style-type: none"> - Road replaced with porous paving and biofiltration strips. - Rainwater tank installed to store water for irrigation. - Communal garden planted by group members, Council staff and other local community members. - Flood improvement works. 	
Activities (2010-2012)	<i>Apr 2010</i>	Engagement between Marrickville Council and Wilford Lane community commences regarding the use of the laneway.
	<i>Jun 2010</i>	Survey administered by Marrickville Council shows 78% of residents prefer to have the laneway converted to a green space.
	<i>Feb 2011</i>	First working group meeting to develop a vision for the space and agree on key project objectives.
	<i>May 2011</i>	<ul style="list-style-type: none"> - Site meeting with display and discussion of 2 landscaping options and prioritisation of works. Most support biofiltration systems and flood mitigation measures to be constructed as a priority. - Working group agrees on establishing an incorporated body that has a lease with Council, and for a group to manage and maintain laneway.
	<i>Aug – Dec 2011</i>	Meetings to determine the design of the laneway. Final design addresses identified issues and objectives through an open space plan incorporating innovative water sensitive urban design features.
	<i>Feb 2012</i>	On-ground works commence. Management Plan and lease finalised by Council and the Wilford L.A.N.E Project Inc. Committee.
	<i>Jun 2012</i>	On-ground works completed. Official opening at the Community Planting Day and handover to incorporated group (Wilford L.A.N.E. Project).

A key challenge related to the capacity of Council officers to practise co-governance (see Table 9). Interviewees gave the example of an engineer who initially thought it prudent to override a decision collaboratively made with local residents and Council staff. This highlights the struggles experts and bureaucrats often have to respond to local needs, designing solutions that incorporate traditional features (such as parking) instead of those sought by residents. Such examples of disconnect between practitioner and local concerns highlight the traditional technocratic outlook evident in Australian urban water management (e.g. Farrelly and Brown, 2014). Whilst this issue did not ultimately affect the design of the laneway, it highlights the importance of appropriately training staff in co-governance techniques. It is clear that co-governance requires a shift in values and thinking that recognises the role of local communities in governance activities. This is a difficult but necessary process to properly effect co-governance, requiring sophisticated and dedicated capacity-building programs (Head and Ryan, 2004).

Table 9. Factors that influenced the Wilford Lane Living Lane Project

Influencing Factor	Example qualitative explanations
Enabling Factors	
Community driven project	– “Because it was something that was, I guess, initiated by a local resident down there who then sort of got the interest of his local neighbourhood involved, it made it easy for us to get involved with it, rather than us going in there cold” (Interviewee 5)
Council’s commitment to community education and collaboration	– “So that was absolutely driven by the community, but also by our water programs and spreading the message about what was possible and what we were interested in doing and how we were prepared to work with communities” (Interviewee 1)
Available funding	– “We were able to build that using ... the stormwater levy that councils were able to raise. So that funding went there. And without that it would be unlikely that we would have been able to fund those projects” (Interviewee 1)
Support of local Councillor	– “The councillors played quite a big role in this as well. One councillor in particular, who was approached by this resident ... the councillors were behind it from the beginning as well. Really keen to see it supported” (Interviewee 1)
Constraining factors	
Traditional technocratic outlook	– “And that was an interesting exercise, particularly for our engineers who are so used to proposing the solution to problems all the time that they think they have all of the answers ... we’re still really grappling with those ‘we know best’ kind of approaches” (Interviewee 1)

4.2.2 Marrickville West Eco Water Garden (MWEWG)

The MWEWG refers to a stormwater harvesting, treatment and reuse project located on the grounds of Marrickville West Public School. The project was initially identified through the Riverside Crescent Subcatchment planning process and later prioritised by Marrickville Council. Planning for the MWEWG began with a series of workshops involving representatives from the project’s implementation partners and key stakeholders (see Table 10). The first workshop established the project’s key objectives (see Table 10). A community member’s introductory presentation at this workshop also inspired the development of a school curriculum around water titled “We are all Cooks River People”. Subsequent workshops considered and refined key components of the MWEWG’s design (see Figure 7). Input was sought from a wide variety of stakeholders. Technical suggestions were provided by the CRCWSC. A ‘Your Say Marrickville’ page was created to collect feedback from local residents. Students were also involved through a design competition. Prior to the development of a detailed design, a risk workshop was held to alleviate health concerns and contribute to the development of a risk management plan. Once the plan was finalised, project implementation partners began negotiations on the terms of the maintenance agreement. As the School is located on State land, the Department of Education (DE) was involved. Earlier in the planning process, the DE had provided the Council with in-principle support for the project and agreed to an ongoing role in its maintenance. However, after the detailed design was completed and Council had proceeded with the tender process, the DE withdrew its support, stating that it could no longer be responsible for maintaining the MWEWG. This was attributed to a directive of the new Liberal government that required cut backs in Assets spending (including maintenance). The project is currently at a standstill, with protracted negotiations between Council and the DE preventing the construction of the MWEWG. Further details on the MWEWG are provided in Table 10.

