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AUSTRALIA

**Responsive Governance and Complex Urban Settings: Responding  
to change in an urban policy arena - Brisbane (QLD) Australia and  
Portland (OR) USA**

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## **Abstract**

Despite remarkable progress in planning and management, the development of adaptive governance for urban settings is incomplete; particularly in the context of global change and uncertainty (Birkmann et al. 2010, Wilkinson 2012). Urban settings are characterised by complex institutions and power relations that tend to resist rather than adjust to change. Established interests are often prioritised; emergent 'non-core' interests can remain marginal, and can lose capacity during critical change (Jänicke 1997). Given this situation, how does the governance of a 'non-core' policy arena adjust to change over time?

Public administration and political science literatures examine the role of networks, policy instruments and institutions in changes to governance. The adaptive governance problem demands a better understanding of responsive change with respect to: institutions (Goodin 1996, Dovers and Hezri 2010); hybrid governance arrangements (Skelcher 2012); power relations (Evans 2011); and the role of the public in public governance (Sorenson and Torfing 2005). As such, the investigation contributes towards a more critical application of resilience thinking to governance settings. This research develops an investigative framework from these literatures to examine the diverse responses of governance actors to change.

Using a comparative case study approach, the investigative framework examines how policy instruments (i.e. formal structures), urban regimes (i.e. informal structures) and the broader institutional context (e.g. regional governance) interact to shape the types and extent of governance adjustments over time. The focus is the policy arena of urban ecological governance within two metropolitan areas of Brisbane (QLD) Australia and Portland (OR) USA. These cases show important aspects of responsive governance in urban settings that are not included within more normative recommendations for adaptive governance, such as advocacy, contention and multiple framings of governance. How or whether inter-actor responses are coordinated depend on these and other factors such as legitimacy and interaction between types of responses.

The research concludes that rather than seeing resilient policy arenas as requiring the 'governance of adaptation' through particular normative forums, structures or principles, it is more useful to focus on and potentially steer the supporting factors that underpin diverse inter-actor responses to change across a policy arena. This

'governance *and* adaptation' view recognises that in urban settings, actors and their agency are embedded within multiple structures. Many of these structures cannot be adapted, but critically, some realign as an adjustment to change and this potentially supports adaptation. Metagovernance is found to be critical, although in general it is partially decentred amongst a set of key actors. A 'governance *and* adaptation' framework builds a policy arena-wide explanation from empirical settings. The findings have significant implications for efforts to enhance responsive governance in urban settings and to better strengthen its resilience to future uncertainties.

## **Declaration by author**

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

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### **Publications during candidature**

Morrison, T. H., McAlpine, C., Rhodes, J. R., Peterson, A. & Schmidt, P. 2010, "Back to the Future? Planning for environmental outcomes and the new Caring for our Country program," *Australian Geographer*, 41, 521–538.

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Contributor	Statement of contribution
Schmidt (Candidate)	Designed data collection (90%) Undertook research (100%) Wrote, edited & framed the paper (85%)
Morrison, T.H. (Advisor)	Designed data collection (10%) Edited and framed the paper (15%)

### **Contributions by others to the thesis**

“The following figures were prepared at the author’s request: Figures 3.3, 3.4 and 3.5 (maps of the study areas) by Fabian Vaca; Figure 8.7 by Kym Thomas; and Figures 6.2, 6.3, 8.3, 8.4 and 8.5 by Naomi Schmidt.

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## List of abbreviations used in the thesis

Audubon	The Audubon Society of Portland (US environmental group)
ANT Theory	Actor-Network Theory (as per Bruno Latour)
B4C	Bulimba Creek Catchment Coordination Committee
BCC	Brisbane City Council (Metropolitan and Municipal Government)
BES	Bureau of Environmental Services, Portland City Council
BRMG	Brisbane River Management Group
BRMBWMS	Brisbane River and Moreton Bay Wastewater Management Strategy
CRAG	Columbia Regional Association of Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Combined Sewer Overflow
CSWC	Columbia Slough Watershed Council
CWA	US <i>Clean Water Act</i>
CWS	Clean Water Services (Water Service District in Tualatin Basin)
E-zones	Environmental Zones, Portland Council
EPBCA	Environmental Protection and Biodiversity Conservation Act (1999)
ESA	US <i>Endangered Species Act</i>
FAUNA	Friends and Advocates of Urban Natural Areas, Portland
FEMA	US Federal Emergency Management Agency
FGK Corridor	Forestdale-Greenbank-Karawatha Environmental Corridor
FoT	Friends of Trees, Oregon
GFC	Global Financial Crisis
GIS	Geographic information Systems
Goal 5	Oregon state planning goal 5 (Natural Environment)
HWP	Healthy Waterways Partnership
ICM	Integrated Catchment Management
IEM	Integrated Environmental Management
JCWC	Johnson Creek Watershed Council
LAS	Local Asset Services, Brisbane City Council (Now 'Field Services')
LFW	Land for Wildlife Program, Australia
LGA	Local Government Area (i.e. Municipal Government Area)
Metro	Portland Oregon's Regional Government
MGM	Portland Metropolitan Greenspaces Masterplan
MPAC	Metropolitan Policy Advisory Committee
NALL	Brisbane Natural Assets Local Law
NCA	<i>Nature Conservation Act 1992 (Qld)</i>

NES	Natural Environment and Sustainability, Brisbane City Council
NPDES	National Pollutant Discharge Elimination System (Clean Water Act)
NGO	Non-Government Organisation (or Non-Profit Organisation)
NRM	Natural Resource Management
OCCA	Oxley Creek Catchment Association, Brisbane
OR	The State of Oregon, USA
PCC	Portland City Council
PPR	Bureau of Parks and Recreation, Portland City Council
PSU	Portland State University
RaD	Roads and Drainage Division, Brisbane City Council
RUGGOs	Regional Urban Growth Goals and Objectives
SEQ	South East Queensland
SSD	Special Service District
TEES	Terrestrial Ecology Enhancement Strategy, Portland Council
THPRD	Tualatin Hills Parks and Recreation District
Title 3	Title 3 of Metro's Floodplain and riparian management plan
Title 13	Title 13 of Metro's function plan
TMDLs	Total Maximum Daily Loads set under the US Clean Water Act
TRWC	Tualatin River Watershed Council
QLD	The State of Queensland, Australia
SB	Oregon Senate Bill
SEQ	South East Queensland
SLATS	Statewide Landcover and Trees Study, Queensland
SOWN	Save Our Waterways Now (Enoggera Creek Watershed Group)
UERC	Urban Ecosystem Research Consortium, Portland
UGB	Urban Growth Boundary
UQ	University of Queensland
USFWS	US Fish and Wildlife Service
VMA	<i>Vegetation Management Act 2004 (Qld)</i>
VPO	Vegetation Protection Order, Brisbane

# Chapter 1

## Introduction

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*I knew that their budgets would be tighter this year, but when the news came it was a real shock to me. Our funding was completely slashed. After ten years of partnering with the local government we had five organisations working with us on the project. Without the local government dollars, I didn't know how we could keep it all going or what direction we could take it. The only thing I knew for sure was that every group involved would have a different version of what that direction should be.*

It was 2011, and after three years of rippling through market systems the 'global financial crisis' (GFC) crashed through municipal environmental budgets across most of the western world. In Portland (OR), USA and Brisbane (QLD), Australia, I heard local managers, both government and non-government, share their versions of this same scenario. The organisations involved needed to change their activities in order to respond to the funding cuts, and as a result their working relationships would be affected. These relationships were often a resource that brought opportunities, but for many of these tightly networked local groups, partnerships could also bring complicated constraints, which could be difficult to change. Metropolitan-wide planning and management was more complex again. Across the urban areas of Metro Portland and Brisbane, not all local networks and activities were connected; furthermore different networks, programs and priorities were affected in different ways. Compounding this was the problem of priorities. These government and non-government managers were operating in the arena of 'urban environmental resources', in particular 'urban biodiversity'.<sup>1</sup> Environmental concerns were rarely near the top of metropolitan agendas when budgets were healthy. So although actors involved in ecological

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<sup>1</sup> Environmental resources and urban biodiversity of special prominence included: native vegetation; wetlands; riparian areas; iconic species; and associated ecosystem services. Specific to Brisbane were: coastal resources such as mangroves; diverse ecosystems such as sub-tropical rainforest, dry sclerophyll and wet sclerophyll forests; and iconic species such as the koala (*Phascolarctos cinereus*) and some glider species (e.g. *Petaurus breviceps*); Specific to Portland were: iconic species such as pacific salmon species (genus *Oncorhynchus*), migratory birds and North American beaver (*Castor Canadensis*); riparian resources such as 'back channels'; and temperate ecosystems such as Douglas Fir forest, Broadleaf forest and Oak Woodlands.



planning and management needed to respond to the impacts of the GFC, they had no illusions that they would be 'calling the shots'.

This concern with responding to change has not been limited to urban environmental governance. In many arenas decision makers increasingly face problems that are complex, 'wicked' and therefore difficult to predict (Rittel and Webber 1973). However, an interest in adaptive governance does not always sit comfortably with the dominant paradigm for planning and management, namely *sustainable development* (Brown 2011).

The *sustainable development* discourse emerged from a series of international forums. The 1992 Rio Earth Summit explicitly introduced the challenge of governance for sustainable development (Jordan 2008). In its wake governments began launching their national strategies.<sup>2</sup> The central aim was for development decisions to balance a range of 'bottom-lines' (i.e. economic, social and environmental) in order to meet current needs without constraining the ability of future generations to do likewise.

Central to the *sustainable development* approach was the increased involvement of stakeholders in matters that affected them with a view to more inclusive decision making (WCED 1987). For planning and management, the *sustainable development* paradigm fostered a sub-discourse of 'integration' in both rural and urban settings (Pickett et al. 2004, Morrison 2006, Peterson et al. 2007). Decision makers pursued this goal using a range of strategies. Spatially focused strategies such as regional planning sought to integrate local interests and multiple actors at higher spatial scales (Cotugno and Seltzer 2011, Hall and Tewdwr-Jones 2011). Sector-focused strategies encouraged collaboration through, for example, funding streams and peak bodies. Strategies within government structures aimed to link 'silos' via 'whole-of-government' approaches and integrated planning (Margerum 1997, Management Advisory Committee 2004, Morrison and Lane 2005). The terms 'integration' and 'sustainable development' became virtually ubiquitous, but their definition was often unclear and their implementation remained at best, incomplete (Giddings et al. 2002, Krueger and Gibbs 2007).

Sustainable development plans and management strategies needed to establish compromise between diverse 'bottom-lines' and organisational interests (Campbell 1996, Conroy and Berke 2004). This process was often complex and resource intensive (Giddings et al. 2002, Jepson 2004). In linguistic terms both 'sustainable development' and 'integration'

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<sup>2</sup> For example: Australian launched its National Strategy for Ecologically Sustainable Development in 1992

remained 'floating signifiers' – i.e. the terms were virtually empty of meaning until interpreted by key actors for a particular situation (Mehlman 1972, Davidson 2010b). Consequently, these planning and management instruments, defined – whether explicitly or implicitly — what 'integration' for sustainability meant in a particular situation and therefore, when a specific 'bottom-line' or interest would be prioritised over others (van Kerkhoff and Lebel 2006). Unsurprisingly, decision making became more complex and difficult to implement, let alone to adapt (Campbell 1996, Godschalk 2004).

Nevertheless, in the face of contemporary 'wicked' problems, an interest in making governance more responsive has continued to grow. Developing within the environmental management literature (Holling 1978, Holling and Gunderson 2002) the concepts of 'adaptive governance' and 'resilience' more recently came to prominence with respect to global environmental change, most notably, climate adaptation (Smith 1997, Pielke 1998, Engle and Lemos 2010). The adaptation meme has expanded from academia into the grey literature. Terms such as 'adaptation', 'recovery' and 'resilience' abound in recent national government and international publications. Several authors question whether *adaptive resilience* now rivals *sustainable development* as the dominant paradigm for planning and management (Davidson 2010a, Mazur 2013, Flood and Schechtman 2014).

This chapter introduces the problem of responsive governance. That is the problem of responding to change through planning and management in a complex and often contested setting. The structures and dynamics of governance for a particular planning interest can be understood as a governance arena. A governance arena for a particular planning interest, is the set of diverse actors, instruments and their interactions. Actors in the governance arena participate in multiple instruments that have different types of embeddedness with other governance arenas and the institutional context. Furthermore, each instrument develops a political arena, a set of political processes and structures, on the basis of what participants hope to achieve (Lowi 1964; Hill and Plumlee 1984). The governance arena therefore, also consists of overlapping and interacting political arenas. Responding to change in this situation is not simple and rarely unitary. The remainder of Chapter 1 analyses key concepts that have emerged from scholars in the field of adaptive governance. I then show why this endeavour, in its current state, is problematic to apply to complex (i.e. urban) institutional settings, and consider why this is a significant problem for future efforts towards sustainability. This work sets the scene for outlining a research strategy to respond to this problem and improve understandings of responsive governance in complex settings. I outline the primary aim, key questions and conclude by mapping the structure of the thesis.

## 1.1 Making the case for governance that adapts

Those who advocate for governance that is responsive to change tend to gather under the broad banner of 'resilience thinking'. It emerged in the 1980s from the environmental management literature when complex adaptive systems were used to understand problems of natural resource management (Holling 1978). The most familiar term used is 'adaptive governance', and although there is not a standard definition for the term, the argument for it includes a number of defining points. First, both social and environmental factors impact governance and they are linked in a dynamic manner. The dynamic nature of these links has been increasingly explored and is exemplified within approaches that model social and environmental factors as 'coupled' social-ecological systems<sup>3</sup> (Holling and Gunderson 2002, Young et al. 2006). Second, these environmental and social dynamics involve complex adaptive change<sup>4</sup> that may be non-linear. As uncertainty about future social-ecological conditions is high (Folke et al. 2002, Schneider 2004), governance arrangements adjust to these unpredictable social-ecological changes will be better equipped to endure changes, address vulnerability and harness opportunities that may arise. A main thrust behind adaptive governance is the reduction and management of social-ecological uncertainty. Third, learning processes and the development of new knowledge can extend understandings of the social-ecological system and assist in the development of reflexive capacity (Armitage et al. 2008, Pahl-Wostl 2009). These learning processes require participation from a broad range of actors who have a stake in the resource of concern. Finally, the evaluation, translation and application of learning outcomes form the basis of adaptive change (Keith et al. 2011).

The central premise of this approach is that governance will become resilient by making planning and management more *responsive* to new information and changing demands. From this dynamic view, the ability to adjust is crucial to and at least as important as effective outcomes, arrangements or policy instruments at a particular point in time (Davis 2010). The logic behind the adaptive governance approach intuitively makes sense. The approach also

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<sup>3</sup> These approaches developed within the natural sciences and have been extended into social science research through concepts such as 'coupled social-ecological systems' and 'resilience' (Foxon et al. 2009). A coupled social-ecological system occurs where the dynamics of an ecological system and a social 'system' is intrinsically linked – i.e. the dynamics of each influences the other. These dynamic approaches often build on more static approaches such as cross-sectoral or triple bottom line sustainability frameworks along with some institutional property rights and governance arrangement studies (Folke et al. 2005, Davis, 2010).

<sup>4</sup> Complex adaptive systems view change and disturbance as the norm as systems move through cycles of consolidation, release and reorganisation. They involve feedback loops, interactions between slow and rapid cycles of change, multiple scales and multiple equilibria within which a system can potentially function. For further discussion of these and other aspects of complex adaptive and social-ecological systems see Holling and Gunderson (2002).

holds great potential for more effective integration of environmental systems into governance processes. There is strong support for this assertion in principle, but its meaning in practice is less clear. The research in this area has tended to develop normative principles from specific cases of governance (Folke et al. 2005). The resulting theory needs to be examined in a broad range of settings to test assumptions about adaptation, governance structures and the interactions of governance with its broader context.

In the literature on adaptive governance, the expectations for responsive change amongst groups of diverse actors often seem optimistic. Collaborative learning is emphasised for problem solving (Pahl-Wostl et al. 2007, Armitage et al. 2008). However, there is little mention or detail about how collaboration between actors will be managed, in particular with respect to uneven power relations (Evans 2011). The complexity of social-ecological systems is examined, but there is a risk that the complexity of problem solving amongst the group of governance actors is overlooked. For some time adaptive approaches have been critiqued for under-theorising conflict and contention; for example, the different commitments, capacities and interests that actors bring to a collaborative process (Lee 1999). Contextual influences on decision making and their influence on responsive change also are rarely discussed. To be most effective, adaptive management and governance may require a highly controllable situation and a rational problem solving approach (Allen et al. 2011). This requirement contrasts with the public administration literature which views public decision making as generally interest driven and often irrational (Simon 1957, Kingdon 1984, Rhodes and Marsh 1992).

Furthermore, the term *governance* itself is rarely defined clearly or comprehensively in resilience literature. While unclear definitions of *governance* is a common issue in governance research (Jordan 2008), effectively this means the perspectives on adaptation discussed above, tend to drive the definition of governance, rather than first clarifying what governance is and examining the phenomenon for how it actually responds to change. For example, because collaborative learning is understood as a dominant driver of adaptive responses, governance settings that are conducive to this 'driver' are given special focus (Folke et al., 2005). In the short term, this has been productive, as evidenced by the use of the collaborative governance model for implementing adaptive governance - particularly in integrated water management (Pahl-Wostl et al. 2007, Booher and Innes 2010, Fish et al. 2010, Cosens and Williams 2012). However, many settings are not practically or politically conducive to collaborative adaptive governance, especially without a long period of institutional capacity building (Childs et al. 2013).

Urban settings are particularly difficult for collaborative and adaptive strategies to governance. Even in less complex non-urban settings the diversity of actors and instruments needs to be managed carefully if collaborative governance is to achieve significant outcomes (Camacho 2010). Urban areas, which are often more diverse than non-urban settings, are governed through a more extensive range of policy instruments, diverse actor responsibilities and involve higher levels of competition for resources. Hence it is difficult to design policy and governance that can adapt. Research on adaptive governance has been understood as often approaching this challenge from a normative and prescriptive position (Huitema et al. 2009). Rather than seeking the ideal adaptive model for implementation, there is a need for empirical studies of urban policy arenas to better understand how the governance arrangements in place for urban areas adjust to change over time.

Urban ecological governance provides a useful opportunity for empirical study of urban policy arenas and adaptation. Explicit planning and management have been implemented since the early 1990s (e.g. BCC 1990, Metro 1992) the development of this governance has involved times of rapid change. Furthermore, because this policy arena sits outside of core urban priorities, it is expected to be impacted more extensively when resources for urban governance are limited. Policy arenas that sit outside of core urban priorities are not dominant institutions. Unexpected events relegate these 'non-core' arenas to a lower priority, and in an uncertain future this relegation will occur more often. The governance of non-core arenas needs to respond to change more effectively than dominant arenas and far more effectively than at present. The following section outlines an approach for better analysis of responses to change in governance and the contributions that can be achieved.

## **1.2 Researching responsive governance in an urban policy arena: aim, questions and contribution**

This section explains the main aim of the research, the research questions and the primary contributions of the research. Data were collected and analysed between 2009 and 2013 using the metropolitan areas of Brisbane, Queensland, Australia and Portland, Oregon, USA as case studies.

### **Aim**

The main aim of this research is to analyse how responsive change in governance occurs over time in urban policy arenas that are not traditional and dominant urban concerns (such

as transport, industry and housing). The policy arena - in this case, urban ecological governance – is conceptualised as formalised arrangements (such as government programs) and informal arrangements (such as networks). The study investigates how and in what respects responsive change occurs within this policy arena over time. The research broadens the understanding of adaptive responses in complex institutional settings and contributes to the discourse on resilience and governance. As previously discussed an improved understanding of adaptation and resilience in complex settings is critical for governing an uncertain future.

## **Questions**

This research is focused on urban policy arenas, policy arena governance and responsive change. Urban policy arenas are complex settings that are embedded within an institutional context. Policy arena governance is the range of opportunities for actors to participate in planning and management. Responsive change is a networked phenomenon of interaction between diverse actors, their interests and prevailing power relations. Within this frame, the research accordingly addresses three main questions: (1) how do actors within a ‘non-core’ urban policy arena interact with the broader institutional context over time?; (2) how and in what respects does governance of this urban policy arena across the metropolitan area adjust to change over time?; and (3) what are the implications for enhancing how this governance adjusts to change?

## **Contribution**

This research examines the range of actor responses that occur in a complex setting and the manner in which these diverse responses contribute to change at the governance level. It therefore contributes to the current discourse on complexity and adaptation. The research takes a strong social science grounded approach to build this contribution.

Resilience literature tends to address collaborative learning as a primary vehicle for responsive change (Luthar et al. 2000). However, the social science literatures, which have been examining inter-actor decision-making for more than 50 years, have a broader view of the way actors respond to change (Sabatier 1988). This broader approach understands actor responses as guided mainly by their interests rather than by logic. Therefore group decision making tends at best to be characterised by strongly bounded rationality, and in general is an irrational process that is characterised by contention between actors. Collaboration is thought to occur only under particular circumstances (Huxham et al. 2000).

In many cases, an uneven distribution of power and responsibility can mean that neither collaboration nor open contention takes place. Instead a dominant, often state, organisation imposes its view on other governance actors (Mann 1986). The broader view of actor responses acknowledges that the dynamics between governance actors can be as complex as the social-ecological systems they are governing. A spectrum of actor responses from collaboration through to conflict need to be examined in order to consider the full range of group interactions.

Similarly, in comparison with literature on adaptive governance, social science disciplines such as public administration, planning and political science have a more comprehensive and detailed view of governance. Adaptive governance theories focus on collaborative forums for governance. However, the public administration literature notes that there are multiple instruments in place within complex settings and governance issues need to be examined across this regime in order to understand a policy arena (Gunningham and Sinclair 1999, Howlett 2004). This more comprehensive view also supports a more sophisticated treatment of agency and structure within governance. This mainstream governance literature recognises, in addition to collaborative forms of governance, other forms of networked governance, hierarchies, and market-based arrangements (Meuleman 2008). Furthermore, contemporary settings are recognised as a hybrid of these different modes. These hybrid settings emerge as a function of specific circumstances, policy problems and the context of a place (Skelcher et al. 2013). Governance then is the manner in which actors are structured in the planning and management of a particular resource – whether informal or formal. Urban ecological governance depends on a wide array of often non-collaborative policy instruments and their interplay across different governance arrangements and networks of actors (Paavola et al. 2009). A higher resolution view of governance is better suited for investigating empirical cases, particularly for complex urban settings. This research therefore contributes to the discourse on complexity and adaptation by showing how various governance structures within a policy arena adjust to change (and each other) over time.

Public administration theory however, also emphasises the importance of external and macro factors for triggering the change that occurs in a particular governance setting (Baumgartner and Jones 1993). In studies of governance, the arrangements that are in place to govern the broader institutional context are particularly important macro structures. Public administration theorists show that the governance structures in place for the broader context are both *external to*, and intrinsically *embedded within* the governance of a particular

resource (Gerber and Gibson 2009). So institutions overlap and facilitate the interface between the governance of a policy arena and the governance of its broader context. Indeed, governance of a policy arena is embedded within broader institutional patterns, many of which cross the boundaries between the arena and its context. In this research, institutions are defined as enduring arrangements or patterns of behaviour between governance actors – whether they are formalised or remain informal (adapted from Goodin, 1996). This research therefore contributes to the discourse on resilience and governance by showing how governance is embedded within its institutional context, and the implications this holds for enhancing the responsiveness of governance within policy arenas.

### **1.3 Research approach**

A comparative case study approach is employed to examine existing governance arrangements and adaptation over time. While a number of papers have reviewed adaptive styles of governance and adaptive capacity of governance (e.g. Clark and Clarke 2011, Engle and Lemos 2010), few have done so in urban settings (exceptions include Thapa et al. 2008, Wilkinson et al. 2010, Pelling and Manuel-Navarrete 2011) and fewer have used a USA-Australia comparison. Furthermore, the minority of studies that focus on governance and adaptation tend not to analyse governance processes and structures in a systematic manner (e.g. Lebel et al. 2006). In particular there has been little examination of institutions and power. The findings from these studies have revealed the potential of collaborative learning as responsive change, but leave the role of contention virtually unexplored. The research approach also responds to identified needs within the resilience literature for greater flexibility within governance to manage future uncertainties (Folke 2006) and closer scrutiny of institutions with respect to adaptation and resilience (Dovers and Hezri 2010). This study orients its contributions into these gaps. Chapter 2 details the theory and the framework employed to do this.

An empirical analysis of responsive governance was undertaken through a comparative case study of the urban ecological governance arena in Brisbane and Portland. A total of four months across two visits was spent collecting data in Portland, with further data gathered remotely. The remainder of the time was spent in Brisbane. Responses to change in urban ecological governance were investigated from 1991 to 2012. Data collection involved: semi-structured interviews with managers of organisations and activities involved in urban ecological planning and management; participant observation of urban watershed groups; unstructured key informant interviews; and review of organisational documents and



other relevant reports. Analysis examined the formation and change in actor networks and policy instruments. A ‘multiple frames of enquiry’ approach to interpretation was applied by using state-centric, cross-sector and society-centric governance theories (see section 2.1 and Chapter 3).

The development and application of an investigative framework (2.4) supported the research to explain how and in what respects responsive governance has occurred in this complex setting. The findings included structures of ‘governance *for* adaptation’ and also ‘adaptable elements of governance’. These structures were found to be connected across the policy arena and operating at different levels. Finally, the implications for enhancing responsive change and directions for further research were explored.

## 1.4 Thesis structure

This chapter introduced the problem of governance responsiveness in complex institutional settings and outlined the research aim and questions for engaging with this problem. The contributions to knowledge and practice from this study were outlined in relation to the literature. The overall thesis structure and the focus of each chapter in relation to the research questions are detailed in Table 1.1.

**Table 1.1 Research questions within the thesis chapters**

<p><b>Primary Research Aim:</b> To analyse how responsive change in governance occurs over time in urban policy arenas that are not traditional urban concerns</p> <p>(Cases of urban ecological governance in Portland (OR), USA and Brisbane (QLD), Australia, 1991–2012)</p>									
Research Questions	Indication of research questions by chapter								
	2	3	4	5	6	7	8	9	10
1) How do actors in a ‘non-core’ urban policy arena interact with the broader institutional context over time?	●	●	●	●	●	●			●
2) How and in what respects does governance of this urban policy arena adjust to change over time?	●	●	●	●	●	●	●	●	●
3) What are the implications for enhancing the way this governance adjusts to change?	●	●				●	●	●	●

Chapter 2 reviews significant theory on governance perspectives focused on state, networks and society. Inter-actor responses to change are then investigated in relation to literature on policy change, institutions and social movements.

Chapter 3 describes the research design for this study. It provides an orientation to the research method by developing a research framework, an investigative framework and outlining main stages. Further details on method can be found within each analytical chapter of this thesis.

Chapter 4 outlines the important background information to the topic of urban ecological governance in general and the empirical cases of Brisbane and Portland in particular.

Chapters 5 to 9 constitute the analytical body of the research. Chapter 5 is a journal paper developed during the period of candidature and submitted during this time. Chapters 6 to 9 are presented in similar stand-alone fashion. In step with the unfolding structure of the research, each chapter contributes to the launch of the next. In this way the sections move from a primary concern with structure – i.e. the impacts of change and stability in the institutional context – to one of agency – i.e. the nature of responsive change and its coordination in an institutionally complex setting.

Chapter 5 investigates the effects of broader shifts in environmental planning and policy on urban environmental governance. It explores the changing emphasis on urban environmental governance in response to regionalisation of management of urban growth and natural resources. The chapter focuses on one watershed, the Oxley Creek in Brisbane. The analysis uses the watershed management model in an urban setting as a critical case for examining questions of process, scale and administration in urban environmental governance. It examines the structures and the effects of new initiatives on environmental governance over time. The chapter concludes by exploring the wider implications of shifts in the institutional context for the governance of urban natural resources, with particular focus on urban local governments.

Chapter 6 expands the scope to include a comparative case from Portland, Oregon, USA; while Chapter 5 focuses on the impact of changes in the institutional context — i.e. external to the governance arena — this chapter focuses on internal structures, dynamics and their interactions. The instruments and their political arenas are identified and examined. The chapter forms part one of an embeddedness analysis for Portland and Brisbane.

Chapter 7 presents part two of the embeddedness analysis. The linkages between ecological governance and its context are examined by investigating three contextual factors within the investigative framework: biophysical context, temporal context and institutional context.

Chapter 8 provides a stronger focus on agency than earlier chapters by examining the relational structures of ecological governance in Brisbane and Portland. It asks “What does it mean to respond to changes and opportunities in a setting so strongly influenced by broader institutional structures?” It engages with the perennial social science debate of agency and structure, which is particularly pertinent for adaptation in institutionally complex settings. A conceptual lens is designed to analyse different facets of responsive change in urban environmental governance. Accordingly, a refined model of response to change within governance arenas is developed. The findings from earlier Chapters 3 and 4 inform the application and development of the model. They also add significant explanatory power.

Chapter 9 addresses issues of agency directly by asking “How is responsive change coordinated across diverse networks and instruments in this complex institutional setting?” It uses the concept of ‘legitimacy’ to investigate meta-governance in critical cases of responsive change. The chapter uses the case of Portland as an established model of integrated environmental governance. The analysis focuses on the interplay between urban biodiversity governance, and watershed management, open space planning and efforts to integrate biodiversity. It examines the nature of ‘coordination’, strategies used and factors significant for success. The implications of this for enhancing responsive change are discussed.

Chapter 10 concludes the thesis by returning to the research questions to review, integrate and synthesise main findings from the preceding chapters. The implications for practice and theory are considered for enhancing the responsiveness of environmental governance in urban areas.

## Chapter 2

### Planning, Managing and Responding to Change: Perspectives from the literature

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Chapter 1 explained the aim of this research, its significance and contributions, and the main research questions that were investigated. This chapter explains the underpinning theory for the study. It investigates perspectives on public governance and responding to change within policy arenas. Theory on public administration, political science and institutions are surveyed. The aim here is not to comprehensively review such a broad array of literatures, but instead to compare critical approaches for understanding responsive change and select aspects most suitable for addressing this research problem. Accordingly critical theory on public governance is presented from literatures on governance of political systems, government and networks. Perspectives on governance differ in their concerns, the actors involved and processes of response to change. Theory on multi-actor responses to change is presented from literatures on social movements, institutions and policy change. Each places a different emphasis on agency and structure (as per Giddens 1986). The common challenge of multi-theoretical approaches is to draw from a broad theoretical base in a focused manner in order to maintain explanatory power. This challenge is further exacerbated by the multi-faceted nature of governance itself.

*...if it is viewed primarily as a mass of complex and interactive layers and applications, governance risks losing its conceptual and operational effectiveness as an organising concept. (Edwards et al. 2012, p1)*

The following discussion therefore selects the most critical themes, theoretical approaches and aspects of governance for synthesis within an investigative framework for the study (Chapter 3).

## 2.1 Perspectives on public governance within the social science literature

Real world governance involves a hybrid of hierarchy, network and market models (Wallington et al. 2007, Skelcher 2012). This section surveys these models, outlines the main perspectives in the social science literature and explores what these contribute to the investigation of adaptive and responsive governance. The 'adaptive governance' concept emerged from resilience thinking in the environmental management literature (Levin et al. 1998, Folke et al. 2005, Folke 2007). This background in environmental management provided a strong scientific foundation, but also involved isolation from social theory during early stages of development. The result of this early isolation is that the adaptive governance model is often under-theorised with respect to social 'systems' (Batabyal 1998, Anderies et al. 2004). To respond to this issue, authors have increasingly identified the need for adaptive governance and resilience theory to engage with the political sciences literature, particularly since the mid-2000s. For decades the political science literature (including public administration) has been concerned with governance, change and resilience. The call for engagement of political science with adaptive governance has included reference to: institutional analysis (Healey 2006b, Dovers and Hezri 2010); policy analysis (Meijerink and Huitema 2009); communicative planning (Goldstein 2009); and collaborative governance (Innes et al. 2006, Pahl-Wostl et al. 2007, Nelson et al. 2008, Kallis et al. 2009). However, few studies have treated political issues directly (an exception is Voß and Bornemann 2011). Political concerns mostly have been treated indirectly, such as by those who note the importance for adaptive governance to be considered legitimate, or who have defined the political context as an impediment (e.g. Cosens 2013).

Surprisingly, an explicit theorising of the governance concept is rare within the governance literature. Jose (2014) notes, that even when claiming to theorise *governance*, authors usually theorise a *practice of governance*, rather than the concept itself. Models of governance then combine these theories of practice into functional strategies. There are several significant models of practice within the governance literature (Table 2.1), and most typologies of governance usually categorise models according to the dominant relational configuration of practice, i.e., hierarchy, network or market (e.g. Powell 1990, Dixon and Dogan 2002, Meuleman 2008).

**Table 2.1: Common models of public governance practice according to sectoral focus**

State-centric practice	Cross-sectoral practice	Society-centric practice
<ul style="list-style-type: none"> <li>• corporate governance</li> <li>• administrative governance</li> <li>• executive governance</li> <li>• constitutional governance</li> <li>• democratic governance</li> <li>• hierarchical governance</li> <li>• heterarchical governance<sup>5</sup></li> <li>• bureaucratic governance</li> <li>• multi-jurisdictional governance</li> <li>• cross-departmental governance</li> <li>• judicial governance</li> <li>• legislative governance<sup>6</sup></li> <li>• public sector governance</li> <li>• managerial governance</li> <li>• commission governance<sup>7</sup></li> <li>• mayor-council governance<sup>8</sup></li> <li>• council-manager governance</li> <li>• municipal governance</li> <li>• federal/unitary/devolved governance</li> </ul>	<ul style="list-style-type: none"> <li>• network governance</li> <li>• contract (third party) governance<sup>9</sup></li> <li>• ‘third way’ governance</li> <li>• sectoral governance</li> <li>• new public management</li> <li>• shadow (network) governance</li> <li>• stakeholder/shareholder governance</li> <li>• co-governance</li> <li>• cross-sectoral governance</li> <li>• (natural) resource governance<sup>10</sup></li> <li>• corporatist governance</li> <li>• adaptive/resilient governance</li> <li>• technocratic governance</li> <li>• public-private partnerships</li> </ul>	<ul style="list-style-type: none"> <li>• socio-political governance</li> <li>• public policy governance</li> <li>• deliberative governance</li> <li>• participatory governance</li> <li>• direct democracy governance</li> <li>• civil society governance</li> <li>• market governance</li> <li>• neighbourhood governance</li> <li>• community governance – i.e. indigenous</li> <li>• big man governance</li> </ul>
<p><b>State-centric and cross-sectoral applications</b></p> <ul style="list-style-type: none"> <li>• metagovernance<sup>11</sup></li> <li>• multi-level governance</li> <li>• polycentric governance<sup>12</sup></li> <li>• collaborative governance</li> <li>• level of governance (e.g. Local/State/National)</li> </ul>		
<p><b>General practice (i.e. State, cross-sectoral and society-centric applications)</b></p> <ul style="list-style-type: none"> <li>• organisational governance / good governance</li> <li>• environmental governance / landscape governance<sup>13</sup></li> <li>• regional / metropolitan / urban / rural governance</li> <li>• <i>ad hoc</i> governance</li> <li>• hybrid governance<sup>14</sup></li> </ul>		

<sup>5</sup> Heterarchy is "the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways", e.g. democratic elections (Crumley 1995).

<sup>6</sup> I.e. Governance through law and law making processes

<sup>7</sup> City Commission governance is structured into bureaus, each with an elected commissioner assigned as chief. It is also called a weak mayor system –e.g. Portland City Council, Oregon, USA.

<sup>8</sup> Mayor-Council governance is also known as ‘the strong mayor system’ (e.g. Brisbane City Council).

<sup>9</sup> Third party governance revolves around public procurement and contract planning and management.

<sup>10</sup> IUCN Trainers Manual for Natural Resource Governance:

[https://cmsdata.iucn.org/downloads/governance\\_training\\_manual\\_v\\_5\\_\\_web\\_.pdf](https://cmsdata.iucn.org/downloads/governance_training_manual_v_5__web_.pdf)

<sup>11</sup> The management of governance networks – usually seen as a responsibility of the state (as per Jessop 2003)

<sup>12</sup> Multi-nucleated centres of governance (as per Ostrom 1961) e.g. Metropolitan governance, especially in the USA where there may be overlapping municipalities, counties, metro and special service districts.

<sup>13</sup> United Nations Environment Programme: <http://www.unep.org/pdf/brochures/EnvironmentalGovernance.pdf>

<sup>14</sup> A mixture of hierarchy, markets and networks within a policy regime

A key reason for limited theorisation of governance is that, like the term 'sustainable development', 'governance' is essentially a 'floating signifier' that encompasses many different meanings (Offe, 2009). With respect to multiple meanings, Jessop (2003) claims that the uptake of 'governance' by so many discourses now threatens its usefulness as an organising concept. This danger of concept stretching has long been recognised within social research (Sartori 1970).

For research purposes there is a need to delimit the concept of governance, and identify relevant framings of governance within the literature. Jose (2014) proposes that the problem of conceptualising governance can be approached by locating 'conceptual theories' (henceforth 'frame') as nested between practice and discourse. As such, various theories of practice (henceforth 'model') fall under the umbrella of a broader conceptual theory. In turn a set of conceptual theories that each prescribe different 'systems of possibilities' are grouped within, and need to be interpreted within, the general discourse. Henceforth, 'conceptual theories' and 'theories of practice' are referred to as frames and 'models of practice' respectively.

Taking the nested discourse-frame-practice as a starting point, different frames of governance can be identified by examining diversity within the general governance discourse. Frames can be identified by asking, 'Governance in whose sense?' and 'Governance in what sense?' (adapted from Jose 2014). Following a general definition of governance, the overarching discourse about governance concerns the structures and processes that coordinate social relations (i.e. inter-actor), whether formalised or informal (adapted from Jessop 2003, Rhodes 2007). Governance therefore concerns the roles and responsibilities of state and society and includes cross-sector interactions between both. 'Governance in whose sense?' then can be answered in terms of three sectoral foci: state; society; and cross-sector. Hence, 'governance in what sense?' concerns the roles and responsibilities of state and society which for this research are broadly grouped<sup>15</sup> into two functions: (1) institutional performance and (2) legitimate representation. Six frames were found within the literature by using the sectoral foci and governance functions. The following discussion briefly surveys these six frames.

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<sup>15</sup> Categorisation of core governance responsibilities were developed through a synthesis of the core features of government in liberal democracies — i.e. legitimate representation of the public and efficient use of the public's resources, e.g. Parekh (1992) — with typologies developed in the literature (e.g. McCormick, 2011, Edwards et al. 2012) and tested against the models of public governance in Table 2.1.

**Table 2.2: Frames of governance within the social science literature**

	<b>State-centric frames</b>	<b>Cross-sector frames</b>	<b>Society-centric frames</b>
<b>Performance</b>  i.e. efficiency and effectiveness	<u>State-performance</u>  Governance enables the state to use public resources efficiently and effectively  <i>The state should guide and manage</i>	<u>Cross-sector performance</u>  Governance enables societal functions to be delivered efficiently and effectively by involving non-state actors  <i>The state should partner with non-state actors</i>	<u>Society performance</u>  Governance enables non-state actors to interact and operate independently of the state  <i>The state should minimize involvement in governance</i>
<b>Legitimacy</b>  i.e. representative and democratic	<u>State-legitimacy</u>  Governance enables the state to represent public views in decision making  <i>The public should give the state a mandate</i>	<u>Cross-sector legitimacy</u>  Governance enables state and non-state to make decisions together  <i>The public and state should dialogue</i>	<u>Society-legitimacy</u>  Governance enables civil society actors to dialogue with each other  <i>The state should empower the public control</i>

Note: The premise of each frame is in italics.

### 2.1.1. State-centric frames of public governance

State-centric models (Table 2.1) frame governance as carried out primarily by one or more government actors. Society is guided by these government actors, often through the use of hierarchical structures. The state-performance frame is based on the premise that the state should manage and where possible solve societal problems. This thinking developed amongst pragmatist and utilitarian philosophers. It was first manifest in top-down rationalist models, then through managerialism and then thirdly, through multi-level models of governance. Firstly the state-performance frame of governance is associated with the emergence of rational planning and policy sciences (Simon 1957, Lasswell 1970, Friedmann 1987, Mayntz 2003). The idea that government can solve social problems by making policy emerged in the 1930s during ‘the great depression’. It was underpinned by rationalist, pragmatist thinking and utilitarian arguments for reform.<sup>16</sup> A range of rational problem solving models for the state manager developed from this approach and many remain central to public decision making (Simon 1957, Lasswell 1970, Friedmann 1987, Mayntz 2003).

<sup>16</sup> Utilitarian thinkers — e.g Bentham and Mills — have been criticized for poor consideration of equity and moral issues (Parsons 1995). Many decisions and calculation techniques are based on utilitarianism (See Mill 2010), but perhaps more importantly to Pragmatism — e.g. John Dewey, William James and Charles Peirce. See Healey (2009) for a review of pragmatist influences on policy and planning.



Secondly, the state-performance frame is associated with managerial models of practice,<sup>17</sup> which emerged in the 1970s. These models are grounded in rational choice theory (Nozick 1974) and tackle problems of how the state can best use public resources.<sup>18</sup> These models involve the transfer of private sector concepts such as corporate governance into the public sector. Eakin et al. (2011) examined the implications of this transfer for adaptive governance and found that managerial models such as New Public Management may inhibit the adaptive capacity of governance. Thirdly, an interest in multi-level governance has emerged as a strategy for linking different levels of government in an efficient manner; Betsill and Bulkeley (2007) refer to this model as a tiered approach to governance research and implementation. The 'tier approach' tends to concentrate on multi-level effects, government responsibilities and is more likely to have a spatial focus. 'Tier approaches' have supported studies around policy conflict and interplay, policy frameworks and integration. Analyses in this area relate to ideas such as nested-hierarchy and institutional fit (Ostrom 1986, Young 2002).

In comparison, the state-legitimacy frame is based on the view that the public should give endorsement and consent, generally at elections, for the state to govern (Emy 1997). Essentially the state-legitimacy frame does not seek a role for the public in public governance, beyond the endorsement of the state at elections, and consultation where needed at other times. Therefore the legitimacy-state frame is mostly contextual for the phenomenon of policy arena governance.

With respect to urban policy arenas, the state plays a strong role and therefore, the two state-centric frames have strong relevance for many activities. State-centric analysis supports the investigation of: economic efficiency in the public sphere; the distribution of resources through policy; and the practical application of policy analysis and design (Gunningham et al. 1998). However, state-centric frames assert that governance occurs mostly through formal government structures. This focus on formal structures undervalues the informal dynamics within governance and the role of policy networks (Rhodes 1994, Andrew and Goldsmith 1998).

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<sup>17</sup> Originally grounded in pragmatist thought also, but took a stronger emphasis on individualist utilitarianism of which classic pragmatism was critical (Healey 2009).

<sup>18</sup> By the mid-1970s a critique of 'large government' was sparked by concern over increased public spending and the failure of state intervention to solve social problems. The critique led by public choice theory, shifted the boundary between public and private (Hirschman 1982). It called for a reorientation towards procedural justice (Nozick 1974) and advocated competitive 'free' markets for the efficient allocation of resources (Hayek 1960). Policy in this vein became dominant during the 1980s, led to a downsizing of governments and has maintained its influence as economic rationalism. Research on the smaller government models functions has led to policy theories of new public management, managerialism and governance.

### 2.1.3. Society-centric frames of governance

Society-centric models assert that the state should seek to minimise its involvement in governance wherever possible. Accordingly, the society-performance frame includes much of the rational choice models associated with notions of small government (e.g. Friedman 2009). These schools of thought impact on, but are marginal to matters of urban ecological governance and can be considered as contextual variables. Society-legitimacy models are more central to responsive governance. The frame is grounded in structural and sociological critiques of society. Foundational concepts and social thinkers include: solidarity (Durkheim and Kropotkin); social justice (Rawls); social action (Weber); and civil society (Gramsci).<sup>19</sup> The emergence of the society-legitimacy frame in modern times is associated with the turbulent politics of the 1960s–1970s. For public governance this turbulence involved the breakdown of the established triads of government, business and science, the so-called iron triangle model of governance (Hecl 1978, Jordan 1981). Early analyses in this frame are especially concerned with issues of power in state-society relations (e.g. Cobb and Elder 1971, Granovetter 1973, Lukes 1974, Gaventa 1982). Later studies revolve around civil society - i.e. the non-profit sector, community development and social capital (Putnam et al. 1993, Cohen and Arato 1994).

Civil society analyses often use 'spheres of society' as an analytical concept: public and private spheres; and state and market spheres. Earlier studies treat these spheres as mostly separate, but more sophisticated studies treat these spheres as overlapping. Overlapping spheres, for Janoski (1998), explain why civil society is able to play a critical social role and can potentially influence state governance. From this perspective, each sphere has public aspects that civil society is able to operate within (Hann and Dunn 1996, Janoski 1998). Civil society is viewed as mostly autonomous and independent from the state (Salamon et al. 1999), and as consisting of non-government organisational actors. For the purposes of this research, the society-centric frame can link governance with the broader social system and explore the potential for public feedback into governance. However, civil society models claim that community-based actors are autonomous from government. This claim has been critiqued (Kasfir 1998), and with respect to urban policy arenas, community autonomy is unlikely because the state is such a prominent urban landholder and manager.

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<sup>19</sup> Seminal works by social thinkers that were foundational to the society-legitimacy frame include: Durkheim (1893), *The division of Labour in Society*; Kropotkin (1902), *Mutual Aid: A Factor of Evolution*; Rawls (1971), *A theory of Justice*; Weber (1922), *Economics and Society*; and Gramsci (1971), *Selections from the Prison Notebooks*.

### **2.1.2. Cross-sector frames of governance**

Cross-sector frames are an alternative to those of state and society. These frames are based on the premise that governance should involve the state partnering and/or dialoguing with non-state actors. This central premise is grounded in neo-pragmatist thinking. It is associated with concepts such as community of inquiry (Rorty and Bromwich 1980), critical pragmatism [in planning] (Forester 1987). These social thinkers laid the foundations for contemporary practices of stakeholder dialogue (Freeman 1984), collaborative planning (Healey 1997; Innes and Booher 2003) and collaborative governance (Ansell and Gash 2008). The central cross-sector link in these frames is analysed variously as being organised around interests (Rhodes 2007) or ideas (Sabatier 1988). The terminology varies from networks (Heclo 1978, Rhodes 1996), to epistemic communities (Haas 1992) and coalitions (Sabatier 1988) to interactions (Kooiman 2003), but all share the common concept that actors are drawn together by organising principles and can be examined on that basis.

The 'cross-sector-performance' frame is associated largely with models of network governance and new public management, both of which sit within the neo-liberal economic tradition (Rhodes 1996, Morrison 2007). The definition by Rhodes (1996) places cross-sector networks at the very core of governance. Governance is managing networks' and networks are the self-organising, inter-organisational linkages rather than the actors themselves (adapted from Rhodes 1996). New Public Management is a common analytical model within the 'cross-sector-performance' frame (Hood 1991, Denhardt and Denhardt 2000). Accordingly, networks are viewed as delivery mechanisms for societal functions where each role is distributed to the actors who can most efficiently achieve the outcomes that are sought (Rhodes 2007). Actor networks are a useful analytical tool for interpreting institutional change over time, for example, this model identifies roles traditionally played by strong government that are now implemented through networks of actors. Accordingly, significant studies in this area examine different network structures and the effects of 'governance' on service provision and resource management (Wilks and Wright 1987, Rhodes and Marsh 1992, Rhodes 1996, Kenis and Knoke 2002)<sup>20</sup>. This reduction of direct service provision by governments has been claimed to be a 'hollowing out of the state' (Rhodes 1994).

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<sup>20</sup> Sorenson and Torfing (2005) refer to this set of studies as first generation governance theorists. They contrast them with second generation governance network theorists who are concerned with the normative effects of networks on democracy and service provision.

However, some assert that this notion of ‘hollowing out’ has been over-emphasised and that hierarchy is more persistent than assumed (Davies 2002, Bell and Hindmoor, 2012). Bell and Hindmoor (2009) note that the state retains ultimate control of public governance networks through contract governance, funding arrangements, and as a last resort the legitimised use of force. In other critiques, commentators highlight the problem of public accountability for non-state actors involved in public functions, particularly in complex environments (Papadopoulos 2003, Leach 2006 Koliba and Meek 2008, Holmen 2011). These authors point out the need for government networks in liberal democratic societies to have ‘democratic anchorage’, however the voting public is typically treated as an external variable to the governance arrangements (Sørensen and Torfing 2005, Zimmer et al. 2008, Skelcher et al. 2011).<sup>21</sup>

The basic premise of the ‘cross-sector-legitimacy’ frame is that the state needs to maintain a dynamic dialogue with society in order to govern with legitimacy (Dryzek 2010). This frame is particularly associated with models of stakeholder participation, deliberative democracy and communicative planning. Stakeholder participation used commonly in metropolitan and regional planning, is an efficient way to collect public information and input. However, there is a need to carefully manage input from different interest groups who claim to speak on behalf of the public (Lane and Morrison 2006, Smith et al. 2006). In comparison deliberative democracy and communicative planning approaches have a broader view (Innes and Booher 2003). These authors advocate for models that enhance democracy in order to offset the crisis of the state in western societies, the actions of special interest lobbies and the lower democratic accountability of governance network (performance-frame network), when compared to traditional state delivery of services (Newman et al. 2004). Parallel to these processes for decision making in a pluralist context, some authors focus on frameworks for to support decision making amongst diverse groups. These frameworks have been described as synergistic, non-binary or integrated. They include concepts such as sustainability, quality of life (Costanza et al. 2007) and human development (Neef 1991). They have been used as unifying principles to support pluralist or cross-sector decision making. Some authors have a particular focus on using cross-sector-legitimacy to critique the cross-sector-performance frame. They call for society to play a stronger role in public governance either in general (Zimmer et al. 2008), or by strengthening the role played by political representatives (Sørensen and Torfing 2005). Shefter (2007) however notes that an

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<sup>21</sup> Sorenson and Torfing (2005) refer to these authors as second generation governance network theorists – refer to previous footnote for further detail.

increase in public engagement can increase the power of the state rather than constrain it in some circumstances.

Network analyses are important cross-sector approaches that have great potential for examining urban policy arenas (Thatcher 1998, Fawcett and Daugbjerg 2012). Whether performance-framed or legitimacy-framed they are strong on cross-sectoral dynamics, and network integration. Those engaged in network analysis of governance are able to recognise informal actor relationships as well as networks that have formalised around policy instruments (Howlett 2004). They can investigate the extent to which non-state actors are involved in the co-production of policy (Bovaird 2007). In general network analyses are seen as a way to examine public administration, resource management and service delivery for evidence of flexibility and responsiveness (Hooghe and Marks 2003, Bell and Hindmoor 2009). In addition, network studies can illuminate the interactions between actors and institutions. The gap between agency and structure often plagues the investigation of actors within institutions (Cammack 1992). Although, some authors note that network analysis does have weaknesses and can over-emphasise the significance of relationship structures (Thatcher 1998).