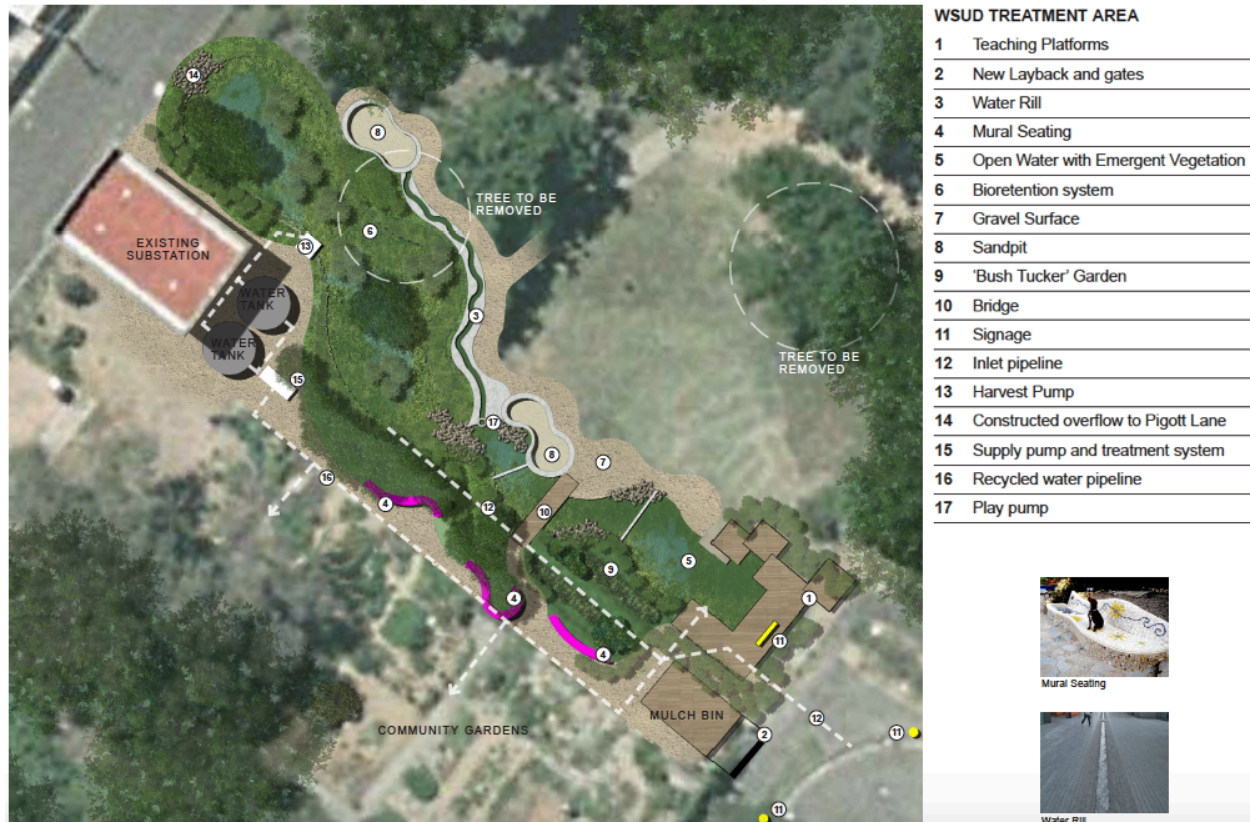


Figure 7. Concept design for the MWEWG (courtesy of Marrickville Council)

Table 10. Marrickville West Eco Water Garden Project details

Objectives	<ul style="list-style-type: none"> - Develop and apply a co-governance process to plan, design, construct, evaluate and manage WSUD systems in shared space. - Integrate stormwater treatment into the streetscape design. - Improve aesthetics, functionality and usability of the green space. - Integrate a water sensitive urban design system into the existing rock garden and Marrickville West Community Garden area. - Provide safe and accessible space for creative and active student activities, i.e. outdoor classroom. - Build social capital. - Increase Council and local knowledge and skills for sustainable water management; - Provide a space for community art projects. - Provide habitat for local Cooks River biodiversity. - Support the Cooperative Research Centre for Water Sensitive Cities PhD research. - Treat stormwater runoff using WSUD infrastructure. - Create microclimate benefits. - Increase resilience to climate change by providing an alternative source of water to irrigate the community garden and play areas. 	
Project Implementation Partners	Marrickville West Public School/Department of Education (DE), Marrickville Council, Marrickville West Community Garden Committee, and Marrickville West Public School Parents and Citizens (P&C) Association.	
Other Stakeholders	Cooperative Research Centre for Water Sensitive Cities (CRCWSC), and Riverside Crescent Subcatchment Working Group.	
Funding	Marrickville West Public School P&C Association contributes \$10,000. Council contributes \$250,000 from the Stormwater Management Service Charge reserve.	
Project Features	<ul style="list-style-type: none"> - A biofiltration system (rain garden) to treat polluted stormwater coming from the surrounding residential streets. - Storage tanks and treatment systems to harvest and treat the stormwater for use by the community garden and school. - A landscaped water play and learning area for the school and local community. 	
Proposed Maintenance Arrangement	<ul style="list-style-type: none"> - Marrickville Council to maintain subsurface stormwater infrastructure. - DE to monitor water quality in the garden. - Marrickville West Public School and Marrickville West Community Garden Committee to maintain the garden and other surface works. 	
Activities	<i>Sept 2011 – Mar 2012</i>	Project team is established. Project team identify key project objectives.
	<i>Mar – June 2012</i>	Project team develop ideas for the concept design, with the support of the CRCWSC. Project team review options. Stakeholder comments are invited and incorporated into the concept design.
	<i>Aug – Oct 2012</i>	Funding sought for preferred design from Council.
	<i>July – Oct 2013</i>	Draft risk management plan developed collaboratively.
	<i>June 2014</i>	Final risk management plan distributed to partners.
	<i>Aug – Nov 2014</i>	Draft Contract (including maintenance agreement) developed.
	<i>Jan 2015</i>	Detailed design completed.
	<i>Mar – May 2015</i>	Council calls for tenders and contracts builder.
<i>Pending</i>	Contract finalised with DE.	

The MWEWG project does not (yet) fully demonstrate the application of a co-governance approach. Although project partners collectively planned and designed the MWEWG, the lack of agreement regarding maintenance continues to prevent the achievement of co-governance. This impasse can be attributed to a number of factors (see Table 11). Of these, interactions with the DE present the most significant challenge. State bureaucracies exemplify the traditional features of hierarchical governance. These include formal and inflexible governing structures based on 'command-and-control' interactions (e.g. Lange et al., 2013). Such top-down interactions characterise state and local government relationships. In these traditionally unequal settings, more powerful actors tend to resist new modes of governance that promote an equal distribution of power (e.g. Meadowcroft, 2007). This struggle is evident in the MWEWG project. Like other state agencies, the DE operates in a top-down manner and manages activities on state land through licensing agreements. This allows the DE to retain a significant measure of control. The proposed co-governance arrangement challenges this approach, leading to confusion and resistance. The MWEWG project confirms the potential for co-governance to break down in situations where power and influence are at stake (Røiseland, 2010; Birnbaum, 2016). It was suggested that the current maintenance conflict could have been avoided if formal agreement with the DE was obtained earlier in the process. Scholars have highlighted the importance of early and continuous engagement in anticipating potential problems, and ensuring high quality and durable decisions (Reed, 2008). Although the DE had initially provided the Council with in-principle support for the project and agreed to an ongoing role in its maintenance, they held off signing a formal agreement until a detailed project design could be approved. Before this could happen, a change in government occurred. The accompanying change in policy regarding Assets spending has contributed to the current standstill in negotiations.

Other key challenges concerned the traditional technocratic outlook identified previously in relation to the WLP (see Table 11). The impact of this outlook has taken a variety of forms. A few Council officers struggled with the idea of co-governance and questioned the value of working with other actors to deliver improved outcomes on State land. Some officers reverted back to traditional ways of thinking and behaving by, for example, focusing on the project objectives they perceived to be most relevant rather than adopting a holistic approach and valuing each equally. The most disruptive impact was connected to an officer's perception of risk. A Council officer with no role in the project notified the NSW Ministry of Health, despite technical and legal advice to the contrary. This triggered lengthy Ministry procedures that ultimately contributed to substantial project delays. The involvement of the Ministry demonstrates the inherent conservatism evident in the Australian urban water sector (Farrelly and Brown, 2011). This risk-averse culture can inhibit innovative co-governance activities, particularly when linked to public health concerns.

The ongoing delays and lack of progress has left project partners and Council officers feeling frustrated and fatigued (see Table 11). This loss of momentum among project partners may prevent the completion of the project, which may in turn negatively affect the Council's and community's willingness to engage in future co-governance initiatives. However, the ongoing life of the project suggests that the project may yet succeed. This activity has been attributed to the persistence of key Council officers and continued support of school leadership. These champions have ensured that the project remains relevant and visible to the community, as evidenced by a recent news article on the maintenance standoff between Marrickville Council and the DE (Barr, 2016). Whether or not the MWEWG is ultimately constructed, this project has provided Marrickville Council with a useful learning opportunity. In particular, the project has highlighted the potential complexities of multi-actor co-governance arrangements, especially where state involvement is required. This may cause Marrickville Council to alter their engagement strategies with state agencies, and become more selective with co-governance projects in the future.