Overly strong application of the network approach has been viewed by some as sharing the same analytical problems as pluralism and corporatism (Marsh et al. 2003), namely, the overstatement of diffuse and fragmented power within society. Regardless of the extent to which governance is networked, a small set of researchers have begun to highlight that real world governance involves a hybrid of hierarchy, network and market (Wallington et al. 2007, Skelcher 2012), either through purposeful design, or the persistence of older regimes (Lowndes 1997). Future research in this area is likely to further examine the problems of hybrid governance.

#### **2.1.4 Summary: Governance perspectives**

In some respects the governance frames identified within the literature are mutually incompatible as each begins with differing assumptions about state-society relations. Yet all the frames operate simultaneously in a governance arena as the basis for different policy instruments, actor networks and responses to change. Table 2.3 provides a comparative overview of governance frames from the social science literature that this section has reviewed.

**Table 2.3 Comparison of public governance perspectives in the social and political science literature**

	<b>State-centric frames</b>	<b>Cross-sector frames</b>	<b>Society-centric frames</b>
<b>Theory of the State</b>	State is the primary arrangement for governance. A [strong] manager who directs and guides	State is constrained and reliant on diplomacy to achieve its roles and responsibilities (Rhodes 2007)	State represents the public and maintains the legitimacy of this representation through ongoing dialogue with the public
<b>Primary focus on Networks</b>	Networks are (or should be) steered and managed by the state	Networks are the primary arrangements for governance. They link state and/or non-state actors who are involved	The public mobilises through networks. Non-public actors and networks need democratic accountability
<b>Treatment of 'society'</b>	Society and the public are external variables in the analysis of governance	Public and political aspects are generally external variables in governance analysis	Governance primarily occurs to fulfil the needs and interests of the public. Public participation is internal to the analysis of governance
<b>Institutions</b>	Formal	Both formal and informal	Primarily informal
<b>Trajectory of theoretical development</b>	From governance as societal management to governance as corporate management	From networks as an alternative to hierarchy to networks within hybrid forms of governance that include hierarchy	From public participation as agency to public participation as institutionally structured

More recently various governance frames have shown signs of cross-fertilisation, primarily by using the concept of 'network', which has great significance for this research. State-centric authors now recognise the steering of networks as a critical role for the state (Bell and Hindmoor, 2009). Cross-sector authors admit that implemented governance is a hybrid of state hierarchies, markets and networks (Meuleman 2006, Skelcher 2012). The need for a refocus on societal and political elements within network governance studies has also been noted (Zimmer et al. 2008, Blanco 2013). 'Network' as a concept therefore, has great potential for researching empirical governance arena settings. Network analyses can be expanded beyond the cross-sector frames to include the state and society frames also operating in the governance arena. Chapter 3, section 3.2 explains how 'network' is used as a meta-concept in this research to build a 'multiple frames of enquiry' approach that links cross-sector with state and society foci.

This review of governance frames in the social science literature shows that governance includes a range of structures and processes with inter-actor dynamics including: formal government units; the constitution; law making; legal compliance; policy making; third party contracts; cross-sectoral partnerships; collaborative forums; certain public participation;

social movements; lobby groups; and even societal norms. This foreshadows the complexity that is likely to be found within urban policy arenas. The next section investigates the theory on how this governance might respond to change over time within urban policy settings.

## 2.2. Perspectives on inter-actor responses to change

The previous discussion highlights that regardless of specific structures or processes, governance occurs as an inter-actor dynamic. This section accordingly is concerned with *inter-actor and broadly networked responses* in the social science literature. The following discussion reviews theoretical perspectives on multi-actor responses to change. These perspectives can for introductory purposes, be characterised on a spectrum between collaboration and contention. Perspectives from the literature on policy, institutions and social movements are reviewed with respect to this spectrum of actor responses to change. The extensive theories about particular structural configurations and their responses to change, are not discussed here.<sup>22</sup> Instead, theories about particular structural configurations are addressed, as needed, in later analytical chapters. The theoretical areas reviewed in this section differ greatly in their comparative emphases on agency. Therefore, in order to review these three areas of theory and understand actor responses to change, it is important to first clarify what is meant by agency.

### The concept of agency

To research responsive governance it is important to determine the sources of agency within planning and management. Agency is the capacity to act and engage with social structures. This means agency is located amongst actors rather than at the network or structural level (Blom-Hansen 1997). It is not governance *per se* that responds to change, but the actors who participate in that governance.<sup>23</sup> Actors respond (i.e. agency) and governance adjusts (i.e. structure). Actors<sup>24</sup> can be understood according to their interests, scale of operation and core ideas (Sabatier 1988, Hall 1993). These qualities affect the way that actors network with each other (informal structures) and their involvement in policy instruments (formal structures). Giddens (1986) addressed the argument over whether agency or structure is

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<sup>22</sup> Commonly examined structural configurations of governance include: hierarchy; heterarchy; and network configurations – see for example Thorelli 1986 and Crumley 1995.

<sup>23</sup> The notion that it is actors rather than governance that responds to change can be understood somewhat through the analogy of adaptation in biological systems. In biology the ability to adapt is held at the species level. Species adapt, ecosystems adjust. However, beyond this, social science theorists show that the manner in which human actors respond to change cannot be simply paralleled with species adaptations.

<sup>24</sup> 'Actor' is a broader term than that of 'stakeholder'. Stakeholder literature is more concerned with deciding who has or does not have a 'stake' in the particular situation.

most important for understanding empirical settings by framing them as an inseparable duality. The remaining contention revolves around the emphasis that 'should' be given to each in order to interpret particular social situations. The frames of governance discussed above can be employed in a 'multiple frames of enquiry' approach to explore differing emphases between agency and structure (Forestiere, 2008). This manner in which agency engages with structure is a critical factor in how or whether governance adjusts to change. The following review presents a social science perspectives about responding to change, each with different comparative emphasis on the role of agency in change.

### **2.2.1. Public policy and responding to change**

A broad range of policy contributes to the formal context for urban policy arenas and many policies intersect within the arena itself (e.g. policy on land-use planning, infrastructure and environmental resources). Policies are the guidelines for distributing public resources. Hence, theory to explain the role of agency within policy change is important for understanding responsive governance. Policy change literature generally uses state-centric frames of governance, although within these frames there has been an increase in participation from non-state actors (Arts and Tatenhove 2004). Theory on policy change explains the spectrum of actor responses to change with respect to the distribution of public resources. It provides an account of actor interests and conflict within decision making. However, authors also acknowledge that the causal mechanisms of policy change remain poorly understood (Capano 2009). This poor understanding can be compounded further in interdisciplinary fields such as social-ecological systems (Folke 2006). On that basis, the following discussion outlines policy change, in particular: policy cycles and implementation; types of policy change; and their orientation.

#### **Policy cycles and policy implementation**

A policy cycle metaphor often is used to frame the overall process of policy change and development (Bridgman and Davis 2004). The resulting policy cycle model, as with similar decision-making models, includes stages that move through design to implementation. Although early positivist researchers saw the policy cycle as a stepwise rational problem solving process, contemporary authors note that policy cycles rarely progress in this manner. A crucial precursor to this cycle is that once an issue has been identified for policy design it has already undergone a process of identification and construction amongst key actors and networks (Everett 2003, Howard 2005). This process often involves a competition for the attention of decision makers between different public issues, which have been



conceptualised as policy windows or issue attention cycles (Schattschneider 1960, Cobb and Elder 1971, Kingdon 1984, Peters and Hogwood 2009). Other authors examine deeper power dynamics such as 'non decision-making' (Bachrach and Baratz 1963) and the manipulation of symbols and myths (Lukes 1974, Gaventa 1982). This dynamic continues throughout stages in the policy cycle, occasionally emerging as conflict and contention. Therefore an understanding of responsive governance needs to account for the levels of power and associated contention that begin operating even before policy design has begun. Remembering that agency is located amongst actors, this research enables an examination of differing contributions to responsive change from actors at different stages of the policy cycle (Skok 1995, Howard 2005). Similarly, policy instrument research can show how change can manifest within instrument mixes and policy frameworks (Howlett 2000, Howlett et al. 2006), and then with a focus on actors that participate in these instruments, the agency behind these instrument changes can be explored. Finally, the policy evaluation research shows how monitoring and evaluation of policy can indicate how actors are involved or not involved in responsive decision making and show what policy outcomes are considered important (Dryzek 1987b , Palumbo 1987, Cook and Skogan 1991, Bridgman and Davis 2004).<sup>25</sup>

### **Types of policy change**

Policy can shift in a variety of ways and the literature on this is extensive. The tendency for policy to generally shift by increments (Lindblom 1959) with less frequent punctuations of larger scale shifts (John 2003, Baumgartner et al. 2009) has important implications for responsive change in policy arenas.<sup>26</sup> Some researchers (e.g. Sabatier 1988) examined the role of actors and networks amongst different types of policy shift; Hall (1993) and Cashore and Howlett (2007) investigated the correlation between types of policy shift and the

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<sup>25</sup> Policy evaluation is often framed as a distinct stage within policy processes although best practice integrates evaluation throughout the process (Palumbo 1987). In reality policy evaluation is a work in progress. It is expensive, indicators are debated and actors may not be incentivised to support the process (Bridgman and Davis 2004). Policy evaluation literature continues to engage with these issues and is a work in progress. Common practice continues to make assumptions about objective evaluation of data although post-positivist methodologies have been developed around multiple frameworks (Cook and Skogan 1991) and making values explicit within goal setting (Dryzek 1987b).

<sup>26</sup> The policy change literature debates a range of issues such as: 'the nature of change', 'drivers of change' and typologies of change (Capano and Howlett 2009). The nature of change revolves around radical versus incremental change (Lindblom 1959) with recent work attempting to link both modes (e.g. Baumgartner and Jones 1993). Major drivers of change are identified as socio-economic conditions, ideas (and values) and interests, institutions and networks. More comprehensive theories examine the interactions between these drivers (John 2003).

adjustment of goals, objectives or settings within policy;<sup>27</sup> and DiMaggio and Powell (1983) developed frameworks to link the actor level and network level in research on policy shifts.

### **Contention and learning orientations in the study of policy change**

There are two main orientations in the study of policy shifts, the contention orientation and the learning orientation. As referred to above, the contention view focuses on questions of power and differing interests, as referred to above (e.g. Bachrach and Baratz 1963, Cobb and Elder 1971, Lukes 1974). However, most contemporary studies of inter-actor dynamics and policy change studies take a learning orientation. The learning orientation approaches public policy as a collective puzzle where actors search for solutions to public problems (Hecl 1974, Dryzek 1987b). Policy and planning theorists such as Healey (2006a), analyse whether a learning outcome is likely and ask what the important requirements are needed to achieve this. However, there is a need to reconcile both approaches (Bennett and Howlett 1992),<sup>28</sup> particularly for research on policy development over time.

There are some policy theorists who take a learning orientation to policy change and also recognise a dynamic of contention between some actors. For example: theory on policy transfer, social learning and policy learning (Friedmann 1987, Dolowitz and Marsh 2000); and even more so, the literature on public participation (Habermas 1985, Pratchett 1999). Few studies compare learning and contention oriented processes (Weible and Sabatier 2009 is an exception and they were uncertain which orientation produced the most effective policy), however it is clear that effective learning orientations require detailed processes for managing inter-actor contention (Armitage et al. 2008). This situation becomes even more pressing when considering the deeper structures that both connect some actors and hold others apart – institutions.

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<sup>27</sup> Change in the policy space can include altered goals, values, beliefs, purpose and priorities (Parsons 1995) and these need clear definition to define the policy space for policy change research. There are diverse approaches in the literature. For example Hall (1993) uses three levels of abstraction: instruments; techniques and priorities. Cashore and Howlett (2007) further divide Hall's categories to give six elements that they associate with different policy change processes. Hogwood and Peters (1982) examine change from a policy cycle perspective and use categories of policy succession, innovation, maintenance and termination.

<sup>28</sup> Policy learning and social learning have emerged as an alternative to conflict-oriented theories of change (Bennett and Howlett 1992). Policy learning focuses on decision makers and influential actors. A diversity of models exists and they often contradict each other (e.g. Etzioni 1968, Sabatier 1988, Haas 1991), this suggests that different models are built around different types of policy learning. Parsons (1995) notes, that these approaches often have a normative element by advocating for policy and process to speed up learning in policy.

## 2.2.2. Institutions and responding to change

The need to better consider institutions in studies of adaptation and resilience has been recognised widely by authors within both fields of resilience thinking and social sciences (Folke 2006, Huitema et al. 2009). The problem here though, when investigating responsive change, is that institutions are better known for maintaining stability rather than fostering adaptation and flexibility (Goodin 1996). Furthermore, institutions operating at higher scales will compound this situation at local scales and this is significant for urban policy arena governance.

*...to a much greater extent than is the case at the level of the nation-state, institutions in urban governance are themselves constrained by organizational factors such as constitutional arrangements and other types of legal definitions of the responsibilities of public organizations (Pierre 1999, p374).*

The contemporary institutional literature falls into three schools: 1) institutional economics (e.g. Ostrom 1986); 2) the broader more symbolic 'sociological institutionalism' (González and Healey 2005); and 3) the more power oriented historical institutionalism (Pierson and Skocpol 2002). Researchers in institutional economics (also known as rational choice institutionalism) see institutions as building stability by lowering transaction costs and uncertainty for social interactions (e.g. Ostrom 1986). Sociological institutionalism sees institutions as providing social cohesion and legitimacy for actors (DiMaggio and Powell 1983). Historical institutionalism notes that power relationships embodied within institutions tend to resist change and thereby maintain stability (Hall and Taylor 1996, Adger 2000). The role of history in this situation is significant. Current institutions are primarily an adaptation of past structure, discourse and norms. Therefore change tends to be incremental, marginal and path dependent (Burch, 2011). With respect to scale effects and the urban policy level, many institutions lack incentives to respond to local change (Anderies et al. 2004)<sup>29</sup>.

Contemporary neo-institutional theories<sup>30</sup> frame institutions as social stabilisers that cross sectors and underpin societal structures (Skocpol 1985). State organisations are seen as actors in their own right, with their own interests and agency. These theories allow the

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<sup>29</sup> The lack of incentive for institutions to respond to local change can relate to globalised or aspatial characteristics. Globalised characteristics mean that local stressors for change, i.e. agricultural institutions and drought in a local area, will not have effect because the processes sensitive to that stressor occur elsewhere (Anderies et al. 2004), i.e. agricultural production may occur on a different continent. Aspatial characteristics involve, for example, relationships with dominant actors who are located outside of or above the local area (Morrison 2004).

<sup>30</sup> In contrast with neo-institutionalism, classical institutional theory focuses on formal usually state structures and the state is viewed as a structure that serves the public interest (Selznick 1996). These theories therefore are limited for exploring cross-sectoral connections and processes of responsive change that are informal in nature.

agency for responsive change in governance to be located within state as well as non-state actors (Selznick 1996).<sup>31</sup> By recognising a variety of state actors a more sophisticated approach can be taken to identify differing interests, commitments and participation in change amongst state actors (Clarke and McCool 1985). Neo-institutionalism also suggests that although state actors usually resist change to the status quo and tend to form close connections with elite actors, there are also situations where state actors will promote responsive change or at least permit it to exist (Abers 2000). Understanding responsive governance therefore involves a deeper understanding of the conditions where, and how this might occur.

### **Stability, change and bridging the gap between macro and micro level dynamics**

Institutions are an analytical construct for bridging the gap between macro and micro level dynamics. An institutional economics analysis focuses on societal rules to, for example, allocate property rights and examine transaction costs (e.g. Ostrom 1986)<sup>32</sup>. The inherent systems approach within economics has been used to marry institutional economics with ecological science and form the basis for understanding social-ecological systems (Holling and Gunderson 2002). Institutional economics has contributed to a more sophisticated treatment of social 'systems' in resilience thinking (Anderies et al. 2004).<sup>33</sup> Responding to change from this perspective, involves a rational choice by actors who, once reaching critical mass, enable institutional rules to be rewritten. The focus on rational choice amongst actors seems to fit well with an investigation of responsive change. However, the assumption that actors with sufficient resources will rewrite institutional rules in a rational manner has been criticised as disregarding power relations (Skocpol 1995). In addition, actors rarely have opportunity to set system wide institutional rules.

In contrast, sociological institutional analysis uses a broader definition of institution to include symbol systems and mental models. In this view institutions outline what is socially acceptable and put bounds upon what actions are imagined as possible. This approach can explain the spread of behaviours, organisational structure and policy in terms of efforts to enhance social legitimacy (DiMaggio and Powell 1983, Morgan 1986, Dolowitz and Marsh

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<sup>31</sup> Some earlier theories e.g. Marxist approaches saw the state as a simple extension of elite actors and therefore without its own interests and agency.

<sup>32</sup> The rule based approach is popular in that it supports examination of multi-level effects, government responsibilities and is more likely to have a spatial focus. It has focused on policy conflict and interplay, policy frameworks and integration. Tools and typologies in this area relate to ideas of nested-hierarchy and institutional fit (Ostrom, 1986 Young 2002).

<sup>33</sup> Further discussion of this tradition can be found within Hall and Taylor (1996) where it is referred to as 'rational choice institutionalism'.

2000). Responsive change relates to a shift in the location and/or the actors who create cultural knowledge. This may happen as a powerful actor extends their influence or via the development of shared cognitive maps.

A final tradition of historical institutionalism has a focus on asymmetries of power between actors, the importance of history in generating path dependencies and the way institutions are embedded within temporal processes (Skocpol 1995, Hall and Taylor 1996).

Although each of the three neo-institutional schools, takes a different approach to using institutions to bridging this gap (Cammack 1992, Hall and Taylor 1996). Thelen (1999, p370) notes that the “walls dividing the three perspectives have also been eroded by border crossers who...borrow liberally (and often fruitfully) where they can, in order to answer specific empirical questions.” Taken together, historical and sociological institutional theories provide a range of possibilities for investigating policy arenas. By connecting institutions with actor and network theories these institutional schools enable a strong interrogation of public administration issues (Blom-Hansen 1997), for example, by linking approaches that examine ‘sub-systems’ of actors and policy process (Parsons 1995, Sabatier 1988).<sup>34</sup> For the purposes of this research the term ‘institution’ is defined as ‘a pattern of behaviour between interlinked actors that is stable and valued’ (Goodin 1996). This incorporates Goodin’s (1996) focus on what institutions do rather than why they do it. Enduring governance networks are therefore also institutional networks.

Taken together, this literature informs the investigation of responsive governance in a number of ways. First, the ability of governance to adjust is based on the heritage that exists in a particular context. Second, the social construction of the issue will be a key determinant of capacity to adjust and last, a novel response is more likely to occur in non-core interests and activities, where paradoxically the willingness to resource this response is likely to be low. Third, institutions can be examined as networks that seek to perpetuate themselves, rather than simply resisting change *per se*. This approach recognises that institutions are not inherently opposed to change and there are situations where an institution will adapt in the face of change to perpetuate itself. A particularly dynamic example of this can occur through social movements as will now be discussed.

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<sup>34</sup> They vary in their emphasis on ideas (Sabatier 1988) or interests (Rhodes 1996) as the organising principle. The terminology also varies, but whether labelled as networks (Hecló 1978, Rhodes 1996) or epistemic communities (Haas 1992), coalitions (Sabatier 1988) or simply ‘interactions’ (Kooiman 2003), they share the common concept that actors are drawn together by organising principles and can be examined on that basis.

### **2.2.3. Social movements and responding to change**

The key relevance of social movement literature for this research is that collective action outside of conventional understandings of governance is part of the broader political processes designed to bring about (or constrain) change (MacLeod 2012). Social movement theory has a stronger agency focus than either policy science or institutional literatures. Scholars in this field are concerned with state-society interactions from a bottom-up perspective. Initial research on social movements viewed collective behaviour as 'irrational' (for example Kornhauser 1959), whereas contemporary approaches view collective action as part of broader political processes that are designed to bring about (or constrain) societal change (McAdam et al. 2003).

Political process theory (or contentious politics) is the main contemporary approach in social movement research. McAdam, Tilly and Tarrow (2003) developed political process theory to analyse a range of contentious political situations. Political process theory incorporates a number of earlier theories that will now be outlined, namely: social mobilisation; collective action frames; 'dynamics of contention' theory; and opportunity/threat structures. Firstly, political process theory includes 'mobilisation',<sup>35</sup> Mobilisation investigates collective behaviour as rational behaviour that weighs up benefits and costs in an effort to achieve particular goals within the political process (McCarthy and Zald 1977). Secondly, 'collective action frames' involve the use of 'framing' to explain the agency of actors in social movements (e.g. Benford and Snow 2000). They investigate the generation of meaning amongst leaders, development into collective action frames, and efforts to align the frames of leaders and participants (Snow et al. 1986). Those using this approach analyse collective behaviour as organised through common beliefs and ideas (i.e. frame alignment). Thirdly is contention theory, which includes mechanisms, processes and episodes (Tilly and Tarrow 2007). Mechanisms are delimited classes of events that alter relations among specified sets of elements in identical or closely similar ways over a variety of situations. Processes are a regular sequence of mechanisms. Episodes involve sustained periods of ongoing contention between 'parties', i.e. coalitions or networks (McAdam et al. 2003).<sup>36</sup> Finally, political process theory investigates the opportunities and threat structure that bears on engagement: this includes the degree of political openness, elite divisions and realignments, relations with third parties, and the power holders' capacity and propensity for repression (Schock 2005).

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<sup>35</sup> Theories of social mobilisation emerged in the 1970s as alternatives to viewing social movements as irrational.

<sup>36</sup> These authors recently distanced themselves from their earlier work and have joined with critics of structural approaches to social movements in calling for a less rigid and structurally biased approach (Goodwin and Jasper 1999).

Strategic organising then, seeks to identify, create and exploit these opportunities (Tarrow and Tollefson 1994).

In terms of using multiple frames of analysis to study policy arena governance, social movement theory interprets agency and structures within the non-state spheres of society. It is useful for exploring the democratic anchorage of governance networks, and the responses of non-state actors to situations lacking political legitimacy. This literature therefore enables a more extensive examination of power relations within policy arenas and locates political feedback as a component of public governance rather than an external variable.

#### **2.2.4. Summary: Responses to change**

This review of policy, institutions and social movements has highlighted theoretical positions with different emphases on the role of agency in responsive governance. Theoretical positions can be matched with empirical cases to tailor the investigation of responsive governance appropriate to a particular situation (Skok 1995). The bottom-up orientation of social movement theory compliments the generally top-down state-centric policy change literature. Some policy theories also provide useful bridges between the two, for example advocacy coalitions (Sabatier 1988). In addition, institutional change is linked closely to policy change as illustrated by phenomenon of policy feedback (Pierson 1993), lobbying (Hecllo 1978, Lowi 1979) and agenda setting (Kingdon 2002). Goodin (1996), notes that institutional change is a combination of intentional design, accident and evolution. This combination has parallel concepts in policy change theory, that is policy cycles (Bridgman and Davis 2004), transformative and incremental change respectively (John 2003). Institutions and networks are active in the policy process, from agenda setting to implementation and evaluation. A large body of research traces the distribution of power within networks and the effects of institutional interests on decision making (e.g. Hecllo 1978, Hall 1993). In addition, once a policy does change, a process of policy feedback can take place (Pierson 1993). Policy feedback means that the redistribution of resources caused by the change in policy can feedback into networks causing reconfiguration of interactions between actors, altered network capacities and even a shift in the association with particular institutions. The above theories demonstrate: a structured but dynamic relationship between institutions and policy; the potential for a structured understanding of social movements to link theory on social movements with formal governance arrangements; which then supports the analysis within governance of 'movement' related processes such as community advocacy and lobbying.

## **2.3. Chapter conclusion**

In summary this literature review has analysed core thinking from political and social sciences that enable an investigation of responsive governance. State-centric, cross-sector and society-centric approaches to governance were investigated. The discussion showed that a broad cross-sector or network focus is able to go beyond the analysis of cross-sector frames to also examine structures usually associated with state and society-centric frames of governance. On this basis, and with a focus on agency, theories on the response of policy arenas to change were explored from literatures on policy change, institutional change and social movements. The various framings of governance can differ in their goals for responding to change. For example, a state-centric author may be concerned with integration that can add stability and efficiency to existing institutional networks, while a social movement theorist at the other end of the spectrum may theorise the decoupling of existing powerful networks in efforts to further a specific social or environmentally focused goal. However, strategic matching between governance frames and theories of change can support a tailored investigation of empirical settings (Thelen 1999). The following chapter outlines the methodology for this investigation and begins with the development of an investigative framework from the main literature themes from this review. The interpretations vary however across the literature according to the emphasis on top down or bottom up, stability or change, efficiency or effectiveness.



## Chapter 3

### Research Design:

#### Case study analysis of responsive governance

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The purpose of this research is to examine how urban ecological governance responds to change over time. The research asks: 1) “How do actors within a ‘non-core’ urban policy arena interact with the broader institutional context over time?”; 2) “How and in what respects does governance of this urban policy arena across the metropolitan area adjust to change over time?”; and 3) “What are the implications for enhancing how this governance adjusts to change?” This chapter justifies and outlines the method developed to answer these questions. This research is concerned with responsive governance in a ‘non-core’ urban policy arena (Chapter 1) where: urban policy arenas are complex settings that are embedded within an institutional context; policy arena governance is the range of opportunities for actors to participate in planning and management; and responsive change is a networked phenomenon of interaction between diverse actors, their interests and prevailing power relations. Due to the ‘publication style’ approach of the dissertation, more detailed discussion of methods is included within Chapters 5 to 8. First the selection of a case study approach is justified. The chapter then explains the case study design, methods and rigor of this approach. Case study methodology requires a clear framing of the approach and its underpinning logic, and this is detailed through the discussion that follows (Baxter and Jack 2008, Healy and Perry 2000).

## **3.1 Framing a robust qualitative approach**

### **Personal perspective**

Qualitative research benefits from an explicit acknowledgement of the researcher's own perspectives and theoretical position.<sup>37</sup> A researcher's perspectives are both a source of bias that needs careful management and a resource that adds value to the research. To this effect, my personal perspectives on this topic proceed from being a white middle-class male with interests and experience in ecology, community participation and small business. As with many researchers I have long been exposed to aspects of my research problem – my childhood took place in an urbanising peri-urban area where the impacts on natural systems, management of threats and later efforts towards environmental management formed part of my everyday lived experience. My educational background positions me amongst theories and methods of environmental management and policy, planning and public governance.

### **Theoretical perspective**

My theoretical approach falls under the general banner of critical realism (Næss 2015), and due to the relational nature of governance, also uses tools of social constructionism to explore the manner in which actors design and maintain ecological governance (Al-Amoudi and Willmott 2011).<sup>38</sup> Critical realism asserts that “reality is ‘real’ but only imperfectly apprehensible” (Healy and Perry 2000, p119). This means that research findings ‘probably’ hold intrinsic truth, but for highly social phenomenon such as governance, this truth is constructed, to a larger extent than phenomenon with greater physical aspects. Therefore in this research, critical realism supports: the examination of urban ecological resources as objective reality that is governed subjectively by actors; the multiple framings of governance and responsive change, thereby revealing processes of social construction; analysis of interactions between actors in order to explore the roles of power relations and knowledge in policy change; the examination of urban ecological resources a theoretical foundation for responses to change that are appropriate for the social nature of the ecological governance arena.

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<sup>37</sup> As noted by Stake (1995), in all research – the researcher's previous knowledge and experience influences the selection of research problem, the study design and the analysis. The researcher is therefore an integrative part of the research and the recognition of this interaction contributes rigour and enhances the interpretation of findings.

<sup>38</sup> Al-Amoudi and Willmott (2011) note that although epistemological relativism has been popularly seen as the domain of constructivism – it is a shared point of convergence with critical realist approaches.

## **3.2 Investigating a context embedded and radial phenomenon**

The review of literature in Chapter 2 demonstrates that governance is a challenging phenomenon to investigate because it is highly embedded within its context and the concept is essentially a floating signifier. The following discussion explains why a case study methodology was selected to engage with this problem and describes an approach that structures the investigation to manage contextual and conceptual issues related to governance. A perspective on governance is selected from the literature review, methodological approaches to complexity are surveyed and the challenges of context and concept for governance research are outlined. Then a case study methodology is demonstrated as appropriate for meeting these challenges.

### **Examining governance**

Perspectives on governance that were surveyed in Chapter 2 identified three foci: state-centric; cross-sector centric; and society-centric frames. All three foci provide important insights into policy arenas and governance. However, as a methodology, the network approach to examining governance holds the most potential for examining the breadth of governance structures and processes in a policy arena (section 2.1.4). The concept of 'network' can be expanded beyond the cross-sector frame to examine the relationships between actors in state-centric and society-centric governance models that are applied in the empirical setting. There are risks involved here, of simplistic harmonisation across frames on one hand, and loss of explanatory power from complexity overload on the other. However, a hybrid approach has potential for adding explanatory power with respect to the 'floating signifier' qualities of the governance concept. Studies of governance and complexity often tackle this problem by constructing such a hybrid approach and treating differing governance foci as different levels of abstraction (Hooghe and Marks 2003, Kooiman 2003, Edwards et al. 2012). This approach enables the study to use a network focus as the meta-approach across all three levels of abstraction (state-centric, cross-sector centric, society-centric) *and* also to use contributions from state-centric and society-centric thinking to governance as multiple frames of enquiry into responsive change. Multiple frames of enquiry can be used to reveal different aspects of responsive change in order to explore situations where a particular approach gives a more accurate interpretation, thus more clearly revealing the implications for responsive governance (Forestiere 2008, Cairney 2009).

## Examining complexity

Urban policy arenas are complex and research on responsive governance benefits from examining its internal rationality. Dryzek (1987a) examined three rationalities for engaging with complex problems: (1) instrumental rationality; (2) 'invisible hands'; and (3) communicative rationality. His framework illustrates the implications of different approaches to the complex setting for this research. First, *instrumental rationality* can examine complexity through disaggregation, systems modelling and integration. In disaggregation, which is the traditional approach to policy analysis, complex policy problems are broken into their constituent parts, analysed extensively and then recombined (Dryzek 1987a, Bridgman and Davis 2004). However, governance possesses emergent qualities and this requires a holistic approach (Sol et al. 2013) - disaggregation is better suited to a positivist orientation. 'Systems modelling' seeks to capture the interactions amongst components that generate complexity. However, it is more effective where system elements are not goal driven and have reflective capacity, as with human actors (Dryzek 1987a). Integrative approaches are inherent within the sustainable development paradigm and seek to find a robust solution to complexity by integrating diverse perspectives. However under conditions of social complexity these examinations are likely to be 'surprised' by unexpected change, as discussed in Chapter 1.

Second is the rationality of *invisible hands* for examining complexity. Dryzek (1987a) notes political, market and natural systems rationality as prominent examples. He describes this type as the renouncement of instrumental rationality. Therefore as a research strategy it does not seek direct resolution of a problem, but instead establishes an approach for understanding and managing the complex system. Dryzek (1987a), notes that this rationality also struggles with higher levels of complexity and understanding actor strategies for building resilience (such as hierarchies) within the complex system.

Last is *communicative rationality*. Dryzek (1987a) proposes communicative rationality as a preferable strategy for engaging with complexity. He takes a classic Habermasian position by noting that communicative rationality is achieved where power, strategy and deception amongst actors is managed (Habermas 1985). This research uses communicative rationality as a lens for examining how diverse actors establish coalitions of common ground within complex governance dynamics.<sup>39</sup>

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<sup>39</sup> This research, while taking a general communicative rationality approach does not claim primacy for communicative rationality for engaging with complexity – as does Dryzek (1987a). The research integrates the relativist approach to the 'truth' of governance from communicative rationality within the broader critical realism epistemology (see 3.1)

## **The challenges of context embeddedness and concept stretching**

The investigation of responsive governance poses a number of other challenges related to the relationships between governance, its context and its conceptual vagaries. Importantly, the distinction between governance networks and the institutional context is unclear (Taylor and Cheng 2012).<sup>40</sup> There are two important challenges within this lack of clarity: bounding of the case study; and differentiation between governance and its cultural context. First, the boundary of governance for a particular policy arena can be difficult to delineate; for example, a dominant actor who skews the behaviour of governance actors but is not involved in governing the resource could be considered as a contextual variable if the network is bounded tightly, or considered a governance actor if a broader boundary is established. Second, the differentiation between the phenomenon of governance and its cultural context is difficult. Planning and policy generally are deeply embedded amongst particular cultural practices (Booth 2011); this means that in some regards differentiation between the two is not possible. In order to tease apart the effects of context from governance it is necessary to compare a similar governance phenomenon in a different context.

However as the concept of governance is applied to more cases it needs to be made more general to 'travel' without encountering the problem of concept stretching which Sartori (1970) described as a process of climbing a ladder of abstraction. As a concept is applied to more cases and becomes more broadly applicable in order to travel, the trade-off is that the concept contains fewer defining characteristics and is therefore less useful for generating theory (Collier and Mahon 1993, Sartori 1970). Temporal stretching can accentuate this process of generalisation further. For example, as the period for a temporal analysis is extended, more changes will accumulate to the phenomenon of concern, and the theoretical conclusions related to that case study are likely to become more generalised. With respect to research into governance, this problem is compounded even further because 'governance' has already been abstracted to the point of being a floating signifier (Jessop 2003, Offe 2009). Hence, the application of an already generalised concept across multiple cases may be futile unless managed appropriately. A common strategy for managing this problem is to establish a typology for the abstracted concept and then narrow the research focus onto one of the 'types' (e.g. Steiner 2008). However in Chapter 2 when the typology of six governance frames was established (Section 2.1), they were all identified as important

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<sup>40</sup> Other unclear distinctions include those between adaptation of governance and general policy change

in addressing the problem of responsive governance. Thus a variation of this strategy to narrow the focus through typologies will be employed in this research. Collier and Mahon (1993) provide a way forward through the idea of radial categories, which is applied to the six governance frames in Table 3.1.

*...the overall meaning of a [radial] category is anchored in a "central subcategory," which corresponds to the "best" case, or prototype, of the category." In the process of cognition, the central subcategory functions as a gestalt, in that it is constituted by a bundle of traits that are learned together understood together, and most quickly recognized when found together. "Non-central subcategories" are variants of the central one. They do not necessarily share defining attributes with each other but only with the central subcategory-hence the term radial, which refers to this internal structure*

(Collier and Mahon 1993, p848)

The radial category approach was applied to the governance frames identified in this research (Chapter 2). Where the central subcategory is 'governance' and it possesses the full set of traits (Table 3.1). Non-central subcategories are variants that share some, but not all traits in common.

**Table 3.1 Governance as a radial category**

Categories		Governance traits				
		A	B	C	D	E
Central subcategory	Governance frame	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Non-central subcategories i.e. governance frames from 2.1	state-legitimacy	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
	state-performance		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	cross-sector legitimacy	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
	cross-sector performance		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
	society-legitimacy	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
	society-performance		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>

Governance traits: A is legitimacy focused; B is performance focused; C is state-centric; D is cross-sector centric;<sup>41</sup> E is society-centric. Source: adapted from Collier and Mahon 1993, p850.

Addressing the problem of governance as a radial concept meant that, in order to examine a broad understanding of governance that investigates the influence of context embeddedness, a multiple frames of enquiry approach was applied in order to manage conceptual stretching.

<sup>41</sup> As per the literature review, this typology recognises that a cross-sector approach is not equivalent to state + society. This means that cross-sectoral is a third category because these approaches are not encompassed by state-centric or society-centric approaches.

## **Meeting the challenges through case study methodology**

To investigate governance, a 'thick description' of the phenomena is required to support analysis in a context embedded manner. For *environmental* governance a thick description includes background data on the ecological context in addition to the foreground data of socially embedded aspects. Booth (2011) notes that data collection for context embedded problems is likely to involve a greater emphasis on data collection through intensive interviews, key informants and media reports in order to understand the situation, particularly for comparing different cases, generalising findings or transferring policy approaches outside of a case study setting (Dolowitz and Marsh, 1996).

This research problem is networked amongst actors, embedded in context and challenged by conceptual stretching. Case study analysis is an appropriate method for this research problem because it enables a phenomenon to be researched within its context: where it is not possible to manipulate the behaviour of participants through experimentation; where context is likely to be associated with the phenomenon; and especially where the distinctions between the phenomenon and its context are not clear (Yin 2003). Case study analysis also is effective in situations that involve multiple variables of interest that may be multi-causal in nature (Yin 2003, p12). Yin (2003) further notes, that case studies are suited to studies that are interested in how and why questions. All of these conditions apply for investigating how responsive governance occurs within an urban policy arena. In order to achieve this, a case study methodology uses an integrated strategy of design, data collection and analysis. This integrated strategy is explained in the remainder of this chapter.

### **3.3 Conceptual frameworks for research and investigation: context, structure and agency**

It is common to develop conceptual frameworks in order to guide and communicate qualitative research (Miles and Huberman, 1984). This section outlines the overarching research framework and presents an explanation of the investigative framework, which guides data collection and analysis through each of broad stages of the research framework.

#### **Research framework**

The research framework is the overarching strategy for answering the research question (Figure 3.1). It draws directly from the major categories reviewed in Section 2.2.

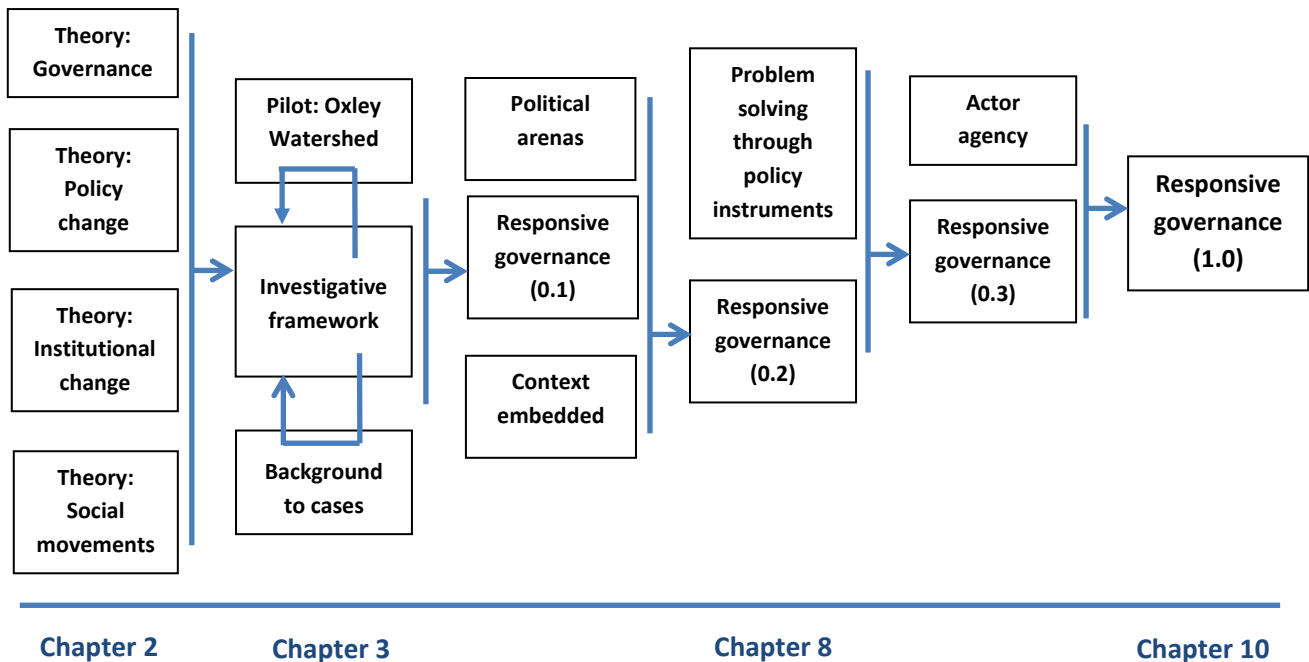


Figure 3.1 Research framework for responsive governance, showing the development of responsive governance concepts as the framework progresses, that is from concept 0.1 through 0.2 and 0.3 to 1.0 and the completion of this research. (Adapted from Essers et al. 2008 as shown in Doorewaard 2010)

## Investigative Framework: context, structure and interaction

Theory from the areas reviewed in Chapter 2 is used to build an analytical framework to drive the case study investigation; this particularly draws on concepts of new institutionalism (Hall 1993, Goodin 1996), policy instruments (Gunningham and Sinclair 1999) and collective action frames (Benford and Snow 2000). The following discussion explains three categories of embeddedness that influence an adjustment in governance (context, structure and interaction), each with three aspects (Figure 3.2) that were synthesised from the review of literature (Chapter 2). The resulting framework is used to guide the investigation of responsive governance. An adjustment in governance can be understood as embedded within the macro-context, embedded across meso-structures and with micro-interactions embedded within the adjustment. These various aspects also interact with each other. They need to be examined both separately and together.



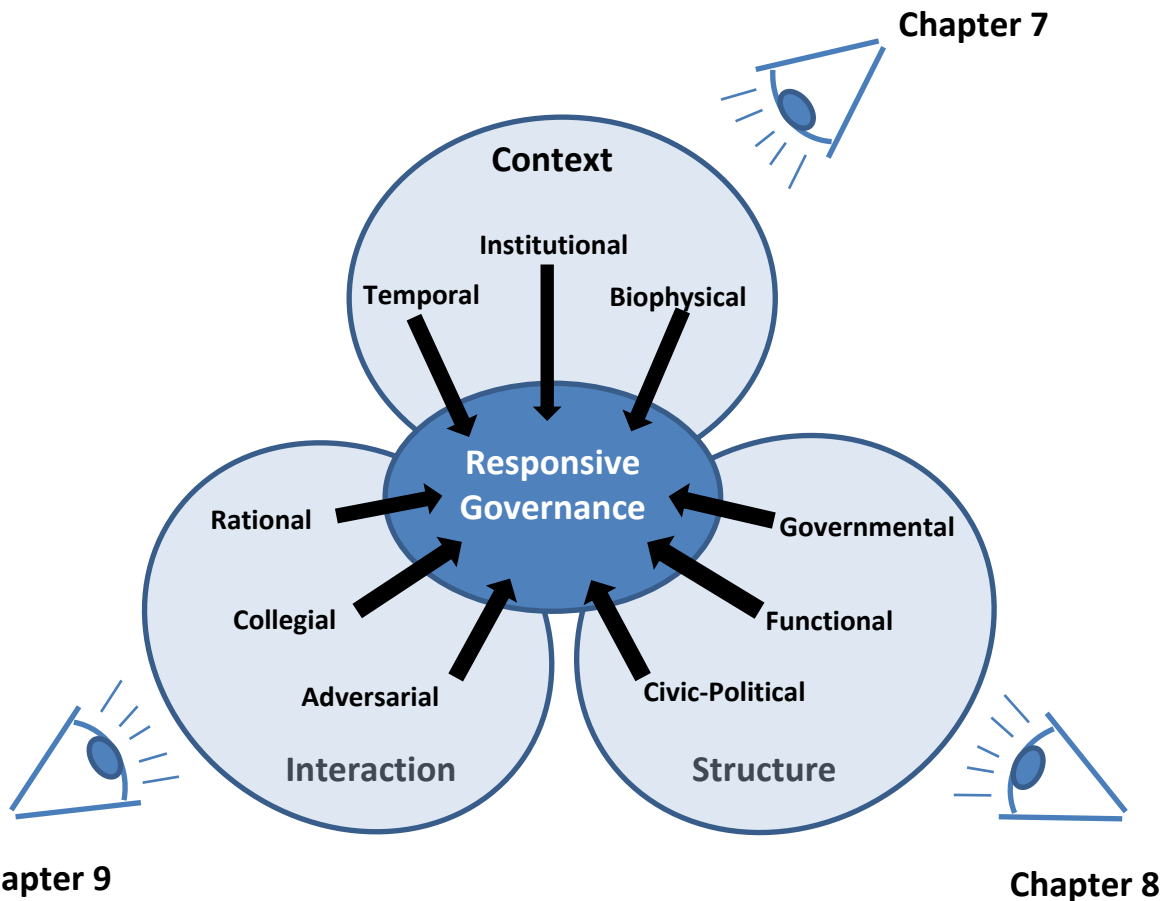


Figure 3.2 Summary of investigative framework for responsive governance

**Adjustments in governance are embedded within broader contextual aspects**

Contextual facets of responsive governance can be understood as various ways that an adjustment in governance is embedded within macro-level contextual processes. Specifically those that are biophysical; institutional and temporal.

When governance adjusts to change, the adjustment has a biophysical aspect to the extent that the policy arena is embedded within social-ecological systems. Social-ecological systems are biophysical systems and social systems that are inter-linked (Folke et al. 2007). Linkages of particular interest are those between the resource of interest (which is in this case, urban ecological resources) and the arrangements for the governance of that resource. A range of social-ecological links are inherent and persistent within the ecological governance arena, for example the critical habitat of an endangered species will be directly

linked with instruments for the conservation of that species.<sup>42</sup> However even this link cannot be assumed in urban settings where exemptions to environmental legislation may be granted to prioritise other interests in the urban area.<sup>43</sup> Other social-ecological links are less apparent or direct, for example the topology and climate of a city can link with governance through; flood planning and management of flood; the areas operated the location of environmental corridors along rivers; and the territories of watershed groups.<sup>44</sup> Influences from the biophysical context can be investigated by using concepts such as ‘institutional fit’ and ‘institutional interplay’ (e.g. Young 2002). ‘Institutional fit and interplay can be examined through structural and functional links between urban ecological resources and policy arena governance. Primary data for the examination of institutional fit may include participant perspectives on responding to environmental change such as drought or flood. Secondary ecological data can be used to delineate the biophysical context.

When governance adjusts to change, the adjustment has an ‘institutional context’ aspect to the extent that the policy arena is embedded within its exogenous institutional context. Policy arenas are inherently linked with broader governance arrangements. Linkages of particular interest are those between the governance of the urban ecological policy arena and the broader governance existing at metropolitan, state and federal scales.<sup>45</sup> Influences from the institutional context can be investigated by using concepts such as path dependency, transformative change (Peters et al. 2005, Healey 2006b) and multi-level governance (Stephenson 2013). Path dependency and transformative change can be examined through the effects of changes to broader governance upon governance at the policy arena level. Multi-level governance structures these broader changes in terms of nested levels and

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<sup>42</sup> For example, Portland governance displayed explicit social-ecological links between salmonid species and instruments to protect and restore riparian areas including: Oregon State’s ‘salmon plan’, Metro’s Title 13 and PCC’s Grey to Green initiative. Brisbane displayed explicit social-ecological links between the koala and instruments for habitat protection such as: BCC’s bushland acquisition program and Queensland State’s koala conservation regulation.

<sup>43</sup> In principle, exemptions to environmental legislation in urban areas seeks to balance the range of planning interests requiring integration across a city. The exemptions should therefore become more extensive as the ecological value of a resource decreases so that non-environmental interests are directed away from urban environmental assets. For example the *Vegetation Management Act 1999 (Qld)* exempts urban areas from protecting ‘of concern’ ecosystems, but has fewer exemptions for ‘endangered ecosystems’.

<sup>44</sup> For example, less direct social-ecological links between governance and the configuration of metropolitan riparian corridors and watersheds contributed to ecological connectivity in Portland where waterways and associated flood prone areas ‘fanned’ out from the Port and CBD into the upper watersheds. Social-ecological links were strengthened further when BES restructured their activities into watershed-based teams.

<sup>45</sup> For example, inherent institutional-context links for the Brisbane ecological governance arena included strong vertical integration from state to regional to Brisbane planning, post 2004, which linked which impacted the prioritisation of urban biodiversity amongst other planning interests. The Portland case displayed institutional-context links between instruments related to the Oregon ballot system and the litigious legal system, which linked respectively with, local and metropolitan voter participation on environmental planning and a number of law suits that then triggered environmental governance to remedy water quality and protect salmon populations

vertical integration. Primary data may include participant perspectives on broader scale change such as regional planning, both in terms of constraints and strategic opportunities at the policy arena level. Other primary sources include legislation, plans and strategies that identify broader scale structures and change. Secondary analysis of both cities is also readily available as reports and journal papers.

When governance adjusts to change, the adjustment has a temporal aspect to the extent that the policy arena is embedded within its historical context. The contemporary governance of a resource is linked with its historical context through previous, usually incremental change and historical knowledge amongst actors. Linkages of particular interest are those between past and present policy, planning and management associated with urban ecological governance. Influences from the temporal context can be investigated by using concepts such as incremental change (Rayner 2009, Peters et al. 2005) and institutional memory (Booth 1999). Past changes can be examined through a temporal institutional analysis of historical events. Primary data may include participant identification of historical change perceived to be important and retrospective narratives of case studies. Secondary and may include historical documents and archived program data that supports or contrasts with participant perspectives.

Due to the context embedded nature of governance it can be difficult to delineate between these context-related facets and the phenomenon of governance. Comparative analysis between and within cases will assist to manage this issue (see Section 3.4).

### **Adjustments in governance are embedded across broader structural aspects**

Structural facets of responsive governance can be understood as the various ways that an adjustment in governance is embedded across meso-level structures; specifically those that are: functional, governmental and civil-political. See Section 2.2 for the set of frames under which these structures can be categorised.

When governance adjusts to change, the adjustment has a functional aspect to the extent that the policy arena is embedded across a set of social functions. Policy arenas consist of structured relationships amongst governance actors that seek to fulfil particular social functions and are inter-linked; these include relationships formalised around policy as well as informal partnerships and alliances. Linkages of particular interest are those within and

between policy instruments, networks of actors and cross-sectoral arrangements.<sup>46</sup> Influences from the functional aspect can be investigated by using concepts such as policy instrument mixes (Gunningham and Sinclair 1999, Hood 1983, Howlett 2009) and policy cycles (Bridgman and Davis 2003, Everett 2003, Howard 2005). Policy instrument mixes can be examined through the implementation of policy over time and participation from different types of actors. For the purposes of this research, policy instruments are defined broadly as: programs and initiatives; policy and legislation. Policy cycles can be examined through the use of policy stages as a heuristic tool (as per Bridgman and Davis 2003). Primary data may include actor perspectives stratified according to involvement with an instrument and roles within the policy cycles. Other primary sources include policy documents, while secondary data may include reports and print media.