Table 11. Factors that influenced the Marrickville West Eco Water Garden Project

Influencing Factor	Example qualitative explanations
Constraining factors	
Complex relations with hierarchical State partner	<ul style="list-style-type: none"> – “When something’s on state government land, that presents a whole lot of different issues including in the hierarchical thinking of the people in government. They see Council as normally where they pass on responsibilities for councils to implement things, so to work together and be an equal partner, I think is not quite in the – they might say that, but it doesn’t happen in the way the system and the thinking is. I think cognitively and regulatory that the systems don’t enable that, the systems enable the top down approach” (Interviewee 6)
Traditional technocratic outlook	<ul style="list-style-type: none"> – “I think we still struggle with people getting it, of this whole idea of this multifunctional outcomes by partnering with the school, because people have a tendency to go back to that traditional way of thinking or the traditional approach” (Interviewee 7) – “They’ll talk the words but they’re quick to go back to business as usual because it’s very hard to change your personality and your beliefs and your habits” (Interviewee 6) – “We had a couple of loud voices with certain, what they thought were risks with the projects, but in reality, they were just, they were overreactions” (Interviewee 7)
Partner Fatigue	<ul style="list-style-type: none"> – “So what’s happening now is that staff internally are getting a little bit sick of the project” (Interviewee 1) – “That was frustrating all the stakeholders and ... people who think ‘oh why is it taking so long’ which was true” (Interviewee 6) – “So for me personally, the challenge has been having the energy to continue, because you get to that thing, that point and you just go, I’m exhausted with this” (Interviewee 7)
Enabling Factors	
Champions	<ul style="list-style-type: none"> – “So my main role is an enabler and pulling people together and trying to get the leaders, the people who they trust and have agency, ... together so that we can make things happen” (Interviewee 6) – “And if it wasn’t for [name of Council officer]’s persistence and optimism ... I think I would’ve given up the ghost” (Interviewee 7) – “The principal was a really important driving force” (Interviewee 1)

4.2.3 Kays Avenue East Living Lane Project (KLLP)

Like the MWEWG project, the KLLP was initially generated through the Riverside Crescent Subcatchment planning process. A local resident identified the cul-de-sac as a potential stormwater treatment site capable of addressing flooding issues in the area. The project was eventually incorporated into the *Riverside Crescent Subcatchment Management Plan* (see Marrickville Council, 2010) and selected as a demonstration site for 'Connecting Marrickville', an internal initiative bringing staff together from different sections of Council to deliver multifunctional infrastructure. Residents and property owners were notified of the project in early November 2013 and invited to participate via mail and street posters. A Your Say Marrickville page was also created to gather information and provide additional project details. Council officers met with residents at the end of the month to discuss the objectives of the project and establish a local working group. A design workshop was held a few days later. The suggestions of participants were incorporated into three concept designs that were later distributed to stakeholders for comment. A site meeting was held in March 2014 to finalise the design. A few local residents that had not attended previous meetings raised some concerns about the loss of parking in front of their houses. This issue was eventually resolved through modifications to the final design. Works commenced in May 2015 after Council approval was obtained. A planting day with the local community was held in August 2015 to complete the laneway (see Figure 8). This event marked the last collaboration with local residents. Further details on the KLLP are provided in Table 12.



Figure 8. Kays Avenue East laneway redevelopment. Aerial views of Kays Avenue East before (image A, May 2015) and after (image B, June 2016) construction (images courtesy of Marrickville Council).

Table 12. Kays Avenue East Living Lane Project details

Objectives	<ul style="list-style-type: none"> - Provide a demonstration project for Connecting Marrickville using co-governance to deliver multifunctional infrastructure with residents. - Integrate stormwater treatment and flood mitigation into the streetscape design. - Increase habitat and local biodiversity. - Reduce the urban heat island effect. - Design a space that is safe and attractive. - Explore the potential for community art. 	
Key Stakeholders	Local residents, property owners, laneway users, GreenWay, Riverside Crescent Subcatchment Working Group, and RailCorp, Transport for NSW.	
Funding	A NSW Office of Environment and Heritage grant was awarded to Marrickville Council in 2013 to fund 50% of the construction of the stormwater treatment and flood works.	
Project Features	<ul style="list-style-type: none"> - Two rain gardens to treat polluted stormwater coming from surrounding streets. - Landscaped areas to improve aesthetics, reduce the effective impervious area, and provide improved bike and pedestrian access to and from Dulwich Hill train station. 	
Activities (2013 – 2015)	11 Nov 2013	Letters and posters inviting stakeholders to participate and seeking feedback via Your Say Marrickville.
	25 Nov 2013	Site meeting with locals to gather information, set up working group, and discuss project objectives.
	28 Nov 2013	Co-design workshop with local residents to generate ideas for the concept design.
	Dec 2013	Internal Council design workshop to develop designs that incorporate community ideas.
	Feb 2014	Three concept designs distributed among stakeholders for comment.
	Mar 2014	Site meeting with local residents to finalise design.
	Feb 2015	Council meeting to finalise project approval. Contractor appointed.
	May – July 2015	Construction of works.
	Aug 2015	Community Planting Day.