When governance adjusts to change, the adjustment has a 'governmental' aspect to the extent that the policy arena is embedded across state-centric structures and processes. The model of government in a setting is a critical determinant of adaptive capacity within a policy arena. Linkages of particular interest include those structured by models of organisational governance, departmental structures and 'internal politics' between state actors.<sup>47</sup> Influences from the governmental aspect can be investigated by using concepts such as heterarchy<sup>48</sup> (Crumley 1995) and integration (horizontal and vertical) amongst state actors. Horizontal and vertical integration can be examined through the coordination of decision making over time. Heterarchy can be examined through events where government priorities are re-ordered or reconfigured. Primary data may include actor perspectives on the interactions amongst state actors and their aggregated performance.<sup>49</sup> Secondary data may include minuted meetings and some reports, although state-state interactions can be difficult to triangulate through documentation.

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<sup>46</sup> For example, Portland showed strong functional links between policy instruments related to urban biodiversity and those related to urban greenspace planning and water quality. Brisbane displayed fewer inter-functional links, but stronger intra-functional links between urban ecological instruments and actors.

<sup>47</sup> For example, Brisbane displayed governmental-links between the ecological governance arena and the shift to managerial models of urban governance. Portland displayed more subtle governmental-links associated with a shift from risk-based to asset-based assessment of resources, 'beyond compliance' decision making for legislative responsibilities and politicisation of PCC bureaus by certain commissioners.

<sup>48</sup> Heterarchy is defined by Crumley (1995, p.3) as, "the relation of elements to one another where they are unranked or where they possess the potential for being ranked in a number of different ways". For example, a democratic election is a formalised heterarchical process.

<sup>49</sup> The perceived performance of government actors can be further investigated by using concepts of output and throughput legitimacy (Palazzo and Scherer 2006; Lindgren and Persson 2010). Output legitimacy is the endorsement of results or outcomes and is established when the actors are seen as achieving the right things in the right way (Lindgren and Persson 2010). Throughput legitimacy is the endorsement of government processes – i.e. the process of moving from input activities to output activities (Palazzo and Scherer 2006).

When governance adjusts to change, the adjustment has a civic-political aspect to the extent that the policy arena is embedded across societal decision-making structures. Policy arenas are linked with the general public through structures of and processes for civic engagement. Linkages of particular interest include: formal and informal mechanisms of civil society; and democratic participation related to ecological governance. These mechanisms can include: elections that feature issues such as tree clearing and urban expansion; submissions on development applications, community protest over clearing or lobbying to maintain funding for a popular program.<sup>50</sup> Influences from the civic-political facet can be investigated by using concepts such as democratic anchorage (Sørensen and Torfing 2005, Skelcher et al. 2011) and opportunity structures (Newman et al. 2004, Schock 2005, Tilly and Tarrow 2007). Democratic anchorage can be examined through the accountability and input legitimacy of governance (Lindgren and Persson 2010). Input legitimacy, is established when actors perceive that they have avenues for contributing their views into decision-making processes — e.g. voting mechanisms. Opportunity structures can be examined through formal and informal mechanisms that facilitate societal engagement with state actors. Primary data may include state/non-state actor perceptions of each other and accounts of contentious interactions. Secondary data may include news media, minutes and reports.

### **Adjustments in governance: embedding of interactional aspects**

Interactional facets of responsive governance can be understood as the various ways that micro-level dynamics are embedded within an adjustment in governance; specifically, dynamics that generate opportunities for ‘rational’, collegial or adversarial interactions. ‘Micro’ refers to the actor level focus of these facets, not the scale of impact that actor interactions can have on governance.

When governance adjusts to change, the adjustment has a ‘rational’ aspect to the extent that rational or science-based decision-making processes are embedded within governance. Decision support tools provide opportunities for evidence-based interactions within a policy arena. Opportunities of particular interest include evidence-based principles, rational-instrumental techniques (i.e. cost-benefit analysis) and frameworks that support

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<sup>50</sup> For example, in Brisbane the BCC mayoral election in 1990 was strongly influenced by public interest in acquiring iconic ecological assets such as Boondall wetlands. In Portland the Metro elections in 1993, 1995 and 2006 included ballot measures for funding to acquire urban natural areas. Other civic political links can be seen through the planning system of each city where Brisbane (post-*Integrated Planning Act 1997 (Qld)*) and Portland (post 1972 Oregon state planning goals) have strong performance-based and prescriptive-based planning systems respectively. Performance-based planning can complicate civic-political involvement in planning decisions while prescriptive planning has clearer opportunities for civic involvement through the ‘rule-setting’ process of the prescriptive approach (Steele 2010).

evidence-based decision making amongst actors. These approaches seek to link the perceptions of actors with scientific evidence on the issue of concern. Although actors interpret the evidence through their particular interests, scientific data can: contribute towards a common basis for negotiation amongst actors; increase the extent of agreement in decision making; strengthen the likelihood of compliance with any evidence-based that is developed; and Influences from the 'rational' aspect can be investigated by using concepts of evidenced-based boundary objects (Carlile 2002), and adaptive management (Kallis et al. 2009, Allen et al. 2011). Evidence-based boundary objects can be examined through decision-making instruments and other agreements between actors. Adaptive management can be examined through the role of science within changes in governance. Important data for this facet relates to the development of scientific knowledge for the policy arena and the intentional input of data into decision making.

When governance adjusts to change, the adjustment has a collegial aspect to the extent that interest-based coalitions of actors are embedded within governance. Collegial interactions become more likely when actors perceive that they have common interests. Opportunities of particular interest include strategic partnerships and coalitions in order to support inter-actor decision making. Influences from the collegial aspect can be investigated by using concepts of collaborative governance and coalition/regime building (Lowndes 1997, Michaels 2009, Liu et al. 2010). Collaborative governance can be examined through forums that organise actors around particular interests or ideas. Coalition and regime building can be examined through collective action frames and their interactions with governance over time (Snow et al. 1986, Benford and Snow 2000). Primary data will include interview accounts of close partnerships between actors.

When governance adjusts to change, the adjustment has an adversarial aspect to the extent that contention-based interactions are embedded within governance. The perception of divergent interests between actors can generate opportunities for contention-based interactions within a policy arena. Opportunities of particular interest include a range of advocacy strategies, competitive tendering and other inter-actor rivalry. Influences from the adversarial aspect can be investigated through concepts of urban regimes (Digaetano and Klemanski 1993, Mossberger and Stoker 2001, Whitehead 2003, Blanco 2013) and advocacy coalitions (Sabatier 1988, Weible and Sabatier 2009). Regimes can be examined through long-term strategic partnerships and interest-based boundary objects. Advocacy coalitions can be examined through accounts of contentious politics, campaigns and

lobbying. Contentious aspects will especially need careful triangulation with other participants and key informants.

The following section presents a summary of the investigative framework and its application in the analytical chapters of the thesis.

### Framework Summary

Contemporary governance and policy research recognises that ‘change’ cannot be separated from ‘continuity’ and analyses need to reflect this interaction in an integrated fashion. Therefore a focus on change is more a tool for understanding the function and development of policy rather than simply understanding change *per se* (Capano 2009). These aspects of change and continuity apply to each aspect of responsive governance discussed above (Table 3.2).

**Table 3.2 Conceptualising the dynamic and stable dimensions of responsive governance**

Category	Aspect	Dynamic dimension	Stability dimension
Context	Biophysical	Institutional interplay with environment	Institutional fit
	Institutional	Transformative change	Path dependency
	Temporal	Incremental change	Institutional memory
Structure	Functional	Policy cycle	Policy instrument mix
	Governmental	Heterarchy	Integration
	Civil-political	Democratic anchorage	Opportunity structures
Interaction	‘Rational’	Adaptive management	Evidence-based boundary objects
	Collegial	Collaborative governance	Coalition building
	Adversarial	Advocacy coalitions	Urban regimes

The aspects of responsive governance are summarised diagrammatically in Figure 3.2. This diagram also depicts the perspectives taken in the analytical Chapters 7 and 8 and 9. The synthesis (Chapter 10) then brings these three angles through the investigative framework together around the main research aim. While each chapter employs analyses of the data that are specific to understanding that perspective, the entire study takes place within a case study methodology as will now be explained.

## 3.4 Case study design and methods

The case study approach is able to manage the issues involved with researching context embedded phenomena. However, a specific methodological approach was needed in order to guide the enquiry appropriately. This approach facilitated the active management and

clear contingency plans needed for *in situ* investigation (Yin 2003). This section presents the case study design and methodology of the research. The design of meta-structure, selection of cases and embedded units of analysis are outlined. Next, the strategy for identifying the population and sampling a set of interview participants is presented. Then, the approach for ensuring robustness through multiple lines of convergence is explained. Finally, the method undertaken to analyse data is discussed. However, first it is necessary to explain the selection of the focal policy arena.

The policy arena of ecological governance was chosen for the examination of issues identified in previous chapters. Ecological governance is a 'non-core' urban priority which has faced multiple pressures to adapt and become more flexible. Formal governance for this arena has been implemented for at least twenty years in many liberal democratic countries, which is a period deemed suitable for observing institutional change (Sabatier 1986, Thelen 1999). The period also captures the emergence of a number of important urban discourses concerning urban planning (Healey 2006a) and biodiversity conservation (Wallington et al. 2005). The following discussion explains the meta-structure established to align the analysis of urban ecological governance with the research question.

## **Meta-structure**

A comparative meta-structure can benefit a research question such as *how* governance responds to change. A comparative approach is preferable for answering explanatory research questions, for analysing organisational change and investigating institutions (Campbell 2010).<sup>51</sup> The strategy is beneficial for examining contrasts, similarity and patterns between case study variables. A 'most difference' comparison<sup>52</sup> was selected to enhance the potential for separating the context embedded aspects of governance from those of actor agency (Sellers 2005). A 'most difference' comparison captures a range of governance models for this policy arena and anchors the investigation of data rich extreme cases, for which analysis can become distorted in a single case design (Jahnukainen 2010). However, the robustness that multiple case design adds to the analysis, does involve a trade-off between breadth and depth of data collected (Yin 2003).

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<sup>51</sup> For *in situ* research such as this case analysis, a comparative research design plays the equivalent role to that played by experimentation in *ex situ* deductive methodologies (See Denters and Mossberger 2006)

<sup>52</sup> A 'most difference' comparison compares highly contrasting cases of a phenomenon in order to highlight its diversity. Each case is therefore significant in itself as an extreme case of the phenomenon and in comparison, provides evidence for the effects of context on the phenomenon in question (i.e. urban ecological governance).



Therefore the number of case cities was limited to two in order to best address the data richness needed for governance studies<sup>53</sup> (Alston et al. 1996). An international comparison was chosen to enhance the ‘most difference’ aspects of the institutional context, while maintaining sufficient similarity for the comparison of ecological governance. Pierre (2005) notes the great potential’ for examining urban settings through international comparative research.

An Australia-USA comparison was found to fit these methodological criteria and was also the most pragmatic choice for the researcher.<sup>54</sup> Cities in Australia and the USA have a long history of explicit engagement with urban environmental problems. Efforts in these two countries have many commonalities resulting from comparable levels of development, economic and liberal democratic systems. In more recent years globalised research and practitioner networks have further strengthened these commonalities in for example urban governance,<sup>55</sup> water governance<sup>56</sup> and environmental management.<sup>57</sup> With respect to native biodiversity, Australia and the USA have experienced comparatively recent fragmentation of native vegetation and patches of relic native vegetation persist in many urban areas<sup>58</sup>. Yet there are important legal, constitutional and political contrasts between the two countries, which provide sufficient contrast in the institutional context of metropolitan areas. A USA-Australia comparison provides a practical and methodological opportunity to highlight the effects of history and institutional structures on governance.

## Case selection

Metropolitan areas were screened on the basis of theoretical criteria (Table 3.3). The primary criterion concerned the selection of contrasting extreme cases as the basis for the comparative case design. Other criteria screened for data richness of: potential ‘democratic anchorage’ of governance (#2); urban ecological resources (#3); state and non-state actor participation in ecological governance (#4 and #5), i.e. a purposive sampling strategy (Patton 1990).

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<sup>53</sup> Data richness and depth for governance studies is linked to the complexity of the governance phenomenon. For example, multiple policy instruments, actor networks and spatial scales

<sup>54</sup> Pragmatic reasons for a USA-Australia comparison include the common English language and the Australian residence of the principal researcher. Hyett et al (2014) recommend that where cases are selected for pragmatic reasons, the researcher should identify and manage any potential weaknesses for the study that result. The following case selection section demonstrates that Brisbane is the best theoretical choice for comparing institutional context as it is an extreme case therefore the pragmatic reasons for selection have no effect on the study except to enhance it.

<sup>55</sup> For example ICLEI-Local Governments for Sustainability (<http://www.iclei.org/>)

<sup>56</sup> For example the International Water Centre (<http://www.watercentre.org/>)

<sup>57</sup> For example the International Network for Environmental Management (<http://www.inem.org/>)

<sup>58</sup> In contrast with the USA and Australia, European cities rarely contain relic patches of native vegetation.

**Table 3.3 Criteria for selection of case cities to examine the theoretical problem**

Criteria	Indicator/s
1. A case of strategic importance in relation to the institutional context for urban ecological governance (Flyvbjerg 2006, p229), i.e. a critical and extreme case.	Contrasting jurisdictional metropolitan arrangements, contrasting models of urban governance (as per Pierre 1999)
2. Clear capacity for democratic accountability at the metropolitan level (Sørensen and Torfing 2005)	Metropolitan level election of public representatives
3. Significant urban and regional ecological resources	Species richness, significant urban patches, % of urban area with native vegetation cover, adjacent non-urban biodiversity, listed species
4. Significant metropolitan investment in the ecological resource over at least a 20 year period	Land acquisition expenditure
5. Significant non-state participation in ecological planning and management	The presence of urban watershed groups (also known as catchment groups in Australia)
6. Comparability between metropolitan cases	Substantive and functional equivalence for a significant number of contextual variables

### Screening and selecting

Screening was first undertaken for Australia, and indicated Brisbane as a suitable metropolitan area and a critical case for responsiveness of urban ecological governance (Figure 3.3). Brisbane, unlike other large Australian cities is governed by a single metropolitan government – Brisbane City Council (criterion #2). Stenhouse (2005) in her analysis of urban ecological management in Australian cities also noted that Brisbane is a special case due to the size of budgets and its spatial extent. With respect to criteria 3–5, all Australian cities except Melbourne have significant percentages of native vegetation cover and levels of biodiversity (Table 3.4). Brisbane is the most species rich, with 80 of these species also listed as rare and threatened at the state level<sup>59</sup> (Table 3.5). A broad range of vegetation communities ranges from subtropical rainforest in the western foothills, eucalypt forest, riparian and coastal communities. The Brisbane urban area has a national park adjacent to the west<sup>60</sup> and is bordered by the Ramsar listed Moreton Bay to the east (criterion #3). Significant patches within the metropolitan area include Boondall Wetlands

<sup>59</sup> Species prioritised within the Brisbane area include: platypus (*Ornithorhynchus anatinus*), koala (*Phascolarctos cinereus*), gliders (*Petaurus* species), flying foxes (*Pteropus* species) and small marsupial carnivores such as *Antechinus* species. A full list of conservation action statements for fauna and flora species in Brisbane can be found at <https://www.brisbane.qld.gov.au/environment-waste/natural-environment/protecting-wildlife-brisbane/threatened-species> (accessed September 2016)

<sup>60</sup> D'Aguilar National Park – Southern Section, 36,000 ha (<http://www.nprsr.qld.gov.au/parks/daguilar/index.html>)

(~1200ha, and also Ramsar listed) and Karawatha Forest (~900ha<sup>61</sup>). Brisbane City Council has demonstrated a very high investment in the acquisition of land with high biodiversity value through a rate levy that has been in place since 1991<sup>62</sup> (criterion #4). In addition, urban watershed groups were established in the mid–1990s across the Brisbane metropolitan area (criterion #5). Section 4.3 provides further characterisation of Brisbane’s biodiversity as the biophysical context for responsive governance.

**Table 3.4 Native vegetation and flora biodiversity in major Australian cities**

City	% remnant vegetation <sup>a</sup>	# flora spp.
Adelaide	12	~825 <sup>a</sup>
Brisbane	22	~2075 <sup>b</sup>
Melbourne	3	~1150 <sup>a</sup>
Perth	49	~1500 <sup>a</sup>
Sydney	33	*

a) Stenhouse (2005, p50–51), b) Queensland Government Wildlife Online, Extraction Date 05/07/2015 <https://www.qld.gov.au/environment/plants-animals/species-list/>

Screening of US cities indicated the Portland Metro area as a suitable case study and a critical case for responsiveness of urban ecological governance (Figure 3.3). Portland Metro is the only directly elected regional government and metropolitan planning organisation in the USA (Seltzer 2004) (criterion #2). Under this regional umbrella there are 25 municipal government areas. With respect to criteria 3-5, Portland Metro, due to its higher latitude has lower species richness than Brisbane, however significant habitat persists in urban areas.<sup>63</sup> Portland Forest Park is one of the largest urban forests in the USA.<sup>64</sup> The city is adjacent to the Columbia River and natural features in the region include the Columbia Gorge and Mount Hood. Oregon salmonid species were federally listed under the US Endangered Species Act (ESA) from the mid–1990s and several other species (e.g. Streaked Horned Lark) have placed on a watch list. Portland clearly demonstrates a significant urban biodiversity resource (Table 3.5). Comparative data for urban biodiversity resources across US metropolitan areas are not easily accessible. However, the Portland regional government (Metro) has invested substantially in the acquisition of high quality habitat since

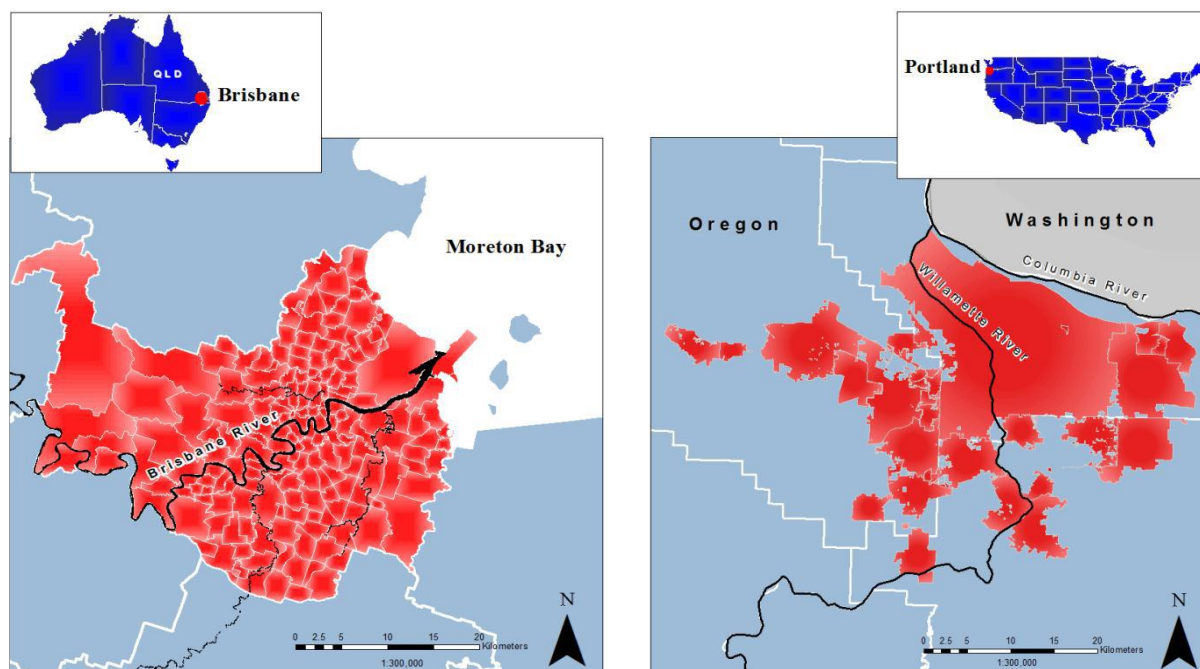
<sup>61</sup> Karawatha forest also forms part of the FGK Corridor, a regional wildlife corridor that borders the south of the Brisbane City Council area and crosses into two other local government jurisdictions.

<sup>62</sup> Brisbane City Council has invested ~AUD\$90,000,000 in biodiversity acquisitions between 1991 and 2007 (Churchill, 2007) - [http://www.arachne.org.au/\\_dbase\\_upl/exploring\\_brisbane\\_invertebrates\\_project\\_newsletter.pdf](http://www.arachne.org.au/_dbase_upl/exploring_brisbane_invertebrates_project_newsletter.pdf)

<sup>63</sup> For example, persistent patches of original ecosystems ranges from coniferous Douglas Fir forests, to mixed broadleaf deciduous trees, oak woodland to significant wetland systems. Iconic species include pacific salmon and migratory birds and American beaver (refer 4.2 for further details).

<sup>64</sup> Portland Forest Park has a total acreage of 5,172.14 (Portland Parks, <http://www.portlandoregon.gov/parks/finder/index.cfm?&propertyid=127&action=ViewPark>, accessed 16/07/2013)

1995<sup>65</sup> (criterion #4). Watershed groups were established across the state of Oregon in the mid-1990s, including the Portland Metro area (criterion #5). Section 4.2 further characterises Portland Metro’s biodiversity in terms of the biophysical context for ecological governance.



**Figure 3.3 Metropolitan cases: Brisbane, Queensland Australia (left) and Portland, Oregon USA (right)**

**Table 3.5 Demonstration of significant urban ecological resources (Criteria #3)<sup>66</sup>**

City	% native vegetation	Climate	# flora spp.	# vertebrate spp.	Rare & threatened species
Portland Metro	~29% <sup>a</sup>	Temperate	~400 <sup>b</sup>	~350 <sup>b</sup>	~150 <sup>b</sup>
Brisbane	22% <sup>c</sup>	Sub-tropical	~2075 <sup>d</sup>	~720 <sup>d</sup>	80 <sup>67</sup>

a) Metro (2002), Metro Fish and Wildlife Habitat Plan<sup>68</sup>, b) Intertwine Alliance (2012), Biodiversity guide of the Greater Portland-Vancouver Region<sup>69</sup>. c) Stenhouse (2005, p50-51), d) Queensland Government Wildlife Online, Extraction Date 05/07/2015 <https://www.qld.gov.au/environment/plants-animals/species-list/>

<sup>65</sup> Total Portland Metro expenditure on biodiversity acquisitions since 1995 is US\$303,600,000. This includes \$135.6 million from a 1995 bond measure and \$168 million from a 2005 bond measure (as of 2014 is still being expended).

<sup>66</sup> These biodiversity data are not intended for direct comparison between case cities, merely to demonstrate that an urban ecological resource requiring governance exists in each case area. Furthermore, for climatic reasons, species data are not directly comparable between temperate Portland Metro and sub-tropical Brisbane.

<sup>67</sup> Of the 80 species ranked as rare or threatened, 20 plant and animal species are listed as endangered by the Queensland State Government under the *Nature Conservation Act 1992 (QLD)*.

<sup>68</sup> 80,000ha of a total jurisdictional area of 280,000ha were identified as high quality habitat in a 2002 inventory

<sup>69</sup> The area surveyed for plant species in this resource, includes the Vancouver-Washington portion of the Greater Portland conurbation. This area is not included in the case area for this research. Species listed are those found annually in the region and does not include less frequent visitors and vagrants. Rare and threatened species includes 101 plant species and 49 vertebrate species. Of the vertebrate species 17 are rated as ‘sensitive critical’ or higher, 32 are rated as sensitive vulnerable, i.e. in decline

Pragmatic factors also reinforced the selection of these cases. The Brisbane case study was chosen as it was partially known to the researcher and easy to access. The selection of Portland was furthered by offers of support from Portland State University and a partnership between The University of Queensland's School of Geography Planning and Environmental Management and The University of Oregon's Department of Public Policy and Planning.

### Comparative contrast and equivalence

The cities differ in terms of environmental planning approaches and degree of jurisdictional complexity.<sup>70</sup> Their key contrasts revolve around theoretical variables that are important for the main research question (Table 3.6).

**Table 3.6 Case study contrasts with respect to the research question (fulfils Table 3.3, criterion #1)**

Categories	Brisbane	Portland	Relevance to research question
Jurisdictional structure	Single regional municipal council for the metro area	Single regional government and 25 municipal councils	Hierarchical compared with networked
Model of urban governance (as per Pierre 2005)	Managerial/ pro-growth: efficiency & growth objectives, pragmatic policy style	Distribution and equity objectives, ideological policy style	The nature of cross-sectoral integration for urban governance
State involvement in watershed groups	State actors generally not members of watershed groups	State actors generally are members of watershed groups	The nature of cross-sectoral integration for environmental management

However, other common characteristics strengthen Brisbane and Portland (Table 3.7). In particular, similar populations, growth rates (in 2007), areas and metropolitan planning (Searle and Bunker 2010) embedded within established multi-level governance frameworks. Both are also the political and economic capitals of their respective states.

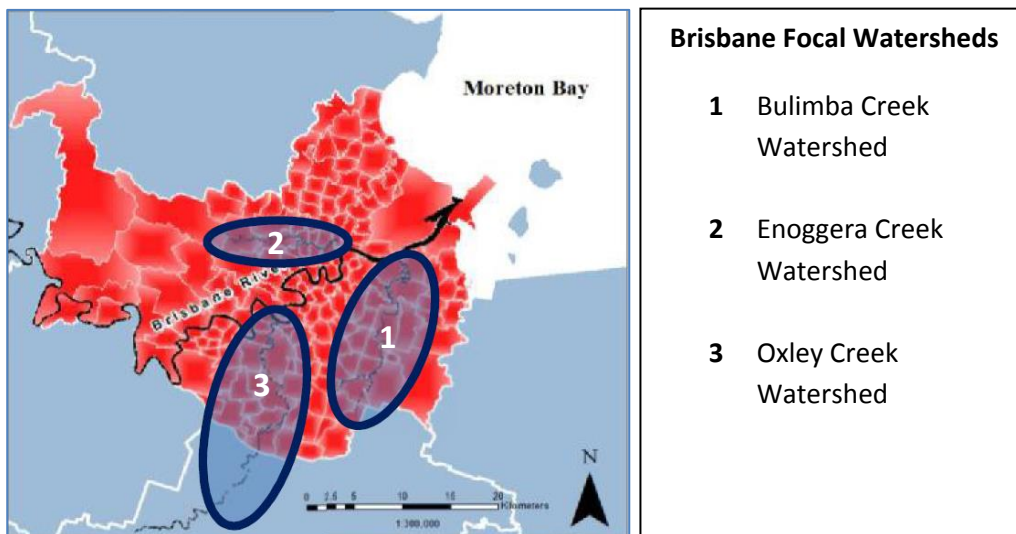
**Table 3.7 Commonalities that strengthen internal validity of the comparative case study meta-structure (fulfils Table 3.3, criterion #6)**

Inherent equivalence	Brisbane	Portland
Urban growth rates	2.2% pa (2007)	2.02% pa (2007)
Population	1.06 million	1.4 million
Meso-scale environmental governance (i.e. extra-metropolitan)	e.g. Regional NRM planning	e.g. Regional nature conservation strategy
Area	1367 km <sup>2</sup> (527.8 square miles)	1036 km <sup>2</sup> (~400 square miles)
Comprehensive Metropolitan Planning	Brisbane City Plan	Metro Functional Plan

<sup>70</sup> Jurisdictional structures in the United States tend to be more complex and involve greater political decentralisation in comparison with Australia. The Portland metropolitan area includes 25 local jurisdictions, a regional metropolitan government and overlaps with 3 counties. The Brisbane case study involves one large local jurisdiction within a larger poly-metropolitan region under state government responsibility.

## Watershed based sub-cases

The small N problem of N=2 for a comparative case study was reduced by selecting three focal watersheds in each metropolitan area: Johnson Creek, Columbia Slough, and Tualatin River watersheds in Portland<sup>71</sup> (Figure 3.5); and the Oxley Creek, Enoggera Creek, and Bulimba Creek watersheds in Brisbane (Figure 3.4). These watersheds were chosen to represent the diversity of watershed groups in each city. In addition to reducing the small N problem and thereby adding robustness to metropolitan level observations, this approach also facilitated a more detailed examination of local-level interactions. In particular, the interactions between networked actors and instruments in specific localities.



**Figure 3.4 Brisbane Case: General location of focal watersheds used for sub-metropolitan bounding**

Bulimba Creek watershed is located in the south east of Brisbane (#1, Figure 3.4). It is the second largest watershed in the metropolitan area (122km<sup>2</sup>).<sup>72</sup> Virtually all of the urban portions are within Brisbane City Council with a negligible portion of the upper watershed crossing into an adjacent council area.<sup>73</sup> The watershed includes five significant wetland systems, for example Tingalpa wetlands. The area supports a declining population of koalas and a large population of squirrel gliders. More than 350 species of birds have been recorded in the watershed (BCC n.d.). The watershed group (Bulimba Creek Catchment Coordination Committee – B4C) formed in 1997 and is involved in advocacy as well as restoration and

<sup>71</sup> Due to the complexity of the Portland Metro Case Study peripheral environmental governance processes were excluded from the analysis and treated as contextual variables, in particular: Damascus City Council; Clackamas County; Gateway Green Project; Green Streets, and West Hayden Island Annexation

<sup>72</sup> Brisbane City Council (2012), *Know your creek – Bulimba Creek Catchment*

<sup>73</sup> The Logan Local government Area (LGA) is adjacent to Brisbane on its southern border

education activities. They have played an important role in pilot programs, advisory committees and networking with other watershed groups.

Enoggera Creek watershed is located in the north west of Brisbane (#2, Figure 3.4). It covers 89.2 km<sup>2</sup> and urban areas are located within Brisbane City Council. Approximately 30% of the watershed is protected by D'Aguilar National Park, Mt Cootha Reserve and Enoggera Barracks<sup>74</sup>. These upper watershed areas support patches of sub-tropical rainforest and dry rainforest, while eucalypt stands are found in more urbanised areas. The watershed group (Save Our Waterways Now – SOWN) formed in 1994 in partnership with a local council ward member. They have played an important role in networking with older ecological groups<sup>75</sup> as well as undertaking environmental education and restoration activities.

Oxley Creek watershed is located in the south of Brisbane (#3, Figure 3.4). It is the largest creek watershed in the metropolitan area (260km<sup>2</sup>). The lower third of the watershed lies within the Brisbane City Council (BCC) area. The upper sections are mostly rural and cross into two other local government areas (LGAs) that are beyond the scope of this study.<sup>76</sup> However some external sites such as Greenbank Military Training Area maintain populations of koala, yellow-bellied glider and other species that can potentially migrate along the riparian corridor and into the case study area. The lower watershed is prone to flooding, has been highly modified and includes Brisbane's largest industrial zone. Nevertheless it includes natural assets such as wetland systems (e.g. Archerfield), large open spaces (e.g. Oxley Common) and endangered regional ecosystems (e.g. Corinda habitat site)<sup>77</sup>. The creek corridor also provides important landscape level connectivity for urban biodiversity by intersecting with the Forestdale-Greenbank-Karawatha (FGK) regional environmental corridor on the southern boundary of the BCC area. The watershed group formed in 1996 under an integrated catchment management model (ICM) or watershed council model i.e. council membership included community, government and private sector actors (Chapter 5 examines OCCA and its development in more detail).<sup>78</sup>

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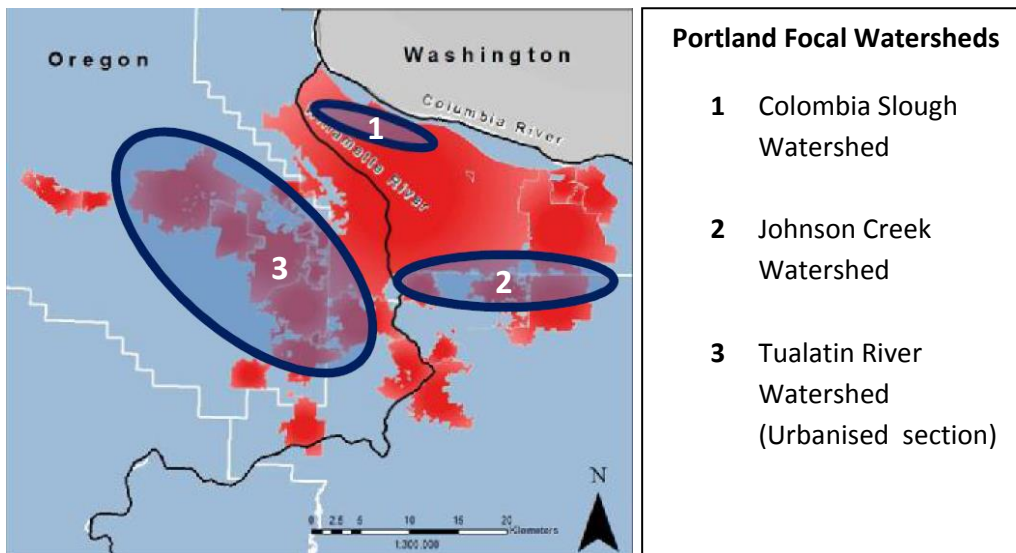
<sup>74</sup> Brisbane City Council (2012, *Know your creek – Enoggera-Breakfast Creek Catchment*)

<sup>75</sup> SOWN emerged in close proximity with already established groups such as 'Men of the Trees' and Greening Australia Queensland

<sup>76</sup> Oxley Creek Watershed includes areas of Brisbane, Logan and Ipswich LGAs.

<sup>77</sup> In particular the angle-stemmed myrtle is found at some sites in Corinda (*Gossia gonoclada*).

<sup>78</sup> Further biodiversity characterisation of the focal watersheds for the Brisbane case can be found on the Brisbane City Council website - <https://www.brisbane.qld.gov.au/environment-waste/natural-environment/brisbanes-creeks-rivers/know-your-creek-catchment>.



**Figure 3.5 Portland case: General location of focal watersheds used for sub-metropolitan bounding**

The Columbia Slough watershed is located along the northern edge of Portland Metro in the floodplain of the Columbia River (#1, Figure 3.5). It covers 132 km<sup>2</sup> (51 sq mi). The watershed includes large industrial zones and lower income residential areas. Although the watershed is highly modified, 33% is recognised as wildlife habitat, including wetlands, cottonwood forest and parklands (BES 2005).<sup>79</sup> The Smith and Bybee wetlands are located in the slough, one of the largest urban wetlands in the USA (2000 acres). These wetlands support more than 100 species of birds throughout the year.<sup>80</sup> The lower slough also has salmonid breeding sites and significant migratory bird stop-overs. The slough is located within Multnomah County and overlaps five municipal jurisdictions.<sup>81</sup> The watershed council emerged due to contention about water pollution in the 1980s and officially formed in 1995.<sup>82</sup>

Johnson Creek watershed is located in the east of Portland Metro (#2, Figure 3.5). It covers 140 km<sup>2</sup> (54 sq mi). Lower reaches of the waterway are highly modified and flood prone, however the presence of salmonid species has contributed to high levels of interest in its ecological governance.<sup>83</sup> BES (2005b) reports that 57% of the watershed is vegetated,

<sup>79</sup> BES (2005, pp6-7) notes that “Upland habitats in the 2003 data [used to calculate 33% habitat] include vacant land (regardless of zoning) as well as developed farms, parks, and golf courses”

<sup>80</sup> A species checklist for Smith and Bybee wetlands can be found at [http://www.oregonmetro.gov/sites/default/files/13606\\_smith\\_bybee\\_checklist\\_jan\\_2013.pdf](http://www.oregonmetro.gov/sites/default/files/13606_smith_bybee_checklist_jan_2013.pdf) [retrieved September 2016]

<sup>81</sup> The Columbia Slough watershed overlaps five municipal jurisdictions: Portland and Gresham are the most prominent; Fairview, Maywood Park, and Wood Village are small municipalities. The slough also falls within the County of Multnomah.

<sup>82</sup> Further characterisation of biodiversity in the Columbia slough can be found in BES (2005a, pp6-7), <https://www.portlandoregon.gov/bes/article/63589> [retrieved September 2016].

<sup>83</sup> Oregon salmonid species began receiving federal listing in the mid-1990s under the US *Endangered Species Act*



including grass, invasive species such as blackberries, and small areas of native vegetation. A range of bird species remain and large investments in riparian restoration continues to take place.<sup>84</sup> The area overlaps two counties and three municipal jurisdictions.<sup>85</sup> Citizen groups<sup>86</sup> began forming from 1980 onwards, initially in opposition to government flood control planning. A cross-sector committee was established in 1990 and the Johnson Creek watershed council emerged from this committee in 1995.

Tualatin River watershed is located in the west of the Portland Metro area with the majority of the basin lying outside the Portland Metro urban growth boundary (#3, Figure 3.5). Approximately 276km<sup>2</sup> of the lower watershed falls within the Portland Metro case study area; this is approximately 15% of the large 1,844 km<sup>2</sup> (712 sq mi) river basin. Biodiversity within the urban portion of the basin is concentrated in a few large sites such as Cooper Mountain, but mostly fragmented across smaller sites.<sup>87</sup> The Tualatin River was the subject of early water quality issues under the US *Clean Water Act 1972* and contention between environmental advocates and government agencies. The portion of the basin within the Portland Metro case study area overlaps two counties and eleven municipal jurisdictions.<sup>88</sup> The Tualatin River Watershed Council formed in 1993 and is an important forum for communication amongst these state actors.

## Population and sampling strategy

The research examined how diverse actors participate in urban biodiversity planning and management and how this participation responds to change over time. In USA and Australian settings the key actors are local jurisdiction departments and other government

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<sup>84</sup> Further characterisation of biodiversity for the Johnson Creek watershed can be found in BES (2005b, pp27-34), <https://www.portlandoregon.gov/bes/article/214368>, retrieved September 2016.

<sup>85</sup> The Johnson Creek watershed overlaps three municipal jurisdictions: Portland, Gresham and Milwaukie (the smaller local government of these three). The watershed falls within the counties of Multnomah and Clackamas. Some urbanised portions of the watershed lie within unincorporated areas of Clackamas County.

<sup>86</sup> The 'Up the Creek Committee' and its reincarnations in the mid-1980s included the group 'Friends of Johnson Creek'.

<sup>87</sup> Conifer and mixed conifer/hardwood stands can be found in steeper areas, hardwood stands in riparian areas and oak woodland in drier sites. Iconic fauna include Pacific salmon (*Oncorhynchus* spp.), Northern red-legged frog (*Rana aurora aurora*) and American beaver (*Castor canadensis*). Bobcat (*Lynx rufus*) and Cougar (*Puma concolor*) sightings, although occasional have increased at some sites in recent years (Hawskworth 2001). Further characterisation of Tualatin basin biodiversity can be found in Hawskworth (2001, pp.16-20) at <http://trwc.org/wp-content/uploads/2013/03/Lower-Tualatin-Watershed-Analysis-2001.pdf> [accessed September 2016].

<sup>88</sup> Due to the complexity of the Tualatin basin the case study focused on integrative forums such as: the Watershed Council and Special Service Districts (e.g. Clean Water Services); the larger municipalities and areas of urbanised unincorporated Washington County. Thirteen municipal areas lie within the basin, many of them small. They are the cities of: Banks, North Plains, Beaverton, Cornelius, Durham, Forest Grove, Gaston, Hillsboro, King City, Sherwood, Tigard, Tualatin and West Linn. Only the former two lie outside of the Portland Metro case area. Six counties lie within the basin: Washington, Clackamas, Multnomah, Tillamook, Columbia, and Yamhill. The former three lie within the Portland Metro case area.

agencies, nongovernment organisations and a few key individuals involved across these categories. To establish the population of actors in each metropolitan area, a scoping exercise was conducted using documents from significant biodiversity instruments and actor forums. Key informant dialogue was used to refine this list, account for a more complete mix of biodiversity instruments and select focal watersheds within each city. The list of actors was further expanded through a participant referral technique (snowball sampling) and ongoing key informant dialogue (Patton 1990).

A purposeful stratified sample was selected from this large population in order to ensure a cross-section of actor participation types at the metropolitan level and for the three focal watersheds in each case area. The sampling was therefore designed to maximise representation of the range of actor perspectives (Shkedi 2005). Actors were stratified according to the type of instrument they were primarily involved with and their main role within the policy cycle (Table 3.8). This added elements of intensity sampling (as per Patton 1990) to the primary purposive stratified approach. Further purposeful sampling occurred where practical to better survey the 20 year timeframe and to identify functional equivalents that were not captured in one case area but played an important role in the policy arena of the other.<sup>89</sup>

**Table 3.8 Example of stratification grid for actors**

		Policy Stage		
		Problem identification	Policy design (& review)	Implementation and management
Instrument Category	<b>Purchase</b> (e.g. acquisition of land)	NGO - environmental advocacy	Program coordinators	Program staff – Natural Areas
	<b>Protect</b> (codes & laws)	Stakeholder 'Commission'	Local Government Planning Division	Private contractors
	<b>Public Restoration and Management</b> (activities on public land)	NGO - environmental advocacy	Local Government 'Water' Division	NGO - environmental management
	<b>Private Restoration and Management</b> (activities on private land)	Non-government Land Trust	Watershed group	NGO - environmental advocacy

<sup>89</sup> For example water quality issues were central in the Portland Metro case, but peripheral were in Brisbane and not included in the initial data collection until case matching occurred.

## Data Sets, Triangulation and robust design

Context embedded research relies on multiple data sources that converge in order to establish accuracy (Yin 2003). This section outlines the data collection for the research and their multiple sources. Ethics approval was received from the University of Queensland in April 2011.<sup>90</sup> A copy of the ethics approval letter is included in this thesis as Appendix 4. Data were collected from different actors and were cross-checked with other actors, organisational documents and public reports (Table 3.9).

**Table 3.9 Data sets for the research**

Primary data	Stratified interviews Key informant interviews Selected participant observation Government policy, organisational documents
Secondary data	Public reports Organisational reports (where raw data has been interpreted by the author) Parallel research, environmental studies and peer reviewed literature.

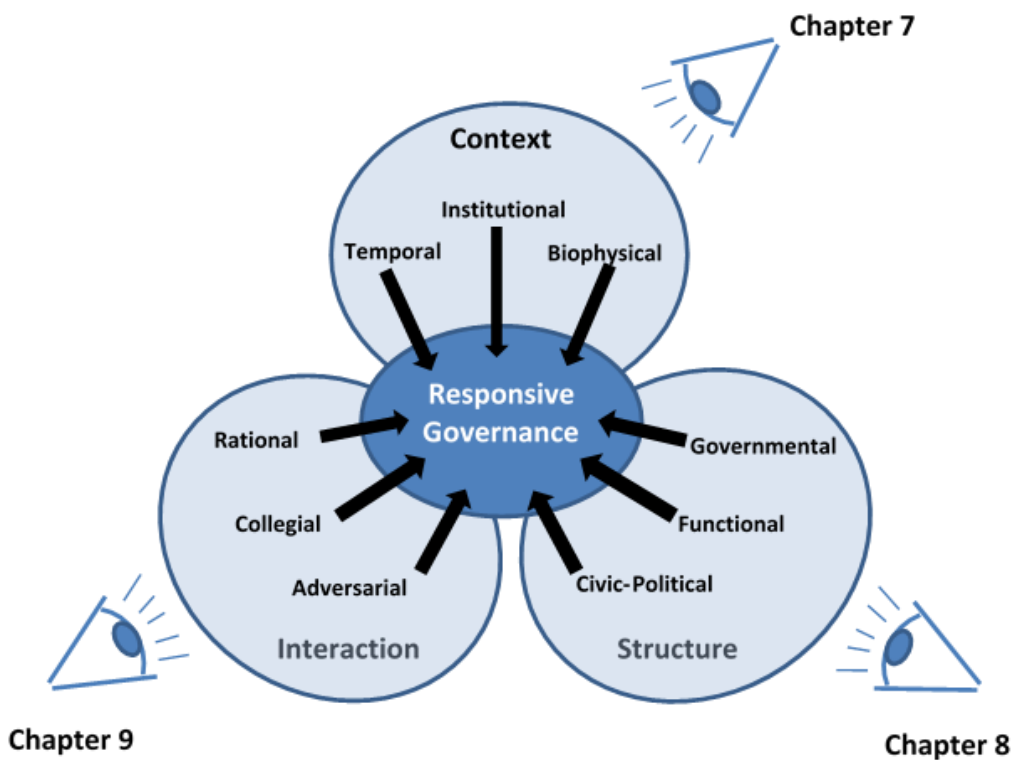
I collected data between April 2011 and February 2013. The majority of data collection took place during extended fieldwork of about twelve months in Brisbane (Queensland, Australia) and four months in Portland (Oregon, USA). Periodic communication with key participants and desktop research throughout the project were used to complement fieldwork data and validate findings. Primary data were collected through semi-structured interviews, participant observation and key informant dialogue, government policy and organisational documents. Secondary data included public reports and media. This approach enabled data gaps to be managed effectively, developed a rich description of the context for each city and established the triangulation of data required for robust case study analysis. The methods to collect these data are detailed below.

### Primary data:

The main source of primary data was through semi-structured interviews of approximately one hour in duration. Interview participants were managers of organisations with, where possible, a long period of experience within environmental governance in that metropolitan area (Appendix 2). The investigative framework (see Section 3.3) guided interviews according to issues identified in the literature review.

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<sup>90</sup> Ethics approval number is GP20110005. A copy of the ethics approval letter is included as Appendix 4.



**Figure 3.6 Investigative framework developed in Section 3.3**

The interview focused on participant perspectives of major changes in biodiversity governance, critical cases of flexibility or adaptation, and significant factors supporting these changes. The aim was to understand the experience of the actors and the meaning they attached to their experience (Shkedi 2005). Accordingly, the semi-structured interviews began with a broad question about major milestones in ecological governance. This allowed participants to highlight whatever milestones came to mind, regardless of a focus on context, structure or agency. This less-structured approach then supported a reflective discussion about contextual influences, policy structures and important actions taken by organisations and key individuals. A second stage of the interview was more structured, and collected data regarding the instruments in which their organisation participated, governance arrangements, activities and their flexibility (Appendix 3). The interviews were piloted with three professionals who were not involved with the case studies and a pilot analysis was undertaken for the Oxley Creek watershed in Brisbane (see Chapter 5). In addition to interview data, participant observation was also undertaken for watershed councils in focal watersheds, as an avenue for ground-truthing the interview data and better understanding the culturally embedded nature of governance. I attended a number of meetings and was given access to minutes of other relevant meetings. Primary data was recorded in the form of written entries and audio recordings stored in a case study database.

A number of unstructured interviews were carried out with key informants (Appendix 2), organisational and government documents were also collected. Key informants from each case city region were practitioners and academics in biodiversity planning and management who had extensive experience in the area. These interviews took place as part of the initial scoping exercise and also for interpretation of data. Organisational documents included annual reports, plans, legislation and policy. They were sourced through websites, supplied by interview participants and some key informants.

### **Secondary data:**

Public documents were collected and included news reports, public reports, policy reviews and relevant academic reports. Some of these were authored by key informants and so complemented their input into the project. Portland was a particularly rich source for this type of data through diverse local media, publically available government reports and locally focused environmental research. A sample of policy instruments was collected and a timeline for both cities was developed from secondary sources in addition to primary sources.

## **Analysis**

This section discusses stages of data analysis from exploratory to descriptive and explanatory stages. The investigative framework guided the data collection and analysis within these stages (Yin 2003), while maintaining flexibility for an iterative process of inductive enquiry into the empirical cases; this means that the implementation of these stages was more iterative than the mostly linear process described below. It is also worth noting that, before the main data collection process was complete, a substantial amount of exploratory analysis had been achieved through the initial scoping exercise and the actor stratification process. The following discussion outlines the storage of data, initial thematic coding and the selective coding process for the research.

### **Case study database**

A case study database was established to store data in a reliable and secure fashion. Interview data was de-identified and codified. Data from structured and unstructured interviews, observation and documents were filed within an NVivo database and a locked filing cabinet. This enabled logical and confidential management of the case material. These different sources were then reviewed and thematically coded.

## **Major research themes and thematic coding**

The initial analysis concerned the coding of data into major and emergent themes. This task was more exploratory and descriptive in nature than explanatory. Major themes were indicated by the investigative framework (and therefore the literature review): institutions and path dependency; policy and problem solving; actors and agency. Emergent themes were indicated by the data itself in reflection on the major themes, for example the scale, watershed and interests of the dominant actor involved in a particular change. Although strongly guided by *a priori* theory, the development of emergent themes also drew from thematic and axial coding practices used by the more structured grounded theory researchers (Juliet, Corbin and Strauss 2008, Heath and Cowley 2004). Each case city initially was treated separately in order to develop a focused narrative for each, and then viewed together in order to support theoretical development (Flyvbjerg 2006). The interview data in NVivo was manually coded with the major and emergent themes. In parallel, events of note were entered into a Microsoft Excel database and codified into the same categories. This chronological data then formed the basis of case narratives that could be viewed by reordering the spreadsheet according to the theme of interest. An example portion of the Excel spreadsheet is included as Appendix 8. Due to the publication style of this thesis, further methodological detail is included within these thematic chapters. However a common selective coding process was also used as an element of these analyses and is described below.

## **Selective coding and major theme chapters**

The analysis behind each thematic chapter involved further coding according to the investigative framework (Section 3.2). This task was more descriptive and explanatory in nature. Participant perspectives in the data were used to identify core categories to be analysed in detail and to refine the sub-questions for each major theme (Shkedi 2005). The analysis followed a pattern matching approach across different data sources (Yin 2003). Plausible relationships between concepts were proposed inductively and checked deductively against participant data. Second order analyses were carried out where data was rich in references to other phenomena or parts of their world; this was achieved by using principles in the literature in dialogue with key informants, and allowed the relationship between participants and their context to be explored (Shkedi 2005). The 'most difference comparison' between Brisbane and Portland then assisted to discriminate between participants and their context for each research theme.

## Synthesis

The research themes were integrated with the main research question through a final synthesis (Chapter 10). This meta-analysis of the major research themes explores path dependency, problem solving and actor agency in parallel. This enables theoretical reflection on the established adaptation literature and implications for practice. The analytical process behind this synthesis was not only researcher driven but was also refined through formal and informal presentation of thematic findings to key informants and participants in both metropolitan areas.

### 3.5 Validity, reliability and robustness of design

Thorough application of case study analysis needs a rigorous study design. Yin (2003) proposes four tests for the validity of case study design: construct validity, reliability, internal validity and external validity. The way each applied to this case study is detailed in Table 3.10.

**Table 3.10 Case study validity tests**

<b>Validity test</b>	<b>Application to the methodology of this study</b>
<b>Construct validity</b> 'Correct operational measures.'	<ul style="list-style-type: none"> <li>• Multiple sources to give convergence of evidence</li> <li>• Triangulated data, theory and methods</li> </ul>
<b>Reliability</b> Consistent and documented operations that can be repeated	<ul style="list-style-type: none"> <li>• Protocols and case study database</li> <li>• Explicit presentation of the researcher's perspective</li> <li>• Chain of evidence maintained between research questions, protocol, data, database and case study report</li> </ul>
<b>Internal validity</b> Establishing plausible relationships where one condition leads to another	<ul style="list-style-type: none"> <li>• Pattern matching and the acknowledgement of reservations regarding cause and effect relationships</li> <li>• Strengthened by micro-cases within each case city</li> </ul>
<b>External validity</b> "The domain to which a study can be generalized"	<ul style="list-style-type: none"> <li>• Searched for similar studies to compare, check current literature</li> <li>• Compared and contrasted with current theory<sup>91</sup></li> <li>• Participation with Actors and immersion in the case cities established detailed knowledge of uniqueness within each city (Stake 1995).</li> <li>• Strengthened by comparative case study approach</li> </ul>

Source: adapted from Yin 2003, p34

<sup>91</sup> The 'theory' referred to for external validity tests (Table 3.10) flows directly from literature reviews and formed the basis of the investigative framework.