Despite its objectives, the KLLP did not achieve co-governance. The involvement of local residents was confined to the design-related aspects of decision-making. No ongoing role for the community was established. This one-off collaboration with local residents (involving surveys, on-site meetings and a co-design workshop) more appropriately reflects the ‘consultation’ type of participation described by Bishop and Davis (2002). The adoption of a co-governance approach was prevented by a lack of community interest in continuing to work alongside the Council (see Table 13 for influencing factors). Local residents were not prepared to monitor, maintain or otherwise participate in the management of the laneway. Scholars have recognised that collaborative strategies can be undermined by a lack of community interest or motivation to effectively participate (Bovaird, 2007; Head, 2007; Callanan, 2005). Studies of the factors that motivate citizens to co-produce have attributed a willingness to participate to a diverse mix of interdependent factors that require complex strategies to stimulate (see, e.g., Alford, 2002; Alford, 2014; Bovaird et al., 2015). Such conditions reinforce the need to tailor levels and methods of engagement to the needs and interests of participants (Reed, 2008).

The presence of champions can provide an effective catalyst for change (Taylor et al., 2011). A local resident initially proposed the KLLP and was quite keen to work with Council to achieve more sustainable practices. However, the resident moved away before collaboration on the project began. The resident's absence resulted in the loss of a local champion to promote the project and advocate for a co-governance approach. A wider engagement strategy may have identified other local champions interested in working with Council in an ongoing capacity. The Council's engagement efforts focused on the residents closest to the stormwater infrastructure. Other key laneway users, such as the local cyclist group, were not directly involved in the project. The question of stakeholder representation has been the subject of considerable scholarly debate (e.g. Bochel et al., 2008; Cornwall, 2008; Ansell and Gash, 2008). Although representation of a wide set of stakeholders may improve

decision-making outcomes (e.g. Fung, 2006), more inclusive processes can also generate greater conflict and delay (e.g. Birnbaum, 2016). This suggests that stakeholder representation needs to be well considered and systematic (Reed, 2008). In this project, the limited representation of other laneway users may have resulted in missed opportunities for co-governance.

Table 13. Factors that influenced the Kays Avenue East Living Lane Project

Influencing Factor	Example qualitative explanations
Constraining factors	
Lack of community interest	<ul style="list-style-type: none"> – “I think the big difference is we didn’t have a community of people who were prepared to work with us into the future on this site” (Interviewee 1) – “There was no-one there willing to take it up so a big key learning is that you need to have an active interest of community in sharing the work” (Interviewee 6)
Limited stakeholder representation	<ul style="list-style-type: none"> – “We focused on the residents who are closest to the stormwater infrastructure ... we didn’t engage with the bicycle user’s group, so maybe we could have gone to them to try and sort of I guess dilute the engagement a bit, so it’s not just about the people who live there, because it’s public space” (Interviewee 8) – “We didn’t spread our engagement to people using the cycleway. We didn’t spread the engagement to the other catchment groups as much as we did with Marrickville West Eco Water Garden” (Interviewee 1)
Late stakeholder involvement	<ul style="list-style-type: none"> – “We’d kind of thought we’d got the street. But, no, we didn’t. We were unaware that we didn’t have everyone. You know? We were missing key people. So it was only at the end we realised” (Interviewee 1) – “And at the 11th hour when the plans had been signed off, one household realised that they were losing parking outside the front of their house. There was plenty of other parking in the street and it really stalled the project” (Interviewee 8)
Enabling Factors	
Community driven project	<ul style="list-style-type: none"> – “This one was generated by, like Wilford Lane, by a man who lived in the area ... he would have been a proponent for the co-governance” (Interviewee 6)