Yin's (2003) validity tests, maintained chains of evidence, and the case study database established rigor within the case study meta-structure. Document analysis and key informants played key roles for checking proposed explanations. The comparative case study approach added robustness to the analysis (Yin 2003), while limiting the number of case cities to two supported the 'thick' approach to analysis required for governance and institutional studies (Geertz 1973, Alston et al. 1996). This 'thick approach' meant that within each case city there was a set of more specific cases that strengthened the explanation building process and internal validity of the study.<sup>92</sup> Internal validity was further strengthened through pattern matching, i.e. empirical patterns were compared with predicted findings and alternative predictions. This approach improved internal validity testing findings for unsupported assumptions. Case study analysis has a recognised bias towards the falsification of assumptions (Flyvbjerg 2006). External validity was further strengthened through an intimate understanding of each case city (Stake 1995), a thorough understanding of uniqueness within the case studies, supported the ability to generalise by enhancing the understandings of what was potentially in common between them (Stake 1995, Booth 2011).

### **3.6 Chapter conclusion**

This chapter has provided a justification and an explanation of the methodological approach taken to investigate responsive ecological governance. A more detailed discussion of methods is also included within Chapters 5 to 9. The context embedded and radial nature of *governance* presents particular challenges for researchers. The investigative framework provides a theoretical guide to inductive and deductive analyses for the study that manages problems such as concept stretching. The comparative case meta-structure is designed to exploit differences in contextual factors between Brisbane and Portland while maintaining a robust comparison. Chapter 4 now outlines the important background to urban ecological governance in Brisbane and Portland in order to set the scene for the thematic, analytical chapters.

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<sup>92</sup> The 'thick' analysis follows through into methodology in the multiple frames of enquiry approach and through the presentation of findings with thick descriptions from interview participants.



## Chapter 4

### Background to the Empirical Cases

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This chapter outlines the background to the empirical cases for this study – the urban ecological policy arenas of Brisbane and Portland Metro. The discussion: contributes to the achievement of the first research question, which asks “How do actors within a ‘non-core’ urban policy arena interact with the broader institutional context over time?”; characterises each city in terms of the themes within the investigative framework (Section 3.3); and establishes a thick description (Geertz 1972) for further interpretation of the research findings presented in the chapters that follow. The data for this thick description was collected through participant interviews, document analysis and published sources.

Temporal analyses are important in retrospective case study research, and particularly important for the study of institutional change (Pierson and Skocpol 2002). Although the period 1991–2012 was examined in detail, it was also necessary to frame this period within its broader temporal setting. Historical institutional analyses show that the temporal setting of a case forms part of the context of a study because institutional change involves path dependent aspects. Hence, the temporal setting provides a line of enquiry for understanding and interpreting responsive governance in the period 1991–2012. Urban environmental history has received scholarly attention as an important tool for urban planning, management and analysis in recent years (Melosi 1993, Schott 2004, Szabo 2010).

Case study methodology calls for a thick description of case studies to be established to contextualise both the case and the methodology that has been applied (Healy and Perry 2000, Baxter and Jack 2008). Ponterotto (2006, p543) notes that ‘thick descriptions’ require “a description and interpretation of a social action within its context” (p543). The following analysis, interprets social action in terms of different types of embeddedness in the investigative framework. Ponterotto (2006, p543) concludes that “thick description leads to thick interpretation, which in turns leads to thick meaning of the research findings.” Hence, the thick interpretation within this chapter contributes to the findings of later analytical chapters and their treatment of the main research questions.

This chapter proceeds as follows: first the development of urban environmental governance and the emergence of urban ecological governance are outlined (4.1); and then a historical review of themes within the investigative framework (3.3) is presented for both Portland (4.2) and Brisbane (4.3).

## **4.1 Urban environmental governance and responses to change**

The policy arena for urban ecological governance has emerged from within urban environmental planning and management. This section analyses the developmental responses of urban environmental governance to industrialisation and rational planning. Responses to industrialisation resulted in the uptake of greenspace, water and to a lesser extent, soil, into the governance of urban settings. Responses to rational planning are associated with public participation and the emergence of integrated planning.

### **Responses of governance to industrialisation**

At the turn of the twentieth century, urban intensification and industrial growth led to a decline in urban environmental quality in many developed cities. The emergence of urban environmental governance can be explained as a response to industrialisation. The stress on urban systems from industrialisation emerged from the early 1800s onwards (Rydin and Thornley 2003). Environmental decline was evident especially in older, more industrialized urban centres of Europe and North America. One public response was to secure more open spaces in urban areas (Freestone 2010).<sup>93</sup> In Australia, the layout of some cities coincided with impetus coming from Britain to include public parks in urban planning – e.g. Melbourne’s early planning and the 1937 plan for Adelaide, see Proudfoot (2000) and Harris (2005). These concerns for open space were embodied by Ebenezer Howard and the Garden City Movement, the first major urban planning movement. The Garden City approach advocated the creation of green wedges and green belts in order to improve quality of life, and therefore the productivity of urban industrial workers (Howard 1965). Garden City principles were incorporated within the first planning legislation in England, the *Housing and Town Planning Act 1909* (Sutcliffe 1988). While older cities found it difficult and costly to retrofit these ideas into established urban settings, younger cities could plan for these issues and design metropolitan plans that employed these principles. An unexpected opportunity for expanded

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<sup>93</sup> For example in 1833 a British Parliamentary Select Committee looked at strategies for securing urban open space (Freestone 2010, p240).

Garden City planning resulted from large scale rebuilding and redesign in Europe following the World Wars – e.g. The Greater London Plan, Abercrombie (1945). This trend became normalised within English planning when it became compulsory for municipal governments in the United Kingdom to develop comprehensive plans – including provision for greenspace – in 1948<sup>94</sup> (Hall and Tewdwr-Jones 2011).

Garden City principles reached the USA and were disseminated as part of the fledgling landscape architecture and then regional planning professions (Gillette Jr 2010). Environmental planning and governance in Portland, is directly connected to early developments in both these disciplines (refer to Section 4.3). In Australia, landscape designers drew upon the same set of principles developed in Europe and the USA. They implemented green wedges in cities such as Melbourne and Brisbane (Harris 2005, BCC 2013),<sup>95</sup> regardless of the fact that industrialisation there, did not begin to accelerate until the post-war period (Freestone 2000). Australian cities are also generally younger than those in the USA and so urban infrastructure design often had the opportunity to implement more advanced approaches to environmental management and learn from previous challenges in other developed countries. For example, the sewerage of Brisbane in the 1970s avoided combined storm water-sewerage systems and their associated overflow issues (Tucker 1995).<sup>96</sup>

Governance arrangements also developed for urban soil and water. Soil rose to prominence in response to the 1930s USA Dust Bowl event. In response, Soil Conservation Districts were established across the country, usually along county lines.<sup>97</sup> Water became embedded as an urban concern when combined sewage and stormwater systems reached full capacity and began spilling into waterways during storm events.<sup>98</sup> Soil remained a lesser urban concern, although urban growth began to encroach on many of the Soil Conservation Districts.

It is important to note that although governance during this time was driven by professional, mostly technical networks, the addition of new environmental resources tended to be triggered, especially in the USA, by an environmental crisis concerning each resource. In

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<sup>94</sup> The *Town and Country Planning Act 1947 (UK)* came into force in July 1948 and required municipal planning.

<sup>95</sup> Other prominent Australian examples of green belt designs, the plans for Adelaide (1937) and Canberra (1912)

<sup>96</sup> NRMCC 2004. *Guidelines for Sewage Systems: Sewage System Overflows* (November 2004). Natural Resource Management Ministerial Council, Commonwealth of Australia.

<sup>97</sup> 1939 Oregon passed its Soil Conservation Districts Law. In 1963 in Oregon, Soil Conservation Districts explicitly acknowledge their concern with water resources by changing their names to Soil and *Water* Conservation Districts.

<sup>98</sup> The *Federal Water Pollution Control Act 1948 (USA)*, the forerunner of the *Clean Water Act 1972 (USA)*.

Australia the time lag for urban development and accompanying urban environmental issues meant that the technical systems initially implemented tended to be more advanced than those initially established in older US cities. The rational planning approach dominated environmental urban governance for decades, but from the 1970s onwards a new type of governance network began to make its presence felt – the environmental social movement.

### **Responses of governance to rational planning and scientific management**

In the late 1960s environmental pollution from pesticides and industrial effluent rose as a significant public concern, even in developed cities (Dunlap 1991).<sup>99</sup> The emergence of public participation, environmental concern and then ecological governance can be explained as a response to ‘top-down’ rational planning by experts – i.e. the first wave of responses to industrial pressures. The growing influence of environmental social movements and lobby groups transformed decision making from technocratic solutions and ushered in a new phase of regulatory legislation (Hecl 1978). By the end of the 1970s these environmental regimes were enshrined from the federal level. The US constitution generally supported federal involvement in environmental matters, although enforcement of US environmental law has been complicated by new interpretations of other parts of the constitution concerning the rights of individuals.<sup>100</sup> In contrast, the Australian constitution has limited the federal head of power in environmental matters and environmental governance traditionally has been implemented at the state level.<sup>101</sup> While these new environmental governance tools were typically ‘command and control’ instruments, they eventually came to enshrine a certain level of public participation. The increased focus on participation and sustainability was eventually epitomised in the United Nations Local Agenda 21 process (Freeman 1996, Rydin and Pennington 2000). Over time, the set of urban environmental resources with formal governance regimes expanded to include urban

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<sup>99</sup> Dunlap (1991, p288) notes that the percentage of US citizens identifying water and air pollution as a national problem tripled from 17% to 53% between 1965 and 1970. In Australia during the 1960s, major environmental groups were founded (Wilderness Preservation Society of Queensland, 1962, Australian Conservation Foundation 1964, Australian Marine Conservation Society 1965) however public concern did not build until the 1970s, especially with respect to urban issues (See Hutton and Connors 1995)

<sup>100</sup> Most prominently this has involved the ‘Takings clause’ (5<sup>th</sup> amendment, US constitution) which reads “nor shall private property be taken for public use, without just compensation”. This originally related to the physical resumption of land by governments but since the landmark case in 1978, of *Penn Central Transportation Co. v. City of New York*, it potentially relates to ‘regulatory takings’, meaning that the economic impact of a new environmental law may be considered a taking that requires compensation. This issue became prominent in the Portland case study during the mid-2000s.

<sup>101</sup> Over the last 35 years the Australian federal government has built a head of power on some environmental matters, mainly through the use of section 51 (Australian Constitution) which grants the Australian government authority over international agreements. Therefore if an international environmental agreement is signed, it allows the federal government to make decisions to achieve that international commitment, e.g. the World Heritage Convention.

air<sup>102</sup> and then urban native vegetation. The community-based networks campaigning for these changes were, by and large, environmental or social movements. Core groups were environmentalist but by the start of the 1990s (when the case timeline begins), these networks had extended into mainstream sections of the community in both the USA and Australia (Dunlap 1991, Hutton and Connors 1999).<sup>103</sup>

## 4.2 Backgrounding the Portland Metro case

The background to the Portland Metro case study is described under five facets from the investigative framework (Section 3.3): biophysical context; institution context; functional structures, governmental structures and civil-political structures. The latter two facets in particular reflect state-centric and society-centric frames (see sections 2.1 governance frames and 3.2 multiple frames of enquiry). Types of embedding amongst and interactions between facets from the investigative framework (3.3) are also cross-referenced throughout. High institutional, temporal and civic-political embedding are shown as particularly important in the background to the Portland case.

### Biophysical background to ecological governance in Portland Metro

Portland Metro is located at the confluence of the Columbia and Willamette Rivers on the northern border of Oregon. It is the largest metropolitan area in Oregon with pioneers arriving in the area 1843. Geographically the Portland Metro area includes diverse features such as the Columbia River floodplain in the north, forested hills in the centre and south, and the Tualatin basin to the west. The regional landscape of Portland was recognised as unique from very early on (strong temporal embedding). It attracted the attention of bird enthusiasts and the Audubon Society — a bird focused environmental group — was established in 1902. Biodiversity resources such as timber and salmon supported important commercial industries within the Oregon economy. Contiguous areas of mixed conifer forest continue to persist in the north western foothills, wetlands are located at places like Oaks

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<sup>102</sup> Governance regimes for air: In the USA this included the *Clean Air Act 1963 (USA)*, with major amendments in 1970, 1990 and 1997. The US Environmental Protection Agency (EPA) was established in 1970 alongside the first major amendment. The 1963 statute can be found at <http://www.gpo.gov/fdsys/pkg/STATUTE-77/pdf/STATUTE-77-Pg392.pdf>; In Australia urban air governance emerged as a responsibility of the states, e.g. *Clean Air Act 1961 (NSW)* and *Clean Air Act 1963 (Qld)*. During the 1980s penalties became more substantial (Norberry, J. 1993).

<sup>103</sup> Dunlop (1991) notes that public environmental concern peaked in the US in 1972, but in contrast to predictions of drastic decline in public support (e.g. Downs 1972), this support was not markedly lower in the early 1990s. Crook and Paluski (1995) found that in Australia, public environmental concern peaked in 1989–1990, but was not markedly lower by 1993 at the beginning of the 1991–2012 timeline for this research.

Bottom and Smith and Bybee lakes.<sup>104</sup> In addition Portland lies on an intercontinental migratory bird route – the Pacific flyway – and as such experiences bi-annual influxes of important migratory bird species.<sup>105</sup>

## **Institutional background to ecological governance: Portland before 1991**

Oregon was established in 1858 and the legislature was dominated at first by well financed land speculators, but in 1902 the constitution was amended and the ‘Oregon system’ was established.<sup>106</sup> The ‘Oregon system’ became one of the foundations for Portland’s tradition of participatory democracy. It allowed voters to place initiatives, referendums and referrals onto election ballot papers. Hence higher institutional-context embedding facilitated higher civic-political embedding. Over time, Oregon’s population grew. In the 1970s Oregon’s population grew by 26%, with many new arrivals seeking refuge from ‘modern America’ (Abbott 1983, Walker and Hurley 2011). During this time of political change and the international oil crisis, Oregon underwent another significant transformation. The state-wide land use planning system was adopted (1973).<sup>107</sup> This system established state-wide planning goals (1974),<sup>108</sup> enshrined public participation in land use processes<sup>109</sup> and a strong regulatory approach to planning.<sup>110</sup> Commercial farmers had campaigned for the changes in order to protect agricultural land from urbanisation. They were supported by urban environmentalists (Seltzer 2009). State ‘planning goal 5 (environment)’ is of particular importance for this research. The ‘Goal 5 process’ (est. 1982) established an evidenced-based and triple bottom line framework for applying Goal 5 (environment) in decision

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<sup>104</sup> Forest Park and support populations of elk (*Cervus canadensis*) and smaller deer species. Oaks Bottom wetlands and Ross Island sustain populations of american mink (*Neovision vision*), northern river otter (*Lontra canadensis*). Upland areas include oak woodland and savannah ecosystems. Other special status fish and wildlife species include: pacific salmon (*Salmo* species); great blue heron (*Ardea herodias*); Cope’s giant salamander (*Dicamptodon copei*); northern red-legged frog (*Rana aurora aurora*); peregrine falcon (*Falco peregrinus*); north american beaver (*Castor canadensis*); and western grey squirrel (*Sciurus griseus*). A full list of special status species can be found as Appendix D in the 2008 draft Willamette River Natural Resources Inventory: Riparian Corridors and Wildlife Habitat.

<sup>105</sup> A map of upland and riparian habitats for the Portland Metro area can be extracted from interactive mapping at <https://gis.oregonmetro.gov/metromap/>. Further biodiversity characterisation for Portland Metro can be found in, The Intertwine Alliance (2012, pp305-307) at <http://www.theintertwine.org/sites/default/files/Biodiversity%20Guide%20for%20the%20Greater%20Portland-Vancouver%20Region.pdf>. [retrieved September 2016]

<sup>106</sup> The campaign for this amendment was carried out by the Direct Legislation League.

<sup>107</sup> Oregon Senate Bill (SB) 100 and SB101 established the planning system in 1973 under the *Oregon Land Conservation and Development Act 1973*. An earlier framework was adopted in 1969 (SB10), but its implementation was not funded.

<sup>108</sup> Oregon Administrative Rules Chapter 660, Division 015

<sup>109</sup> Planning goals implemented in 1974 have enshrined public participation in land use processes (Goal 1, Oregon planning goals) and therefore most issues and departments also involve citizen advisory groups in some manner. For detailed explanation of Oregon’s planning goals refer to LCDC 2010. Oregon’s Statewide Planning Goals and Guidelines. Salem: Oregon Department of Land Conservation and Development. An earlier framework was adopted in 1969 (SB10), but its implementation was not funded.

<sup>110</sup> The Oregon land use planning system is the only comprehensive land use planning system in the USA.

making.<sup>111</sup> The State planning goals also enshrined public participation in land use processes (Goal 1, Oregon planning goals). Therefore departments and public decision making tends to involve citizen advisory groups in some manner (high civic-political embedding). The litigious culture combined with the high levels of public participation made the evidence based approach of the Goal 5 process an important instrument for achieving social-legitimacy. Hence higher 'rational' embedding facilitated higher civic-political embedding. In addition to these changes, however, the new planning system had specific regional implications for the Portland metropolitan government (Metro).

The adoption of the planning system, set events in motion that led to the creation of Metro and its Urban Growth Boundary (UGB). The first change was that the membership in the regional association of local governments – the Columbia Regional Association of Governments (CRAG), changed from voluntary to compulsory for Portland Metro councils (Seltzer 2009).<sup>112</sup> A Columbia district planning region was also established. Then CRAG developed a number of planning tools. For instance, the CRAG Columbia-Willamette Comprehensive plan (1974) with provisions to focus growth away from agricultural and forest land; CRAG planning goals (1976), a regional expression of the state wide goals; and then a CRAG regional land use plan (1977).<sup>113</sup> However, despite this productivity, CRAG was deeply unpopular and seen as undemocratic by many voters (Seltzer 2009). In 1978, the voters passed a ballot measure to disband CRAG and establish the Portland regional government<sup>114</sup> – Metro. Civic-political embedding enabled a new path for governmental embedding. The new path of governmental embedding was typified by Metro's: directly elected council (higher civic-political embedding); authority to review local government comprehensive plans (vertical governmental embedding); and responsibility for establishing and maintaining a metropolitan UGB (higher biophysical embedding).<sup>115</sup> The UGB was the principle instrument for maintaining the interface between urban land and the productive rural landscape. The control of sprawl was a primary goal of the Oregon land use planning system (Seltzer 2009). Within the original intentions of the planning system, natural

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<sup>111</sup> The Oregon government states that "The Goal 5 process and its rules establish a five-step planning process for Oregon's cities and counties: 1. Inventory local occurrences of resources listed in Goal 5 and decide which ones are important; 2. Identify potential land uses on or near each resource site and any conflicts that might result; 3. Analyze economic, social, environmental, and energy (ESEE) consequences of such conflicts; 4. Decide whether the resource should be fully or partially protected, and justify the decision; 5. Adopt measures such as zoning to put that policy into effect.

<sup>112</sup> Oregon Senate Bill 769

<sup>113</sup> Metro (1988), Urban Growth Boundary Periodic Review Workplan, December 1988, Metro

<sup>114</sup> Ballot Measure 6, a state-wide ballot measure was in May 1978. Metro was formally established in January 1979.

<sup>115</sup> Metro (1988), Urban Growth Boundary Periodic Review Workplan, December 1988, Metro.

resources were understood as a non-urban value. They therefore received little consideration within metropolitan planning (low biophysical embedding in urban areas). Local city councils were required to amend their comprehensive plans, codes and zoning to comply with the UGB and other regional policy that developed over time. However this was affected by temporal embedding — Metro was aware that it could face the same fate as CRAG if it was perceived as heavy-handed and undemocratic (Seltzer 2009).

Local councils in the area pre-dated Metro by almost 130 years. The oldest, Portland City Council (PCC) formed in 1851.<sup>116</sup> In 1913 PCC amended its charter and installed a commission style government — a weak mayor system with separate bureaus and an elected commissioner allotted to each. In his 2013 speech<sup>117</sup> for the centenary commemoration of PCC's commission style government, Portland historian, Carl Abbott noted that it took about 50 years for the new system of decision making to be completely embedded.<sup>118</sup> Although the system still has its challenges, such as the tendency towards siloed power and decision making as illustrated through the words of one interview participant, the system can be challenged by a tendency towards siloed decision making.

*...with the commission form of government we (PCC) really have 5 Mayors, well there is one mayor, but a commissioner is assigned to each bureau and once that is done he is the virtual mayor of that bureau.*

The commission style of PCC is seen as a flexible and collaborative way of governing. Other local councils in Portland have not converted to the commission system as PCC has, although Oregon planning goal 1 (public participation) maintains fairly extensive civic-political embedding throughout the region.

## **Planning background to ecological governance: Portland before 1991**

Garden City principles reached the USA and were incorporated into the fledgling professions of landscape architecture and then regional planning. Environmental planning in Portland Metro is directly connected to early developments in both these disciplines. Although the full Garden City philosophy did not take root in the USA, many plans incorporated Garden City principles, for example, New York's Central Park (Gillette Jr 2010). The Olmsted brothers

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<sup>116</sup> Other councils significant for this study formed in 1876 (Hillsboro City Council), 1893 (Beaverton) and 1905 (Gresham).

<sup>117</sup> The centenary commemoration of PCC's commission style government was held in 2013 on October 22, 5–7pm in the Portland City Hall Council Chambers.

<sup>118</sup> The embedding of the commission style government was slow because of the required cultural change. The annexation of East Portland areas (1983–1998) also caused some complications.



were commissioned (1900) by the newly formed Portland Parks Commission to develop such a plan for Portland, Oregon (Olmsted et al. 1903). The completed plan (1903), with its vision of an interconnected system of parks was never fully implemented however its formal recommendations were an underpinning factor for protecting iconic urban environmental assets throughout the twentieth century and working towards their planning in an incremental fashion (Houle 1996, Orloff 2004), e.g. Forest Park in NW Portland. The high temporal embedding connected with Olmsted, supported the increase of biophysical embedding overtime. Another significant influence on Portland's ecological planning was the American Regional Planning Movement (institutional-context embedding). In particular Lewis Mumford, proposed a regional approach to metropolitan areas and called for cities to be viewed as organisms — capable of exceeding their natural limits — rather than as simple machines for economic production (Stephenson 1999). Mumford visited Portland (1938) and in his address to the Portland City Club he called for a regional open space plan. He proposed an alternative to PCC's existing plan (1939) by recommending the greening of the inner city and the establishment of a regional planning authority.<sup>119</sup> These proposals were controversial, but a number of key recommendations eventually did take place. Forest Park was established in 1948, inner city greening increased with time and as outlined above, the regional planning organisation Metro was established with responsibility to manage a UGB.

However, moving forward 40 years, when the responsibility to manage the UGB became due after seven years of its implementation (1987), Metro decided there was no need. An economic recession had affected the Portland region for most of the 1980s, the housing market was depressed and urban growth was slow (institutional-context embedding). In contrast, some regional land use planners at Metro were concerned about patterns of development inside the UGB. Under the state planning goals, development could happen within the UGB as a right (low functional embedding). There was pressure building to expand the UGB more rapidly and the urban sprawl that the UGB was designed to avoid was contained but still occurring. In response, Metro was given state permission to adopt a UGB review program (1988)<sup>120</sup> and the first step toward this was to provide guidelines for growth inside the UGB in order to maintain standards of liveability (1989).<sup>121</sup> These guidelines became known as the Regional Urban Growth Goals and Objectives (RUGGOs). In Oregon

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<sup>119</sup> For detailed discussion of Mumford and his influence on Portland Metro refer to Stephenson (1999).

<sup>120</sup> Metro Resolution No. 88-1021, December 1988, established the UGB periodic review program.

<sup>121</sup> This UGB program required Metro to provide a 20 year land supply within the UGB. This led to a cascade of planning projects. The first step here involved designing more detailed standards for liveability that would be maintained as the population inside the UGB increased growth. This instrument - the RUGGOs (Regional Urban Growth Goals and Objectives) was adopted in 1991 provided a foundation for the 2040 Growth Concept in 1995.

participatory style, and as demanded by planning goal 1 (public participation), negotiation with local councils and public participation exercises were initiated. Two years later Metro adopted its RUGGOs (1991), which as noted by Metro (1991), for the first time recognised the importance of environmental values inside the UGB as a component of liveability. This change was a paradigm shift in the Oregon planning system which was originally established to constrain urban land uses inside the UGB and assumed that environmental values were associated with non-urban land uses (Houck 2011). Higher functional embedding via the RUGGOs generated a new path for higher biophysical embedding in urban areas.

### **State-centric structures for ecological governance: Portland before 1991**

The beginning of ecological governance at the metropolitan level is associated with the 1971 CRAG Open Space Plan (Houck 2011). The CRAG plan was the first to connect contemporary metropolitan planning with the 1903 Olmsted plan and Mumford's regional plan. Temporal embedding of these early plans supported higher functional embedding of ecological governance within metropolitan planning. Following the replacement of CRAG with Metro a regional parks inventory was undertaken (1984) and then in 1989 the next step towards metropolitan ecological governance took place. Mike Houck from the Portland Audubon Society addressed the Portland City Club. He called for CRAG's open space plan to be re-launched and for Olmsted's plan to be realized. At about the same time a Metro study had established a need for metropolitan coordination of greenspace and natural areas and the regional government assumed this responsibility (Metro 1992). Within a few months, a project was launched to inventory natural areas towards the achievement of state goal 5 (environment). Institutional-context embedding with goal-5 drove functional embedding into metropolitan planning. Mike Houck was contracted to support this work and Portland State University (PSU) undertook remote sensing (Stephenson 1999).<sup>122</sup>

This metropolitan level work joined a long history of local level governance by local councils and special service districts – for example Tualatin Hills Parks and Recreation District (THPRD) had been established in 1955.<sup>123</sup> Local ecological governance had also been adjusting to the 1973 planning system for a number of years. The Oregon government issued a rule (1981) that required local councils to apply state planning goal 5 (environment)

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<sup>122</sup> This initial mapping exercise of native vegetation made the urban greenspace issue visible in new ways and to a broad constituency.

<sup>123</sup> Local level governance implicitly involved with urban natural resources included the PCC parks commission (established 1900) and, a special service district, the Tualatin Hills Parks and Recreation District (established 1955). Special Service Districts are a unit of government in the USA with an elected board that provides a specific service such as water, sewerage or parks. They often span a number of small local councils.

to their planning. In response, throughout the 1980s local Portland Metro councils began to formalize their ecological governance. Institutional-context embedding with Goal 5 drove higher functional embedding into local governments to varying extents.<sup>124</sup> The PCC Parks bureau increased its focus on natural area management and in 1988 the first urban wildlife refuge was declared at Oaks Bottom. This process was also characterized by high levels of involvement from community-based greenspace advocates — high civic-political embedding contributed to the functional embedding of wildlife refuges. PCC also established: a Bureau of Environmental Services (1983), environmental zoning (1989)<sup>125</sup> and an Urban Forest Commission (1987).<sup>126</sup> In the west of Portland Metro, THPRD expanded its activities in response to rapid urbanisation.<sup>127</sup>

### **Society-centric structures for ecological governance: Portland before 1991**

Society-centric structures for ecological governance in Portland emerged from a long tradition of community participation and advocacy – for example the Portland Club and neighbourhood associations in the PCC area were established in 1913 and the late 1960s respectively (Abbott 1983). Other groups focused on community based legal action, and then in the mid-1980s an urban greenspace movement coalesced around the vision of an urban wildlife refuge network. This demonstrates the high temporal embedding of civic-political aspects of Portland governance.

The Portland Club and neighbourhood associations played an early and pivotal role. The Portland Club formed in 1913 with a view to encourage informed citizen debate and participation in public life. This group of prominent citizens was instrumental in establishing Forest Park (1948) and carrying out a number of independent studies on public policy issues. The Portland Club is still active and the tradition of independent community review has been taken up by other groups, for example Portland Audubon released an independent study of Portland Metro tree regulations in 2009 (Audubon Portland and PSU, 2009). More recently than the Portland Club, a new wave of participatory structures emerged in the 1960s around neighbourhood planning. After high levels of contention between council and

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<sup>124</sup> Formalised ecological governance at the local council level included: a parks and tree preservation levy in Gresham council, other local bonds in 1989/1990 and local tree laws. A number of councils carried out natural resource inventories. In particular, PCC carried out extensive inventories in the mid to late 1980s, environmental zones were introduced and then began developing through a cascade of refinements.

<sup>125</sup> PCC environmental zones were developed during the mid-1980s, approved in 1989 and adopted in 1990. Although a law suit forced the Bureau of Planning to better quantify the e-zones through surveys carried out between 1990 and 1994 (Ozawa and Yeakly 2004).

<sup>126</sup> The Urban Forest Commission was established in response to the spread of Dutch Elm disease in the USA.

<sup>127</sup> The highest growth was in Beaverton's population with a 66.8% increase of approximately 21,500 people. - from a population of 31,962 to 53,310 (US Decennial Census),

resident groups over development issues, 95 neighbourhood association eventually formed across the PCC area. The civic-political dilemma was resolved when council support for and interaction with these groups was formalised – PCC’s Office of Neighborhood Involvement (ONI). Thus governance adjusted to adversarial aspects of neighbourhood-council relations by embedding those adversarial aspects within the more collaborative structure of ONI. In many other parts of the Portland Metro Area, while less formalised than in the PCC area, neighbourhood associations also play an important role in community governance (Abbott 1983).<sup>128</sup>

Society-centric governance in Portland is also organized around legal action. Embedding with the judiciary system (Institutional-context) supports civic-political embedding in ecological governance. At the state level an organisation named ‘1000 Friends of Oregon’ was established (1975) by the Oregon governor as a community watchdog for the state planning system (Walker and Hurley 2011). Environmental groups were also active at the state level, for instance legal action by Audubon resulted in protection for the Northern Spotted Owl under the US Endangered Species Act in 1990. As the detailed case study period begins (1991), the group North West Environmental Advocates was also preparing two law suits against Portland Metro local governments in the Tualatin Basin and Columbia Slough under the *Clean Water Act 1972 (USA)*.

Finally, and most significantly for this research, society-centric ecological governance involved the urban greenspace movement (‘the movement’). In the same year that the Portland UGB was established (1980), the Audubon Society of Portland established an urban naturalist program.<sup>129</sup> By the mid–1980s ‘the movement’ coordinated by Audubon gathered momentum and called for an urban wildlife refuge system (higher biophysical embedding). They argued that liveable cities required nature near to where people live, not just outside the UGB. ‘The movement’ was characterised by a new combination of temporal, functional and collegial embedding. First, temporal embedding occurred by linking proposals with older and popular visions for greenway and trail systems — such as the 1903 Olmsted plan. Second, functional embedding occurred via informal and formal avenues. In an informal fashion, the number of resident groups in ‘the movement’ continued to expand and they organised under the banner of ‘Friends and Advocates of Urban Natural Areas’

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<sup>128</sup> For a detailed history and analysis of Portland’s neighbourhood association movement see Abbott (1983).

<sup>129</sup> Mike Houck was employed for the position of urban naturalist at Portland Audubon.

(FAUNA).<sup>130</sup> Many of these ‘friends’ groups were attached to neighborhood associations across Portland Metro and some were focused on water quality – such as Friends of Fanno Creek, established in 1989. Formally, ‘the movement’ also participated in Metro’s efforts to develop its RUGGOs. In parallel with formal processes, they kept urban ecological resources high on the RUGGOs policy agenda through other activities. The annual ‘City in the Country’ symposia (1989-1990) built community momentum and strengthened the networks involved. Audubon also received funding from a private trust to develop an urban wildlife refuge system. Third, embedding of more collegial aspects occurred because ‘the movement’ was seen by government decision makers as moderate in comparison with other environmental groups who were suing local councils over pollution issues. Government staffers were also involved in ‘the movement’ which became increasingly cross-sectoral in nature.

### **Cross-sector structures for ecological governance: Portland before 1991**

There has been a diversity of cross-sector centric structures in Portland Metro over time. The following three examples provide a cross section of the different types with respect to interactions between state and non-state sectors. They are: 1) the ‘advocacy partnership’ formed by the urban greenspace movement discussed above; 2) an ‘implementation partnership’ through ‘Friends of Trees’; and 3) ‘alternating advocacy-collaboration’ for the protection of Oaks Bottom wetlands. The characteristics of these are outlined in the following discussion.

The urban greenspace movement was a network including environmental groups, government staff and the strong neighbourhood association system. Within this society-centric movement, cross-sectoral relationships formed to advocate for stronger ecological governance. The resulting ‘advocacy partnerships’ provided a stronger basis for functional embedding of ecological governance within metropolitan planning. Non-profits such as Audubon partnered with government departments such as Metro Greenspaces and the Portland Parks bureau. Through these cross-sectoral links ecological governance actors could more directly participate inside state structures and hence more directly advocate to actors governing established urban functions.

In contrast with the policy-focused ‘advocacy partnerships’ in the greenspace movement are a set of implementation partnerships exemplified by ‘Friends of Trees’, This community

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<sup>130</sup> FAUNA published an Urban Natural Resources Directory in 1990, which listed groups who were involved and was updated periodically. It was coordinated by key staff from Audubon and other environmental organisations.

group was established in 1989 for citizens to plant street trees and increasingly worked with community organisations such as schools that do not have a primary focus on environment. These implementation partnerships demonstrate functional embedding amongst non-government actors with a collegial aspect. During the case period 'Friends of Trees' expanded to become a key actor in the policy arena.<sup>131</sup>

Differing from both advocacy and implementation partnerships, 'Oaks Bottom wetlands', provides a third example of cross-sector centric structures – alternating advocacy-collaboration. The ultimately successful campaign for Oaks Bottom to become an urban wildlife refuge was initially proposed by Audubon and after many years PCC Parks also recognized the status of 'wildlife refuge'. Non-profit advocates such as Audubon campaigned with a level of support from allied staff within the PCC Parks Bureau. Community advocates provided a combination of pressure and support to PCC bureaus throughout this time. This example illustrates the complexity of interactions involved in the embedded governance arena. The advocates (civic-political aspect) steered PCC-Parks (governmental aspect) towards declaring its first urban wildlife refuge (stronger biophysical and functional embedding) by toggling between advocacy (adversarial aspect) and partnership (collegial aspect) over a number of years (temporal aspect).

The background to the Portland case is essentially an identification of cross-sectoral networks. There are few elements of governance in Portland Metro that do not involve a state-community connection of some sort, whether through formal citizen advisory boards, partnerships or social movements. The following section presents the background for the Brisbane case which contrasts with Portland in a range of important ways.

### **4.3 Backgrounding the Brisbane Case**

The background to the Brisbane case study is described under five facets of the investigative framework (Section 3.3): biophysical context; institution context; functional structures, governmental structures and civil-political structures. The latter two facets in particular reflect state-centric and society-centric frames (see sections 2.1 governance frames and 3.2 multiple frames of enquiry). Types of embedding amongst and interactions between facets from the investigative framework (3.3) are also cross-referenced throughout. Important to the Brisbane case was weak embedding of institutional-context and civil-political aspects.

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<sup>131</sup> It is interesting to note that the establishment of 'Friends of Trees' filled a gap that was left when PCC tree planting programs were defunded earlier in the 1980s recession. State delivery was replaced with community-based delivery.

This was characterised by adversarial state-society relations (adversarial aspect) for an extend period of time (temporal embeddedness).

### **Biophysical background to ecological governance in Brisbane**

Brisbane, the capital city and the largest city in Queensland, is located in the extreme south east corner of the state. Northern Queensland has iconic biodiverse areas such as the tropical rainforests of Cape York and the Great Barrier Reef. Similarly, South East Queensland (SEQ), where Brisbane is located, is a highly biodiverse region (Australian Government, n.d.).<sup>132</sup> However, Eddy (1996) notes that the political attention afforded North Queensland's biodiversity often has overshadowed the plight of SEQ and Brisbane's biodiversity (weak civic-political embedding). Brisbane is located on the flood plain and surrounding hills of the Brisbane River. The eastern edge of the urban area is delimited by Moreton Bay, a Ramsar listed site and on the west by the Brisbane Ranges. The river itself meanders through the urban area and many of the creek systems that feed into it are contained within the boundaries of the Brisbane City Council (BCC). Churchill (2007, pp4-5) lists general types of Brisbane vegetation communities and example sites as: dry eucalypt woodlands and open forests at sites like Belmont Hills reserve and reserves within Bayside Parklands, Brisbane Forest Park and Karawatha Forest Park; subtropical rainforest at sites like Boombana; riparian communities such as flood gum forest at sites like Buhot Creek and Belmont Hills reserve; Melaleuca woodlands at sites like Boondall wetlands<sup>133</sup>.

### **Institutional background to ecological governance: Brisbane before 1991**

Brisbane demonstrates strong interactions between adversarial, institutional context and governmental aspects of governance. Unique amongst Australian states — and rare amongst democracies in general — Queensland has just one house of parliament, the legislative assembly (Wanna and Caulfield 1995). The recent political history of Queensland was dominated by the Bjelke-Peterson National Party administration (1968–1987). Although population growth in SEQ generally and Brisbane in particular began to accelerate from 1960 onwards, this conservative, 'right of centre' government had a rural rather than an urban focus (Hamnett 1984). "As a result...urban policies were fragmented, *ad hoc* and occurred more by accidents of federalism than by government intent" (Caulfield 1995, p144). Tension between the BCC and the Queensland State government was prominent during the Bjelke-Peterson administration, but this dynamic had an even longer history that contributed

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<sup>132</sup> <http://www.environment.gov.au/biodiversity/conservation/hotspots/national-biodiversity-hotspots#hotspot3>

<sup>133</sup> A map of the BCC biodiversity, waterway and wetland overlays can be extracted from interactive mapping at <http://cityplan2014maps.brisbane.qld.gov.au/CityPlan/>

to delaying the development of Brisbane's urban planning. State governments often felt the need to constrain the BCC's power. For example, successive attempts were made by BCC planners to establish a town plan in 1928, 1944 and 1952. These efforts were complicated by coalitions between urban private interests and the State Government, amongst other factors (Low Choy 2005, England 2007). This demonstrates strong adversarial embedding within governmental aspects and this situation contributed to weak functional embedding within Brisbane and its institutional context. A first official town plan was adopted by Mayor Clem Jones in 1965 with the second plan (1987) spurred on by preparations for the World Expo (hosted in Brisbane 1988).

Brisbane exhibits very strong vertical governmental aspects and weak civic-political embedding in formal structures. Brisbane was founded in 1823 and its administration is unique amongst Australian cities – and rare amongst metropolitan areas in general. The BCC was created from the merger of 20 municipal jurisdictions (1925). In effect this established a miniature urban state within the larger rural state of Queensland. Brisbane's budget and population was larger than the Australian state of Tasmania. As the council struggled to govern such a large area and budget, a succession of mayors worked to increase their powers. In 1968, Mayor Clem Jones achieved a coup when powers were granted for the mayor to prepare and present council budgets independently, rather than through a committee of aldermen, who had been unsupportive in Jones' case (Tucker 1995).<sup>134</sup> This proposal was inspired by strong-mayor models of local government that Clem Jones had observed while studying in the USA. On coming to power in 1985, Mayor Sally Ann Atkinson further concentrated power in the mayoral position. The *City of Brisbane Act 1924 (Qld)* was amended so that council resolutions rather than city ordinances could be used to delegate to or withhold powers from bureaucrats. Fletcher (1990) details how this tool was used to further bolster mayoral powers by removing the title of 'city administrator' from the town clerk role and editing the town clerk position description so that full support of the mayor became an official requirement. In his 1995 analysis of Brisbane mayoral power, Tucker (1995, p57) refers to these changes and concludes by noting that,

*by 1991...the [Brisbane] mayor possessed formal general-policy formulating powers which some of the more dominant big city 'strong mayors' in the United States do not*

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<sup>134</sup> See Tucker (1995) for further discussion about how Clem Jones used a combination of Labor party caucus and relationships with the liberal state government to achieve this change.



*possess...Today the mayoral role in Brisbane is undoubtedly that of an elected chief executive officer with extensive formal and informal powers.*

## **Planning background to ecological governance: Brisbane before 1991**

Landscape designers in Australia had the opportunity to draw upon Garden City principles developed in Europe and the USA before industrialisation began to accelerate in the post war period.

*Australian cities and towns have been fortunate in being founded and developed at a time when the value of open space in planning terms has been recognised by administrators and the community. (Freestone 2010, p241)*

This recognition of open space values translated into an appreciation of English planning and Garden City principles. For example, the first planner employed to manage the newly formed BCC planning department was from England and had studied Garden City designs (Low Choy 2005). Accordingly early planning efforts in Brisbane: protected scenic value in iconic places such as Mount Gravatt; proposed a green-belt; and used Garden City terminology like 'green wedges'. For example, the 'Oxley Wedge' described a flood prone area of the Oxley Creek where urbanisation was restricted (BCC 2013). Hence, stronger biophysical embedding was attempted through the Garden City movement — an informal and very marginal element of Brisbane's institutional context. Accordingly, the first statutory town plan in 1965 did not include a long proposed green/agricultural-belt due to lobbying efforts from the private sector (Low Choy 2005, England 2007). In translation, the functional embeddedness of local economic interests and its adversarial aspects were much stronger than weak links that local actors established with the Garden City movement. However in 1987 and 1990, a new planning scheme for Brisbane and a new Planning Act respectively put stronger focus on Brisbane's planning and environment.<sup>135</sup> The stage was set for rapid change in environmental planning over the following decade.

## **State-centric structures for ecological governance: Brisbane before 1991**

Explicit ecological governance at the state level was slow to develop. The Bjelke-Peterson administration had a development focus and environmental management was clearly not a priority (Fitzgerald 1984, Kellow and Niemeyer 1999).<sup>136</sup> During the 1970s this stance

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<sup>135</sup> The *Local Government (Planning and Environment) Act 1990 (Qld)*, for the first time separated planning from the Local Government Act and gave explicit mention to the environment.

<sup>136</sup> Fitzgerald (1984) labels the Bjelke-Peterson government as anti-environmental. Fitzgerald (1984, p288) uses the agricultural sector to exemplify what he calls "development policy [with] a blatant disregard for the environment".

directly influenced the growth of federal Australian government involvement in environmental affairs. For example, the Whitlam administration, in response to Queensland government plans to exploit the Great Barrier Reef for oil extraction, passed legislation in 1973 to give the Commonwealth authority over coastal waters.<sup>137</sup> Queensland government disregard for the environment also fostered the growth of environmental social movements at state and national levels (Hutton and Connors 1999). After 21 years in power, the Bjelke-Peterson era ended in 1989. The Labour party administration that followed increased state level efforts to manage urban growth and environmental quality – the embeddedness of ecological governance in the institutional context began to increase rapidly. New legislation began to be adopted early in the case timeline 1991–2012 (e.g. the *Nature Conservation Act 1992 (Qld)* for biodiversity and the *Environmental Protection Act 1994 (Qld)* for air and water).

In several areas related to environmental planning, the BCC was further advanced than the Queensland government when the Bjelke-Peterson era ended (1987). In 1982 BCC established a conservation and environment committee, mostly consisting of scientists (governmental and rational aspects). This group developed a Brisbane bushland strategy during the 1980s and supported a range of mapping projects (SLATS<sup>138</sup>) that revealed a high rate of vegetation clearing.<sup>139</sup> Key managers involved at the time identified the decision to map native vegetation as BCC's first important step towards ecological governance. A commitment to getting the science down on paper was an important theme throughout the mid to late 1980s ('rational' aspect). In 1988 BCC employed its first environment officer and over the following four years she established the BCC policy framework for nature conservation. The SLATS mapping data showed that 63% of bushland in Brisbane was privately owned. In response a bushland levy on rates was implemented (1989/1990) as the basis for a bushland acquisition program,<sup>140</sup> although purchases did not begin until a new council administration took office (1992). By 1990, the city plan had some policies that

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<sup>137</sup> *The Seas and Submerged Lands Act 1973 (C'wlth)* gave the Australian Federal Government authority over states concerning coastal waters and this was used to block Queensland plans to exploit the Great Barrier Reef for oil extraction. The following year the Australian government further extended its environmental authority by: passing the *Great Barrier Reef Marine Park Act 1974 (C'wlth)*; signing the World Heritage Convention; and passing the *Environment Protection (Impact of Proposals) Act 1974 (C'wlth.)*, which gave the Australian government power to undertake Environmental Impact Assessments on projects it was funding.

<sup>138</sup> The Queensland Statewide Landcover and Trees Study (commonly known as SLATS)

<sup>139</sup> Mapping projects showed that between 1982 and 1990, 17% (4470ha) of the remaining native vegetation in Brisbane had been cleared (BCC 1990, p9).

<sup>140</sup> The special environmental levy was set at \$20 per household per year and due to the size of Brisbane's housing stock this generated \$4.7 million in 1990/91 (BCC Environmental Management Strategy 1990).

supported urban ecological resources in particular locations (BCC, 1990).<sup>141</sup> In addition, a proposed Open Space/Natural Area Network highlighted the need to establish connectivity between native vegetation in Brisbane and the broader landscape.<sup>142</sup> A number of environmental initiatives had also taken place.<sup>143</sup> However, the BCC Environmental Management Strategy noted that “at least three quarters of existing bushland could be expected to be cleared if current policies and trends are maintained” (BCC 1990, p9).

### **Society-centric structures for ecological governance: Brisbane before 1991**

In Brisbane, an environmental social movement emerged within the context of a Queensland government that was “unashamedly anti-environmental” (Fitzgerald 1984, p388). Accordingly the social movement often took a combative stance on environmental issues and ‘anti-state’ sentiment played a very prominent role in strategy development and actions, especially on state level issues (Hutton and Connors 1999). Although, the City of Brisbane was a different regime to that at the state level, many resident action groups and other environmental groups also campaigned on metropolitan issues (Caulfield and Davies 1995). Caulfield and Davies (1995) note that the structures and tactics of these groups were transferred from the Green Ban movement in Sydney.<sup>144</sup> Nevertheless, the local government was progressive in comparison with the Queensland government and a different set of environmental groups tended to be active within the urban area. Amongst leaders of the environmental social movement itself, there was a split between groups with a focus on iconic state level issues such as the rainforests of Northern Queensland, and an ‘urban coalition’ of groups with a metropolitan focus (Caulfield and Davies, 1995, Doyle 1990, personal communication M. Petter, 2010). Until the end of the Bjelke–Peterson administration environmental groups in Queensland were usually informal. Research participants alleged that applications to incorporate an environmental group at this time tended to be refused without any reason being given. Therefore, the incoming Labor administration of 1989 marked a time of new opportunities for links between ecological governance, its institutional-context and functional structures. Environmental groups could

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<sup>141</sup> The 1987 Brisbane Plan: Policy 7.20-Limiting development on hillsides surrounding the Gap, and policy 11.01-Promoting an open space corridor along Bulimba Creek).

<sup>142</sup> Major options for landscape scale connectivity were identified as north along the D’Aguilar range, east to Mount Cotton and South to Greenbank (BCC 1990, p64). Enoggera Creek, Bulimba Creek and Oxley Creek, the three focal catchments for this study are respectively located in these parts of the Brisbane area.

<sup>143</sup> Other environmental initiatives that BCC had undertaken included a Brisbane conservation atlas and a Bushland taskforce report.

<sup>144</sup> The ‘Green Bans’ are seen by Burgmann (2000) as the beginning of the environmental movement in Australia. Unions, resident and environmental groups protested developments in Sydney between 1971 and 1975 that were seen as environmentally destructive.

begin to register under a variety of legal structures and develop their organisations in ways that were previously constrained. Important regional planning also began at this time, such as the Regional Frameworks for Growth Management.

### **Cross-sector structures for ecological governance: Brisbane before 1991**

It is difficult to identify many cross-sector centric structures from the Bjelke-Peterson era. The analysis again demonstrates very weak embedding with the formal institutional context and adversarial state-society relations. Important formalised networks supported community groups that were fortunate enough to have federal level funding – e.g. Queensland Community Council. Activists reported having secret meetings with bureaucrat allies to share information, because formal contact with environmental groups was not encouraged by the administration (Interview participant). Embryonic networks for revegetation began forming in Brisbane – e.g. Bushland Rehabilitation Unit at BCC. However, many of the state-society networks were adversarial (adversarial aspect). Mayor Atkinson (1985-1991) was unpopular with many resident action groups for not implementing stricter controls on development (Caulfield and Davies 1995).

## **4.4 Chapter Conclusion**

The background to the case areas shows important commonalities with respect to concern about native vegetation clearing, the use of emerging mapping technologies and important social movements, although the history, institutions and other aspects of embeddedness within each metropolitan area are strikingly different.

Portland can be regarded as an environmentally progressive city, based on early Garden City planning and highly developed social movements. The Olmsted brothers' 1903 vision of an interconnected system of parks inspired the acquisition of key urban environmental assets<sup>145</sup> throughout the twentieth century. An urban green space movement emerged out of a long tradition of community based advocacy in the mid-1980s and intersected with a range of 'state engagement' strategies such as participatory neighbourhood planning and state level planning strategies (Abbott 1983, Walker and Hurley 2011). Governance demonstrated strong temporal, institutional-context and civic-political embedding. Functional and biophysical embedding increased in the decade leading up to the 1991-2012 study period.

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<sup>145</sup> For example: Forest Park in North West Portland and Mount Tabor in Portland's East.

Historically, Brisbane is regarded as a less environmentally progressive city than Portland. Efforts to establish a greenbelt in early city planning were strongly resisted (Low Choy 2005). Urban populations tended to perceive environmental issues as a rural problem. At the state level social movements clashed with a conservative Queensland government and some of this contention translated into the metropolitan level. Ecological governance was rarely formalised and weakly embedded in the formal institutional-context. Opportunities for functional, and governmental embedding increased immediately prior to the 1991-2012 study period.

The main implications for responsive governance from this chapter will be highlighted in later material where the importance of historical background for responding to change is repeatedly demonstrated. However, this chapter in itself demonstrated the usefulness of the investigative framework in characterising the nature of embeddedness in each city. Furthermore, embedded characteristics were found to interact with each other, further increasing the complexity of responsive governance. A range of contemporary characteristics in each city have a long history of local development. The design of ecological governance arrangements and efforts to respond to change need to account for these temporally embedded characteristics – i.e. social, political and economic contexts); this is particularly likely in situations where instruments or strategy are transferred from another setting.