As occurred in the MWEWG project, the late involvement of particular stakeholders contributed to a number of delays and affected the outcomes of the project. At the final site meeting, two households became concerned with the loss of parking directly in front of their houses. Both households declared that they had not read their mail, nor seen the street posters, or attended any of the previous meetings or co-design workshop. The householders contacted their Ward Councillor and raised a petition to reinstate the parking spaces immediately in front of their houses. They supported their claim with a letter from a real estate agent stating that the works would reduce the value of their property. The Council’s Pedestrian, Cyclist and Traffic Calming Committee ultimately supported their claim and required the concept design to be modified accordingly. Overall, the individual householders’ concerns shifted the focus of the project away from the environmental benefits of the project towards the issue of parking. This case highlights the importance of early and direct engagement to identify and address potential issues during the design stage, which in turn would help prevent later delays in the implementation of the project. Direct methods of communication (via phone or face-to-face) are needed to ensure the involvement of citizens directly affected by a project. As one householder had recently moved into the area and the other came from a non-English speaking background, face-to-face contact was necessary to confirm their understanding of the project and ensure their participation from the very beginning. Engagement strategies also need to address existing street dynamics between different cultural groups. This case demonstrates the importance of comprehensively analysing all stakeholders, as socio-economic factors (such as age, gender, education and income) play an influential role in shaping how stakeholders become involved (e.g. Reed, 2008; Bovaird et al., 2015).

4.3 Designing co-governance arrangements

This section describes a series of design features or considerations that can be used to guide the development of co-governance arrangements in other local government contexts. These features draw upon and extend the findings discussed in the preceding sections. As this research draws upon a single case study, the widespread applicability of these findings is limited. Furthermore, the complexity of co-governance suggests that there is no 'one-size-fits-all' approach. Rather, co-governance arrangements need to be tailored to the specific social, environmental and economic conditions of the local government area. Accordingly, the following discussion seeks to uncover key design features or considerations that can help induce more successful co-governance arrangements. This discussion is organised under three key themes.

4.3.1 Build institutional capacity

The capacity of local governments to engage in co-governance is critical to the success of such arrangements. Brown (2008) relevantly highlights three interdependent areas of institutional capacity building that are necessary for the advancement of SUWM. The first area of intervention concerns human resource development. This typically involves activities focused on improving the knowledge, skills and motivation of individuals. The Wilford Lane and MWEWG projects highlight the potential for co-governance initiatives to be undermined by Council officers working within the traditional paradigm and possessing a limited understanding of co-governance. This finding supports the need for appropriate training and education programs. Such programs should emphasise the ideal SUWM actor attributes identified by van de Meene et al. (2011). These include the ability to view and understand problems holistically, a personal commitment to sustainability, a diverse range of skills and knowledge, and a willingness to engage with others. Such attributes also characterise SUWM champions (Taylor, 2009). These individuals play a critical role in driving the implementation of SUWM. Finding and nurturing SUWM champions is a challenging process, particularly given the difficulty experienced by local governments in attracting and/or retaining appropriately skilled staff (White, 2007). One potential strategy for improving internal capacity and facilitating the development of SUWM champions involves partnerships with research institutions. Marrickville Council's participation in the USWIM project and the CRCWSC has played a significant role in demonstrating the importance of community involvement and improving the capacity of Council officers to effectively engage with their local community. Such partnerships also provide ongoing guidance and feedback, greater credibility and access to a wide range of expertise (Bos et al., 2013b).

The second area of intervention described by Brown (2008) concerns intra and inter-organisational capacity. This area of activity is focused on the improvement of organisational cultures, management structures and practices, and relationships with external actors (this latter point is explored in section 4.3.3). An organisational culture that is oriented towards sustainability, supports innovation and values learning has been consistently identified by Australian urban water practitioners as a key capacity attribute of future SUWM regimes (van de Meene et al., 2009; 2010). The presence of such a culture was critical to the development and success of Marrickville Council's innovative SUWM programs and initiatives. Support at the executive level and from local Councillors enabled the trial of novel subcatchment planning and co-governance approaches with broadly defined expectations and uncertain outcomes. Each project was conceived as a learning opportunity. This allowed Council officers to innovate without fearing the potential consequences of failure, which was shown by Farrelly and Brown (2011) to inhibit experimentation. The development of supportive organisational cultures is a lengthy process, requiring senior leaders to actively foster corporate cultures that support SUWM and encourage the emergence of champions (Taylor, 2009).

As a long-term approach, co-governance requires dedicated human and financial resources. A purposefully established and skilled project team is needed to ensure governance activities are well coordinated and facilitated (Bos et al., 2015). Each project examined in section 4.2 involved officers from different sections of Council with specialisations in different areas including environmental management, engineering, urban planning and community engagement. The KLLP involved a multidisciplinary team formally established through the Connecting Marrickville initiative. Accordingly, local governments seeking to pursue co-governance should initially consider

establishing an internal working group that connects representatives from different departments. The purpose of this group would be to carry out functions that support co-governance activities. This includes the securing of funds. Both the WLP and KLLP were funded internally (via the stormwater charge) and externally (via developer contributions in the case of the WLP, and an external state government grant in the case of the KLLP). A combination of internally and externally sourced funds shall be required to develop, implement and complete co-governance projects. A lack of adequate financial and technical resources will prove detrimental to the realisation of SUWM (van de Meene et al., 2011).

The final area of intervention described by Brown (2008) concerns broader institutional reform. This involves the development of new policies and regulations that enhance the capacities of all relevant organisations and institutions. Stimulating such change at the state or national level is beyond the capabilities of any single organisation. Rather, it requires sustained efforts across all sectors. Local governments can inform institutional reform processes by actively practising co-governance and advocating for change. This should supplement efforts focused on human resource development and organisational capacity, as interventions focused on a single capacity area are likely to achieve incremental rather than widespread change.

4.3.2 Analyse and involve all relevant stakeholders

Before embarking on a co-governance initiative, relevant stakeholders need to be comprehensively analysed. The detailed stakeholder profiling undertaken within the USWIM project and subsequent subcatchment planning processes significantly contributed to the effectiveness of engagement efforts. A variety of methods and approaches to stakeholder analysis have been developed (see Reed et al., 2009). The process typically involves identifying the individuals and groups affected by a decision or action, understanding their interests and relationships, and prioritising their involvement in the decision-making process (Reed, 2008). Such information can be used to select and appropriately tailor methods of engagement. For example, the significant presence of residents with a non-English speaking background in the KLLP resulted in the translation of relevant materials to enable their effective participation. Stakeholder analyses can also provide a clearer understanding of the incentives stakeholders have to participate in collaborative processes and the factors that affect those incentives (Ansell and Gash, 2008). This in turn can be used to shape the strategies used to recruit local participants.

Stakeholders need to be involved from the very beginning of a co-governance initiative. The MWEWG and KLLP highlight the potentially detrimental consequences of partial stakeholder involvement. In both projects, failing to engage key stakeholders before plans were finalised resulted in substantial delays and resistance. This supports findings by Ackerman (2004) that suggest the earlier stakeholders are involved in the planning process, the more effective co-governance arrangements will be. Accordingly, local governments looking to pursue co-governance should actively involve stakeholders as early as possible in order to reduce transaction costs and improve the likelihood of long-term success. This will require a clear articulation of the contributions expected from each stakeholder (Michels and De Graaf, 2010). Once the project has commenced, a formal definition of the roles and responsibilities of participants will be needed to institutionalise co-governance arrangements. This may include the formation of an incorporated entity and/or contractual agreements, as occurred in the WLP. Voluntary agreements may be more appropriate in other contexts. Irrespective of form, success is more likely where participants accept and commit to the long-term, institution-building process (Armitage et al., 2009).

The nature and degree of participant involvement will vary throughout the process (Reed, 2008). The WLP revealed an increasing degree of involvement over time. At the beginning of the project, local residents were consulted and surveyed about the use of the laneway. As the project progressed, residents became more involved, sharing decisions on laneway design and eventually taking over management of the laneway. This change in involvement reflects the full spectrum of Arnstein's (1969) ladder of citizen participation. The process began with 'tokenistic' forms of participation focussed on information provision and gathering, and eventually reached forms of 'citizen power' as citizens became more involved in the design and management of the laneway. This highlights the gradual and evolutionary nature of co-governance, suggesting that techniques of engagement need to change as the process progresses (see Table 14). The number of participants present can also affect the degree of public involvement achieved (Smiley et al., 2010). While large groups of participants may

be necessary in situations where a diverse range of interests are present and need to be represented, smaller groups are more preferable where higher levels of involvement are required (Irvin and Stansbury, 2004). Accordingly, local governments need to balance equitable and pragmatic concerns to determine the most appropriate level of involvement at each stage of the process.

Table 14. Evolution of participation in co-governance arrangements

Stage	Engagement Mechanism	Level of participation (based on Arnstein 1969)
<i>Initiation</i>	<ul style="list-style-type: none"> – Letters/flyers, online web pages, door knocking and site meetings to provide information. – Surveys (online/face-to-face) to gather local information. 	Informing/Consultation
<i>Planning and Design</i>	<ul style="list-style-type: none"> – Public meetings and workshops to establish a collective vision and set of objectives. – Committees/working groups to collaborate on design and share decision-making responsibilities. 	Partnership
<i>Management</i>	<ul style="list-style-type: none"> – Formal entities/structures to distribute and clarify management responsibilities. 	Delegated power/Citizen control

4.3.3 Build trust, local capacity and long-term commitment

Effective co-governance arrangements are constructed upon a solid foundation of trust (Head and Ryan, 2004). Trust is critical to the development of enduring working relationships between governments and local communities (Berkes, 2009). Efforts to build trust and confidence among participants require a long-term commitment, dedicated effort and good faith (Ansell and Gash, 2008). One potential strategy for building trust and enabling communities to more effectively contribute to co-governance activities involves the development of local capacity building programs. Such programs may include a combination of public information sessions, workshops and demonstrations of SUWM practices, as regularly conducted by Marrickville Council. For instance, the Council's well-established subcatchment planning processes have provided local residents with a platform to learn about, and become involved in, SUWM within their subcatchment; as well as regularly interact with their local Council officers. The WLP and KLLP were initially identified by local residents that had previously participated in subcatchment planning processes and attended SUWM-related workshops. These residents played a critical role in driving these projects. This suggests that efforts to build local capacity and collaborate with local communities may also contribute to the development of local champions instrumental to the development of co-governance projects.