By the beginning of the case study timeline (1991–2012) arrangements to plan and manage biodiversity were in development. The ecological governance of Brisbane and Portland rapidly diverged as it became more formally expressed through their specific institutions and cultures. Even where similar policy instruments (such as acquisition programs) were called for, a different underpinning rationale tended to be used in each city. For example, in Brisbane, the response to rapid clearing was a call to develop ‘a city in the bush’, while in Portland where sprawl management had been in place for a decade, there was a call to find a place for nature inside the urban growth boundary. The following chapter shifts the focus of analysis to examine the relationship between environmental governance and its institutional context (Research question 1) through an examination of the Oxley Creek watershed in Brisbane.

## Chapter 5

### Watershed Management in an Urban Setting: Process, scale and administration

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This chapter was published in the journal *Land Use Policy* using the title above. The published text commences under the subheading below, but first an outline of the contribution towards the thesis research questions from the paper is presented, along with further methodological details.

This chapter makes an important contribution to the overall thesis. In terms of the main research questions the analysis in this chapter has a primary focus on question one, “How do actors within a ‘non-core’ urban policy arena interact with the broader institutional context over time?” There is an ancillary focus on question two, “How and in what respects does governance of this urban policy arena across the metropolitan area adjust to change over time?” With respect to the overall research framework (Figure 3.1), this stage used one of the three embedded sub-units (watersheds) from the Brisbane case to pilot an investigation of urban ecological governance. The findings confirmed important research themes and assisted in refining the investigative framework (Figure 3.2). In particular the contextual aspects of responsive governance were shown to need an explicit stage of analysis (Chapters 6 and 7) in order to better understand governance as a context embedded phenomenon. The embeddedness patterns identified for Brisbane in Chapter 4 provide a starting point for the analysis in this chapter. However institutional-context and functional embedding increase rapidly from pre-1991 levels. As the ecological governance arena expands, the diversity of actors also expands and more collegial state society relations emerge. However much of the heritage identified in Chapter 4 persists, for example: civic-political embeddedness remains weak and actually declines from 1991 levels; functional embeddedness increases but ecological governance then slips down the policy agenda for the city council; adversarial state-society relations re-emerge for ecological governance and BCC also re-emerges as the dominant actor, albeit within a more networked extra-metropolitan region. With respect to the three categories (contextual, structural and interactional) within the investigative framework, this chapter has a general focus, but a stronger concern with contextual and structural elements.

The Oxley watershed case also targets: 1) important institutional change within the broader 1991–2012 timeline in Brisbane; and 2) important commonalities between the contrasting cases of Brisbane and Portland. Important institutional change included: the emergence of statutory regional planning (at an extra-metropolitan level<sup>146</sup>); the implementation of an urban growth boundary (2004); and formalisation of significant state/non-state governance networks, all of which were enduring characteristics of the Portland case. Important commonalities were the formal Integrated Catchment Management (ICM) model and a critical defunding event. Oxley Creek Catchment was the only exploration of formal ICM in Brisbane (which eventually transitioned to a community-based approach in line with other Brisbane watersheds), whereas in Portland, formal ICM is the standard model. The critical defunding event was a shift in federal NRM funding in 2002<sup>147</sup> which was partly offset by increased metropolitan resourcing (see 5.2, phase 3). A parallel process occurred in Portland with the defunding of the federal Metropolitan Greenspaces program (2004). Hence Oxley Creek is a critical case for Brisbane and for comparison of responsive change with Portland.

The analysis was based on data collected from semi-structured interviews, participant observation and desktop review of policy documents. It is important to note that the approach to governance in this chapter is concerned with cross-sector frames (see 2.1.2) rather than the broader multiple frame approach sitting behind later analytical chapters (Chapters 6 to 9). The broader approach was further developed following this analysis. Interview participants were selected through a purposeful stratification process of governance actors involved with ecological governance in the Oxley watershed according to scale (e.g. local, metropolitan) and interest (e.g. environment, government). Semi-structured interviews examined actor perceptions of the creek corridor and changes in its governance. Participant observation occurred at revegetation and catchment group meetings. Desktop review of policy documents focused on the Oxley Creek Catchment Association (OCCA), Brisbane City Council and Queensland State government but also included other prominent watershed actors such as SEQ Catchments.

The following published text highlights the role of context embeddedness which is then examined as the focus of Chapters 6 and 7. In particular the chapter demonstrates the

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<sup>146</sup> Brisbane is located within the extra-metropolitan region of South East Queensland

<sup>147</sup> For example, the cessation of the National Heritage Trust 1 funding (NHT1) and transition to NHT2 implementation. NHT2 focused on delivery through regional NRM groups rather than at the catchment level, i.e. Oxley Creek level.

impact of the broader institutional setting on the application of integrated environmental management and the responses of ecological governance to change.



**Schmidt, P. & Morrison, T.H. 2012, "Watershed management in an urban setting: process, scale and administration", *Land Use Policy*, 29, 45–52.**

Ecologies inside of urban footprints are increasingly pressured by the search for more compact and consolidated cities (Gleeson et al. 2004, Gillen 2006). Over the last decade tension has increased between efforts to reduce urban sprawl on one hand and the provision of urban ecosystem services on the other. Sprawl reduction requires higher population density but the provision of ecosystem services to that population requires functional ecosystems such as riparian corridors (Naiman et al. 1993). Urban ecologies can also support significant biodiversity and influence a city's impact on the non-urban hinterland (Forman 2008). This is especially the case in South East Queensland (SEQ), Australia, which is experiencing pressures from unprecedented population growth and urbanisation (Minnery et al. 1998, Peterson et al. 2007).

Over the last two decades significant resources have been invested to plan and manage these ecological systems, and new governance arrangements have been designed to tackle complex pressures from multiple actors and interests. This paper examines the changes in the governance of the urban Oxley Creek corridor in Brisbane between 1996 and 2008. The application of the watershed management model to this setting during this time provides a "critical case" that can shed much light on questions of process, scale and administration in urban planning and environmental management (Flyvbjerg 2006). The analysis was based on data collected using semi-structured interviews, participation observation, and desktop review of policy documents. We explore both the structures in place and the effects of new policy initiatives on the management of the urban riparian corridor.

The paper proceeds by outlining the theory and practice of integrated environmental management before presenting a brief overview of the case study area. The case study analysis then shows how environmental governance of the urban corridor has changed over time according to three key phases. The article then reviews the trends across these three periods and discusses the future implications for the corridor. We conclude by exploring the wider implications for urban local governments in the management of urban catchments.

## **5.1 Integrated environmental management in theory and practice: participatory processes, regionalism and governance**

For much of the 20<sup>th</sup> century, management of urban lands was primarily designed to facilitate exploitation of natural resources. For the last four decades, however, state and community responses to environmental problems have rapidly increased. By the 1960s, pollution and degradation (of urban waterways in particular) had increased to levels that prompted responses from government.

Action was also increasingly demanded by the general community and newly formed environmental non-government organisations. By the 1970s new national environmental agencies had formed to negotiate clashes between the newer environmental and older 'developmentalist' discourses which were especially dominant in resource centred economies. By the 1980s, political priority for environmental protection was exemplified by new provincial-level legislation and programs and a surge in community level environmental non-government organisations (Clarke and McCool 1996, Kellow et al. 1999, Wanna and Weller 2003). Yet most of these responses and approaches were reactive and ad hoc.

It was not until the 1990s that a discourse on integrated environmental management – and specifically watershed management – saw a conceptual convergence amongst scholars and practitioners of environmental policy, natural resource management, land use planning, and community development. Also referred to as Integrated Catchment Management (ICM) (e.g. in Australia), watershed management is a model of environmental management that is centrally concerned with the integration of land and water management on the basis of river catchments (Leach 2006, OCCA 1999). The model seeks to achieve integration through coordination of "community involvement, technical knowledge, organisational structure and policy objectives" (Bellamy et al. 1999). Integrated watershed management was an important and popular development in environmental policy at that time in that it drew upon and spoke to three critical sub-discourses: public participation, regionalism and governance, as will now be outlined.

First, the watershed management model was regarded as an important environmental management model in that it was one of the first to seek to systematically involve a variety of citizens within catchments. While the discourse that describes the need to involve citizens in the formulation of public policy is by now well over a generation old – indeed, the participation of citizens in policy processes has been advocated as far back as the 1960s

when public policy was largely understood as a top-down and technical activity (Faludi 1973) – citizen participation did not come to be systematized in environmental management until the 1990s, when it came to be seen as both a means of informing public policy as well as a way of legitimising and validating environmental policy decisions (Amy 1987).

Second, the watershed management model was distinguished by its attention to scale – originally the catchment, and then the bioregion – at which actors participate, and science is integrated. The model originally focused on small catchments, but as this model developed, ecologists began to emphasise the importance of managing wider regional ecosystems – often groups of catchments – according to ecological differences in landscapes, and to understandings of landscapes as ‘systems’ (Slocombe 1993, Haeuber 1996).

Finally, the watershed management model was also notable for its emphasis on the need to integrate administration of environmental management. The model recognises that watershed management involves linkages between different government, private and community sector actors, each with particular interests, responsibilities and challenges (Clarke and McCool 1996). Successful environmental management is therefore also dependent on the resolution of the institutional complexity that has arisen as a result of the reactive and piecemeal response of governments to environmental problems over time (Morrison 2006).

The model of integrated environmental management, and the sub-discourses that inform it, provide both conceptual tools for understanding environmental problems, as well as representing specific strategies actors have deployed to manage environments. However a number of issues have emerged as a result of the practice of watershed management, and also in response to wider political, administrative and scientific developments. First, numerous scholars have shown that participatory processes have contributed to the situation in which environmental policies are no longer created by one formal organisation-in-charge, but rather several formal organisations and individual actors strategically using institutional arrangements as both constraints and assets for present and future action (Imperial 2005, Renn 2006, Agger and Löfgren 2008). According to Rhodes (1996), these arrangements are based on trust and cooperation and “are an alternative to, not a hybrid of, markets [efficiency through price competition] and hierarchies [planning and regulation through administrative orders] and they span the boundaries of the public, private and voluntary sectors” (Rhodes 1997, p52). This phenomenon of ‘network governance’

contradicts traditional models that assume policy is contained within a spatial unit (such as a catchment) or a level of government (Reeve et al. 2007, Morrison 2007) and also reflects that “ecological change occurs in a patchy, cross-scale manner... [and that] there is no single right scale for management” (Pritchard and Sanderson 2002, p150). Furthermore, while governments have sought to devolve environmental responsibility to local and regional levels, through indirect policy mechanisms such as economic instruments promoting regional organisation and civic action, they have still retained ultimate control (Gunningham and Grabosky 1998, Wallington et al. 2008). The underlying problem of the model with delegation of local power and authority (e.g. to local governments and communities) has yet to be resolved (Kenney 2000, Lane and Morrison 2006, Morrison et al. 2010). These unresolved issues generate important questions of process, scale and administration for the watershed management model, as will now be explored through the case study analysis.

## **5.2 Case study: management of Oxley Creek, Brisbane (1996–2008)**

Oxley Creek is a tributary of the Brisbane River in the south-east region of the State of Queensland, Australia. The Brisbane River runs through Brisbane City, which is Australia’s third largest city, and fastest growing – with a projected growth from 1 to 1.25 million residents and from 400 to 550 thousand dwellings between 2006 and 2031 (Queensland Government 2009). The corridor supports social, economic and ecosystem services of city-wide importance (Fig. 1).

The Oxley Creek catchment is a strategic case study because it was one of the first sites selected by the Queensland State Government for an urban watershed management pilot in the mid–1990s.<sup>148</sup> This uncommon application of watershed management to an urban setting was an important policy experiment for both environmental managers and urban planners. Furthermore, it was the first time governments had sought to manage the environmental processes of the catchment in an integrated and systematic manner. The following analysis charts the period from 1996 to 2008 and reveals that management of the catchment has developed over time through three distinct phases (Fig. 2). These phases will now be explored.

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<sup>148</sup> This pilot was endorsed by non-government organisations and the provincial government’s Environmental Protection Agency in 1995 under the state-wide watershed management strategy.

## Phase 1: participation in watershed management planning

In 1991, the Queensland State Government launched a state-wide watershed management strategy to integrate land and water management on the basis of river catchments<sup>149</sup> (OCCA 1999). While there was a much stronger uptake of watershed management in rural areas (in Australia and internationally), this initiative also laid the foundations for management of the rapidly urbanising Oxley Creek. The Oxley catchment watershed management pilot project began in 1996 amongst numerous state-funded scientific studies (Kinhill 1996).

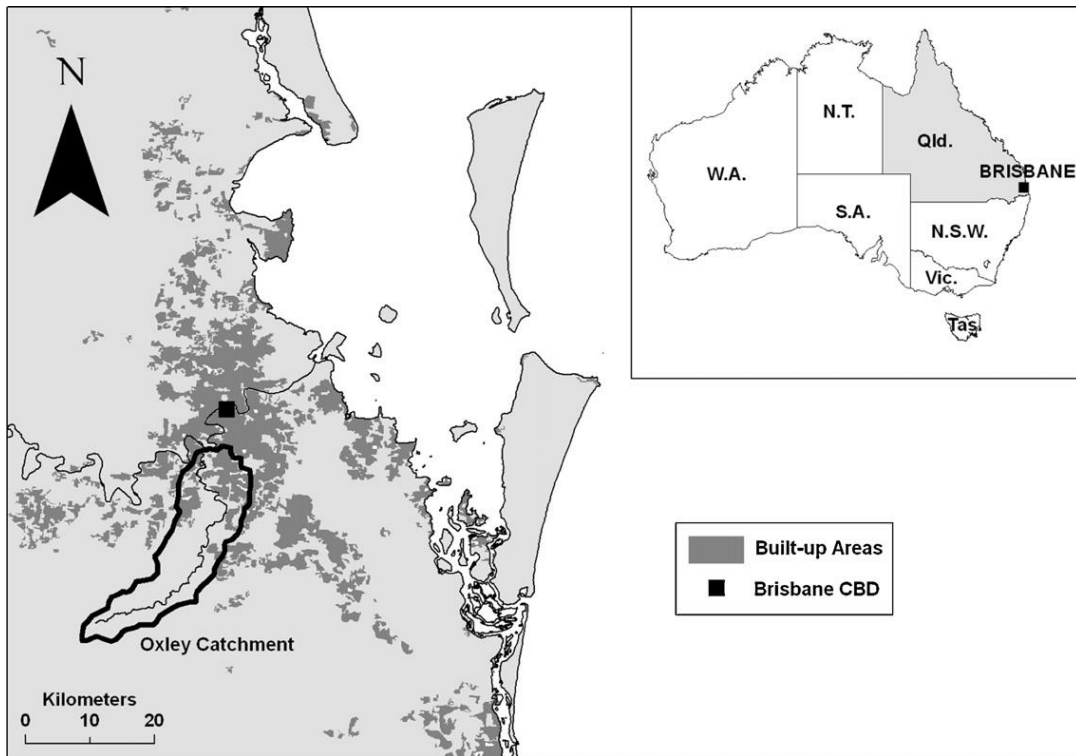


Fig. 5.1 Location of the Oxley Creek Catchment, South East Queensland, Australia

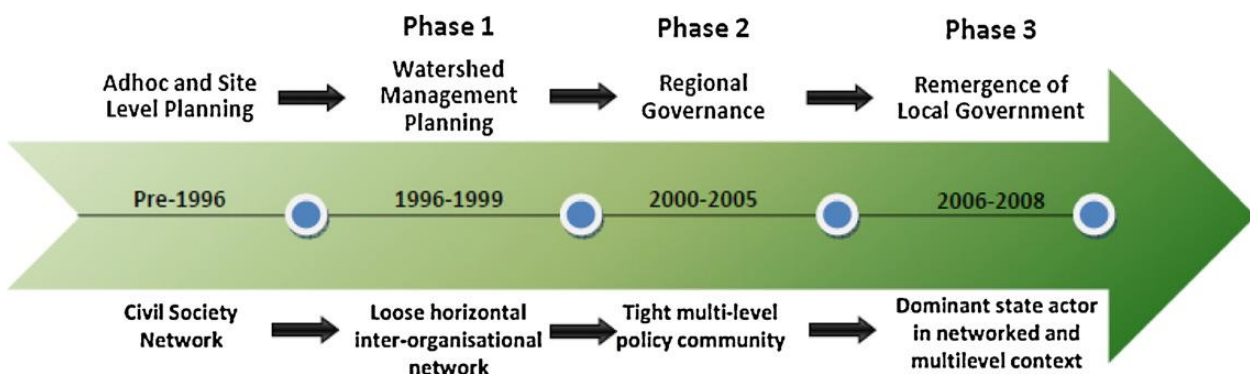


Fig. 5.2 Phases in governance of the urban Oxley Creek corridor 1996–2008

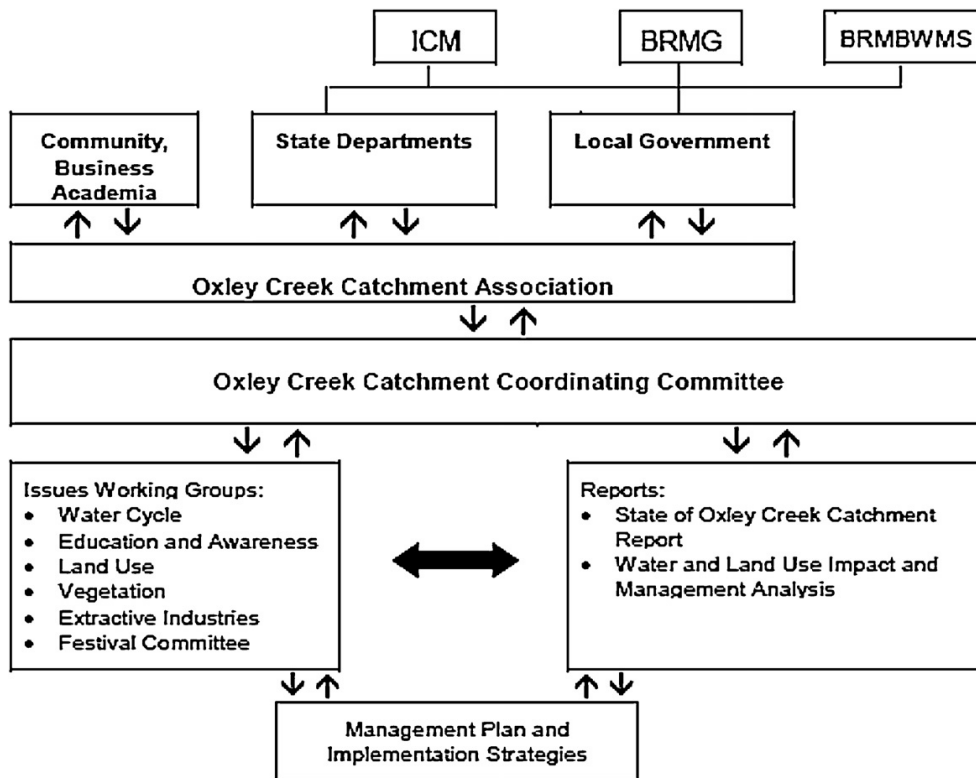
<sup>149</sup> Other governments – e.g. national and provincial governments in Australia, Canada and the USA – also initiated similar programs – with slightly different names – at this time.

As discussed in the previous section, participation in public policy had been on the upswing since the late 1960s, and the emerging watershed management model was one of the first environmental management models to incorporate this trend. The Oxley Creek pilot supported stakeholder involvement to found a catchment association, and prepare and launch a Catchment Management Plan. A high level of participation was enabled through the watershed management framework and was augmented by the transfer of most previously existing activities (e.g. local volunteer bushcare groups) to the new catchment association. The initial energy within the Oxley Creek Catchment Association was also bolstered by the broader environmental movement, mainstream political support, and improved scientific understanding of ecosystem processes, all of which gave the organisation strong institutional recognition. The formal watershed management approach included committed industry, state and local government involvement throughout the development of the Catchment Management Plan. A stakeholder working group structure facilitated specialised involvement in particular aspects of catchment management (see Fig. 3).

Later, a special Oxley Creek Taskforce (henceforth named 'the Taskforce') was given the brief for responding to development pressures and needs in the Oxley catchment and sought funds from developers for urgent remediation in the corridor.<sup>150</sup> The Taskforce established a number of working groups to focus on particular issues and channel information to the City Council in an advisory capacity. A range of stakeholders participated in special working groups including representatives from the catchment association and other non-government organisations, industry and local government. The style of participation had a professional focus and meant that participants could have strong input into one aspect of planning.

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<sup>150</sup> This Taskforce was controversially chaired by a local property developer, of both wealth and influence.



**Fig. 5.3 Original voluntary watershed management model for the Oxley catchment (OCCA 1999, p15) (BRMG, Brisbane River Management Group and BRMBWMS, Brisbane River and Moreton Bay Waste Water Management Strategy)**

Therefore, just like experience elsewhere (e.g. Kraft and Johnson BN 1999), trends involving participation in the catchment association were not static during this period. The launch of the Catchment Management Plan in 1999 signalled a shift from catchment planning to ongoing catchment management and accordingly some stakeholders drew back from active involvement. Alongside this, government involvement changed with policy and funding arrangements, industry priorities shifted as projects in the catchment were completed, and the original working group structure began to breakdown. For the catchment association, the creation of the Taskforce effectively reframed their involvement from ‘multi-aspect’ catchment managers to representatives of a community organisation interested in waterways. The Taskforce focused on practical proposals aimed to unite the diverse participants, however many stakeholders became sceptical about the level of industry influence within this group. Thus, while the inclusion of public stakeholders had an important democratising effect on the wider catchment management group, the strong conceptual convergence of actors on the Taskforce also indicated the institutional capture of civil society, which affected their ability to express a critical voice. Later, and in line with wider trends in Australia and elsewhere, the group began to experience problems with the

sustainability and representativeness of its volunteer base (Lockie 2001; Byron and Curtis 2002; Ruzza 2006).

## **Phase 2: regionalisation of natural resource and population growth management**

Following the management plan launch, the catchment association also began to be influenced by issues beyond the catchment level and the interests of individual stakeholders. By 2000 newer networks and approaches at other scales began to emerge in the corridor including regional planning for both natural resource management (NRM) and population growth management. The entire context for the catchment association and corridor management had begun to shift.

Thus, as watershed management was established a wave of important regional planning emerged from higher (national and provincial) governments, and also in response to land use degradation and development pressures in urban areas. They consisted of a controversial shift to regional land use planning through a new state planning Act<sup>151</sup> and non-statutory regional growth management plans.<sup>152</sup> In addition, federally funded programs for water quality and NRM respectively were also established through agreements between State and National governments.<sup>153</sup> Significantly these programs also established regions and regional bodies as vehicles for the programs.

Thus a range of events during this time firmly established regional frameworks as the new institutional reality for actors and networks across all scales. The number of regional approaches continued to expand from NRM and growth management planning to include regional water quality and ecosystem assessments. This triggered the catchment association into a period of review to identify how well the catchment planning goals fitted with the newer regional frameworks that had emerged over the top of them.

This regionalisation also stimulated a shift in stakeholder relations, from a loosely integrated horizontal arrangement (an inter-organisational network according to the Rhodes (1997) typology) pre 2000 to a more tightly integrated vertical arrangement (a policy community in Rhodes' eyes) post 2000 (Fig. 2).

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<sup>151</sup> Queensland *Integrated Planning Act 1997*

<sup>152</sup> Regional Frameworks for Growth Management.

<sup>153</sup> The Natural Heritage Trust program (Stage 2) and the National Action Plan for Salinity and Water Quality.



### **Phase 3: re-emergence of local government in a networked and multi-level governance context**

By 2005 a variety of actors were now participating in the governance of the corridor at various levels of scale and with differing organisational focus and differing levels of intervention. Provincial level actors included planning and environment departments. National government involvement included agriculture and environment departments. Significant metropolitan and regional organisations included the Brisbane City Council (the City Council), the regional Natural Resource Management NRM body ('SEQ Catchments') and the Healthy Waterways Partnership, a state facilitated regional waterway initiative. Catchment level organisations included the Oxley Creek Catchment Association (the catchment association) and the Oxley Creek Taskforce. Private sector and not-for-profit groups included developers and corporations, and environmental and socially-centric NGOs (Table 5.1).

Critically there was a delay in the roll out of the new regional NRM funding in some areas. At the catchment level this de-funded positions and reduced the organisation to a skeleton crew of volunteers. In response, the City Council stepped into the gap and began funding coordinator positions for catchment groups across the city. When the new funding came through in the following year and a regional body was established to support catchment groups, the catchment association had begun to more strongly identify and be identified with the City Council than with the regional framework.

The strategic development taken by the catchment association at this time is best understood as a policy community response to new regional arrangements. The response was to attempt to maintain access to decision making at higher spatial scales and reconstruct ideas of participation within this reality. The now City Council funded coordinator focused on capacity building and revitalisation of the catchment association's networks. The original stakeholder working group structure was reinvigorated as 'interest groups' composed of individuals from the community and structured around themes of 'water', 'biodiversity', 'community' and 'land'. There was also a reconnection with industry and community sector groups who had dropped away in the years following the catchment management plan. The new 'interest' groups consisted of individuals rather than organisations from a range of sectors. Although the catchment association retained a watershed management model on paper, in reality it had lost the cross-sectoral involvement, adapted to the new institutional reality and morphed into a local government funded peak

community body. This signified a growing voice in the urban electorate to support open space and private conservation, and re-energised the environmental sampling and reporting programs. While this is evidence of the difficulties in policy implementation (Sabatier 1986) and sheer instability of networks as posited by Wagenaar and Hajer (2003) the most important aspect of this reality at the catchment level was the stronger role taken by the City Council, and the fact that the model overall failed to have any lasting impact on the water quality rating. The next section highlights why these developments are important and also suggests some ideas for future reform.

**Table 5.1 Significant government and non-government actors in governance of the Oxley Creek corridor 1996–2008 by scalar-level**

<b>Scale</b>	<b>Government</b>	<b>Non-government</b>
National	Departments for: Environment, Water, Heritage and Arts Fisheries and Forestry Agriculture	Cooperative Research Centre for Catchment Hydrology
State	Departments for: Infrastructure and Planning, Natural Resources and Water, Primary Industry and Fisheries, Also: Environmental Protection Agency	Brisbane-based Universities Greening Australia Qld
Regional	SEQ Regional Association of Councils Healthy Waterways Partnership	SEQ Catchments*
Municipal	Brisbane City Council and divisions for: City Planning Water Resources Natural Resources and Sustainability Also: Brisbane River Management Group* Brisbane Catchments Network*	Brisbane Regional Environment Coalition Industry partners of the City Council Land developers
Catchment	Oxley Creek Taskforce*	Oxley Creek Catchment Association Readymix and other local industry
Local	Neighbourhood Planning Teams* Council bushcare groups* Council wards	Oxley Creek Environment Group Community action groups Resident associations Community Development Associations

\* Involves government and non-government participants.

### **5.3 Analysis: process, scale and administration**

Watershed management is an environmental management model that has experienced high levels of adoption in rural areas. There has been less experience with the application of the model to highly urbanised environments. The Oxley Creek case illustrates some of the key factors which influence environmental management in urban areas, and affect its applicability to these areas. The ways in which these factors can be reflected in future applications of the model are now discussed:

#### **Integrated environmental management and the importance of local government in urban regions**

Significant trends over the last two decades in environmental management and planning include public participation, the shift to regional scale approaches, and the emergence of multi-level governance networks. In the Oxley Creek catchment corridor governance shifted dramatically over this time from informal networks in the late 1990s to a watershed management model and then to the tight multi-level policy community (Fig. 5.2–Phase 2) under new regional scale approaches after 2003. Central to the watershed management model as it is still understood today is the view that successful environmental management is the product of the participation of intraregional actors. Regions have come to be seen as the key scale of civic interaction – small enough in size and complexity to allow citizens informally and endogenously to make decisions about their own problems, and yet large enough to mobilise the significant voluntary capacity required to manage these problems (Ostrom 1990, Healey 1997).

However opportunities for public participation in watershed management have been transformed under the effects of regionalisation of land use planning and NRM. Within the Oxley catchment many stakeholders have found it difficult to identify with the spatial scale of catchment, let alone the idea of a region. Hooper (2002) also highlights that large populations in urban areas are a challenge for the traditional stakeholder consultation approaches characteristic of NRM planning. Urban stakeholders have been found to have the lowest acceptance of and respect for regional NRM bodies' authority, and poor views of regional bodies' engagement with stakeholders (Davidson et al. 2008). This has been attributed to land use pressures, the busy lifestyle of urban dwellers which may preclude volunteering, the physical removal of urban people from the environment, and a differing sense of community than found in rural areas (Western and Pilgrim 2001, Keogh et al. 2006).

Participation for the purposes of both efficiency and legitimacy of decision making therefore becomes complicated by the difficulty for an appropriate diversity of local stakeholders to access decision-making processes at the regional level and a struggle to identify with the regional scale and its concerns. In this case local government has played an active role in fulfilling this need and has re-emerged as a central actor within this networked multilevel policy environment. The position of local government as a central actor is crucial in three ways: managing cross-scale connections, enabling regionally recognised action and facilitating specialized local participation.

## **The limits of local government within current institutional settings**

Yet there are limits to the role that local governments can play in urban environmental management. While there is growing recognition that local governments in recent times have embraced environmental assessment and expanded their environmental programs to include flood, erosion and wetland management and participation in watershed management, their environmental role is still underdeveloped relative to their federal and state counterparts (Crowley 1998, Margerum 1999, Tarlock 2002, Morrison et al. 2010).

This is because these units have often not been assigned a formal role in the implementation of major environmental policy such as pollution policy and biodiversity conservation policy. For example, while the new regional frameworks in Queensland expanded the expectations of and responsibilities for environmental management and growth management at the local level, there was no commensurate expansion of local government powers, nor funding opportunities. Where local government is often centrally involved (e.g. in regional growth management planning), the process has also often been ineffective because “local governments have neither the coverage nor the scale needed to carry this responsibility, or to support the evidence based, comprehensive planning it necessitates” (Gleeson et al. 2010:5). Furthermore, a number of recent studies of state and federal regional NRM policy in Australia, for example, show that local government has been systematically marginalised from successive generations of regional NRM programs (Australian Government 1997, 2008, 2010a; Morrison et al. 2010).

Additionally, local governments are usually not willing to use their existing land use authority to correct this gap (Tarlock 2002). While urban local governments arguably have stronger planning powers than rural local governments (Keogh et al. 2006), it can be difficult to get NRM on the urban agenda due to a number of factors. Not only is there often a lack of

interest by the urban constituency, urban and rapidly urbanising local governments are often dealing with rapid population expansion, and high levels of development intensity. Local governments also have a challenge meeting the demands of peri-urban areas, especially as local governments often suffer from a lack of information about small-scale landholdings in this area. Land parcels in this area are shrinking and values are rising, meaning an increase in potential revenue for councils, but also increasing costs of service provision. The varying objectives and experience in land management of the landholders in this zone also create challenges for national NRM programs (Emtage et al. 2007). Crucially, local governments are working within the constraints of a market-based property development system on which their income depends (Crowley 1998).

The challenge within this arrangement rests on the capacity of local governments to administer catchment management and conservation in the virtual absence of economic and political incentives to do so. Scholars such as Colburn (2005), warn that federal reforms with decentralised implementation are not the answer, concerned about both, the “factional, opaque, and self-dealing” reputation of local governments, as well as the “incredible power of, and ambivalence toward conservation by, our land development markets”. There is also a great variation across local governments, who are the products of decisions made at higher levels. In the case of Brisbane, the local government is unusually large, powerful and stable. For the SEQ region, the combination of changes to regional NRM and the shift to integrated growth management planning has resulted in a concentration of power at the local government level where local government is strong. This suggests that in the context of regional frameworks and strong local government the response to this power dynamic will result in stronger integration of urban catchment networks under local government auspices. Through strong local governments there is a significant opportunity for integration of land use planning and environmental management at the local level.

## **5.4 Chapter conclusion**

By charting institutional and policy changes in a region undergoing rapid population growth this paper contributes to understandings of the linkages between environmental governance, participation and scale in urban and rapidly urbanizing settings. These understandings generate important implications for urban environmental systems and policy networks. The case analysis in this paper shows that the broader institutional setting clearly affects the application of the integrated environmental management model. This demonstrates the importance of the governance context to local environmental

management. In the case of Brisbane, despite the best efforts of the council and the urban electorate to support open space and private conservation, and some re-energised environmental sampling and reporting programs underway – the model overall has failed to have any lasting impact on the water quality rating. This shows that the application of integrated environmental management is so highly dependent on local context (such as the existence of a strong local government and civil society) that there is limited transferability of lessons — as Putnam (1993, p183) notes, successful regions have, “deep historical roots. This is a depressing observation for those who view institutional reform as a strategy for political change” (also see Robins 2007).

The re-emergence of local government as a key actor in integrated environmental management in urban areas is not only important in that local governments are usually the major land management stakeholder and decision-maker (Nobbs et al. 1995), but that it also signifies a return to the centrality of state actors in an increasingly networked and multilevel governance context (Bell et al. 2009). Yet, the IEM model may not be the most appropriate model for managing urban environments — urban local governments have traditionally been more concerned with population and development pressures, and have had difficulties in getting NRM issues on the agenda.

Finally, some scholars are now arguing that there are so few natural waterways and patches of bushland left in urban areas, and what is left is so modified, that urban NRM should focus on restoring ecosystem functions rather than on IEM as it is usually understood (Bryant 2006). Biodiversity protection is identified as one of the major issues in urban areas and local governments can play the most significant role in monitoring further development (Hooper 2002). Further research needs to be done on what other strategies and instruments are available to local governments to manage urban environments. These need to be designed in a way which exploits local government’s “deep connection to private property entrepreneurialism” so that local governments can leverage land use policies away from “all development is good” to a more complex understanding of the relationship between land stewardship and property values in urban environments (Gunningham and Grabosky 1998, Colburn 2005).

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## Chapter 6

### Anatomy of a Governance Arena: Embeddedness part 1

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This chapter delineates the urban ecological governance arena in Brisbane and Portland, and examines their significant internal dynamics. These dynamics are viewed through the lenses of ‘political arenas’ (Lowi 1972), policy instruments (Hood 1983, Howlett 2000) and policy roles (Bridgman and Davis 2003). Embeddedness is therefore examined with respect to the political processes various urban interests in which the instrument mix is embedded. The analysis finds patterns of inter-linkage between policy roles and actor networks are that are significant for determining adjustments to change within the governance arena. The findings demonstrate that many differences between Brisbane and Portland can be explained by their differing institutional contexts. However, strong patterns of commonality were also identified, which is significant for ‘most different’ comparisons. Commonalities in most difference comparisons imply that a phenomenon – in this case urban ecological governance — is not purely generated by its context and they provide a glimpse into the underlying phenomenon (Campbell 2010). The results imply that there are aspects of the ecological governance arena that could be used for institutional design. The chapter engages with the main research questions by examining the relationship between different structures of governance and political dynamics within the arena, in particular the chapter engages with research question 2) “How and in what respects does governance of this urban policy arena across the metropolitan area adjust to change over time?” with an ancillary focus on 1) “How do actors in a ‘non-core’ urban policy arena interact with the broader institutional context over time?” The analysis mostly relates to the structural aspects of the investigative framework – functional, governmental and civic-political (Figure 3.2). Hence, embeddedness is examined with respect to the political arenas in which these structures are embedded. Chapter 7 continues this line of enquiry beyond the internal structure of the arena to focus on the broader context. Taken together this chapter and the next develop the concept of responsive governance to the first stage outlined in the research framework (Figure 3.1).

The Brisbane and Portland cases were investigated both *in situ* and retrospectively. The period 2009–2012 was studied *in situ*, with in depth interviews and participant observation

occurring during this period. A retrospective analysis was undertaken for the period between 1991 and 2008 using interviews and extensive document analysis. The identification of the governance arenas was an iterative process that occurred during scoping exercises, was fine-tuned by the actor referral process and further extended through document analysis. This chapter examines Brisbane and then Portland Metro. For each case city: the political arenas and their linkages are identified; policy instruments are categorized; and policy roles and their alignment with actor-networks are briefly outlined. The chapter concludes with a comparison of Brisbane and Portland followed by discussion of the implications for responsive governance.

## **6.1 Governance arena anatomy and urban ecological resources**

This section begins with a discussion of political arenas, policy instruments and the nature of urban ecological resources. This research is interested in the practice of governance and therefore the implementation of policy. Contemporary governance arrangements are usually implemented through a mix of diverse instruments (Gunningham and Sinclair 1999). Instruments have been defined as ‘the tools of government’ (e.g. Hood 1983), however, this research broadens the definition to ‘the tools of governance’. In this way, significant programs, advocacy and management by non-state actors are also recognised as instruments within urban ecological governance. Different instruments generate different types of political arenas.

### **Political arenas and their instruments**

The following discussion explains the links between ‘policy instrument’ and ‘political arena’ that are used to examine the anatomy of ecological governance. The governance arena consists of multiple interacting policy instruments and this instrument mix generates a set of overlapping, interlinked political arenas. For the purposes of this research a political arena is a set of political processes and structures that develop on the basis of what participants hope to achieve from a particular policy instrument (adapted from Lowi (1964) and Hill and Plumlee (1984)). The political arenas concept was first put forward by Lowi (1964) as a causal model. The main premise that ‘policy creates politics’ was the basis for identifying types of political arenas – i.e. regulatory and distributive, redistributive and constituent – and their accompanying political dynamics. Rather than as a causal model, this research applies the political arena model as a heuristic tool to delimit the boundaries of urban ecological



governance and categorise the instruments therein.<sup>154</sup> ‘Political arenas’ have had a significant influence on political science over the last 50 years. The model continues to be debated, theoretically extended and applied.<sup>155</sup> The approach engages with issues of structure and power, a gap in responsive governance research that was identified in the literature review (Chapter 2). The ‘political arenas’ model examines different policy types according to their political dynamics (Peters 1992). In contrast, the ‘policy instrument’ is an analytical model of policy analysis that focuses on the defining of a policy problem and the construction of a solution (Peters 1992), as will be now outlined.

Many typologies have been developed for policy instruments. The seminal approach by Hood (1983) categorises substantive instruments according to the governance resource that is drawn upon: nodality (i.e. information), authority, treasure or organisation. Hood (1983) further bisects these according to whether the instrument is an effector (effecting change), or a detector (detecting change). Howlett (2000) extends Hood’s approach to include procedural instruments which are important for contemporary ‘hollowed out’ governance settings. Howlett’s (2000) model also uses Hood’s (1983) four governance resources, however procedural instruments are categorised according to whether they are positive (i.e. support other governance actors to participate) or negative (i.e. discourage participation). This research combines Hood’s and Howlett’s models (Table 6.1), but does not include Howlett’s ‘negative procedural instruments’ because these tend to be external to governance networks at the policy arena level in Brisbane and Portland. In addition, this research also alters Hood (1983) and Howlett’s (2000) state-centric approach to instruments. The network focus of this research calls for an approach that recognises tools used by non-state actors as instruments where they are significant in planning and management.

**Table 6.1 Policy instrument categories in this research**

<b>Sub-categories</b>	<b>Authority</b>	<b>Nodality</b>	<b>Organisation</b>	<b>Treasure</b>
<b>Procedural</b>	Procedural-authority	Procedural-nodality	Procedural-organization	Procedural-treasure
<b>Effector</b>	Effector-authority	Effector-nodality	Effector-organisation	Effector-treasure
<b>Detector</b>	Detector-authority	Detector-nodality	*	*

\*No instruments from these categories were identified within ecological governance of Portland Metro and Brisbane

<sup>154</sup> The political arena model is useful here as it provides a scope broad enough to include societal, government and cross-sectoral elements (see chapter 3).

<sup>155</sup> Lowi’s original model has been subject to much debate, research, criticism and theoretical extension (e.g. Hill and Plumlee 1984, Peters 1992, Anderson 1997, Smith 2002, Rhodes 2007, Hedström and Ylikoski 2010). For discussion its popularity, adaptations and critiques refer to Peters, B.G. 1992. The policy process: an institutionalist perspective. *Canadian Public Administration*, 35, 160–180.

## Governance, policy roles and actor networks

In contrast with Lowi's (1964) typology of policy which is focused on *political process*, 'policy cycle' models present generalised stages of *policy-making process* that can be used as a heuristic for examining different roles played by actors (Bridgman and Davis 2003). This moves the analysis from an instrument-based definition of the policy arena to an actor-based definition. The approach assists with identifying informal networks of actors that are not as readily identifiable through a policy instrument focus. Table 6.2 illustrates the stratification grid used to scope Portland and Brisbane by combining policy instruments with a simplified policy stage model. The stages are self-explanatory, with the standard caveat for this research that instruments can be state, non-state or cross sectoral in nature.

**Table 6.2 Stratification of actor roles within policy instruments**

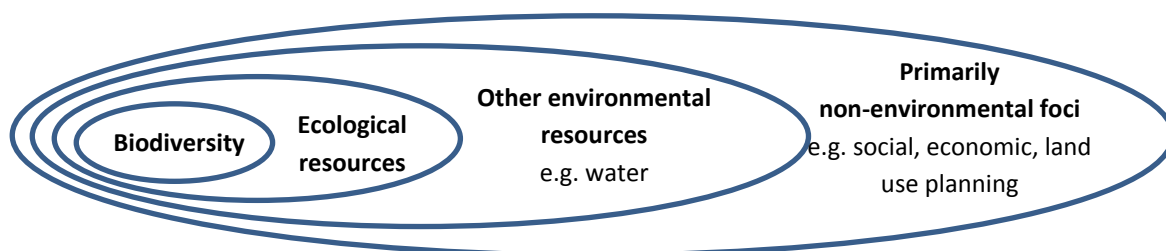
	Policy stages / Actor roles			
	Problem identification	Policy design	Management and implementation	Monitoring and evaluation
Instrument 1				
Instrument 2				

The examination of governance arenas in Brisbane and Portland Metro identified a broad range of instruments that were implemented between 1991 and 2012. The political arenas model indicates the general political dynamic of urban ecological governance. Hood's (1983) and Howlett's (2000) policy instrument types indicate the governance resource that is drawn upon and the approach to implementation. A policy stage model identifies different roles within each instrument. However, for the purposes of understanding responsiveness to change it is also necessary to understand the manner in which ecological governance is embedded amongst other policy arenas.

## Governance and urban ecological resources

Important local ecological value continues to persist in many urban areas. Urban sites often play important roles in regional habitat connectivity, human quality of life, and the provision of urban ecosystem services (Savard et al. 2000, Dearborn and Kark 2010). For the purposes of this research urban ecological governance includes activities and arrangements that focus on, or significantly influence, the protection, restoration or maintenance of biodiversity that is 'native' to the urban area. However, many activities that govern urban ecological resources are based primarily within other policy arenas (e.g. urban planning),

have other primary foci and their main actors vary in their sympathy to biodiversity concerns. In fact, the most significant impacts on urban biodiversity routinely involve instruments and networks with primarily non-environmental foci (Figure 6.1).



**Figure 6.1 The range of primary foci amongst instruments and actor networks within urban ecological governance**

It is expected that this situation will critically affect the way ecological governance adjusts to change. It indicates the extent to which ecological governance overlaps with and is a co-benefit of other urban policy arenas. Hence the embeddedness of governance amongst a diversity of urban interests is an underpinning factor of the political arenas that develop. The investigation of this problem of context embeddedness now begins with an identification of Brisbane and Portland’s policy arenas for ecological governance.

## 6.2 Identifying the Brisbane and Portland arenas

This section identifies the governance arena for urban ecological resources in Brisbane and then Portland Metro. The political arenas, policy instruments and actor roles are explained for each case. The instruments that form the basis for these analyses were identified through participant interviews and documents analysis. All instruments in the sample were implemented within ecological governance for some portion of the 1991 to 2012 period. Both cases supported diverse instrument types which in some cases coexisted within a program — e.g. a steering committee for a grants program. Over time, the reform of programs could involve the implementation of new instruments to achieve their purposes — i.e. the change from government delivered weed management to a procurement model to deliver the same weed management program.

A policy — or program to carry out the policy — often consists of multiple instruments and has important implications for applying the political arenas model to the instrument level. It means that while some instruments are categorised within one political arena, others are

categorised within one arena, but are linked with, or have direct implications for a second arena — within the broader policy process. These linkages are examined in this analysis and provide further insight into the politics of each case and associated institutional design. A full list of the instrument samples and political arenas for each city are attached as Appendix 5 and 6.

Instruments are categorised into constituent and distributive, regulative and redistributive arenas, according to Lowi's (1964) typology. Their adaption to urban ecological governance is as follows:

- constituent instruments provide broad benefits to a broad constituency and may be strategic rather than expenditure based — e.g. a management plan;<sup>156</sup>
- distributive instruments provide benefits to a narrow constituency and general expenditure for a specific purpose — e.g. a grant;
- regulative instruments are statutory or non-statutory but are embedded within statutory processes in a regulative manner; and
- redistributive instruments involve the transfer of resources from one societal group to another or a transfer of responsibility from one actor to another — e.g. a social security based program.

Instruments are also categorised as 'effector', 'detector' and 'procedural'. These three categories are further divided into: 'authority', 'nodality', 'organisation' or 'treasure' instruments (Table 6.1). For urban ecological governance these manifest as follows:

- 'effector-authority' and 'detector-authority' instruments draw upon authority as a resource to effect or detect change respectively. They can use non-statutory or statutory authority and through a network governance lens, some are triggered by non-state actors — e.g. lawsuits.<sup>157</sup> 'Procedural-authority' instruments are concerned with how authority is implemented amongst actors — e.g. advisory committees;
- 'nodality' instruments use information as a governance resource to effect (e.g. training), detect (e.g. technical reports) or procedurise (e.g. awareness raising programs) change;

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<sup>156</sup> The constituent category also included instruments that provided indirect benefits to a broad constituency and did not regulate, involve general expenditure (distributive) funds or redistribute resources.

<sup>157</sup> The network focus of this research means that authority can be held (albeit in a diminished form) by non-state actors, in contrast to Hood's (1983) state-centric approach to policy instruments.

- ‘organisation’ instruments use the ability to organise as a governance resource to effect (e.g. most programs) or procedurise (e.g. strategies); and
- ‘treasure’ is used to effect (e.g. grants) or procedurise (e.g. research funding) change through a range of instruments.

More specific types within each of these categories were identified through inductive analysis, for instance the specific type of ‘strategies’ sits within the category of ‘organisation-procedural’ instruments. Sub-types were established within each specific type, for instance, ‘strategies’ has an internal typology of four different strategy types.<sup>158</sup> In this way further detail was added to the primary identification the instrument samples for each case. Then a secondary identification further developed the samples via pattern matching between Portland and Brisbane. Pattern matching involved the selection of an instrument or instrument type identified in one city and a search for functionally equivalent structures in the other city. Stake (1990) identifies this process as a critical stage in the interpretation of qualitative data. Pattern matching enabled the identification of instrument types that were prominent in one city but less formal in the other and these less formal equivalents were also included in the instrument sample for that city.

The instrument samples from each city were extensive (Brisbane n=171, Portland n=519), internally consistent and the patterns concurred across multiple data sets from interviews, key informants and document analysis. The instrument samples were collected from these data sets into spreadsheets and then codified according to the instrument categories detailed above. The categorised instruments established a detailed description of the range of instrument types in each city that drew on a particular governance resource (i.e. authority, nodality) and the political arena they existed within. In addition the codified sample provided a numerical count of these categories. The data however, may be influenced: by the interview participants’ perceptions of significance; by the constructed nature of policy instruments; and by differing access to information under the differing models of urban governance in each case area. I revisit these constraints in section 6.6 to consider the lessons learnt from this analysis and potential refinements for more detailed work in this vein for future research. For the purposes of this research, these constraints were taken into account in the following analysis and interpretation. The findings for Brisbane and then

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<sup>158</sup> The internal typology of the ‘strategies’ subcategory includes: collective vision, conceived vision, instrument norm and analytical positioning strategies. Internal typologies were designed with reference to relevant literature as well as inductive analysis. For example, the strategy typology draws on strategic management theory (e.g. Mintzberg 1994, 1998).

Portland will be presented with a focus on political arenas and their inter-linkage, policy instruments and their governance categories; and policy roles played within these instruments.

### 6.3 Brisbane’s arena for ecological governance

Analysis of Brisbane instruments indicates that ecological governance in Brisbane has: political arenas that are strongly constituent in nature — broad benefits to a broad constituency — with moderate inter-linkages between different arenas; policy instruments that include a core of stable, long implemented programs and influence from the hierarchical structure of the large metropolitan council; and policy roles that form the basis of actor networks, many of which revolve around formalised programs. These networks show high levels of convergence with the BCC policy division Natural and Environment and Sustainability (NES) and also with stronger watershed groups — which are non-state groups in Brisbane. The following discussion is based on the examination of 171 instruments that were implemented in Brisbane for at least a portion of the period 1991–2012.

#### Political arenas

Arena types indicate the political dynamics that are likely to proceed from each instrument. Table 6.3 provides examples for Brisbane within their respective arenas. Both substantive and procedural instrument examples are included.

**Table 6.3 Example instruments by political arena for Brisbane ecological governance**

Political Arena	Main structural type	Brisbane example
Constituent 51% (n=88)	Actor agreements Strategies and plans Collaborative forums Events Advisory forums Science program Publications and reports	Voluntary Conservation Agreement Brisbane Biodiversity Strategy Brisbane Catchments Network Peaks to Point Festival Biodiversity Advisory Committee OCCA Water Quality Monitoring “The Creek in Your Backyard”, SOWN
Distributive 23% (n=40)	Government delivery Outsourced delivery Community based Grants / funding instruments Land acquisition	2 Million Trees Program Revegetation Contracts Habitat Brisbane BCC Environment Grants Bushland Acquisition Program
Regulative 20% (n=34)	Zones and codes Local laws State planning legislation State environmental legislation	Planning Scheme Biodiversity Code BCC’s <i>Natural Assets Local Law 2003</i> <i>Integrated Planning Act 1997 (Qld)</i> <i>Nature Conservation Act 1992 (Qld)</i>
Redistributive 5% (n=9)	Employment programs Transfer of program Roll up into other instrument	Jobskills Program Creek Rangers transferred to NES Brisbane River Plan rolled into BCP2000

Abbreviations in Table: OCCA is Oxley Creek Catchment Association; SOWN is Enoggera Creek Catchment Group; NES is Natural Environment and Sustainability; BCP is Brisbane City Plan 2000. Source: Political arenas adapted from Lowi (1964)

A high proportion of the instruments that were surveyed in Brisbane were categorised as constituent (~50%). Distributive and regulative instruments were relatively equally represented (~20%) and redistributive instruments were rare (5%). Several instruments that were linked with or had direct implications for a second arena are indicated in Table 6.4. In the following discussion cells from Table 6.4 are referred to by [column]-[row], i.e. constituent-distributive for constituent instruments (column 1) with distributive links (row 2). Shaded cells have no clear linkages with other arenas and are referred to by [column]-unlinked.