Once a co-governance project is initiated and expectations are created, efforts to maintain the momentum of participants need to be considered. The establishment of a working group or project team that meets on a regular basis proved to be an effective mechanism for maintaining community involvement in all three cases. Ansell and Gash (2008) stress the importance of regular, face-to-face interactions. They contend that face-to-face communication is necessary for building trust, mutual respect and understanding, and commitment to the collaborative process. Accordingly, regular interactions between participants need to form a key part of efforts to sustain co-governance initiatives. This will help generate community 'buy-in' or ownership of the process. Such feelings of civic duty or responsibility can lead to greater citizen involvement in public affairs (Michels and De Graaf, 2010). The WLP would not have succeeded in achieving co-governance without the dedication of key local residents that took ownership of the laneway and became responsible for its ongoing management. The absence of such champions in the KLLP prevented the achievement of co-governance and ultimately reduced the project to an exercise in community engagement. These projects highlight the importance of fostering local champions, particularly where they can drive more active community involvement in governance activities.

5 Conclusion

Achieving sustainable urban environments requires a holistic approach to urban water management. SUWM is one such approach that recognises the importance of involving stakeholders in decision-making processes. A broad survey of the academic literature has revealed a number of concepts for characterising different degrees of public involvement and modes of collaboration. Of these, co-governance has been increasingly advocated as a mechanism for achieving meaningful collaboration with stakeholders. This report has attempted to identify the key attributes of co-governance, and demonstrate the concept's strong theoretical connection with public participation, co-production and co-management. Whilst additional clarification has been provided on the similarities, differences and interrelations between the various concepts; further theoretical contributions are required to develop a more consistent terminology across the broader public administration and environmental management areas of scholarship.

This research has addressed calls for greater empirical understandings of co-governance by exploring Marrickville Council's efforts to collaborate with local communities in the delivery of SUWM. The historical account of Marrickville Council's evolving engagement activities has highlighted the importance of several internal and external factors in promoting the uptake of innovative co-governance practices. Particular influence was attributed to the presence of internal champions, an organisational culture that supports learning and experimentation, participation in a number of relevant research collaborations, and a highly active and involved local community. The examination of three collaborative projects has revealed that it is far easier to initiate than to sustain co-governance. Of Marrickville Council's three attempts at co-governance, only one to date has achieved a true co-governance arrangement. The success of this project was attributed to a highly driven group of locals, an open and willing Council committed to collaboration, and the support of Council leadership. The availability of Council funds was also critical. Although one or more of these factors were present in the other two projects, a series of obstacles ultimately proved more influential. These included the absence or late involvement of key stakeholders, the disinterest or unwillingness of essential participants to assume any ongoing responsibilities, and the presence of conventional project members with a limited understanding of co-governance.

Overall, this case study has demonstrated the potential complexities associated with the development of co-governance arrangements. As this is a long-term and resource intensive process, implementing this approach may not be appropriate in all situations. Traditional methods of engagement associated with community consultation may be more suitable in some contexts, particularly where resource constraints and/or limited stakeholder interest exist. Accordingly, the level of public involvement or mode of collaboration will need to be tailored to the particular parameters of the project and local context. In circumstances where a co-governance approach is deemed appropriate, local governments should consider the three key design lessons that emerged from this case study. Firstly, internal capacity is critical. The multidisciplinary group of staff involved in any project need to be appropriately trained and educated on co-governance and community engagement techniques. Additionally, council leadership should actively foster supportive organisational cultures and commitment to collaborative processes. Secondly, the form and extent of stakeholder involvement requires careful consideration. Prior to any project, potential stakeholders need to be comprehensively analysed to determine appropriate methods and strategies for engagement. Transaction costs can be minimised through early and continuous stakeholder engagement activities that clearly define expectations and responsibilities. Finally, trust and local commitment are necessary in the long-term. Council programs designed to build local capacity can also provide a forum for relationship building and the development of local champions. Regular, face-to-face interactions are needed to maintain the momentum and ongoing involvement of non-state participants. Overall, co-governance arrangements will vary in different local government contexts, but the presence of these design features may lead to more successful long-term outcomes.

6 References

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