For constituent instruments (column 1), constituent-distributive (52%) had a majority over constituent-unlinked (28%). For column 2, distributive-unlinked (65%) had a strong majority. For regulative instruments (column 3), there was a relatively even spread across regulative-unlinked, regulative-distributive and regulative-redistributive. Whereas the redistributive arena (column 4) was completely linked (i.e. unlinked = 0). Furthermore, column 4 (redistributive instruments, n=9) were outnumbered by row 4 (redistributive linkage, n=22), which indicates that redistributive processes mostly occurred as a by-product of other political arenas. This characteristic is not surprising, given the non-core position of ecological governance in the broader urban setting. In contrast, the constituent arena had a low proportion occurring as a by-product of other arenas (row 1) and most constituent instruments were linked (column1, rows 2, 3 and 4 = 72%, or 63 of 88 instruments). Constituent-distributive was particularly frequent (52%, 46 from 88 instruments). Distributive-regulative were absent from the Brisbane sample (n=0) which is a striking contrast with the Portland case (Section 6.4). This contrast may relate to the institutional contexts of each metropolitan area, a comparative discussion of results for Portland and Brisbane furthers this line of enquiry in section 6.5.

**Table 6.4 Brisbane instruments by political-arena and political-arena linkage**

Political Arena Linkage	Political Arena								Total	
	1. Constituent		2. Distributive		3. Regulative		4. Redistributive			
Constituent linkage	25	28%	7	18%	0	0%	2	22%	34	20%
Distributive linkage	46	52%	26	65%	15	44%	7	78%	94	55%
Regulative linkage	14	16%	0	0%	7	21%	0	0%	21	12%
Redistributive linkage	3	3%	7	18%	12	35%	0	0%	22	13%
<b>Total</b>	<b>88</b>	<b>100%</b>	<b>40</b>	<b>100%</b>	<b>34</b>	<b>100%</b>	<b>9</b>	<b>100%</b>		
% of total	51%		23%		20%		5%			

*Shaded cells indicate instruments with no clear linkage to other arenas*

A numerical count does not of course indicate the relative influence of particular instruments. The following discussion investigates policy instruments within these political arenas and begins to explore the relative influence of particular instrument groups. To do so it is necessary to interpret the thin description generated from numerical data with thick descriptions from the case study database (Geertz 1973). Later Chapters 7, 8 and 9 further this line of enquiry as a main focus.

## Policy instruments

Instrument categories — i.e. authority, nodality, organisation and treasure — indicate the governance resource that is used to implement planning and management. The governance resources most frequently drawn upon in the Brisbane sample were ‘authority’ (33%) and ‘organisation’ (43%). ‘nodality’ (15%) and ‘treasure’ (10%) based instruments showed a lower, but comparatively similar incidence (Table 6.5). These instruments were further categorised as procedural, effector-substantive or detector-substantive. The effector-substantive category was more common than detector-substantive, except in the case of detector-nodality instruments — such as policy assessment and reporting.

It is important to interpret the numerical data within its ‘thick’ context (Geertz 1973). For instance, the proportion of detector-authority instruments in the sample was low (2%). However, they were mostly informal and some were identified through pattern matching with the Portland case<sup>159</sup> rather than being immediately identified without the comparative analysis. This category is likely to be less influential than even the low count suggests. In general, procedural instruments in Brisbane were comparatively weak, although unsurprisingly, procedural instruments were stronger where more closely associated with strong state actors. However, a trade-off between ‘authority’ and ecological governance concerns was highlighted by interview participants.

*...the technical officer looks at a decision and says, ‘that’s how it should be’, black and white. Then it goes to me and I’m putting a bit of strategy, a bit of big picture into it...and then it goes to my section head who puts even less subject matter and a broader picture into it...and then it goes to the branch manager who’s looking at it 90% politics and bureaucracy and 10% subject matter. (Brisbane state participant)*

This illustrates the tendency for higher levels of state authority in hierarchical structures to include broader, more strategic responsibilities and lower relative concern for specific governance arenas. It shows that the instrument patterns in Brisbane resulted at least in

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<sup>159</sup> Authority-detector instruments in Portland Metro are more readily identifiable and numerous than in Brisbane.



part from the hierarchical structure of urban governance and concurs with strong governmental embeddedness identified for Brisbane (Chapter 4). These findings show that within the hierarchical governmental structure in Brisbane, the range of embedded interests can increase with the level within the hierarchy. There was however one set of significant procedural instruments that did not involve state actors, except at a peripheral level — e.g. Brisbane Catchments Network. While rarely strong, these non-state instruments have great potential for flexibility and innovation.

**Table 6.5 Example instruments by governance resource for Brisbane**

<b>Governance Resource</b>	<b>Resource Category (% of total)</b>	<b>Instrument sub-type</b>	<b>Example Brisbane Instrument</b>
<b>Authority</b> 33% (n=56)	Effector-authority (20%)	Certification / awards Environmental plans / policy Management plan Regulatory protection Revenue collection Statutory land use planning Strategic planning Watershed planning	Landcare awards SEQ NRM Plan Boondall Wetlands Management Plan Natural Assets Local Law Bushland Preservation Levy Conservation Zone, Brisbane City Plan Canopy targets, Brisbane Strategic Plan Oxley Creek Watershed Management Plan
	Detector-authority (2%)	Community advocacy Legal proceedings Public feedback	Resident Action Groups Environmental Defenders Office Watershed-Councillor communication
	Procedural-authority (10%)	Advisory group Management group Shared political decision	Neighbourhood planning committee GA at Downfall Ck. EnviroCentre Memorandum of Understanding - FGK Corridor
<b>Nodality</b> 15% (n=25)	Effector-nodality (2%)	Training Guidelines	Habitat Brisbane Volunteer Training BCC Ecological Assessment Guidelines
	Detector-nodality (8%)	Policy advice/assessment Non-state actor feedback Reporting Technical information	Brisbane climate change report – Tim Low Habitat officer-volunteer communication Healthy Waterways Report Cards Biannual GIS Canopy analysis
	Procedural-nodality (5%)	Awareness raising programs General information provision Technical information Provision	BCC Greenheart Program BCC Environment Committee Minutes  SEQ NRM Atlas
<b>Organisat'n</b> 43% (n=73)	Effector-organisation (18%)	Collaboration programs Commercial-led programs Metropolitan-led programs Non-profit led programs	Habitat Brisbane groups (post ~1996) Preferred contractor list Wildlife Movement Solutions OCCA Catchment Care Team
	Procedural-organisation (25%)	Partnership/network change Planning process Program review Reform project Strategy / Vision	Watershed Group Formation Draft Policy - Core Biodiversity Network 2 Million Trees Program Review Environmental Program Review (2011) Brisbane Biodiversity Strategy
<b>Treasure</b> 10% (n=17)	Effector-treasure (10%)	Grant disbursement Development application process Land acquisition	BCC Environment Grants Developer contributions  Bushland Acquisition Program

Source: resource categories adapted from Hood (1983) and Howlett (2000)

Abbreviations in table: BCC is Brisbane City Council; FGK is Forestdale-Greenbank-Karawatha; GA is Greening Australia; GIS is Geographic Information Systems; NRM is Natural Resource Management; SEQ is South East Queensland

A set of prominent instruments in Brisbane are important for the examination of ecological governance as a whole. Most have longevity. They were established in the early 1990s and continue to be implemented. For example, this includes the community-based revegetation program Habitat Brisbane and the Bushland Acquisition Program. These instruments and other significant examples often display a chain of sequential reform events where, “the program is its own spin-off program” (Brisbane participant). These sequential chains are listed as separate entries in the instrument sample (Appendices 5 and 6) if a reform shifts the categorisation of the instrument into a different category or sub-category. These significant examples include the Natural Assets Local Law — i.e. a metropolitan level vegetation protection law — and the iconic ‘2 Million Trees program’. A range of state and non-state actors participated throughout the policy cycle.

## **Policy roles and actor networks**

A range of state and non-state actors participated in the Brisbane instrument mix for ecological governance (Table 6.6). The most prominent state actor within ecological governance in Brisbane was the council division Natural Environment and Sustainability (NES),<sup>160</sup> although NES was itself only a moderately sized actor within the broader BCC structure. NES developed through a series of incarnations since the early 1990s. For much of that time it was a policy focused, rather than a service delivery unit. NES played a key coordination role across the instrument mix, which converged on NES managers (Table 6.6). Other BCC actors included Local Asset Services (LAS) and the Roads and Drainage Division (RaD). LAS were the implementation arm of BCC with broad responsibilities including natural area management. The RaD was traditionally an engineering focused division with more resources than NES and LAS. A range of other council teams participated according to specific situations. With approximately 7000 employees, BCC was in many ways a large network of government actors coordinated by a strong mayoral system rather than a monolithic unitary actor (refer Section 2.2.2. and neo-institutionalism). Accordingly, the Brisbane mayor and councillors were also important actors and were often the main interface between residents and council actors.

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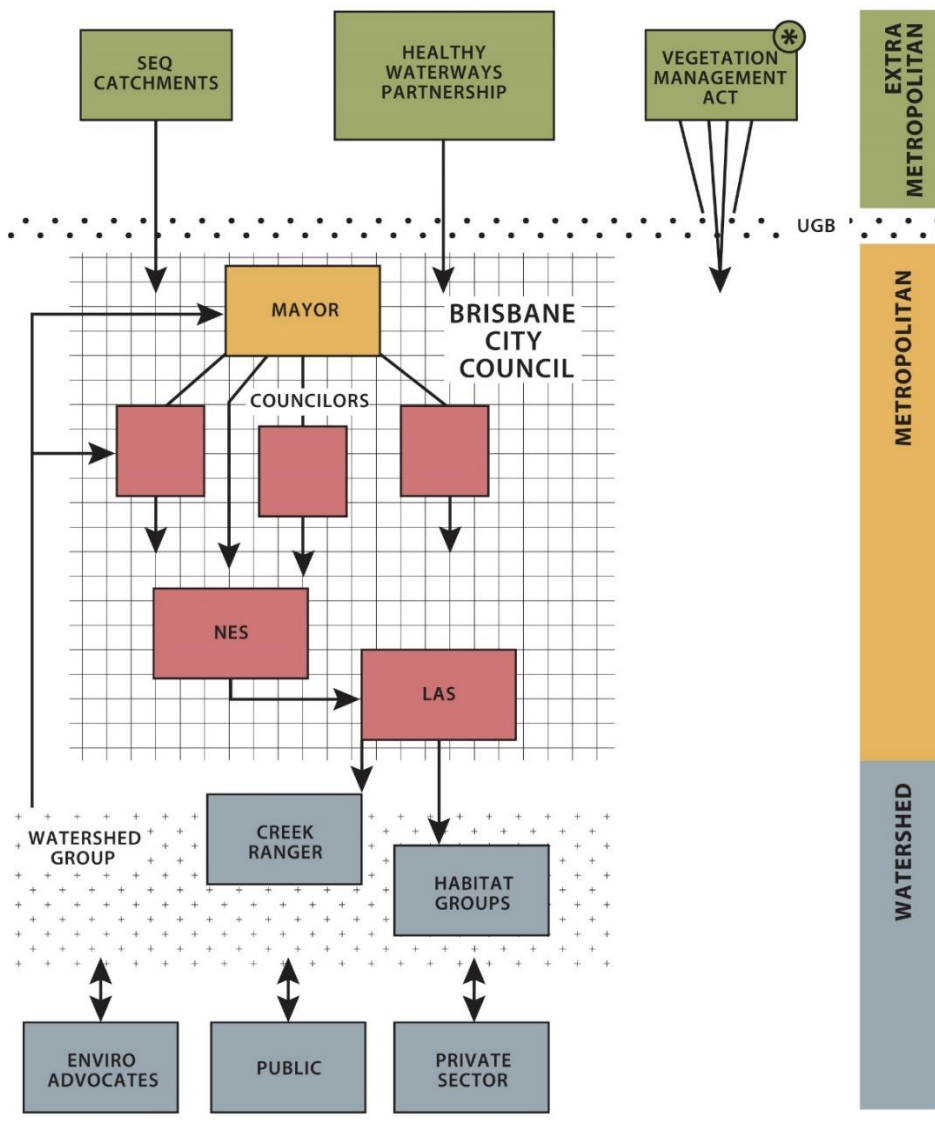
<sup>160</sup> Centrality of NES is also confirmed by non-state participants as well as policy analysis. E.g. INTERVIEWER: “Who do I ask about that?” PARTICIPANT: “Like I keep telling you - NES! It all goes back through them.”

**Table 6.6 Example actor roles within programs and instruments in Brisbane**

	Policy stages / Actor roles		
	Problem identification / Evaluation	Policy design	Management and implementation
<b>Bushland Acquisition Program</b>	BCC Internal Stakeholders Watershed Groups	NES	NES Acquisition officer
<b>Natural Assets Local Law</b>	Watershed Groups	NES	BCC Compliance staff
<b>Habitat Brisbane</b>	Local Asset Services	NES	Habitat Officers Habitat Groups
<b>Creek Rangers</b>	Watershed Groups	Water Division NES	Creek Rangers Watershed Groups
<b>2 Million Trees</b>	Mayor / NES	Greening Australia NES	Greening Australia NES, Contractors
<b>Voluntary Conservation Agreement</b>	NES Officers	NES	Conservation Officers Landholders and supporters

Abbreviations in table: BCC is Brisbane City Council, NES is Natural Environment and Sustainability,

Non-state actors in Brisbane include local revegetation groups (Habitat Brisbane groups) which are often linked to a catchment group — i.e. a watershed group. Similarly, landholders with a conservation agreement — a commitment to manage their land for biodiversity outcomes — are often linked with like-minded residents. Habitat groups usually consist of local residents and a leader. The leader coordinates the group and is the main point of contact for BCC habitat officers who sit within LAS. Most watershed groups in Brisbane have had a BCC creek ranger appointed to their group since 2007. Watershed groups vary in their activities and focus across the city. Some non-state actors were more involved earlier in the case timeline, such as Greening Australia, who over time have become more involved with regional rather than metropolitan scale operations — see Chapter 4 regarding regionalisation of environmental governance in Queensland. A final significant group of non-state actors are the commercial contractors which consist of mostly private companies, but also include the commercial arms developed by some watershed groups — e.g. OCCA Biodiversity Services Unit. With respect to stages of the policy cycle — i.e. identification, design, implementation, — there is a greater concentration of actors at the implementation stage in Brisbane. This concurs with the weak civic-political embeddedness in Brisbane (Chapter 4). Problem identification roles are often informal and as noted previously NES plays a prominent role in the policy design stage. Interestingly, some watershed groups are involved in implementation and problem identification roles. Figure 6.2 shows the interplay between the significant governance roles and structures in Brisbane (c.2009).



\* = VMA is mostly exempt inside the UGB  
 ⊙ = UGB (Urban Growth Boundary)  
 NES = Natural Environment and Sustainability  
 LAS = Local Asset Services

**Figure 6.2 The Brisbane ecological governance arena (c. 2009)**

Figure 6.2 shows that instruments converge within NES (Figure 6.2), but instrument participation also converges within the larger watershed groups.

*“Quite commonly the catchment groups are an amalgamation of a bunch of habitat [brisbane] groups with the key environmental advocates for various [habitat and environmental] groups, forming a catchment management committee”*

(State participant) <sup>161</sup>

<sup>161</sup> In a similar vein “Most catchment groups are made up of bushcare groups from the ground up... [a few are] connected with their habitat groups but they’re not their core business. They always want to support them where they can, but they’re not the core business.” (State participant 2)

Links between policy, planning and management also converge through NES. Some actors note that these three spheres often have maintained fairly separate networks according to their professional areas of concern, although there is evidence of increased networking in recent years.<sup>162</sup> Cross-sectoral networks tend to follow program lines, while more functional networks exist internally to BCC. Non-state networks are diverse and show evidence of local embeddedness within particular urban watersheds or interest groups. This issue of contextual embeddedness will be further examined in Chapter 7.

This completes the discussion of the Brisbane arena. The following presents corresponding results for Portland Metro.

## **6.4 Portland's arena for ecological governance**

Analysis of Portland Metro instruments indicates that ecological governance in Portland has: political arenas that are strongly constituent in nature — i.e. broad benefits to a broad constituency — with strong inter-linkages between different arenas; policy instruments that include very few stable, long implemented programs and show influence from the strong regulative context that ecological governance is embedded within; and policy roles that form the basis of actor networks, along functional, as much as along programmatic lines. These networks show high levels of convergence with Metro's Natural Areas Program, and very high convergence with Audubon that in some situations, rivals the network resources held by state actors. This analysis draws on a survey of 519 instruments that were implemented in Portland Metro for at least a portion of the period 1991–2012.

### **Political arenas**

The sample of governance instruments from Portland Metro follows a pattern similar to Brisbane across the four political arenas. A high proportion of instruments are categorised as constituent (~50%). Distributive (30%) and regulative (22%) instruments are fairly equally represented and redistributive instruments are rare (2%). Table 6.7 provides example instruments from Portland within their respective arenas. Both substantive and procedural instrument examples are included.

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<sup>162</sup> Participants: M2, BRIS1, C3,

**Table 6.7 Example instruments by political arena for Portland ecological governance**

Political Arena	Main structural category	Portland Metro example
Constituent 46% (n=241)	Actor agreements Strategies and plans Collaborative forums Events Advisory forums Science program Publications and reports	Cooper Mtn. Inter-governmental Agreement <sup>163</sup> Terrestrial Ecology Enhancement Strategy, PCC The Intertwine Johnson Creek Watershed Wide Event, JCWC Greenspaces Policy Advisory Committee, Metro Amphibian monitoring program, Gresham Regional Urban Forestry Assessment Report
Distributive 30% (n=155)	Government delivery Outsourced delivery Community based Grants / funding instruments Land acquisition	Healthy Streams Program, CWS Watershed revegetation program contracts, PCC 'Friends of' Groups Nature in Neighborhoods Grant Program, Metro Regional Greenspace Acquisition Program, Metro
Regulative 22% (n=115)	Zones and codes Metropolitan laws State planning legislation Environmental legislation	Environmental Zones, PCC Title 13, Metro <sup>164</sup> <i>Oregon Land Conservation and Development Act</i> <sup>165</sup> <i>State Planning Goal 5</i>
Redistributive 2% (n=8)	Permit trading Land transfer Roll up into other instrument	NPDES Permit - Water Quality Trading, CWS <sup>166</sup> Transfer of Multnomah County Parks to Metro MGSP Masterplan into Metro's Functional Plan

Abbreviations: CWS is Clean Water Services (Tualatin Basin Water Services District); JCWC is Johnson Creek Watershed Council; MGSP Masterplan is Metropolitan Greenspaces Masterplan; NPDES is National Pollutant Discharge Elimination System under the US *Clean Water Act*; PCC is Portland City Council

As with the Brisbane case (Section 6.3) linkage patterns differ amongst political arenas (Table 6.7). Constituent-distributive (55%), distributive-unlinked (45%) and regulative-redistributive (80%) instruments are the majority in their respective arenas. As with Brisbane, the Portland sample has a redistributive arena that is completely linked (shaded cell = 0), and outnumbered by instruments in row 4 (linkage with redistributive). In contrast, constituent processes mostly occur within their own arena (column 1), rather than as a by-product of other arenas (row 1), a high proportion (76%) are *linked to* (column 1, rows 2, 3 and 4). In particular there is a high incidence of linkage with the distributive arena (56%) amongst constituent instruments. A significant contrast with Brisbane is the incidence of distributive-regulative instruments. Although absent from the Brisbane sample, distributive-regulative instruments are fairly common in Portland (23%, n=36). These instruments contribute towards compliance with regulatory responsibilities such as salmon conservation (listed under the US *Endangered Species Act*) and water quality (Total Maximum Daily Loads set under the US *Clean Water Act*). These distributive-regulative instruments

<sup>163</sup> An agreement for the Metro owned, Cooper Mountain Regional Park to be managed by the local parks and recreation district, Tualatin Hills Parks and Recreation District.

<sup>164</sup> Metro's legislation to satisfy its commitments to state environmental legislation

<sup>165</sup> Established in 1973 by Senate Bill 100, the *Oregon Land Conservation and Development Act* is the only comprehensive land use planning system in the USA — see Walker and Hurley 2011 for further details.

<sup>166</sup> In 2004 Clean Water Services began a program to plant trees to shade waterways and lower heat pollution as a strategy to trade water quality permits.

distribute public funds to, for example, floodplain restoration projects and vegetated stormwater facilities, watershed revegetation and land acquisition for watershed health. Oregon’s strong state planning system and associated regulative instruments (Table 6.7) also frame the governance arena with land-use regulations such as environmental zoning that have strong redistributive implications (n=92).

**Table 6.8 Portland instruments by political-arena and political-arena linkage**

Political Arena Linkage / Direct Implication	Political Arena								Total	
	1. Constituent		2. Distributive		3. Regulative		4. Redistributive			
Constituent linkage	58	24%	15	10%	0	0%	3	38%	76	15%
Distributive linkage	133	55%	69	45%	6	5%	3	38%	211	41%
Regulative linkage	44	18%	36	23%	17	15%	2	25%	99	19%
Redistributive linkage	6	2%	35	23%	92	80%	0	0%	133	26%
<b>Total</b>	<b>241</b>	<b>100%</b>	<b>155</b>	<b>100%</b>	<b>115</b>	<b>100%</b>	<b>8</b>	<b>100%</b>		
% of total		46%		30%		22%		2%		

*Shaded cells indicate instruments with no clear linkages to other arenas*

The numerical count indicates the policy making resources applied in each arena. The discussion now turns to a closer examination of the policy instruments in Portland within these political arenas.

### Policy instruments

Portland instruments in the sample have a distribution similar to Brisbane. The most frequent categories are ‘authority’ (40%) and ‘organisation’ (33%), while ‘nodality’ (16%) and ‘treasure’ (11%) are less frequent. The results show a similar pattern to Brisbane across instrument sub-categories (Table 6.9).

As with Brisbane, the detector-authority instruments demonstrate the importance of interpreting instrument count data within its context. For example, the proportion of detector-authority instruments (e.g. lawsuits) in the Portland sample is even lower than that for Brisbane (0.4% - Portland, 2% - Brisbane). However, this does not automatically mean that the arena lacks reflexive capacity or legal accountability. In this case it means that ecological governance in Portland has few stressors that would encourage the implementation of authority-detector instruments. In support of this claim are land mark law suits over water quality and Oregon’s planning system. The landmark lawsuits occurred in general water quality issues — and so were not registered in Table 6.9 as they occurred before 1991 and/or were categorised as outside the ecological governance arena.

*“In the 80s there wasn’t a strong relationship between environmentalists and the city. It was a very litigious relationship and environmental groups weren’t shy about suing to hold governments to these new environmental laws...The North West Environmental Advocates...successfully sued the city over the combined sewer problem to get cities to clean up their CSOs (Combined Sewer Overflows)”.*

These 1980s lawsuits established a political climate where state actors were interested in collaboration and avoiding further legal proceedings.

*“Portland City set up the Johnson Creek Corridor Committee [a cross-sectoral instrument], in part to try and avoid a similar lawsuit to Tualatin”*

(Portland non-state participant)

Regardless of the need for contextual interpretation, the categorisation in Table 6.9 provides a sound indication of the governance resources that are drawn upon to implement ecological governance in Portland Metro. The categorisation shows that the emphasis in Portland is on collaboration rather than legal wrangling (law suits and other authority-detector instruments). Although there are clear legal avenues available to non-state actors as the following Portland participant illustrates:

State Actor: *“[He] wouldn’t be reluctant to sue if needed.”*

Interviewer: *“So why does [he] get invited to sit on these [government] committees?”*

State Actor: *“Same reason, it is better to have them in the room than on the outside. He is an advocate...his interests are lined up with the bureau’s interests. He has absolutely no hesitation to go to council and make an argument to council for stuff and he comes with ideas...so you want to have him in the room. He is a really thoughtful guy...and if it wasn’t for the position that [the environmental group] has taken ...the bureau would have a snowball’s chance in hell of getting any [ecological] restoration out there.”*

With respect to the notion of embeddedness, the findings concur with analysis of the Portland background (Chapter 4): there is a strong influence from Oregon’s planning system (institutional context embeddedness) with its emphasis on participation (civic-political embeddedness) and collaboration (collegial aspect) as well as a strong evidenced based approach to land use and natural resource decisions (‘rational’ aspect).



**Table 6.9 Examples of instruments by governance resource in Portland**

<b>Governance Resource</b>	<b>Resource Category (% of total)</b>	<b>Significant sub-type</b>	<b>Portland Metro example</b>
<b>Authority</b> 40% (n=206)	Effector-authority (28%)	Action Plan Certification / awards Environmental plans Management plans Regulatory protection Revenue collection Statutory land use plans Strategic planning Watershed planning Masterplans	Johnson Creek Action Plan Migratory bird park certification, Oaks Bottom Lwr Columbia Steelhead Recovery plan, PCC Urban Forestry Management Plan, PCC Oregon Salmon Listing under the ESA Metro Solid waste excise tax – for parks Portland Plan (PCC Comprehensive plan) PPR Strategic plan Johnson Creek Restoration Plan 2001 Metropolitan Greenspaces Masterplan
	Detector-authority (0.4%)	Legal proceedings	Audubon lawsuit settled with FEMA, 2009
	Procedural-authority (11%)	Advisory group Management group Shared political decision	MPAC - Parks subcommittee Portland Parks and Recreation Board Transfer of Multnomah County Parks to Metro
<b>Nodality</b> 16% (n=84)	Effector-nodality (2%)	Training Guidelines	Tree Steward Training, Portland Parks and Rec Gresham volunteer bird survey protocol
	Detector-Nodality (12%)	Policy advice/assessment Non-state actor feedback Reporting Technical information	Regional Urban Forestry Assessment 2009 Urban Greenspaces Movement Annual reports Riparian corridor / wildlife habitat inventories
	Procedural-nodality (3%)	Awareness raising programs General information provision Technical information provision	Urban Natural Resource Directory, FAUNA Regional Equity Atlas, Coalition for a living future Urban Ecology Research Consortium
<b>Organisat'n</b> 33% (n=169)	Effector-organisation (12%)	Collaboration programs SSD-led programs Metro-led programs Local council programs Non-profit led programs	Backyard Habitat Certification program NPDES Permit - Water Quality Trading, CWS Floodplain restoration projects Watershed Revegetation Program, PCC Plant it Portland Campaign, Friends of Trees
	Procedural-organisation (20%)	Partnership/network level change Planning process Reform project Strategy / Vision	Formation of Intertwine Alliance Urban Growth Boundary expansion process Environmental Zone Streamline project, PCC Metro Greenspace Vision
<b>Treasure</b> 12% (n=60)	Effector-treasure- (9%)	Grant disbursement Land donation Land acquisition	Metropolitan Greenspace Grants Ross Island natural area, 44ac donated to PCC Metro Open spaces acquisition program
	Procedural-treasure (2%)	Capacity building Funding initiative	BES capacity building – watershed grant program Nature in Neighborhoods Program, Metro

Source: resource categories adapted from Hood (1983) and Howlett (2000)

Abbreviations in table: BES is Portland City Bureau of Environmental Services; CWS is Clean Water Services; FAUNA is Friends and Advocates of Urban Natural Areas; FEMA is US Federal Emergency Management Agency; MPAC is Metropolitan Policy Advisory Committee; NPDES is National Pollutant Discharge Elimination System under the *Clean Water Act 1972 (USA)*; PCC is Portland City Council; PPR is Portland Parks Bureau; SSD is Special Service District

Instruments that are particularly significant for ecological governance in Portland Metro rarely exist for the entire case study period (1991–2012). They include ‘treasure-effector’ instruments such as the Metropolitan Greenspace program, Metro’s Natural areas acquisition program and PCC’s Watershed grant program. In contrast with Brisbane, many other prominent instruments are ‘detector’ or ‘procedural’ in nature, such as the ‘Nature in Neighborhoods’ Program, the TEES Strategy and the Grey to Green Initiative. A range of state and non-state actors participate throughout the policy cycle and prominent networks show greater longevity than many of the identified instruments in Portland Metro. The transient nature of networked settings is noted in the governance literature (Wagenhaar & Hajer, 2003)

## **Policy roles and actor networks**

The Portland Metro instrument mix is more complex and fragmented than the Brisbane arena with state actors at both metropolitan and local levels. With respect to the metropolitan level, the main state actor is the Metro Natural Areas Team. This team oversees metropolitan programs such as acquisition, management and monitoring. However, at the local level the Portland Metro case becomes more complex – as there are 25 local councils. As noted previously, Portland City Council (PCC) is the largest of the local councils, it operates under a commission style government and important bureaus involved in ecological governance include the Bureau of Environmental Services (BES) and Portland Parks and Recreation (PPR). BES has responsibilities for stormwater and water quality which involves actions to comply with the federal Clean Water and Endangered Species Acts. This role also involves a large budget and diverse teams of engineers and watershed management staff. PPR is the bureau with responsibility for open spaces within PCC. In 2004, PPR established City Nature, a team to manage natural areas in the PCC jurisdiction. In addition to PCC, other significant state actors examined in this research included Gresham Council, Clean Water Services (CWS) and Tualatin Hills Parks and Recreation District (THPRD). Gresham is a local council in the east of Portland Metro. It is described by some as a ‘goldilocks council’ because it is large enough to generate resources for explicit ecological governance, and yet small enough so that staff have a high level of interaction and are well known to local residents.<sup>167</sup> In the west of Portland Metro a large group of councils are located across the Tualatin basin. Two special service districts have been established across many of these local councils to govern stormwater and sewerage (CWS)

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<sup>167</sup> Interview participant PS3

and parks (THPRD). CWS, like its counterpart in Portland Council, BES is responsible for large scale efforts to comply with the US federal *Clean Water Act 1972* such as infrastructure upgrades and green infrastructure alternatives. THPRD has become increasingly involved in natural area management on its own properties and also in partnership with the metropolitan government Metro.

**Table 6.10 Example actor roles within programs and instruments in Portland**

Policy Instruments / Programs	Policy stages / Actor roles		
	Problem identification	Policy design / evaluation	Management and implementation
<b>Metro Greenspace / Nature in Neighborhoods grants (Metro)</b>	Audubon, FAUNA	Metro natural area team	Metro grants officer, USFWS, grant recipients
<b>Title 13 / Nature in Neighborhoods land use program (Metro)</b>	Audubon, FAUNA, Neighborhood associations	Metro science officers.	Local Councils, Metro compliance officers
<b>TEES Strategy (BES)</b>	Bureau of Environmental Services (BES)	BES project officer Multi-bureau team	BES Teams Portland Parks teams
<b>Watershed Grant Program (BES)</b>	-	BES officer PSU Staff	Student Project officer, grant recipients
<b>Grey to Green (BES)</b>	BES staff, PCC Mayor, Audubon	BES staff	Friends of Trees
<b>Gresham Environment Program</b>	FAUNA	Environment officer	Americorp volunteers Parks team Amphibian monitoring team
<b>Backyard Habitat Certification Program</b>	Columbia Land Trust	Friends of Tryon Creek	Audubon

Abbreviations in table: BES is Portland Council Bureau of Environmental Services; FAUNA is Friends and Advocates of Urban Natural Areas; PCC is Portland City Council; PSU is Portland State University; TEES is Terrestrial Ecosystem Enhancement Strategy USFWS is US Fish and Wildlife Service

Non-state actors in the Portland arena include ‘Friends’ groups and citizen advisory groups, FAUNA, Audubon and many other local non-profit groups. ‘Friends of’ groups are resident groups that are committed to a particular, park, natural area or waterway. Many of these groups are members of FAUNA, the advocacy network established by Audubon and others from the urban greenspaces social movement in the late 1980s. FAUNA also includes civically minded individuals and groups such as neighbourhood associations. The Audubon Society of Portland is a large environmental group with an established urban constituency. Audubon members are actively involved in citizen advisory groups and commissions, watershed council boards and some members are on staff at Metro or PCC. Watershed councils are established across Oregon and five of these are active within Portland Metro.

In particular this research was concerned with watershed councils for Columbia Slough, Tualatin Basin and Johnson Creek. With respect to stages of the policy cycle, there is a greater diversity of actors at the problem identification stage in Portland, than there is in Brisbane. This reflects the role of public participation in the Oregon planning system (civic-political embeddedness, section 3.3). Not only are a large number of advisory committees identified in the Portland case study, but neighbourhood councils and environmental groups also play a role. However, the most distinctive public participation is the Oregon ballot system, where voters can directly participate in law making and budget setting. Portland participants claimed that this arrangement further sensitises state actors towards public attitudes and participation in order to manage issues where possible, before they reach a ballot measure.<sup>168</sup> Problem identification roles therefore involved both collegial and contention based activities.

A diagrammatic portrayal of ecological governance in Portland Metro (c. 2009) shows a highly networked setting (Figure 6.3). Many programs converge with Metro's 'Greenspaces and Natural Areas Program', PCC's, Bureau of Environmental Services and Audubon. However, none have a monopoly on funding or program resources. Watershed groups for instance have their own recurring, state level funding, which gives them an uncommon level of stability. Within specific units of government, spheres of planning, management and policy have developed strong levels of integration in recent years.<sup>169</sup> Programs are often structured to achieve a bundle of benefits from biodiversity and water to social equity and public participation – i.e. high functional embeddedness. Policy roles generate actor networks that tend to follow functional lines and cross between state and non-state actors even in networks concerned with technical functions (functional embeddedness, cross-sector frames).<sup>170</sup> Audubon's connectivity within these functional networks is impressive and rivals that of state actors in some situations — as will be revisited in Chapter 9. Some local councils work closely with Metro, while others prefer to be independent where possible. Horizontal collaboration between local councils is often facilitated by regulatory requirements for watershed management under the US *Clean Water Act*.<sup>171</sup> As one informant noted..."it is difficult to overstate the role played by environmental legislation in how it all works in Oregon" (personal communication R. Margerum, 20 October 2011)

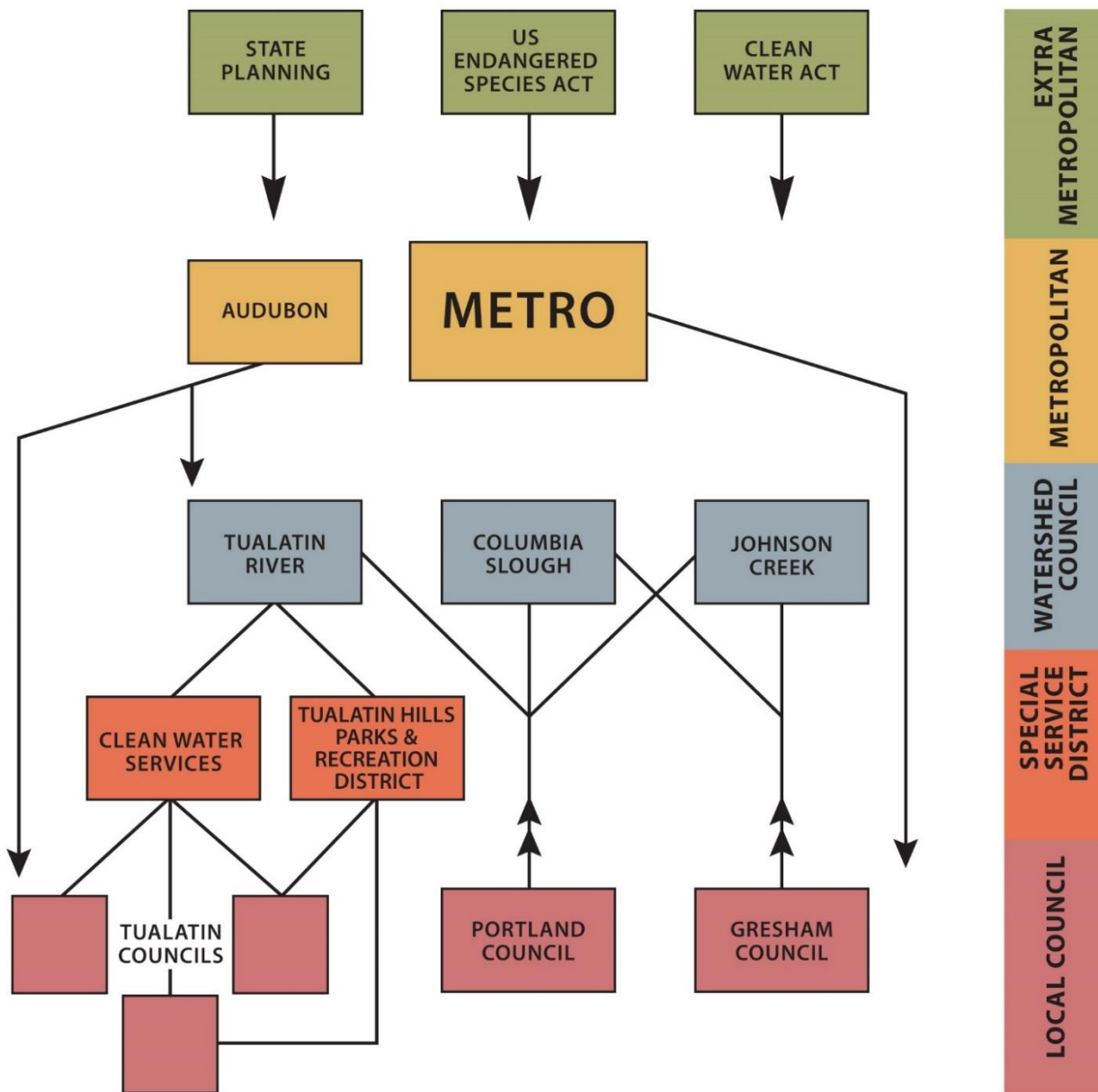
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<sup>168</sup> Interview participants L3, M2, B4, J2

<sup>169</sup> E.g. Metro acquisition program, Grey to Green initiative and Gresham Council staff,

<sup>170</sup> e.g. Urban Ecological Research Consortium, BES – Commission and the Meadowsclaping pilot project

<sup>171</sup> E.g. The Johnson Creek Inter-jurisdictional Council (interview participant RI) and Tualatin council participation in the Tualatin river Watershed Council (Actor observation, and interview participant OR).



**Figure 6.3 The Portland ecological governance arena**

This concludes the Portland arena results. The following section compares Brisbane and Portland Metro to better identify contextual influences in each city and the underlying phenomenon of ecological governance.

## 6.5 Comparing the arenas of Brisbane and Portland

While these patterns in Portland and Brisbane are further examined and triangulated in later chapters, a number of conclusions can be made from this analysis. A stronger than expected set of commonalities were identified between Brisbane and Portland. Commonalities, in ‘most-difference’ comparisons indicate a context independent characteristic of the underlying phenomenon (Section 3.4 and Campbell 2010). For instance, a similar proportion

of political arenas and governance resource categories can indicate an aspect of ecological governance that is more independent of context. Similarly, redistributive instruments in both case cities are entirely linked with other arenas and usually occur through instruments based in other arenas. As redistributive policies are characterised by higher levels of controversy (Peters 1992), linkages with other arenas, particularly the coercive power of regulative instruments may assist with stabilising this controversy, regardless of the institutional context. In contrast, a high proportion of constituent instruments are linked to other arenas in both case areas. Constituent instruments tend to be associated with a broad set of actors (Lowi 1972). For ecological governance, this broad set includes general public support around a core of advocates. Constituent instruments are therefore also likely to have implications for the manner in which public funds are distributed. This may explain the high incidence of linkage with the distributive arena amongst constituent instruments (Brisbane n=46 from 88 constituent instruments, Portland n=133 from 241 constituent instruments).

Contrasts between the two cases indicate potential influences of each specific context. For example, distributive-regulative instruments are absent from the Brisbane sample (n=0), while fairly common in Portland (n=36). The nature of vertical integration with the Queensland regulatory framework is a likely determinant of this absence in Brisbane. Queensland planning legislation between 1991 and 2012 has exempted most biodiversity related regulation from application in urban areas — i.e. weak embeddedness of ecological governance in the institutional context. This means that there are few regulatory drivers to stimulate the development of distributive instruments with regulative linkages. Further supporting evidence for this claim is provided by the instruments from this category in Portland. In contrast with Brisbane, Portland has strong regulatory drivers in the urban area through the *Clean Water Act (USA)* and the listing of Portland salmon species under the *Endangered Species Act (USA)* in the late 1990s. With respect to distributive-regulative instruments and the Portland arena, virtually all are programs to distribute public funding in order to achieve salmon conservation and/or water quality outcomes (e.g. vegetated storm water facilities) – this relates to embeddedness with both institutional and biophysical contexts.

As noted in the analysis above, different policy stages exhibit higher levels of participation, and a greater diversity of actors. These characteristics also differ between the case cities and across different types of instruments. In Portland there are greater numbers of ongoing actor collaborations involved in implementation — e.g. watershed councils, problem identification — e.g. UERC, and even management — e.g. some Intertwine Alliance

activities. A range of other actor concentrations are more temporary in nature, such as FAUNA advocacy campaigns and some advisory groups. These types of interactions will be investigated further in Chapter 8. The reason for this highly networked situation is at one level connected with the complex jurisdictional structure of the metropolitan area.<sup>172</sup> However, the analysis in Chapter 9 will show that this collaboration hasn't occurred as a deterministic outcome of the Portland context. Key actors take advantage of the jurisdictional context and operate strategically to create and maintain these networked connections.

The examination of ecological governance in the case cities provides useful insights into the general dynamics of each case and also a method of 'opening the black box' of governance arenas in order to investigate the inner complexity of the instrument mix (Latour 1987). However, the relative strength of these instruments needs to be interpreted in context. For instance, the proportion of authority-detector instruments is low in Brisbane, they are mostly informal, and some were identified through pattern matching with the Portland case<sup>173</sup> rather than in the primary identification stage (6.2). In addition, Brisbane has a hierarchical structure, with urban ecological governance located in the lower echelons of urban priority. This knowledge about aspects of embeddedness (Figure 3.2) can explain the low incidence of authority-detector instruments and suggests that these instruments are comparatively weak.

## **6.6 Arena anatomy and the implications for responsive governance**

The findings above are now brought together to sketch an anatomy of urban ecological governance arenas (Figure 6.4). The anatomy includes three main components: governance resources, political arenas and instrument mixes. The core governance resources (Box 1) are 'authority' and 'organisation', which are flanked by 'treasure' and 'nodality' (adapted from Hood 1983). Policy instruments are shaped by the institutional context they are embedded within as they draw on these governance resources to construct programs, planning and policy. Instruments sit within political arenas (Box 2) and many link with a second arena. Assuming that commonalities between the Portland and Brisbane cases are generally true for ecological governance arenas (Eisenhardt 1989), a set of instrument types (Figure 6.4, Box 3) can be used to analyse ecological governance arenas.

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<sup>172</sup> Portland Participant (E1), "We have so many institutions at so many scales and so many organisations and sectors that it gives, it means that if you attach yourself to a particular institution or scale you'll never see the whole resource."

<sup>173</sup> Authority-detector instruments in Portland Metro are more readily identifiable and numerous than in Brisbane.

With respect to the labelled instrument types in Figure 6.4 (Box 3):

- Type 1 instruments are redistributive, and their history assists with indicating the general trajectory of the governance arena. They include programs that are rolled up into other initiatives — such as the Brisbane River Plan, rolled into the Brisbane City Plan in 2000. They also include program and resource transfers between actors.
- Type 2 instruments provide a regulative check of the arena. Many type 2a instruments are strong land use planning regulations with redistributive implications. This subtype has the potential to tilt the entire governance arena in a particular direction. Land use policy has been recognised as having redistributive and therefore controversial aspects (Innes de Neufville, 1981). In Brisbane these are few in number and some have numerous exemptions in urban areas — e.g. *Vegetation Management Act 2004 (Qld)*. Whereas in contrast Portland Metro exhibits a large number of these instruments and many have strong application in the urban setting — e.g. Portland E-zoning. The next type, 2b had a direct relationship with 2a in both case cities. In Brisbane where 2a was weak, 2b was absent, and in Portland where 2a was strong, 2b was numerous. 2b instruments were distributive programs that sought to fulfil regulative requirements such as flood plain restoration projects in Portland to meet CWA and ESA requirements.
- Type 3 instruments were mostly acquisition programs. In Brisbane there was one iconic acquisition program, while Portland had 13 programs during the case study period. Some of these sought to achieve regulatory requirements and therefore further demonstrated the strong regulative context of Portland.
- Type 4 instruments provided a controversy check of the arena. Most of these instruments were visions or strategies with redistributive implications. In situations where actors attempted to formalise these instruments or fully implement them, they virtually always generated high levels of controversy — e.g. Healthy Portland Streams Project. In all prominent examples from both cities, type 4 instruments continued to play an important governance role as informal strategies for key actors, following the controversy concerned with their attempted formalisation.



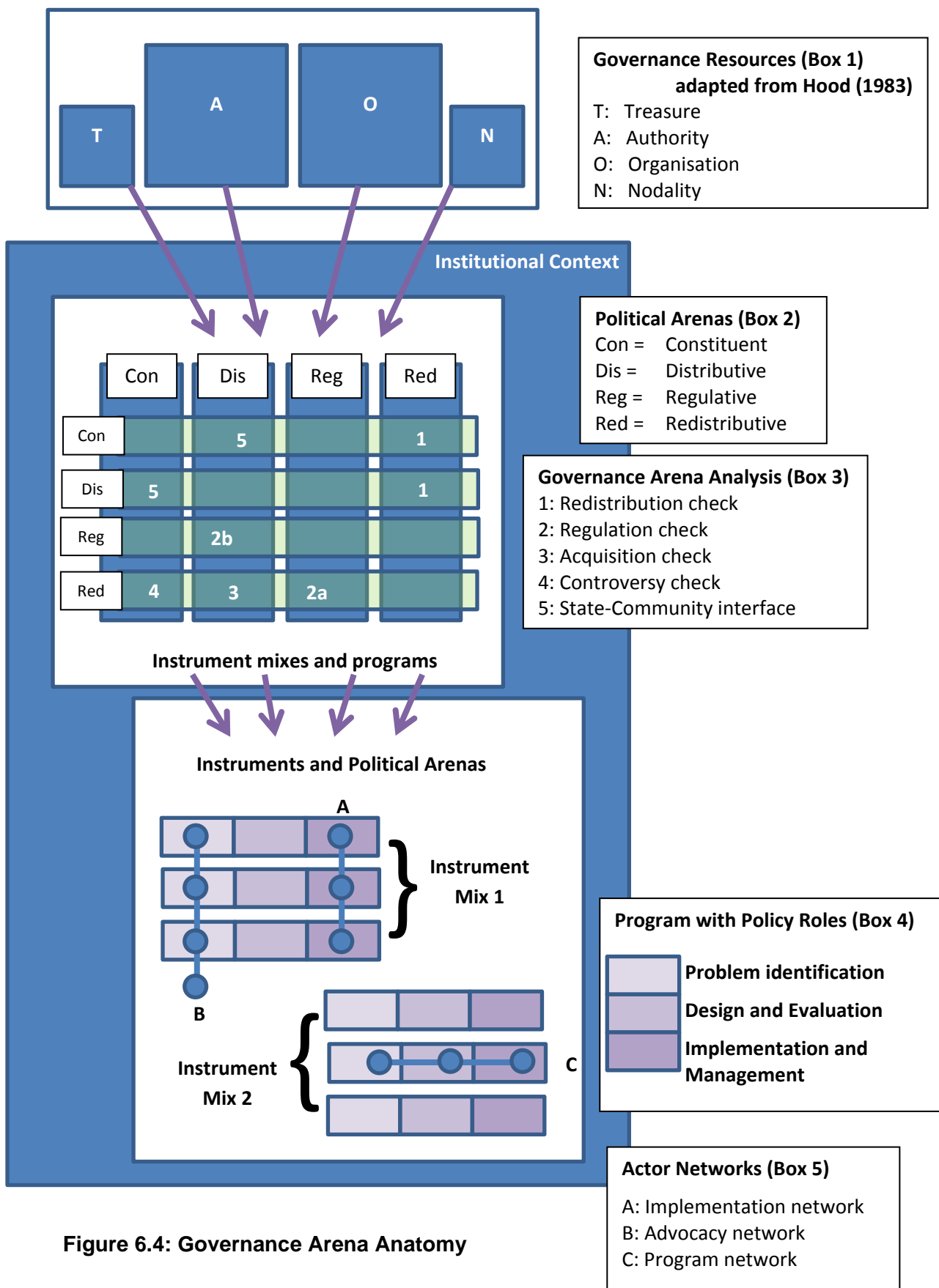


Figure 6.4: Governance Arena Anatomy

- The final type 5 was the main interface between state and community based actors. They included important programs that have a strong constituent linkage, such as Habitat groups in Brisbane (revegetation groups). The activities in this area were resilient and a number of participants noted that they can be very difficult to alter once implemented.

The final section of Figure 6.4 illustrates the manner in which instruments are employed within programs or instrument mixes (Box 4). The policy roles involved have been simplified to: 'Problem identification'; 'Policy design / Evaluation'; and 'Management / Implementation'. These roles can be summarised as follows.

- *Problem identification* – typically involved advocates both internal and external to government and often, but not always, with core interests in biodiversity and the natural environment.
- *Policy design* – was usually carried out by government actors responsible for the instrument, but at times included external consultants or other government actors with a key stake. This important group interacted with both advocates and implementers as formal policy was shaped or adjusted.
- *Policy evaluation* – is included with policy design in these schemata as they are often played by the same actor.
- *Implementation and management* – included a diverse mix of actors from the community, government, and private sectors, although management and coordination was almost exclusively carried out by government.

These roles indicate that opportunities for non-state actors to participate were greater for particular roles — e.g. problem identification and implementation — and within certain instruments — particularly public restoration and management). Figure 6.4 demonstrates three types of common networks that participating actors formed around instruments in Portland and Brisbane (Box 5). Program networks connect roles within the policy cycle, advocacy networks and implementation networks lie across the instrument mix with a focus on a particular policy role. Some of the implications of these and other findings for responsive governance are briefly discussed below. Primary implications for responsive governance from this analysis include: influential instrument types and the need to identify key gaps within networks, the influence of overlapping governance arenas and the influence of the broader context.

## **Implications of critical instrument types**

The discussion of Figure 6.4 highlights key instrument types that can be used to diagnose ecological governance in a particular setting. This has strategic implications for responsive governance. In theory, the identification of critical instrument types can contribute to institutional design efforts aimed to improve the responsiveness of governance. In addition the governance arena anatomy (Figure 6.4) indicates where certain instruments may be difficult to implement, and types that may be difficult to change once implemented. Further analysis of responsiveness in Chapters 8 and 9 will identify the strategies that actors use to refine these theoretical strategies.

## **Implications of redistributive instruments and perceived redistribution**

The political arenas model highlights the controversy involved with redistributive policies. This emphasis has great explanatory power for land use planning, as illustrated by debates in the USA (Innes de Neufville 1981, Walker and Hurley 2011). The controversial nature of redistributive instruments — discussed in section 6.5 — implies that responsive governance will need strategies to manage this situation. Even the perception of redistribution is sufficient to generate resistance – as demonstrated by successful ‘property rights’ campaigns in Oregon. The examination of Portland and Brisbane at this point, indicates a range of ‘redistribution management strategies’ to craft policies that have sufficient buy-in from key actors.

## **Implications of gaps in governance networks**

The analysis in this chapter also identified a range of interesting linkages between actors, instruments and political arenas. However it was observed that there are key gaps within governance that have implications for change. For instance, in general — and especially in Brisbane – there are few links between actor networks involved in planning, policy and management activities. Further investigation is needed to clarify the implications of this for responsiveness. On one hand these gaps question whether normative learning models such as triple loop learning can be implemented in an ongoing way (Flood and Romm, 1996). On the other hand, this separation is a way to achieve stability and efficiency in governance by partitioning these functions. For this reason, New Public Management (NPM) theorists recommend a clear division between policy and implementation arms of government. However Eakin et al. (2011) have shown that this partitioning (and the strong focus on

efficiency) in NPM been shown to reduce the adaptive capacity of governance by limiting organisational flexibility (Eakin et al. 2011) – and functional embeddedness (3.2).

## **Implications of co-benefits and hybridity**

The quantity and diversity of instruments in each case area was surprising. The range of types establishes the ecological governance arena as a hybrid governance model (Skelcher et al. 2013). Some instruments operate in a hierarchical manner, others are networked, and a few use trading systems to achieve environmental outcomes. The challenge of hybrid governance is recognised as a research need amongst some scholars (Skelcher 2012, Meuleman 2011) and organisation management research has identified the challenges involved with competing institutional logics in these situations (Reay and Hinings 2009, Pache and Santos 2013). In part the instrument diversity in Portland and Brisbane was generated by overlapping governance arenas such as open space planning, water management, regional planning and public participation. The ability of ecological governance to achieve outcomes as a co-benefit of these other arenas is a credit to its flexibility. The implications of this situation for responsive governance are poorly understood and are therefore examined further in Chapters 7 to 9. The intersections between these interests hold potential for collaboration or conflict. They encourage actors to resolve differences by finding synergies – i.e. win-win solutions – or trade-offs between their various interests. In this way, decisions at these intersections over time have shifted policy instruments, governance and institutions (Schmidt and Morrison 2012).

## **The implications of the broader context**

Portland and Brisbane prioritise different instrument categories and this confirms the importance of understanding contextual interactions. This includes the manner in which instruments are structured within programs. In Brisbane, many instruments are directly focused on biological resource protection and management, while in Portland, ecological outcomes are more likely to be an ancillary benefit to instruments with a different primary focus — such as water quality, environmental justice, or quality of life. Portland also has a range of acquisition programs with biodiversity goals while Brisbane has only one iconic metropolitan program. Brisbane has invested heavily in restoration programs for private land while Portland has few activities in this category. The two cities also differ in the way instruments are incorporated into programs. Brisbane has a higher incidence of single-instrument programs, but in Portland — a more complex setting — instruments are more likely to be packaged into initiatives or multi-instrument programs involving, for example,

acquisition funds, restoration, and management activities. These differences can be explained, in part, by each city's institutional context, particularly the structure of local jurisdictions and the history of particular policy approaches.

## **6.7 Chapter conclusion**

This chapter has analysed the embeddedness of ecological governance in Brisbane and Portland by examining the linkages between instruments and political arenas. The analysis showed that ecological governance was structured according to different instruments, actor roles and political arenas. An influence from the institutional context was evident in both case cities however a greater than expected set of commonalities was also identified. These commonalities were used to identify points within political arenas that provided a check on the ecological arena, its dynamics and its general trajectory of development. These findings contribute towards strategic management of governance arenas and institutional design efforts. The anatomy of governance that was established provided a clear structure to analyse the internal complexity of instrument mixes and actor responses to change in following chapters.

The methodology developed for this analysis was sufficient for the purposes of this research, however a number of directions for future research were identified – in particular, a more extensive survey of 'informal instruments and 'the further categorisation of instruments according to the 'scale of adjustment'. First, data collected from this study can be used to design a survey for more extensive sampling of informal structures in future work. This would be useful as informal instruments are difficult to identify from documents and reports. Second, it would also be useful to disaggregate instruments resulting from a major adjustment in governance – such as a biodiversity code — from more incremental instrument chains – such as a series of amendments to a code. This would enable a more sophisticated analysis and support more robust comparisons between cases.

This analysis has contributed towards understanding the embeddedness of governance at the arena level. It has analysed the instrument types throughout the case study period and deliberately excluded questions of temporal development to achieve its goals. The following chapter continues this line of enquiry by examining the embeddedness of ecological governance in the broader context.

# Chapter 7

## Responsive Governance and the Problem of Context Embeddedness: Embeddedness part 2

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This chapter examines the manner in which ecological governance is embedded within its context (Granovetter 1985), in particular with respect to actor perspectives and governance structures (Figure 7.1). The analysis finds that patterns of embeddedness are significant influences on responsive change within the policy arena. The findings demonstrate that all contextual facets — i.e. biophysical, institutional and temporal — from the investigative framework are significant. However, the nature of embeddedness differs across policy roles, instruments and case settings. With respect to the case study period (1991–2012) the arena has become more embedded within its context over time. The results imply that actors within policy networks are likely to respond differently to change according to the nature of their embeddedness. These connections change over time and metagovernance strategies will need to be designed accordingly.



**Figure 7.1 Investigative framework and the examination of embeddedness: interaction and structure through the lens of context.**

The problem of embeddedness is both a challenge for investigating the phenomenon of governance and a significant constraint on responses to change (refer Chapter 3). Ecological governance is highly context embedded, to the extent that many activities occur as a co-benefit of other urban governance arrangements. To give a precise definition: 'High context embeddedness' means that while some technical activities and functions are common between different locations, the practice and functions of governance are substantially generated from the political, cultural and physical setting — see section 6.6 'implications of the broader context'. Furthermore, embeddedness is to some extent reflexive. Governance actors are not only shaped by their context but also seek to reshape it (Abbott 2012). This chapter is concerned with the former 'shaped by' aspect of embeddedness. The latter reflexive aspect is treated in Chapters 8 and 9.

This chapter outlines the problem of governance and contextual embeddedness, then reports on findings with respect to the experiential dimension – i.e. experiences of interview participants – and then with respect to the structural dimension – i.e. the expression of actor experiences within governance structures. Findings are presented for Brisbane (7.2) and Portland (7.3) before comparing the two cities (7.4). The chapter concludes by discussing the implications of contextual embeddedness for responding to change. The completion of the analysis establishes the 'responsive governance 0.1' concept in the research framework (Figure 3.1).

## **7.1 Governance and embeddedness**

Governance is a highly context embedded phenomenon (Chapter 2) and this affects the manner in which it adjusts to change (3.3). The concept of embeddedness was coined by the economist Polanyi and then applied to sociological economics (Granovetter 1985).<sup>174</sup> The original 'social embeddedness' focus was concerned with the relational ties of actors within a market system. Since that time the theory has been influential and has been expanded to examine institutional ties (Baum and Oliver 1992, Tavakoly and Beck 2013), environmental ties (Whiteman and Cooper 2000, Morris and Kirwan 2011) and has also been applied beyond market systems (Pilbeam 2013, Ansell 2003, Manning 2008). Embeddedness is a concept that examines the tension between the efficiency of an actor and its legitimacy (Fernández-Alles and Valle-Cabrera 2006), or as roughly translated for this research, *between the performance of a governance arena and its recognition within*

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<sup>174</sup> For Granovetter (1985) the concept of embeddedness is a response both to economists who undervalue the role of context in the decisions made by actors and institutionalists with a deterministic explanation for most phenomena.

*the broader context.* The intent of this analysis is to investigate how different contextual influences are distributed across different policy roles, instruments and networks in governance, and to gauge what this implies for responding to change.

Biophysical, institutional<sup>175</sup> and temporal<sup>176</sup> embeddedness differ in their implications for ecological governance and responsiveness to change (3.3). Biophysical embeddedness relates to the impacts of the surrounding natural system on governance. It relates to notions of ecological embeddedness (Whiteman and Cooper 2000, Morris and Kirwan 2011) and social-ecological linkages (Anderies et al. 2004, Wilkinson 2012). The biophysical context of Brisbane and Portland is outlined in Sections 3.4, 4.2 and 4.3. A brief description of urban ecological resources is also presented in Section 6.1. Institutional embeddedness concerns the broader formal and informal connections that affect governance. These connections relate to governance as nested within, vertically integrated with and influenced by higher scale arrangements (Gibbs et al. 2002, Whitehead 2003, Paavola et al. 2009). The institutional context for Brisbane and Portland is outlined in Chapter 4. With respect to institutional embeddedness, temporal embeddedness overlaps in some regards but has a focus on the impact of past events, and what is valued in past events for current decision making.<sup>177</sup> Temporal embeddedness within governance relates to notions of organisational memory (El Sawy et al. 1986, Sherif and Mandviwalla 2000, Berger and Udell 2004, Stephan et al. 2010) and often to path dependency (Rayner 2009, Thelen 1999).

This chapter examines the embeddedness of ecological governance with respect to its broader context, i.e. the biophysical, institutional and temporal as defined by the investigative framework (3.3). Embedded governance was investigated both *in situ* and retrospectively. The period 2009-2012 was studied *in situ*, with in-depth interviews and participant observation occurring during this period. The retrospective analysis undertaken for the period between 1991 and 2008 used interviews and extensive document analysis. An iterative process identified the embedded arena through scoping exercises, then the actor referral process and finally through document analysis (3.4). Experiential and structural dimensions were observed by: focusing on transformative change events; correlating

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<sup>175</sup> Institutional embeddedness for this research relates to the structural context i.e. formal and informal arrangements.

<sup>176</sup> Embeddedness with respect to the temporal context in the investigative framework is referred to as historical embeddedness in order to avoid confusion with the notion of 'temporal embeddedness' used within organisational management theory. The notion of 'temporal embeddedness' in organisation management relates to the manner in which activities are coordinated and structured by time constraints (see Pilbeam 2013). In contrast this research is interested in the connections that governance has with its history and the manner in which this influences structures of governance and the behaviour of actors. History embeddedness relates to concepts such as path dependency and incremental change.

<sup>177</sup> Historical embeddedness here is the past oriented dimension of the temporal context. See previous footnote.



change in the governance arena with contextual constants — i.e. jurisdictional structure; and comparative analysis of equivalent structures within each metropolitan case — i.e. watershed groups. Interview data that had been codified as contextual embeddedness — i.e. biophysical, institutional and temporal — was further examined to code the main forms of each that were experienced by participants. Then the structural dimension was examined by identifying the forms of embeddedness experienced by actors within various governance structures. The different forms of contextual embeddedness were examined in terms of their interactions with other facets of the investigative framework (Figure 7.1). This approach therefore uses the experiential dimension to highlight features of embeddedness that frame and structure ecological governance, both in terms of the functions of governance and the roles of the actors involved.<sup>178</sup>

The nature of embeddedness is likely to be a key determinant of responsive governance. Actor experiences of contextual structures – i.e. planning and management frameworks — indicate the extent to which ecological governance is steered by concerns that are external to the arena. The analysis of experiential and structural dimensions begins with Brisbane.

## **7.2 The nature of embeddedness in Brisbane**

The following analysis shows that ecological governance in Brisbane has contextual embeddedness with: biophysical linkages that have shifted over time; temporal linkages that are disjointed and siloed; and institutional linkages that have strengthened over time but vary across the instrument mix. Many institutional linkages also show hierarchical characteristics. These findings concur with and add further detail to the examination of embeddedness in Chapters 4 and 6. As expected, some types of embeddedness experienced by actors are expressed by formal governance structures more readily than others.

### **Brisbane’s ecological governance and the biophysical context**

Biophysical embeddedness relates to the links between governance and the surrounding natural system. In general, biophysical embeddedness in Brisbane has shifted over time. As noted in Chapter 4 the city is located on the flood plain and surrounding hills of the Brisbane

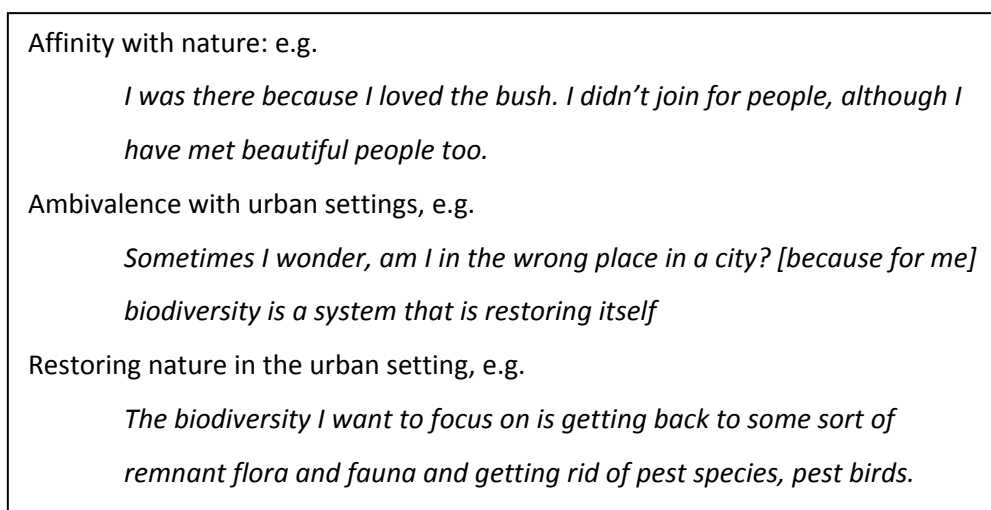
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<sup>178</sup> The critical realism approach by this research views experiential embeddedness as more than a relative social construction. It is based on a material reality (Stedman 2003, Carolan 2005) and this has implication for integrating different actor perspectives within governance decisions. Stedman (2003) asks “Are we really likely to attribute “wilderness” meanings to a suburban shopping mall? I suggest that these symbols are at least partially based on some material reality.”

River. The eastern edge of the urban area is delimited by Moreton Bay, a Ramsar listed site and on the west by the Brisbane ranges. The river itself meanders through the urban area and many of the creek systems that feed into it are contained within the boundaries of the Brisbane City Council. The biophysical context rarely triggers transformative changes to environmental governance in Brisbane — the 1974 floods being a rare exception. The following discusses the interactions between actor experiences of the biophysical context and ecological governance structures.

### **Experiential dimensions of embeddedness in the biophysical context**

Four main forms of biophysical embeddedness were expressed by Brisbane interview participants: ‘through a personal connection’; ‘as an advocate’; ‘via pragmatic intervention’ and ‘as a natural system’. ‘Through a personal connection’ includes themes of ‘affinity with nature’, ‘ambivalence with urban settings’ and ‘restoring nature in the urban setting’ (Figure 7.2). ‘Advocacy’ includes community and state actors that make a case for stronger ecological governance. Pragmatic intervention refers to decision making that aims to harmonise ideal values with practical realities (Hildebrand 2005), and ‘as a natural system’ includes management and planning that considers the dynamic nature of the environment.



**Figure 7.2 Personal connection with the biophysical context in Brisbane: themes from interview participants**

The ‘personal connection’ form was rare amongst participant responses in Brisbane, especially the latter theme although many professional participants showed an ‘affinity with nature’ in more subtle ways — i.e. a number mentioned that they had purchased houses adjacent or close to urban natural areas and that a large proportion of environment officers

reside in Brisbane's leafy western suburbs.<sup>179</sup> Personal connections developed over time and therefore were linked with the temporal aspect of responsive governance (Figure 3.2).

Participants also experienced biophysical embeddedness 'as an advocate' for the environment — whether government based or community based<sup>180</sup>. Government based advocacy often sought better integration for environmental governance. The following reflection from an environmental officer illustrates the governmental, collegial and functional aspects of their advocacy:

*I like to meet on site with the relevant people, the engineers, the waterway managers and say, 'what are you proposing, this is a habitat site, this is how it is going to potentially affect the habitat site, what you are planning, how can we mitigate that effect? How can we change our planting plans to make them more correct, because often what is proposed to replant by city design is not something we would advocate. It might be a reasonably limited species list, or we'd be worried about the removal of key hollow bearing trees or anything like that. So often we can advocate, to get a better outcome...I don't really have time for these meetings!*

(Brisbane government participant)

Many community-based advocates in Brisbane were first mobilised through resident actions groups and campaigns against the conservative state administration of Joh Bjelke-Peterson — i.e. civic-political and adversarial links — while mobilisation from 1990 onwards was usually a response to local urbanisation or infrastructure developments — e.g. construction of the Gateway motorway. A number of community advocates successfully linked their campaigns with formal policy instruments such as the acquisition program — i.e. functional links.

*[For most of the last 20 years our] suburb was developing. So there was always bits of land that were going to be bulldozed and bits of bush and so we would go from one foot to the other. Hearing bulldozers and saying 'what's that!' or seeing development applications up in another spot...we did stop some of it...if you drive towards the creek you will see an area there that was saved...they had put the water and sewerage in and then the council had to buy back some allotments. They bought it back through the acquisition fund.* (Community-based Brisbane participant)

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<sup>179</sup> Participant SB8

<sup>180</sup> An interesting but somewhat indirect form of advocacy also occurred through memes such as the oft repeated 'Brisbane is Australia's biodiversity capital'.

In contrast, and not surprisingly, state-based participants — and contracted professionals — rarely expressed an idealistic view of urban biodiversity.<sup>181</sup> Instead, their biophysical embeddedness tended towards ‘pragmatic intervention’ and planning – i.e. rational and functional links.

*...with the new planning scheme and what’s been done through acquisition we are going to have largely set the landscape in the city in terms of...what areas are primarily managed for nature conservation, [and] what areas are perhaps a mix of uses...we’ve moved out of that to establish the network [phase] and you’ve had wins and losses along the way. It won’t be an ideal [biodiversity] network. Then you look at consolidation, restoration...to enhance the resilience of that network and get it to...the optimum size and shape that we can achieve.*

The final form of biophysical embeddedness is “as a natural system.” In this form the environment is experienced as dynamic and was often related to extreme weather events. Actors involved in on ground works and their management particularly mentioned the millennium drought (~2000–2010), the gap storm (2009) and the 2011 Brisbane flood.

*Habitat Brisbane...changed policies in the drought – water policies and planting policies... In the drought we could do no watering, it was stopped, we couldn’t use our hoses; they tried to get us to lay off the planting and focus more on weeding and natural regeneration and planting drought tolerant species. They gave us some plant lists and said this is what you should be planting rather than the soft stuff... I suppose from about 2000 to 2010 those changes were in place. And that was mainly driven through the Habitat Brisbane officer rather than a centrally controlled sort of thing.*

(Community-based participant)

Biophysical embeddedness as a ‘natural system’ is a more recent trend than other forms identified in Brisbane — i.e. ‘personal connection’, ‘advocate’ and ‘pragmatic intervention’. Participants noted the shift from planting and watering, to more efficient natural regeneration techniques. However these adjustments were not common or easy, particularly where commercial contracts and were involved.

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<sup>181</sup> E.g. “So I guess, restoration and conservation for the purposes of biodiversity I don’t have a purist angle on it...because I think essentially it is corrupted as far as it being, an actually useful or achievable term.”

*[At the height of the drought], mulch went from \$6 a cube [m<sup>3</sup>] to \$23 a cube overnight ... so we went from a cut throat pricing scenario to a situation where we couldn't source at the right price. We asked for an extension to the contract because of that, but they said, sorry too bad that's the contract.*

These situations showed general low levels of linkage – in particular, functional and governmental, temporal and rational aspects of responsive governance.

Many participants with high biophysical embeddedness also showed high levels of place-attachment to urban ecological resources. Although detailed examinations of individual place-attachment was beyond the scope of this study, it is important to note that community based governance actors showed a strong commitment to particular sites across the city that hold special value.

### **Structural dimensions of embeddedness in the biophysical context**

Experiential dimensions of the biophysical context are unevenly distributed across governance structures (Table 7.1). Different instrument types also trended over time as ecological governance developed and the social context changed. Advocacy embeddedness in Brisbane decreased over time, especially advocacy by government officers.<sup>182</sup> However 'pragmatic' and more recently, 'natural system' embeddedness has increased, especially in management and implementation roles.<sup>183</sup> The problem identification' stage of policy showed higher 'personal connection' and 'advocacy' embeddedness. The policy design and implementation stages showed higher 'pragmatic intervention'; and on-ground works and their management were most likely to show 'natural system' embeddedness.

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<sup>182</sup> Participant 1: "There were activists who helped set up the Environment Branch [in BCC]"

Participant 2: "They [environment officers in the mid-1990s], "were on the right side of the biodiversity agenda" (i.e. environmentalist)...the guys there [BCC Environment Branch] now wouldn't be game to stick their heads up"

Participant 3: For BCC staff to be..."talking to you (Interviewer) right now (2011)...its high risk stuff!"

<sup>183</sup> Please note: the reduction in 'advocacy' embeddedness amongst government staff at the time of interviews also needs to be understood within the specific context of staff cutbacks resulting from the global financial crisis, and the political environment within BCC in the lead up to Campbell Newman's - Mayor of BCC at the time - state election campaign. However there is a longer term trend that can't be completely explained by these time-specific events.

**Table 7.1 Policy instrument categories and biophysical embeddedness in Brisbane**

Policy instrument categories	Biophysical embeddedness tendencies			Developmental Trends
	Problem identification	Policy design and evaluation	Management and implementation	
<b>Acquisition</b>	Advocacy, Pragmatic	Pragmatic	Pragmatic	Improved technical information, contemporary purchases likely to need greater rehabilitation (narrower advocacy) Increasing management budget has driven stronger pragmatism
<b>Regulation</b>	Advocacy, Pragmatic	Pragmatic	Pragmatic	Earlier regulation and planning was more prescriptive, shift to integrated and performance based in the late 1990s/early 2000s (i.e. stronger pragmatism)
<b>Public restoration and management</b>	Advocacy, Pragmatic	Pragmatic	Pragmatic, Personal Natural system	Slow uptake of ecological restoration methods. Fostered by BCC environmental officers (i.e. stronger natural systems), stronger consideration of flood events in plantings. (i.e. pragmatism and natural systems)
<b>Private restoration and management</b>	Personal	Pragmatic, Personal	Pragmatic, Personal Natural system	Moderate uptake of ecological restoration methods (natural systems), difficult adjustments to drought and flood (pragmatism)
<b>Watershed management groups</b>	Advocacy	Advocacy, Pragmatic	Pragmatic, Natural system	Increased involvement in land management issues, enterprise development and neighbourhood planning (pragmatic)

Particular networks tended to connect with the biophysical context in different ways. Community networks and advocacy, planning or environmental management networks and pragmatic intervention, research networks and ‘rational-evaluation’. In particular, the ‘personal connection’ form was more easily expressed within some — i.e. environmental — networks, whereas it was present but rarely obvious amongst policy instruments.

A final observation about structural dimensions is that the landscape itself contributes to the structuring of governance. Local government collaboration, watershed groups and community management groups exemplify this in Brisbane. Landscape structuring with respect to local government collaboration is a function of the interplay between jurisdictional boundaries and watershed boundaries (3.3 governmental aspect). In Brisbane, most creek watersheds do not cross jurisdictional boundaries, hence the management of watersheds in

Brisbane does not promote collaboration with neighbouring councils. Landscape structuring with respect to watershed groups results in a deficit of social capital for environmental governance in particular areas (3.3 civic-political aspect). For example, the configuration of creek watersheds results in the main Brisbane river corridor falling outside the territories of watershed groups. This means that the major environmental asset in Brisbane does not have a dedicated community group acting in a stewardship role.<sup>184</sup> Community management groups also demonstrate landscape structuring of governance. These groups had a stronger role, in the early 1990s, but portray an interesting model of 'establish then steward' (3.3 functional and collegial aspects). In this fashion, as large natural areas were purchased and formally established — a community management group also was established. Community stewards were structured around that landscape feature.<sup>185</sup>

## **Brisbane's ecological governance and the temporal context**

Temporal embeddedness relates to the links between contemporary governance and its preceding timeline. Most Brisbane participants began their narrative of ecological governance in the early 1990s with the commencement of the Habitat Brisbane or Bushland acquisition programs. However, the analysis finds temporal embeddedness in Brisbane to be disjointed and institutional memory partially siloed within certain organisations. The Brisbane case is also interesting with respect to the social transition underway at the beginning of the case study timeline. In 1991: the long lasting conservative Bjelke-Peterson government had been recently removed from office (1987); an inquiry into corruption was completed (1989); and far reaching reforms were beginning to be implemented (1991 onwards). Until that time, according to one environmental activist, "Brisbane had more in common with some Eastern European countries than with Portland Oregon!" There is a certain level of hyperbole in this statement, but regardless, a couple of long term participants in Brisbane were strongly radicalised by their experiences under the Bjelke-Peterson government during the 1970s and 1980s and continue even now to advocate for progressive social change.<sup>186</sup> In her PhD thesis, Elizabeth Eddy (1996) examines the green movement in South East Queensland over the period of the Bjelke-Peterson government and notes the

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<sup>184</sup> Recently the watershed group at Bulimba Creek has recognised the lack of social capital in the Brisbane river corridor and has facilitated revegetation events in an effort to remedy the situation. Interestingly these were done in partnership with non-state actors and forums operating above the watershed scale — Brisbane Catchments Network and SEQ Catchments.

<sup>185</sup> Participant: "When Soorley got in [as Lord Mayor in 1991] one, the first things he did with that [land acquisition fund] was to acquire the Boondall wetlands. And took on the model of natural area management where he would involve local community groups in implementing the management plans for natural areas in Brisbane. It's a largely abandoned model now, but it was quite strong in the interim."

<sup>186</sup> BC1, BC6,

strongly adversarial relationship between state and green groups. More generally, Fitzgerald (1989) notes that:

*There are a number of powers presently [in 1989] exercised by law enforcement officers which are particularly intrusive. Searches of body cavities and the electronic monitoring and recording of communications are such powers. Wider powers to allow for the detention of persons for the purpose of interrogation and the compulsory production of documents and exhibits and answering of questions are powers that limit traditional individual rights.* (Fitzgerald 1989, Section 5.3.3)

Some interview participants agreed that environmental and social change advocates were harassed and surveilled by police in the years preceding the case study period. This immediate history is important for understanding temporal embeddedness in Brisbane and interpreting the high levels of energy amongst some actors at the beginning of the study period – i.e. adversarial, governmental and civic-political

*Well in 1991 we were just transiting to democracy! 1988 Joh was out, and the Nats [National Party] only finished in '89 when Goss was elected...which then became legal to do environmental activism activities and openly criticise the government and it was the end of being followed around by the secret police!*

(Community-based participant)

### **Experiential dimensions of embeddedness in the temporal context**

Participant experiences of temporal embeddedness were codified according to three variables: breadth, coverage and directionality. 'Breadth' is the specificity of the timeline that participants communicated. This varied from narrow program specific histories through to cross-sectoral views of ecological governance. 'Coverage' is the proportion of the 1991–2012 timeline of which participants were aware, whether first hand or otherwise. While 'directionality' is the extent to which governance was perceived as developing and improving over time. Concerning 'breadth', those involved early in the timeline had a broad frame. They acknowledged state *and* non-state contributions to ecological governance – i.e. functional (3.3). However, those whose experience began in the second half of the timeline – post 2002 — tended to frame the temporal context more narrowly. For example: a number of community-based actors framed the timeline as one of non-state achievements – i.e. civic-political, or of ongoing contention with state actors - i.e. adversarial; similarly, many state actors spoke only of state actor achievements or viewed public contributions as problematic – governmental and adversarial respectively. Some, even more narrowly, preferred to speak



only with respect to their organisational or program responsibilities. These effects of 'breadth' are further accentuated by the nature of temporal 'coverage'.

Of the thirty Brisbane interview participants, just five were involved in governance for the entire case period. This in itself suggests that the temporal context of the Brisbane arena is not extensively accessible to current actors. Approximately 50% of contemporary participants were involved in Brisbane's ecological governance for less than ten years, although some had been involved in other places previously to Brisbane. Other Brisbane participants had been involved, very prominently for three to five years during the 1990s before moving on to other work. The perspectives of these people were invaluable for understanding the earlier portions of the Brisbane timeline. The coverage of the Brisbane timeline is disjointed and mid to short term for many contemporary actors. The following, was a common reply from Brisbane respondents with respect to questions about governance activities between 1991 and 2012.

*That's a tough one for me to answer because I haven't been involved ... that long. I think it has been refined, I wouldn't say changed. I know that we did originally have some planning documents that have probably become a little bit obsolete now. And the scope...has probably enlarged quite a bit since the original days. So I would say that it has changed over time, but I couldn't tell you how, because I haven't seen a lot of the 20 years old documentation.*

Of course, few employees know a 20 year history of their workplace. However comments from other Brisbane participants suggest that other factors contributed to this situation.

*If you were to talk to a management expert in the western countries and say how are we better than a third world country... They would say we have much greater managerial efficiency. Because we revise management processes, we updated them with new thinking in management. But from my observations in government that jerks people around big time. That every year or every 2 years you've got the latest thinking in managerial thinking and style so you get constant restructuring of departments and different ways of doing things... I think that's a serious problem in terms of retaining institutional memory. Even at the level of pissing people off so that they leave and go and get another job when they get sick of it...there's massive loss of institutional knowledge when people get moved between departments. I don't think Brisbane is in a good situation in that regard ... I've been amazed at some of the decisions at the top when they'd throw out stuff and I'd grab it out of the bin.*

These experiences of departmental reorganisation correlate with periods listed in Table 7.2 – correlation between historical events and disjointed aspects of timeline data. They have a critical effect on the institutional memory of government, however for many state participants, regular machinery of government changes are a normal part of their working life.

*We are talking a dozen years ago probably. My dates will be a little sketchy I'm afraid! There has been so many changes that it has been hard to keep up with when they happened. And that is a pretty common thing...it's a continuum of change...*

**Table 7.2 Correlation between historical events and disjointed aspects of timeline data collected from Brisbane interview participants.**

<b>Event/Period</b>	<b>Correlation with data collection</b>
Late–1980s to mid–1990s: Early development of formal governance and prominent role of Greening Australia	A set of actors with early involvement but little connection after the internalisation of key activities within BCC that were formally carried out by Greening Australia. (e.g. facilitation of the Habitat Brisbane program)
Early to mid–1990s: Expansion of environmental branch to survey and implement VPOs and later rationalisation following this task	Hiring of some key actors that have maintained participation. Others had extensive involvement during this time which became sporadic as the need for surveying tapered away
2004 Shift from Labor party Mayor (centre left) to Liberal party Mayor (centre right)	Data from community-based actors about internal BCC processes becomes increasingly distant as political and administrative approaches to public participation shifts
2007 Transfer of water services to the regional and state level and transfer of creek rangers program from waterways division to LAS	Pause in development of integrated water management, low levels of data connecting water and ecological governance arenas
2007–2011 '2 Million Trees' project	Multiple management stages reflected by actors involved for periods of the project, but with little knowledge of events preceding or following their involvement
Recent (2011) downsizing in response to the GFC	Some current actors cautious to speak openly about matters outside of their strict position description

Abbreviations: BCC is 'Brisbane City Council'; VPO is 'Vegetation Protection Order'; GFC is 'Global Financial Crisis'

Actors also perceived a continuum of change in ecological governance. Although some aspects of change over time are perceived as non-directional or a political pendulum, many changes are framed in terms of development or directionality.

*Mt Petrie road ran up there and people used to drive cars in there and strip them and burn them and we would have bushfires every year...I think we took over 2000 tyres away one year. So programs like [Clean up Australia]...it was enormous initially...now it is a minor part, now we don't really need to do it. I mean we have done all the big stuff.*

Other participants saw a directional mode to the development of practice away from a strict preservationist approach.

*Yes, things have changed. Early on there seemed to be talk of John Oxley's journals to decide what to plant where. For example down at the arboretum they wanted to do a rainforest planting [because that was the original ecosystem] ...I more saw it that we needed to restore what was [now growing] there rather than try and put it back the way it was. BCC was more rigid. [BCC originally] seemed more about planting natives than restoring bushland integrity, but now this has changed.*

Temporal embeddedness also includes significant losses and challenges from the past.<sup>187</sup> Some of these continued to significantly colour the interactions between actors up to 15 years later although despite these events, actors confirm that ecological governance has achieved much over time:

*Just a few changes!...Every single gully grate that goes out in Brisbane is stamped with the words, "Dump no waste, flows to creek", whereas we used to have to get school kids to go around and stencil it on...There was no EPAct [Environmental Protection Act], there now is. There was no NCA [Nature Conservation Act], there now is...there was no bushland protection levy, there were no vegetation protection orders, there now are, there was no state legislated vegetation management, there now is. There was no annualised monitoring of tree clearing rates and there now is...Just a few changes! You see what I mean? (Brisbane environmental activist)*

### **Structural dimensions of embeddedness in the temporal context**

Temporal embeddedness varied across policy roles and instruments (Table 7.3), especially between state and community actors. A narrow temporal framing was more likely in policy roles that have extensive overlap with other policy arenas or technical professions. In contrast, instruments with strong community participation were more likely to have a broad framing. Temporal coverage varies according to the length of time a participant has been involved, which as mentioned previously can be quite recent. Some programs such as creek rangers are noted for a high turnover amongst staff. Over time, directionality has reduced and framing has narrowed in many instruments. Many programs have reached capacity

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<sup>187</sup> For example, the 'disappearance' of the BCC-Brisbane Biodiversity Strategy, the failure of the Core Biodiversity Network to be formalised as policy and the instalment of George Deen (developer with a notorious reputation amongst environmentalists) as president of OCCA in 1997.

(governmental aspect), some roles have become more technical (rational aspect), and some functions are more strongly steered by non-environmental BCC actors (functional aspect).

Due to the generally disjointed access to historical developments, long-term participants are particularly valued as important sources of institutional memory, although the need for this history often is not stressed within programs that have been established for long periods of time. In addition, temporally embedded individuals were not usually networked across the Brisbane arena. So institutional memory is to a large degree siloed within particular BCC units or watershed groups. Some actors developed their own low level processes to record institutional memory on websites and in archives. One individual had authored a book about archiving organisational knowledge in community-based groups.

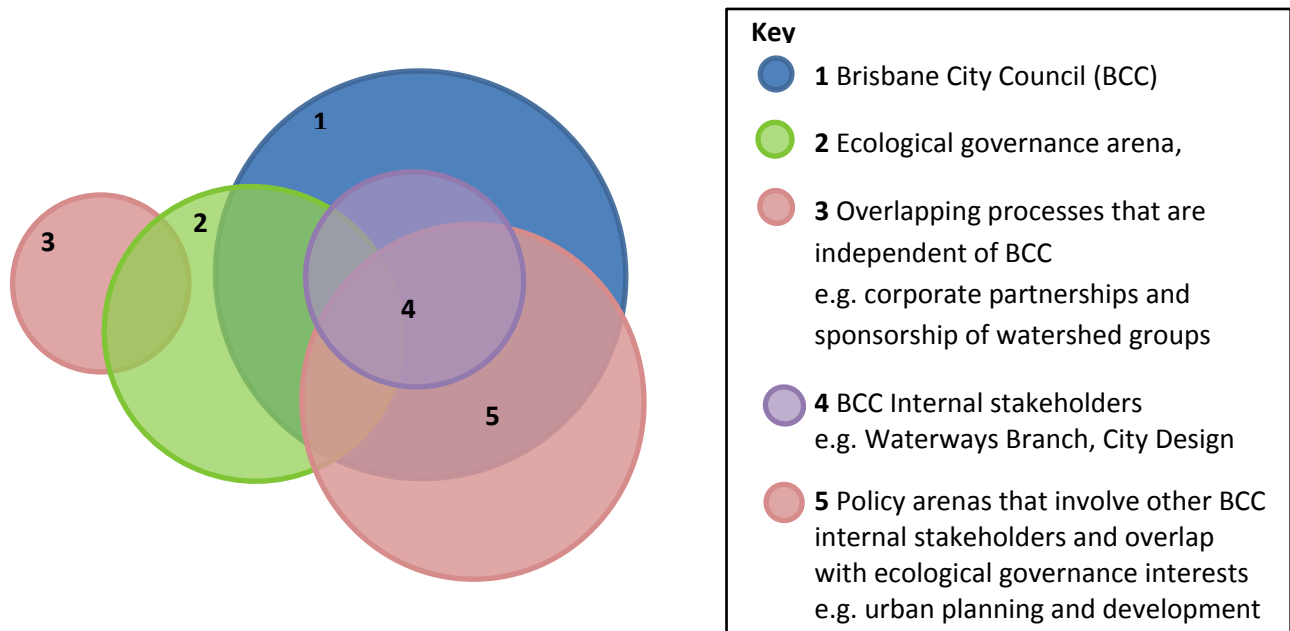
**Table 7.3 Policy instrument categories and temporal embeddedness in Brisbane**

Policy instrument categories	Temporal embeddedness and policy roles		
	Problem identification	Policy design and evaluation	Management and implementation
<b>Acquisition (Bushland Acq. Program)</b>	Broad framing High coverage Medium/Low directionality	Narrow framing High coverage High directionality	Narrow framing Medium/Low coverage Medium directionality
<b>Regulation (Natural Assets Local Law)</b>	Narrow framing Medium coverage Low directionality	Broad framing Medium/High coverage Medium directionality	Broad framing Broad coverage Medium directionality
<b>Public restoration and management</b>	[Undetermined]	Broad framing Medium coverage Medium/Low directionality	Broad framing Medium/Low coverage Low directionality
<b>Private restoration and management</b>	Broad framing Medium/Low coverage Medium/Low directionality	Broad framing High/Medium coverage Low directionality	Narrow/Medium framing Medium/Low coverage Medium/High directionality
<b>Creek Rangers and catchment coordinators</b>	Narrow/Medium framing High coverage Low directionality	Narrow framing Medium coverage Low directionality	Broad framing Medium coverage [Undetermined directionality]

## **Brisbane’s ecological governance and the institutional context**

Institutional-context embeddedness is the linkage between governance and surrounding institutional structures. In general, institutional linkages with ecological governance have strengthened over time although this trend varies across the instrument mix and is shaped by the hierarchical structure of Brisbane City Council (BCC). Brisbane is administered by one large metropolitan council and the resulting hierarchical structure has significant

implications for the ecological governance arena. (Figure 7.3). A side-view would show the hierarchical nature of this arrangement with BCC internal stakeholders and core-policy arenas positioned above ecological governance – i.e. governmental and functional aspects. This metropolitan context is important for interpreting the experiences of actors and considering the manner in which they connect with ecological governance structures.



**Figure 7.3 Structural dimensions of institutional embeddedness in urban ecological governance in Brisbane.** Key: Ecological governance is green; other policy arenas and processes are red, BCC internal stakeholders are purple; and other aspects of BCC are blue

### Experiential dimensions of embeddedness in the institutional context

The following discussion outlines participant experiences of the institutional context, and the manner in which these experiences connect with ecological governance structures. Three forms of institutional embeddedness were expressed by interview participants: facilitators; ‘overlapping policy arenas and processes’; and ‘institutional stressors’ — e.g. urban development. The latter category will be examined in Chapter 8 with respect to the adjustments governance makes to institutional stressors. The following section presents findings on the former two categories of institutional embeddedness.

First, ‘facilitators’ were largely expressed in terms of ‘funding’, which is not surprising given the largely non-commercial nature of ecological governance. Funding involves institutional linkages of some type and just as defunding was a significant stressor, new funding (public and private) was celebrated and remembered for its facilitative role.. Ecological governance actors in Brisbane have a history of seeking to generate their own revenue streams. This entrepreneurial approach facilitated activity in carbon markets and community nurseries,

environmental management services and the policy arenas.<sup>188</sup> Hence market institutions became embedded into ecological governance through these activities.

Second, ‘overlapping policy arenas and processes’ were numerous (Table 7.4) and had strong functional aspects. These functional links supported a range of influences and opportunities. ‘Overlapping policy areas and processes’ varied in terms of the functional links that were supported, their scale of operation and the extent to which other BCC actors participated therein. These variations had functional and governmental implications respectively.

**Table 7.4 Arenas overlapping with ecological governance in Brisbane**

<b>Overlapping arena<sup>189</sup></b>	<b>Type of overlap</b>	<b>Brisbane examples</b>
Biophysical science	Global professional practice	Queensland Museum (state actor)
Development Industry	Regional industry (with City Planning division)	Delphin (at Forest Lake)
Horticulture	Trade practice (with Council Parks/Ward teams)	Parks contractors and ward teams (metropolitan actors)
Ecosystem restoration / Environmental Management	Global professional practice	Ecosystem rehabilitation panel (i.e. preferred contractors at BCC)
Industry partners	General private sector	Suncorp (corporate volunteer program)
Infrastructure	Regional/national industry	Powerlink (regional actor)
Neighbourhood	Localised Socio-political dynamics	Community involvement in watershed groups (local actors)
Planning	Global professional practice	BCC Planning division, Planning consultancies
Political	Local and State electoral cycles	Mayor Campbell Newman campaign for state premier
Recreation	Regional interest group	Mountain-bike networks
Roads and drainage	Internal council stakeholder – engineering and management	BCC Roads and drainage division
Water	Internal council stakeholder (scaled up to regional/state governance in mid 2000s)	BCC Waterways division, Queensland Urban Utilities, Qld Water Commission

Abbreviation: BCC is the Brisbane City Council

Some overlaps operated at global and national scales as with professional arenas and global best practice; while others, such as neighbourhood arenas operated at a sub-metropolitan scale. In effect these overlaps formed cross-scale linkages, a feature that is recognised as important for adaptive systems (Termeer 2010). Cross-scale linkages have

<sup>188</sup> For example: BCC’s 2 Million trees project (original incarnation); The SOWN community nursery and OCCA’s Biodiversity Services Unit.

<sup>189</sup> Indigenous heritage is an increasingly important overlapping arena in many settings of ecological governance. This research did not identify a significant overlap of ecological governance with Indigenous heritage in the metropolitan area.

functional implications because overlapping arenas that link to different scales or though different urban functions are likely to support different responses to change. Overlapping arenas often involved BCC actors who were not directly involved in ecological governance, however the overlap between ecological governance and the responsibilities of these actors had clear implications. For example, the design of a greenfield development is the responsibility of the BCC planning division, but also has significant implications for ecological resources on and adjacent to the development site. By the end of the study timeframe, BCC's preferred process in these types of situations was to carry out an internal stakeholder check – whereby BCC actors could dialogue with each other about the implications of a decision for their respective responsibilities, *before* actors external to BCC became involved. In these situations the functional implications of overlapping arenas also had strong governmental implications – i.e. hierarchical structures and managerial governance.

In general these overlaps were moderated also through planning and management processes — and while many decisions tended to prioritise the other arenas, some decisions were made with a focus on biodiversity — e.g. culverts under the Gateway Motorway to facilitate animal movement.<sup>190</sup> It is important to note the complexity of internal coordination within BCC due its size and the associated difficulty of connecting with stakeholders beyond a particular organisational section.

*Council's got 7000 employees and it's really hard. I've worked for council for [more than 5] years now and I still don't know who to talk to about everything. It's really challenging. Often you don't find out about these things that are going on in another section of council until it's almost too late. We try to be inclusive, but unfortunately we can't always succeed.*

'Institutional processes' was the final form of institutional embeddedness discussed by participants. These can be grouped into levels of stability, for example: regulation,<sup>191</sup> planning, policy<sup>192</sup> and regional coordination.<sup>193</sup> These processes often extended beyond not only ecological governance, but also the metropolitan level. Table 7.5 provides examples of this multi-level — and multi-arena — embeddedness.

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<sup>190</sup> Participants: W2, V1.

<sup>191</sup> Aside from the NALL, regulation in Brisbane sits at state (and occasionally federal) government levels.

<sup>192</sup> Policy transfer was commonly mentioned, such as the environmental levy, or offset policy possibilities that had been investigated in other settings.

<sup>193</sup> Regional coordination through the SEQ Regional plan and the SEQNRM plan was particularly mentioned.

**Table 7.5 Example institutional processes and embedding beyond the metropolitan level in Brisbane**

Level of process	Process Type	Example
SEQ region	Regional coordination	SEQ Regional Plan, SEQ NRM Plan
State (Queensland)	Regulation for land acquisition	<i>Acquisition of Land Act 1967 (Qld)</i>
State (Queensland)	Regulation for local government	<i>City of Brisbane Act 1926 (Qld)</i> <i>City of Brisbane Act 2010 (Qld)</i>
National	Policy transfer	Landcare Program
Profession/Global	Policy transfer	Offset policy development
Profession/Global	Spatial technologies	GIS mapping

### **Structural dimensions of embeddedness in the institutional context**

The institutional context also shows an uneven distribution across policy instrument and network structures. Over time actors in Brisbane have shown a general increase of institutional embeddedness *into* the ecological governance arena, in particular, regional coordination, legal input and BCC-internal stakeholder overlap (Table 7.6).

However embeddedness has to a certain extent flowed both ways. Particularly with respect to the embedding of ecological concerns into planning and development arenas.

*So basically what happened was the big stick happened, which means that councils had to comply, developers had to comply. Federal and State departments, private people had to comply with tree protection and restoration orders... As the compliance pressure builds, it stimulated a lot more activity, which means that if somebody wrecked something, there was an obligation to fix it. If there was something already there then there was more pressure to maintain or keep it, rather than let it be destroyed. That has increased significantly over the last 20 years... So that increases the industry that follows to do the work...the people who grow the plants, the people who decide to do environmental science and get a job somewhere, the landscape architects, the restoration people who design projects. There's an expansion of people with expertise who are involved in that sector. So the spin-off is that the sector has increased because there are more obligations to do the work.*

Many of the adjustments to facilitate this stronger embedding, concern a more precise and technical approach to practice – stronger functional embeddedness was facilitated with stronger instrumental rationality (Dryzek 1987a)



**Table 7.6 Policy instrument categories and institutional embeddedness in Brisbane**

Policy instrument categories	Example overlapping arenas			Developmental Trends
	Problem identification	Policy design and evaluation	Management and implementation	
<b>Acquisition</b>	Planning Development	Planning Political Legal Rates levy Funding	Environmental management, Property market	Increased involvement of BCC-internal stakeholders, especially those involved in land management. More precise mapping and science with respect to the ecological network. Greater willingness to compulsorily resume land in order to complete corridors
<b>Regulation</b>	Public Roads and drainage	Planners Legal Science	BCC- Compliance, BCC-asset services , Ecological science	Stronger integration of other values related to urban vegetation – e.g. aesthetics and safety and increased involvement of ecologists in compliance
<b>Public restoration and management</b>	Legal BCC- workplace safety	BCC-funding	Social Capital <sup>194</sup> Neighbourhood	Stronger legal and insurance advice that limits the role of volunteers (e.g. chainsaws)
<b>Private restoration and management</b>	Property market	Legal Environmental management	Legal, Public support <sup>195</sup>	Policy transfer (Land for Wildlife), regional coordination and overlap with legal with respect to covenants
<b>Watershed management groups</b>	Science, Environmental management	Science	Industry Government Community Political support <sup>196</sup>	Implementation of regional planning. Scale up of water provision to the regional level (affected metropolitan water planning)

<sup>194</sup> "Some people have criticised it [Habitat Brisbane program] because in terms of quantity of habitat restored....it's not thousands of hectares...but that's not the point of it. It's completely not the point. It's a priceless investment if you are looking at the social benefits". (BCC staffer)

<sup>195</sup> "Because of the regional approach there is more kudos attached to the [Land for Wildlife] program. Because of this community awareness and involvement it would be difficult to completely shut the program down. There would have to be consultation and negotiation with the community around what else was going to be offered." Brisbane participant

<sup>196</sup> "...we [watershed groups] fall into that category of being political propaganda almost in that we are a touchy feel good program. That has political impact as opposed to someone on my level who's out there mowing lawns and cutting trees. That role doesn't get them votes, where as we at least do because we are a community face".

A final observation about structural dimensions of institutional embeddedness concerns the structuring provided by jurisdictional boundaries. The large jurisdiction of BCC provides economy of scale in terms of council budgets. The council is a similar size to a small province. This means that BCC has higher levels of responsibility for urban functions and a more complex internal structure than the average local government. Accordingly, BCC has higher needs for confidentiality and functional integration, which results in lower levels of community participation and public access than is common for local government units.

## **7.3 The nature of embeddedness in Portland**

The following analysis shows that the contextual embeddedness of ecological governance in Portland has: biophysical linkages that are underpinned by regulative and cultural institutions; temporal linkages that are broad, extensive and strongly directional; and institutional linkages that display networked characteristics and embeddedness into other arenas. As expected, some types of embeddedness experienced by actors were taken up more readily into formal governance structures than others.

### **Portland's ecological governance and the biophysical context**

The links between governance and the surrounding natural system in Portland are underpinned by regulative and cultural institutions. As noted in Chapter 4 the metropolitan area is located at the confluence of the Columbia and Willamette Rivers. The Columbia River floodplain is located to the north, forested hills in the centre and south, and the Tualatin basin to the west. The original ecosystems ranged from coniferous Douglas Fir forests, to mixed broadleaf deciduous trees, oak woodland to significant wetland systems. Federal legislation for species protection and water quality has triggered many of the shifts in the ecological governance of Portland. The following discusses the interactions between actor experiences of the biophysical construct and ecological governance structures.

#### **Experiential dimensions of embeddedness in the biophysical context**

Embeddedness with the biophysical context was codified into four forms, three of which are in common with Brisbane: 'through a personal connection; 'as an advocate' and 'as a natural system'. The fourth is 'integrated benefits' and after outlining the former categories this section drills down into this distinctive form of embeddedness.

The value of 'a personal connection' with urban nature was commonly expressed. For example:

*...I love birds! So you'll hear me talk about them a lot. But people who live here ... appreciate the green-ness, and appreciate having birds in their yard, and that is reflected in the two bond measures that were voted in. People here really value the importance of nature and wildlife, some just for protecting it, not just for accessing it.*  
(Portland state actor)

The clearest numerical evidence of 'personal connection' is the growth in Portland Audubon membership from six to twelve thousand members as the group shifted from a traditional environmental organisation to one with a strong urban focus (~1980). Personal connection was also expressed as a sense of place that incorporated local natural areas within the concept of 'neighbourhood'.

*This park used to be a really underused, under-appreciated natural area. And through all of these things ... [i.e. community volunteering and council support]...it has become a place that a lot of people really love. It used to be...just a place the train went through ... [but] now it's become a place that, everyone thinks it deserves to be taken care of and now there are more places where everyone thinks they deserve to be taken care of beyond that.* ('Friends group' leader)

The biophysical context 'as a natural system' was evident in attitudes about adaptation to climate change and the need for urban areas to be viewed as part of a larger natural system (i.e. salmon runs through urban areas). It was also expressed clearly through scientific research and monitoring (3.3 rational aspect), which was very prevalent in Portland.

*We have the listed salmon and steelhead going through our entire system and then we have the Clean Water Act violations. In some ways these very negative things have forced this community to think very, very hard about the science.*

Embeddedness 'as an advocate' for the environment, was also common in Portland. It was expressed by state actors and non-state actors in terms of individual action, but also as part of a larger advocacy movement.

*And for the next 15 years every year on that anniversary people from government and non-government groups would gather there and celebrate. And we would plot! We would talk about what we had done in the last year and what we were going to do next!*

The roles played by Audubon in the Portland case, illustrates the main avenues for advocacy, occasionally through litigation and protest (i.e. adversarial and civil-political), but usually via participation in citizen committees and similar forums (i.e. functional and collegial).<sup>197</sup> For advocates, this collaborative role involved an interesting tension between biophysical embeddedness as ‘personal connection’, ‘advocacy’ and the final category of ‘integrated benefits’.

*Sometimes I get frustrated because we are talking about everything but biodiversity, it is about human health and as an advocate there is part of me that wants to say...this has intrinsic value too. We share this planet...but when you are up against people's economic interests and property rights, there better be more compelling arguments than simply intrinsic value. You do get the...I am doing what for fish? Or a bug?*

(Portland environmental advocate)

The final form of biophysical embeddedness, ‘integrated benefits’ concerns the experience of urban ecologies as a co-benefit of other urban functions – i.e. functional aspects. Ecological governance was seen as a component of: programs that aimed for a bundle of benefits; urban liveability<sup>198</sup>; and as a legal necessity. Within this frame, the term ‘biodiversity’ was usually avoided or downplayed.

*'Green spaces', 'open spaces', 'nature in the city', these kinds of terms have a lot more meaning ... Biodiversity is rarely invoked except by ecologists or biologists. So what we are trying to do is bring the term in a bit more through 'ecosystem services'. We are trying to explore what are the services being provided by biodiversity.*

(Planner/researcher)

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<sup>197</sup> Audubon staffer: “in any given time we [Audubon] will be on 20 to 30 committees: storm water committees, Portland parks board, Portland planning commission, Portland [urban] forestry commission. We have staff on vitally every major committee that happens, and part of the reason that we do that is that we spend a lot of time on the regulatory infrastructure and trying to make sure that all those committees are actually connecting and forming into something meaningful and letting the community choose them, and very few groups have the capacity to do that.”

<sup>198</sup> “In liveable cities is preservation of the wild” Mike Houck

However, actors also avoided the term ‘ecosystem services’ when communicating ‘integrated benefits’ with the general public.

*When you speak of ecosystem services – that’s a good term for decision makers – but when you talk to the community it doesn’t resonate – what resonates is a sense of place – safety – local community – sports integrates with natural areas – it’s about a bunch of feelings...if doesn’t connect with people it’s just a bunch of numbers.*

(Government officer)

### **Structural dimensions of embeddedness in the biophysical context**

As with Brisbane, experiential dimensions are unevenly distributed across governance structures (Table 7.7), although embeddedness as ‘integrated benefits’ and ‘natural system’ have a strong presence within roles of policy design, management and implementation. Furthermore, there has been a general trend towards ‘integrated benefits’ over time. The use of ‘integrated benefits’ within governance structures highlights synergistic approaches to the biophysical context. These approaches support decision making in pluralist settings (Section 2.1.2, Neef 1991, Costanza et al 1997). ‘Advocacy’ has not reduced over time but is structured around particular events related to ballot measures and urban development – i.e. advocacy is underpinned by institutional civic-political links. State actors acknowledged that non-state advocacy maintained the political will for ecological governance – particular for activities that went beyond regulatory compliance. Networks were well integrated and although some coalitions tended towards particular types of embeddedness with the biophysical — e.g. advocacy — the networks remained interconnected. This aspect will be further investigated in Chapter 9 regarding the coordination of responsive governance.

The structuring provided by the landscape itself was expressed in combination with regulatory requirements under the *US Clean Water Act* and the *US Endangered Species Act*. These responsibilities required local government membership in watershed councils across Portland Metro i.e. institutional underpinned governmental, collegial and functional aspects.<sup>199</sup> Along the main Willamette River corridor, due to the absence of a watershed group, social capital was lower. However this was offset to a large degree by a dedicated Willamette BES team that applied a ‘restore then steward’ approach at a number of sites. This approach established and supported local residents to restore and maintain a site following waterway rehabilitation works. Regulatory drivers along the Willamette channel

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<sup>199</sup> Watershed councils for Tualatin River, Columbia slough and Johnson Creek includes 11, 5 and 3 urbanised councils respectively.

were also significant and included TMDLs under the *Clean Water Act*, recently recovering salmon runs (*Endangered Species Act*) and a Superfund site (*Comprehensive Environmental Response, Compensation, and Liability Act 1980*).

**Table 7.7 Policy instrument categories and biophysical embeddedness in Portland**

Policy instrument categories	Biophysical embeddedness tendencies			Trends and Trajectories
	Problem identification	Policy design and evaluation	Management and implementation	
<b>Acquisition</b>	Advocacy, Integrated benefits	Integrated benefits, Natural system	Integrated benefits, Natural system	Improved technical information, Increased 'integrated benefits' though social equity and development of a regional alliance i.e. The Intertwine
<b>Regulation</b>	Advocacy (very controversial)	Integrated benefits, Natural system	Integrated benefits	Controversy with the property rights movement has decreased the regulatory component of new planning and increased the 'integrated' voluntary components i.e. Title 13
<b>Public restoration and management</b>	Advocacy, Personal	Integrated benefits	Integrated benefits, Personal Natural system	Shifts from revegetation towards watershed management (integrated benefits), shifts from protectionism to 're-naturing' and a focus on the urban matrix
<b>Private restoration and management</b>	Personal	Integrated benefits, Personal	Personal	A minor instrument type with recent growth through a 'personal connection' approach (Backyard habitat program)
<b>Watershed management groups</b>	Advocacy, Integrated benefits	Integrated benefits, Natural system	Integrated benefits, Natural system	Increasingly integrated into formal planning at the local council level (e.g. New Portland Plan)

## **Portland's ecological governance and the temporal context**

Most Portland participants traced the history of ecological governance back to 1903 and the Olmsted Plan. In general, the temporal embeddedness of the Portland arena displayed broad, extensive coverage that was strongly directional. A set of significant events formed a common history that was acknowledged by most actors with both long and shorter term involvement. Some prominent mechanisms that support the maintenance of this temporal embeddedness in Portland Metro were also identified.

## **Experiential dimensions of embeddedness in the temporal context**

The majority of interview participants had been involved in governance for more than ten years, including seven key individuals involved for the entire case period — since 1991. When asked to identify major milestones in ecological governance most actors named a common set of developments across the 20 year timeline, including some who had been involved for less than five years. These events typically included:

- 1991 *Clean Water Act* lawsuit against PCC and the 'Big Pipe Project' began
- 1992 Greenspaces Masterplan and 1991–2004 Metro Greenspaces grant program
- 1993 Failed regional bond measure for acquisition funds
- 1996 Successful regional bond measure and Metro starts acquisition and restoration
- 1996+ Oregon Salmon Plan and Oregon Watershed Management Program
- 1997/1998 Federal listing of Oregon salmon species
- 2004 Metro Title 13: urban natural resource regulation and associated voluntary programs
- 2006 Second successful bond measure for further acquisition which framed access to urban nature as a social equity issue
- 2006 PCC Watershed Management Plan and 2<sup>nd</sup> Urban Forestry Management Plan
- 2008 BES Grey to Green Initiative: green infrastructure, included revegetation and land acquisition for water quality outcomes.
- 2008 Formation of the Intertwine Alliance

Longer term actors also referenced a common set of more distant events;<sup>200</sup>

- 1903 Olmsted Plan – Forest Park and 40 Mile loop
- 1948 establishment of Forest Park
- 1969 CRAG Open Spaces Plan
- 1972 State Planning Rules
- 1980 Implementation of urban growth boundary, and subsequent expansions
- 1980s urban greenspace movement
- 1988 First urban wildlife refuge at Oaks Bottom
- 1991 Regional and Urban Growth Goals and Objectives (RUGGOS) and 2040 Growth Concept (1994)

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<sup>200</sup> For example: “in the early 1900s there was something called the 40 mile loop and that was part of those efforts and some very early planners were involved with that. I forget the famous guy’s name, I’ll think of it as soon as we leave the room. Mike [Houck] knows all that history, and so we aren’t starting this [urban ecological management and planning] from 15 years ago.”

This common embedded history was maintained by the long involvement of key actors, who used a number of avenues to relay their personal experiences, such as university lectures,<sup>201</sup> publications<sup>202</sup> and public speaking events. The administrative culture of Metro and PCC — reinforced by State planning goal 1 (public participation) — also supported the maintenance of temporal embeddedness. For example: most PCC decision making is archived online and is publically accessible; most new policy also includes a thorough historical background in the introduction; and recent online databases (e.g. REIN<sup>203</sup>) have catalogued the history of rehabilitation work across Portland Metro.

This strong environmental history at times led to minor revisionism. For example the achievements of PCC were very prevalent, while the key role of other local councils in metropolitan level planning and ecological governance needed to be intentionally sought out at times. Similarly, the environmental advocacy perspective and the urban planning perspective identified different causal triggers for change and key events were also interpreted differently.

Portland's temporal embeddedness is broad as well as extensive. Most actors referred to developments as a common history, whether achieved by state or non-state actors.

*And this new regional conservation strategy brings in the best mapping we have ever done. I use 'we' a lot, but it was not necessarily [our organisation] doing the work.*

Finally, temporal embeddedness is framed as 'directional', however rather than taking a future oriented 'progress' orientation, the directional history begins with events in 1903 and this gives an aspect of 'returning' to contemporary development of ecological governance.

*[The] Metro green spaces system...wasn't a new vision and one thing I should say is that the Olmsted brothers who decided central park in Boston, came out here in 1903 and designed a system that looks a lot like what we...if you look at the maps today and their rudimentary maps from 1903, there's a lot of similarities.*

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<sup>201</sup> Some advocates regularly lecture at local universities and a number of academics have participated in Portland ecological and urban governance for more than 30 years. In addition Portland State University prioritises local engagement with environmental and planning issues.

<sup>202</sup> For example the book, "Wild in the City", first and second editions

<sup>203</sup> "There are recognised neighbourhood associations and there are also less recognised groups within these areas. They tend to steward those areas in ways that often we don't have down on records, so part of what we are doing is trying to inventory all of that. There's a website created called REIN.net.org. And it's a way that a lot of organisations have come together to put information on the web. To say hey I and my neighbours have gotten together to restore our neighbourhood and this is how we did it. We have this information and REIN is a place we can go and as a wiki site push up that organisation. So there's an attempt to try to bring all this information together."



## **Structural dimensions of embeddedness in the temporal context**

Temporal embeddedness did not vary greatly across policy roles and instruments in Portland. This was probably due to the extensive and broad histories held in common amongst most actors. The view of history was broad, including an acknowledgement from government actors that environmentalists had achieved important and skilled contributions over time. For example, the question “What drove the initial integration?” received this reply:

*It was due to advocates – non-profits – individuals outside of any agency and then you had people within the agencies that worked with them and we were all the same community essentially – and we needed people outside government to organize – the government can’t take the initiative alone. (Government participant)*

Technical roles, such as ecologists, also saw the need for public support as an important part of their work.<sup>204</sup> These characteristics can be explained mostly as a result of the Oregon ballot system, the importance placed on public participation and the local strength of environmental advocacy networks. Temporal embeddedness slightly diverges amongst actors with respect to different scales and interests rather than via policy roles. For example, some local councils use a slightly narrower framing of history in terms of Metro’s role in ecological governance and the imposition of this on local sub-metro governance, particularly with respect to regulative instruments — e.g. Title 3 and Title 13. Other interests however, such as environmental organisations have a contrasting view of regulation, seeing it historically as the least effective of Portland’s ecological governance types.

*Where we have been less successful are things like some of our regulatory programs...protecting streams and rivers, some of the land use planning...We have been fairly successful there. I wouldn’t say it has been a failure but when you get into regulations. That’s where you get into a lot of pushback. Portland probably has stronger regulations than a lot of American cities, but that’s also where the real battlegrounds occur. (Environmental advocate)*

Whereas Metro actors were more likely to express a cautious approval of Metropolitan regulation such as Title 13. In general however, amongst ecological governance actors there was a common view of history. It was between ecological governance and other (especially new) institutional actors that temporal embeddedness diverges more starkly. For example with respect to the emerging focus on social equity in PCC.

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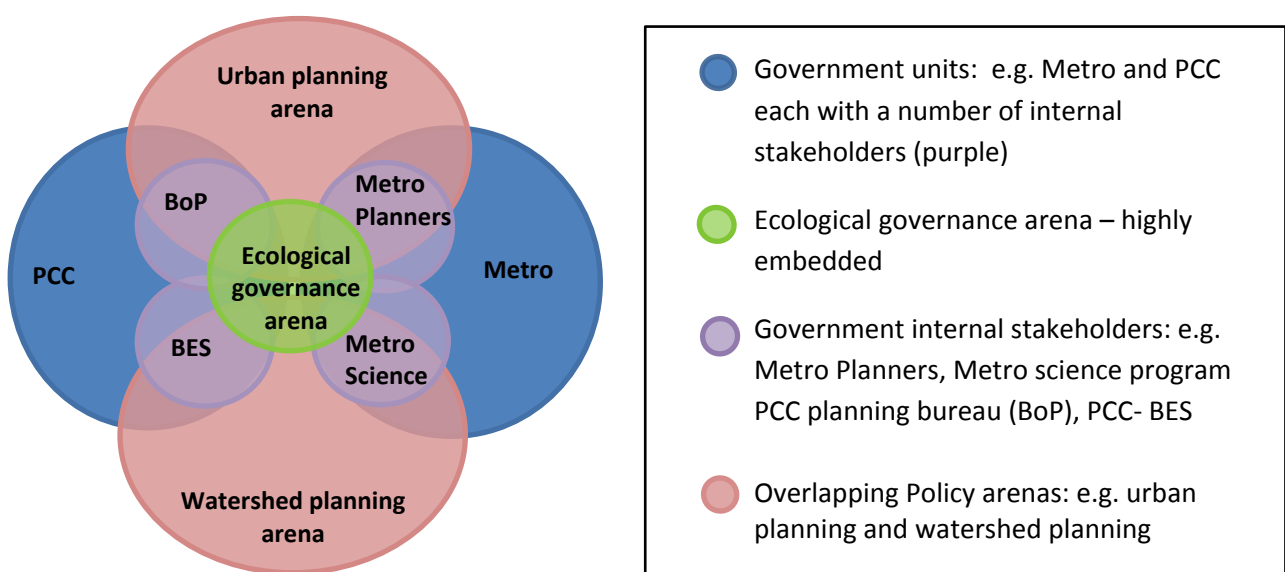
<sup>204</sup> L2, R4,j2, j3

*So you now have a new group of politicians that probably don't know this history [about the delegation of social services to the county government] or don't choose to recognize this history who are basically redefining what the city's [PCC local council's] mission is...and in ways that are more aligned with whole service cities like Chicago and San Francisco and New York. And that isn't what Portland's history has been about. So the more that happens, the more the issues around environmentalism, around environmental rules now get benched.*

It is to this more divergent and contentious interaction with the institutional context that this discussion now turns.

### **Portland's ecological governance and the institutional context**

Institutional-context embeddedness is the linkage between governance and surrounding institutional structures. In general, institutions in Portland are networked and ecological governance embeds out into other arenas, more so than vice versa. Portland Metro is administered by a metropolitan level government (Metro), 25 local jurisdictions (local councils), special service districts (e.g. Clean Water Services, in the Tualatin Basin) and portions of three counties (which are not included in detailed analysis of this study). This means that urban governance is highly complex. Figure 7.4 shows two government units each with two internal stakeholders that network across two urban planning interests. The following discussion outlines how interview participants experience the institutional context, and considers the manner in which it connects with ecological governance structures.



**Figure 7.4 Structural dimensions of institutional embeddedness in urban ecological governance in Portland** Key: ecological governance arena is green; other policy arenas is red; and government units are blue or purple

## Experiential dimensions of embeddedness in the institutional context

The experience of institutional embeddedness in Portland was codified into the same forms as in Brisbane: facilitators; overlapping policy arenas and processes. ‘Institutional stressors’ such as legal pressures were also experienced and will be examined in Chapter 8. Facilitators involved funding and key external partnerships. Funding sources were varied and ranged from revenue generated by Portland government units to state watershed funding (Oregon Watershed Enhancement Board) and private trusts (e.g. The Meyers foundation). These diverse sources offset some defunding events by providing alternative sources (e.g. the end of federal greenspaces funding 2004 and beginning of Metro’s Nature in Neighborhood grants). Over the course of the case study, some state actors were given voter permission (through ballot measures) to collect new taxes for the purpose of funding ecological rehabilitation (e.g. Soil and Water Conservation Districts).

Overlapping policy arenas were very numerous (Table 7.8) and varied in terms of the overlap with ecological governance.

**Table 7.8 Arenas overlapping with ecological governance in Portland**

Overlapping arena	Type of overlap	Portland examples
Biophysical science	Global professional practice	Government ecologists, local universities, USFWS, UERC
Engineering	Global professional practice	BES Watershed team (PCC)
Horticulture	Trade practice	Parks contractors
Industry partners	General private sector	Intertwine alliance partners
Neighbourhood associations	Localised socio-political dynamics	Community involvement in watershed groups (local actors) and Audubon
Parks / Open space planning	National	Portland Parks and Recreation (PCC)
Planning	Global professional practice	Bureau of Planning and Sustainability (PCC)
Political	Interaction between elected members and bureaucrats	PCC commissioners and PCC public servants
Property rights movement	National and State level networks	Campaign against environmental regulation
Recreation	Metropolitan interest group	Mountain-bike networks
Transportation	Internal stakeholders and external actors – state, metro, local	Airport, Metro-Transport, Bureau of Transportation (PCC), ODOT
Social equity	County-based services, national practice	Multnomah county–social services
Water, Stormwater and Watersheds	Internal stakeholders and external actors – national state, metropolitan, local	US-EPA, OWEB, Metro-Ecosystem monitoring program, BES

Abbreviations in Table: BES is the Bureau of Environmental Services (city council bureau); EPA is the Environmental Protection Agency; ODOT is the Oregon Department of Transport (state level actor); OWEB is Oregon Watershed Enhancement Board (state level); PCC is Portland City Council (city council); UERC is the Urban Ecological Research Consortium (cross-sector network); USFWS is the United States Fish and Wildlife Service (federal actor).

Over time, many of these overlaps have become more integrated, for example, engineers and watershed planners within BES now work closely on green infrastructure projects. This may demonstrate a process of context embedding by engineering professionals according to Portland Metro approaches, or simply a generational change. Different participants raised both of these options and this would require further research in order to determine a robust finding.

As in Brisbane, institutional processes were grouped by level of stability, for example, regulation and planning and policy. These processes often extended beyond not only ecological governance, but also the metropolitan level. Table 7.9 provides examples of this multi-level (and multi-arena) embeddedness.

**Table 7.9 Example institutional processes and embedding beyond the metropolitan level in Portland**

Level of process	Process Type	Example
Greater Portland region	Regional Coordination	Regional Biodiversity Strategy
State (Oregon)	Regulation, Natural environment	Goal 5 process (State planning goals)
State (Oregon)	Ballot measure system	Measure 37
National	Policy transfer	Water quality trading, Ecosystem services,
Profession/Global	Spatial technologies	GIS mapping

**Structural dimensions of embeddedness in the institutional context**

This section outlines the manner in which institutional linkages that go beyond the ecological governance arena have been taken up into structures within ecological governance. Over time there has been a general increase of institutional embeddedness, in particular through the use of science (3.3, rational embeddedness), the integration of urban natural resources into urban planning and the integration of biodiversity with urban water management (functional embeddedness). In fact, although Table 7.10 demonstrates arena overlap from the perspective of urban ecological governance, in the Portland case it is more accurate to view the embedding from the perspective of the other policy arenas. Accordingly, urban ecological governance has become embedded into other urban policy arenas more so than vice versa.

**Table 7.10 Policy instrument categories and institutional embeddedness in Portland**

Policy instrument categories	Example overlapping arenas			Trends and Trajectories
	Problem identification	Policy design and evaluation	Management and implementation	
<b>Metro Acquisition</b>	Legal, Political, Democratic (Ballot measure system)	Planning, Legal, Democratic (Citizen Oversight)	Environmental management, Biophysical science, Property market	Increased consideration of social equity. More precise mapping and science – development of ecological corridor mapping
<b>Regulation</b>	Property rights movement	Planners, Legal, Science	Planners, Environmental groups	Stronger integration of other values related to urban vegetation – e.g. aesthetics and safety. Increased involvement of ecologists in compliance
<b>Public restoration and management</b>	Recreation groups	BCC-funding	Social capital <sup>205</sup> Neighborhood	Stronger legal and insurance advice that limits the role of volunteers (e.g. chainsaws)
<b>Private restoration and management</b>	Property rights movement	[unidentified]	Legal, Public support <sup>206</sup>	Policy transfer / adaptation (Backyard habitat certification program)
<b>Watershed management groups</b>	Science, Environmental management	Science	Industry, government, community Political support <sup>207</sup>	Implementation of regional planning. Scale up of water provision to the regional level (affected metropolitan water planning)

<sup>205</sup> “Some people have criticised it [Habitat Brisbane program] because in terms of quantity of habitat restored....it’s not thousands of hectares...but that’s not the point of it. It’s completely not the point. It’s a priceless investment if you are looking at the social benefits”. (BCC staffer)

<sup>206</sup> “Because of the regional approach there is more kudos attached to the [Land for Wildlife] program. Because of this community awareness and involvement it would be difficult to completely shut the program down. There would have to be consultation and negotiation with the community around what else was going to be offered.” Brisbane participant

<sup>207</sup> “Because we fall into that category of being political propaganda almost in that we are a touchy feel good program. That has political impact as opposed to someone on my level who’s out there mowing lawns and cutting trees. That role doesn’t get them votes, where as we at least do because we are a community face”.

The following is a list of instruments from other arenas that ecological governance concerns have become embedded within. The manner by which this embedding took place will be examined in Chapters 8 and 9.

- Metro Urban Greenspaces Masterplan (1992) and regional greenspace system
- Metro Title 3 – Floodplain Management Plan (1998)
- Johnson Creek Restoration Plan (1998) PCC
- Metro – transportation planning process South West Corridor project (2001)
- PCC Portland Watershed Management Plan (2004)
- PCC Portland Urban Forestry Management Plan (2005?)
- BES Grey to Green Initiative (2008–2012)
- Metro – UGB expansion process via urban and rural reserves (2012)
- PCC – TEES Strategy (2010)
- Coalition for Living Future (2004+) and Metro’s 2040 Urban Growth Concept (2004)

A final observation about structural dimensions of institutional embeddedness concerns the structuring provided by jurisdictional boundaries. The Metropolitan jurisdiction of Metro provides economy of scale in terms of budgets and the Metro charter gives the agency a special focus on land use planning and environment. Local councils provide a patchwork of variation at a lower scale and lower still are the neighbourhood associations — strongest in PCC. The complexity of Portland’s jurisdictional landscape also includes Special Service Districts, Soil and Water Conservation Districts and Counties. With respect to ecological governance and this setting, one participant noted there is “an ecology [of organisations] to manage an ecology.”

## **7.4 Comparing the embeddedness of Brisbane and Portland**

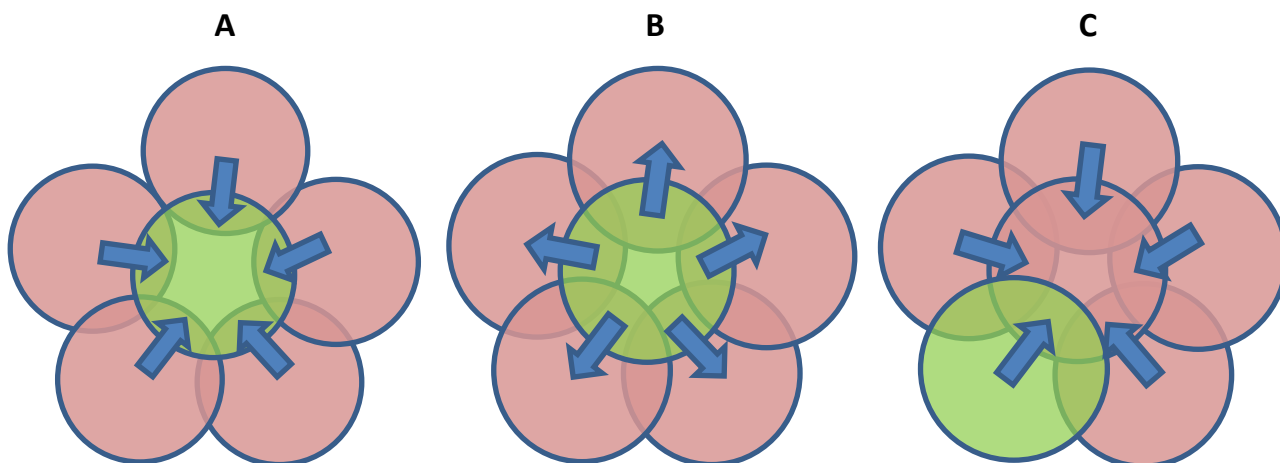
The discussion so far shows that the context embeddedness of ecological governance contrasts markedly between the case cities. Table 7.11 summarises the findings in the previous discussion. This section outlines the commonalities and contrasts between Brisbane and Portland, beginning with a discussion of contrasts.

**Table 7.11 Overview of context embeddedness in the ecological governance of Brisbane and Portland**

Facet	Brisbane	Portland
Biophysical embeddedness	Variable and shifts over time Not underpinned by strong regulatory and cultural institutions Jurisdictional boundaries internalised watershed issues within one jurisdiction	More consistent and stable over time Underpinned by strong regulatory and cultural institutions Jurisdictional boundaries distributed watershed issues across jurisdictions
Temporal embeddedness	Siloed extent Disjointed coverage Variable development Narratives generally begin in the early 1990s	Broad extent Extensive coverage Directional development Narratives generally refer to 1903 and begin in the mid-1980s
Institutional embeddedness	Hierarchical characteristics Increasing over time Increasingly in from other arenas	Networked characteristics Increasing over time Increasingly out from other arenas

As Brisbane and Portland are a ‘most-difference’ comparison (3.4) and governance is highly embedded in its particular context (3.2), a comparison of embeddedness was expected to find high levels of contrast. All three facets of context displayed this contrast. Biophysical embeddedness shifted in Brisbane and retained more stability in Portland. Watershed boundaries fostered collaboration in Portland while generally discouraged inter-jurisdictional work in Brisbane. Similarly temporal embeddedness was broader and more extensive in Portland while disjointed and siloed in Brisbane. Institutional embedding also contrasted with respect to organisational characteristics — i.e. hierarchical or networked — and the direction of embedding with respect to overlapping policy arenas — i.e. embedding into or embedding out from.

The direction of embedding with respect to other policy arenas merits further discussion at this point because it highlights many of the contrasts between Brisbane and Portland. Figure 7.5 presents a simplified diagram of what is meant by embedding into (Brisbane) and embedding out from (Portland) the ecological governance arena. It is important to note these diagrams display the dominant direction of embedding only. A more detailed presentation would show a degree of embedding that flows both ways and shifts somewhat over time. For example there has been some embedding out from ecological governance to urban planning in Brisbane via the integration between the *Vegetation Management Act 1997* and the series of Planning Acts.



**Figure 7.5 Overlapping policy arenas and embeddedness.**

**Key:** **A)** *embedding into* ecological governance from other policy arenas — Brisbane; **B)** *embedding out from* ecological governance into other policy arenas — Portland; **C)** *embedding into* watershed governance from ecological governance — Portland

In the Brisbane case (7.5A) the ecological governance arena began with very little formal structure. The establishment of an acquisition fund and initial purchases were not highly embedded with other policy arenas – particular as the initial purchases were focused on preservation. However the development of integrated planning, regional planning and new public management facilitated *embedding into* the ecological governance arena. In contrast, ecological governance in Portland (7.5B), which also began with little formal structure, became formalised as a component of urban greenspace planning, watershed management and urban planning. Hence a predominant pattern of *embedding out from* ecological governance was established and supported by strong advocacy networks. *Embedding out* has also resulted in urban ecological governance that to a great extent, is a co-benefit of other policy arenas.<sup>208</sup> The third diagram (Figure 7.5C) illustrates the reorientation that has occurred in Portland around watershed management. Some elements of this have existed in Portland for most of the case timeline, but this has occurred especially in PCC with recent integration through the Portland Watershed Management Plan (2004), the emergence of green infrastructure (2004+) and the Grey to Green Initiative (2008-2012). A similar pattern can be demonstrated for Urban Forestry in PCC at a lower level, Urban Forestry in Gresham,

<sup>208</sup> Due to high levels of functional integration in Portland’s policy and planning, it can be difficult to identify explicit biodiversity governance - particularly with respect to terrestrial biodiversity. For example – water governance often provides co-benefits for biodiversity as with the Grey-to-green initiative (2008–2013 City of Portland). Flood management is combined with riparian protection through Metro’s Title 3. Even where biodiversity is more dominant, it is rarely structured as a single objective program. For example the regional bond measures approved by voters for natural area acquisition in 1995 and 2006 also establishes a metropolitan trail system.



Green Streets at Metro and Healthy Streams at Clean Water Services. A final observation with respect to Brisbane is that a similar embedding of ecological governance into watershed governance is now more possible — as with for example the recent Norman Creek waterway project. Facilitating this potential reorientation at the SEQ regional level is the Healthy Waterways Partnership and new SEQ water governance. Both feature biodiversity considerations as a component of watershed governance — i.e. Figure 7.5C.

Many of the contrasts between Brisbane and Portland can be explained by the embedding of ecological governance within particular institutional features, particularly the structures of local jurisdictions and the history of particular policy approaches. For example, Brisbane's actor networks were more likely to be dominated by a single characteristic, while many of Portland's networks were strongly integrated across characteristics — as with integration between ecological and storm water management interests within Portland's Bureau of Environmental Services. Some policy shifts could be correlated with particular trends in conservation theory, regional planning, and the spatial sciences. These trends were then interpreted within the specific institutional contexts of each city. Different governance models respond differently to change (Duit and Galaz 2008).

Portland and Brisbane also prioritised different instrument categories differentially and structured them differently into programs according to their context embeddedness. In Brisbane, many instruments are focused directly on biological resource protection and management, while in Portland, ecological outcomes are more likely to be an ancillary benefit to instruments with a different primary focus — such as water quality, environmental justice, or quality of life. Portland also has a range of acquisition programs with ecological goals while Brisbane has only one iconic local government program. Brisbane has invested heavily in restoration programs for private land while Portland has few activities in this category. The two cities also differ in the way instruments are incorporated into programs. Brisbane has a higher incidence of single-instrument programs, but in Portland — a more complex setting — instruments are more likely to be packaged into initiatives or multi-instrument programs involving, for example, acquisition funds, restoration, and management activities.

In terms of commonalities between Brisbane and Portland it is clear that the institutional context does shape the functions and embeddedness of ecological governance. In both cities embeddedness has increased over time, although this has manifested differently. The technical components of ecological governance has also increased. Commonalities

between in the coding of data was considered carefully. Poor inductive coding can force multiple case studies into homogenous categories. However, the analytical steps took care to collect data into the most natural groupings possible. Most codified groups were the same for each city, not only because they were broad enough concepts, but also because they evidence aspects of ecological governance that are not context specific. These included: biophysical embeddedness in the forms of personal connections, advocacy and natural systems; temporal embeddedness in the forms of coverage, breadth and direction; and institutional embeddedness in the forms of facilitators, overlapping arenas and processes. The specific content of these categories did however differ according to context specific factors, but due to space requirements they are not discussed in detail here. What is clear though is that the nature of embeddedness has clear implication for responsive governance.

## **7.5 The problem of embeddedness and implications for responsive governance**

Embeddedness has significant implications for responsive governance. Granovetter (1985) entitled his influential paper “the problem of context embeddedness” with reference to the tension that actors experience between legitimacy and efficiency (Fernández-Alles and Valle-Cabrera 2006). This section concludes the chapter by highlighting some key implications for responsive governance. The problem of embeddedness is this. Increased embeddedness means that governance is more synced with its surrounds, and hence more legitimate. However, increased embeddedness also means that governance is more driven by changes within its context and hence less efficient and able to adjust according to the priorities and functions of the policy arena. Embeddedness in Portland and Brisbane was found to occur both in terms of overlapping policy arenas and processes with different levels of stability — e.g. management and policy, planning and law.

The tension between legitimacy and effective response was observed in Brisbane and Portland. The main implication for responsive governance is that embeddedness can be both an enabler and a hindrance for responding to change. Therefore active management of embeddedness could be a useful strategy for priming governance networks to change in particular ways. Synergistic approaches such as Neef’s (1991) human development index and planning tools such as ‘quality of life’ have great potential for bridging these legitimacy-efficiency tensions. However any strategy in this area must also examine the general pattern

of embeddedness that is in place — i.e. whether it is an *embedding into*, or *embedding out from* pattern.

Those implementing adaptive governance models generally have struggled to manage interest based decision making, contention and institutions that are not sensitised to local environmental change (Anderies et al. 2004). The forms of embeddedness that interview participants identified also provide a taxonomy for a more interest-based management of governance actors. For example, the ‘personal connection’ form of embeddedness implies a level of personal identify, respect and sense of place. There is research that indicates that a sense of place will support pro-environmental behaviours (Halpenny 2010). This then strengthens ‘advocacy embeddedness’ but may also provide opportunities to strengthen ‘natural systems’ based responsiveness. The analysis showed that the implementation stage of policy is most conducive to the natural systems embeddedness, especially for instruments involved with on ground works and stewardship — such as Habitat Brisbane. In turn, individuals with a stronger personal connection are likely to make effective members of environmental steward groups. This means that if the ‘personal connection’ embeddedness of individuals involved in governance was increased, this could be harnessed to increase the natural systems approaches to governance.

This chapter has presented findings from the embeddedness analysis of Portland and Brisbane. The two cities showed starkly contrasting results that can be mostly explained by the respective contexts of each case. Especially significant were: the effects of overlapping policy arenas; levels of stability such as management, policy and planning; and patterns of embeddedness over time. There are a number of implications for responsive governance that stem from this analysis, some of which will be explored in the following chapters and final synthesis. This chapter establishes responsive governance 0.1 from the research framework (Figure 3.1) which has in particular established the nature of embeddedness for the arena and the structures therein. The next chapter develops responsive governance 0.1 towards version 0.2 by examining the embedded arena with respect to actor responses and adjustments of governance structures to change over time.

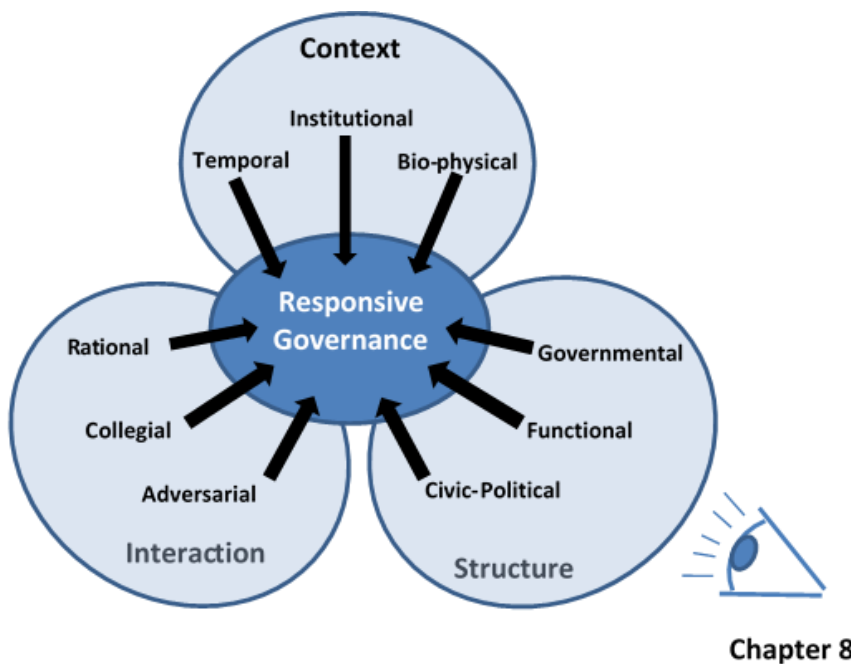
# Chapter 8

## Adjustment to change:

## Sector, state and societal structures over time

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This chapter examines the relationship between the development of structures for ecological governance and actor responses to change over time (Figure 8.1). This relationship sits at the interface between structure — i.e. policy instruments — and agency — i.e. governance actors. The effects of agency on structure are a central element of responsive governance. Hence, earlier findings regarding policy arenas and embeddedness in ecological governance are further developed in the following analysis. The chapter first, highlights key themes from the investigative framework (Chapter 3) and constructs a conceptual lens for the chapter. Then, methodological detail is provided (Section 8.2) before findings are presented for Portland (8.3) and Brisbane (8.4). The chapter concludes with a comparison and synthesis of findings towards a more refined model of governance structures and adjustment to change — thereby establishing state two of responsive governance in the main research framework (Figure 3.1).



**Figure 8.1 Governance structures as a lens for viewing interactions and context: analysis of governance frames and the investigative framework**

## 8.1 Governance and responding to change

This analysis builds on the findings from earlier chapters. Chapter 6 showed that instruments — and the policy roles within them — are associated with different policy arenas. The significance of this is that different policy arenas are associated with different political dynamics and this can impact the responses of governance to change at the policy instrument level. Chapter 7 showed that the governance arena is embedded within a multi-faceted context and this also can effect responsive change within governance.

### Policy development and responses to change

The complex nature of a policy cycle involves multiple forums for policy development and implementation. Hence, there are diverse opportunities and potential pathways for actors to respond to change. Certain forums are more likely at particular policy stages (Table 8.1), within particular instruments — e.g. environmental regulations or volunteering programs — and at different levels — e.g. local, metropolitan. At the governance level, actor responses to change can put pressure on policy to shift. The actual shift and whether a shift occurs at all, is influenced strongly by the controversy, complexity, or uncertainty associated with stressors (Matthews 2012). Policy shifts are further influenced by the structuring of different actor interests within decision making — e.g. taskforces and committees — and the level at which decision making occurs — e.g. local, metropolitan and SEQ level decisions in Brisbane, see Chapter 5.

**Table 8.1 Example opportunities for feedback by stage in an idealised policy cycle**

<b>Stages in the policy and planning process</b>	<b>Examples of opportunities for feedback and adaptation identified in Brisbane and Portland</b>
Problem identification	<ul style="list-style-type: none"> <li>• Non-government lobbying and advocacy</li> <li>• Internal policy champion</li> <li>• Change in priorities of elected decision-makers</li> <li>• Legal processes and court cases</li> </ul>
Policy and instrument design	<ul style="list-style-type: none"> <li>• Expert consultancies</li> <li>• Committees and taskforces</li> <li>• Community consultation</li> <li>• Policy instrument choices</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>• Refinements for site level factors</li> <li>• Implementation strategies</li> </ul>
Management	<ul style="list-style-type: none"> <li>• Flexibility for staff to interpret specific policy application</li> <li>• Operational procedures and plans for critical incidents</li> <li>• Position description review</li> </ul>
Evaluation and adjustment	<ul style="list-style-type: none"> <li>• Regular periodic review</li> </ul>

Source: adapted from Hecló (1978); Gunningham and Sinclair (1999); Lipsky (1980)

Shifts in policy can be viewed within a broader pattern of policy development over time. These patterns often are categorised according to whether the shift is incremental or transformative, and has been studied extensively — e.g. Cashore and Howlett (2007). It is generally accepted that shifts in policy are more commonly incremental, with rarer transformative events that shift the entire policy regime (Wilson, 2000, Baumgartner and Jones, 1993). Research to examine the triggers and precursors for transformative shifts is an ongoing area of investigation (Johnson et al. 2005).

## **Institutions and responses to change**

Inter-actor behaviour is influenced strongly by actor interests and can be resistant to change. These enduring patterns of inter-actor behaviour are institutions (Goodin 1996). Institutions provide a stable context for governance and in general they resist change (Hall 1993). When institutional change does occur it is often a path dependent process according to the particular history, power structures and core values (Thelen 1999, Peters et al. 2005, Djelic and Quack 2007). Goodin (1996) notes that institutions emerge and change very slowly according to three elements — intervention, accidents and evolution. Intervention involves deliberate efforts such as policy design, accidents are unplanned events or processes, and evolution refers to an incremental path or trajectory. These three elements are present within most institutional change. They have important implications for the extent to which institutional change can be considered an intentional or rational response. For example, the roles of intentionality with respect to the accidental and the evolutionary elements of institutional change are unclear. Although even here, Goodin (1996) emphasises that intentional decision making has an important effect on determining the probability of accidents that may occur and the pathways available for evolutionary change of institutions. So, institutions are not the direct product of intervention and instead tend to change under the indirect influence of multiple, interacting stressors and actor responses. The following discussion outlines how these stressors and responses were analysed.

## **8.2 Methodological approach**

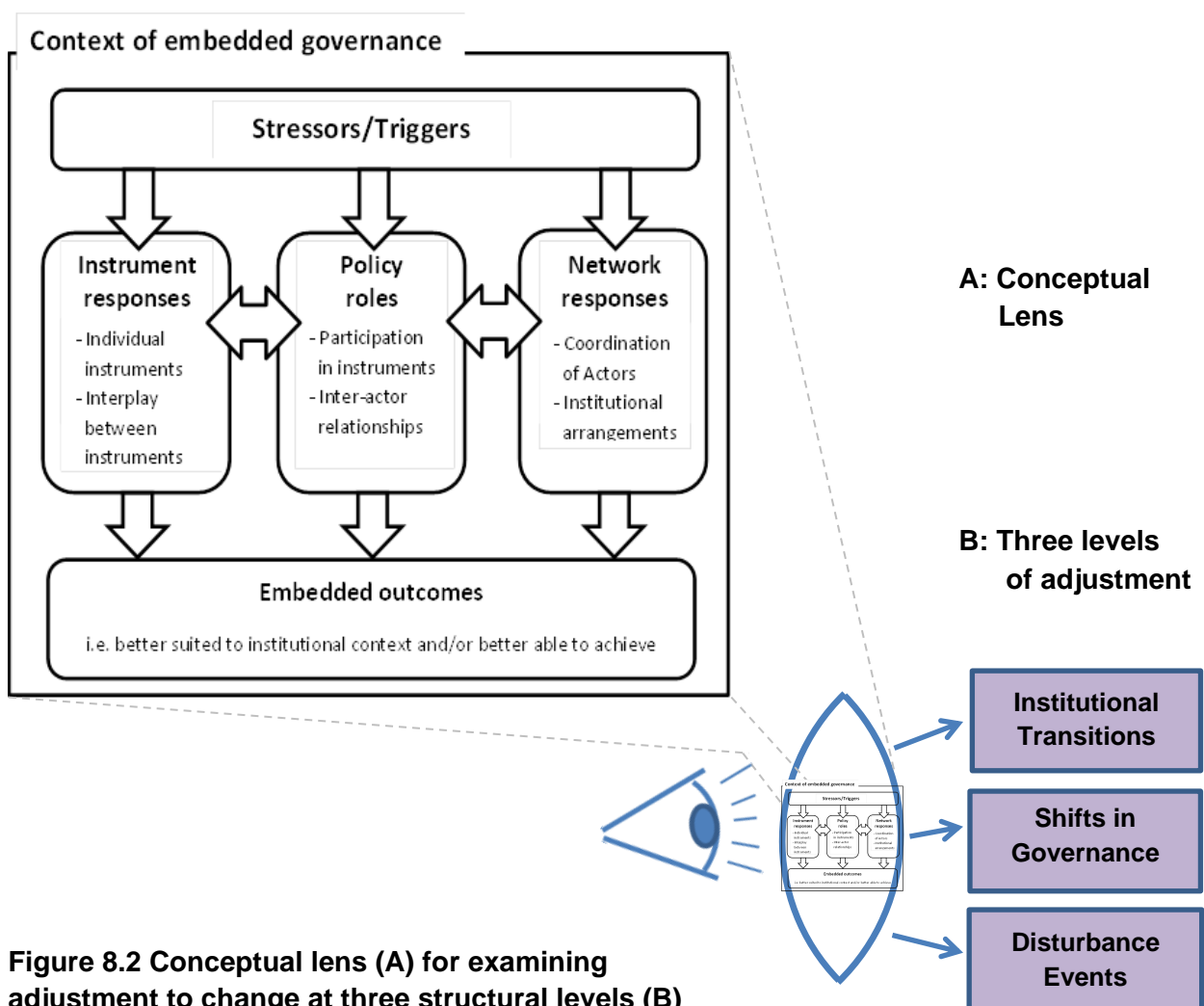
The analysis for this chapter was driven by a conceptual lens that was developed from elements of the broader investigative framework for the research (3.3). Governance stressors were identified from an analysis of interview and document data. Stressors were identified and typified through: the embeddedness analysis (Chapter 7); the political arena analysis (Chapter 6); and temporal analyses (Chapters 4 and 5 and this current chapter). Then the conceptual lens was used to examine the response of governance to these

stressors over time. Three levels of change were investigated: critical disturbance events; shifts in governance — i.e. the instrument mix; and longer term institutional transitions.

Stressors were typified as institutional or regime related, biophysical or flagship. Institutional stressors were significant aspects of the institutional context, while regime related stressors were associated with the particular dynamics within each transitional stage. Biophysical stressors showed direct links between environmental change and governance responses, while flagship stressors proceeded from politically driven environmental programs. Ecological governance was therefore embedded amongst regime-related and flagship stressors in a more immediate way than with institutional stressors.

### Investigating responses to change: a conceptual lens

The conceptual lens was developed from earlier findings and relevant theory concerned with governance arenas and responding to change, namely embedded instrument mixes, actor networks and stressors on governance (Figure 8.2).



**Figure 8.2 Conceptual lens (A) for examining adjustment to change at three structural levels (B)**

This lens was especially concerned with the challenges identified by rational decision-making models when implemented in complex settings — such as adaptive management and triple loop learning. The active experimentation required for adaptive management requires a high degree of controllability that is rarely present in governance arenas, while triple-loop learning at the governance level does not occur as a single integrated process but instead occurs across networks and instruments. Chapter 2 highlighted the interest-based, rather than rational process that drives most policy development and instrument implementation. Responsive governance needs to be examined on this basis.

The examination of disturbance events and shifts in governance involved a more direct processing of data than the examination of institutional shifts. For this stage, the case period was stratified into transitional stages. These stages, alone, were a significant research finding. The identification of stages was achieved by first identifying the shifts in governance for embedded units such as instruments and watersheds within each case study — e.g. Figure 5.2 Phases in governance of the urban Oxley Creek corridor. These shifts were overlaid to build a case study level set of transitions — i.e. governance arena and metropolitan level. The process avoided the forcing of events into artificial categories by alternating between phases of inductive reasoning and deductive checking against case study data (Eisenhardt, 1989). Conceptual forcing was managed by allowing transitional phases to overlap rather than demanding a progression of neat sequential sections (Figures 8.3 and 8.4). The approach drew inspiration from an overlapping stages model in Brown et al. (2013). The following sections present significant findings from using the conceptual lens to examine Portland and then Brisbane.

## **8.3 Responding to change in Portland**

Adjustments to change in Portland proceeded from stressors that actors could partially access through formal trigger mechanisms such as the ballot measure system. Institutional transitions involved highly overlapping stages that strengthened networks over time. The findings for Portland are presented for stressors (8.3.1), institutional transitions (8.3.2), governance shifts (8.3.3) and disturbance events (8.3.4).

### **8.3.1 Stressors on Portland's ecological governance**

A range of institutional and regime related, biophysical and flagship stressors were active over time in Portland. Four institutional stressors were identified through the coding of



interview participant responses: (1) the economy; (2) funding issues; (3) flood management; and (4) regulatory stressors. The first three had equivalents in the Brisbane case study while the fourth was unique to Portland. 'The economy' involved the contemporary effects of the global financial crisis and for Portland this impacted on council budgets, but an effect on collaboration was also noted.

*I think everyone buys into the idea that we are stronger together than we are apart, but when things start to dry up and tighten up sometimes you do just need to claw for what you need to survive and you don't have the flexibility to have the bigger vision.*

The idea of 'clawing to survive' also implies that in response to economic stressors, actors tended to withdraw into particular models — and therefore particular frames — of governance that were perceived as most likely for achieving what was needed to survive. Returning to the notion of governance as a radial concept (Chapter 3), this also implies that responding to the economic stressor can involve a shift in the radial-subcategory of governance — i.e. from cross-sector frames to society or market-based frames. The extent to which this finding is transferable to other stressors and types of responses was examined throughout the remainder of this analysis.

Funding issues throughout the Portland timeline were linked to ballot measures such as the failed bond measure in 1993, shifts in federal funding (e.g. cancellation of greenspaces grants program in 2004), and maintenance of acquired property. Following a defunding stressor, Portland actors usually managed to substitute a new funding source, although not immediately or necessarily at the same quantity. In contrast with the economic stressor, funding issues in Portland, linked with the ballot measure process, encouraged actors to strengthen civic-political and cross-sector frames prior to the ballot measure.

'Flood management' in Portland had been an institutional stressor for many years, especially in Johnson Creek. Portland academic and resident Steve Johnson examined the chain of failed government attempts at flood response in Johnson Creek beginning in the 1930s (Johnson 2004). Then following a period of slow social capital build up, a peak flood event in 1996 set a wave of planning in motion at metropolitan (e.g. Metro Title 3) and local council levels — e.g. BES. This evidences that as with funding issues, the 'flood management' stressor encouraged adjustments towards cross-sector frames.

The final category expressed by participants was 'regulatory'. "It is difficult to overstate the role played by environmental legislation in Portland," (personal communication R.

Margerum, Oct 2011). Regulatory stressors from a range of sources in Portland impacted significantly on ecological governance. For example:

- flood control legislation was established by Metro — Title 3, adopted 1998;
- lawsuits under the *Clean Water Act* triggered the 'Big Pipe Project' (1992) in PCC and eventually led to the development of green infrastructure;
- planning regulations from 1980 onwards established an urban growth boundary (UGB) and progressively applied state planning goal 5 (environment) inside the UGB; and
- the listing of Oregon salmon under the US ESA (1997/1998) also sent shockwaves through the urban and ecological governance of Portland Metro; and finally,
- public participation in forming law was also a potent stressor on ecological governance. For example campaigns to support or oppose ballot measures were a significant drain on resources.

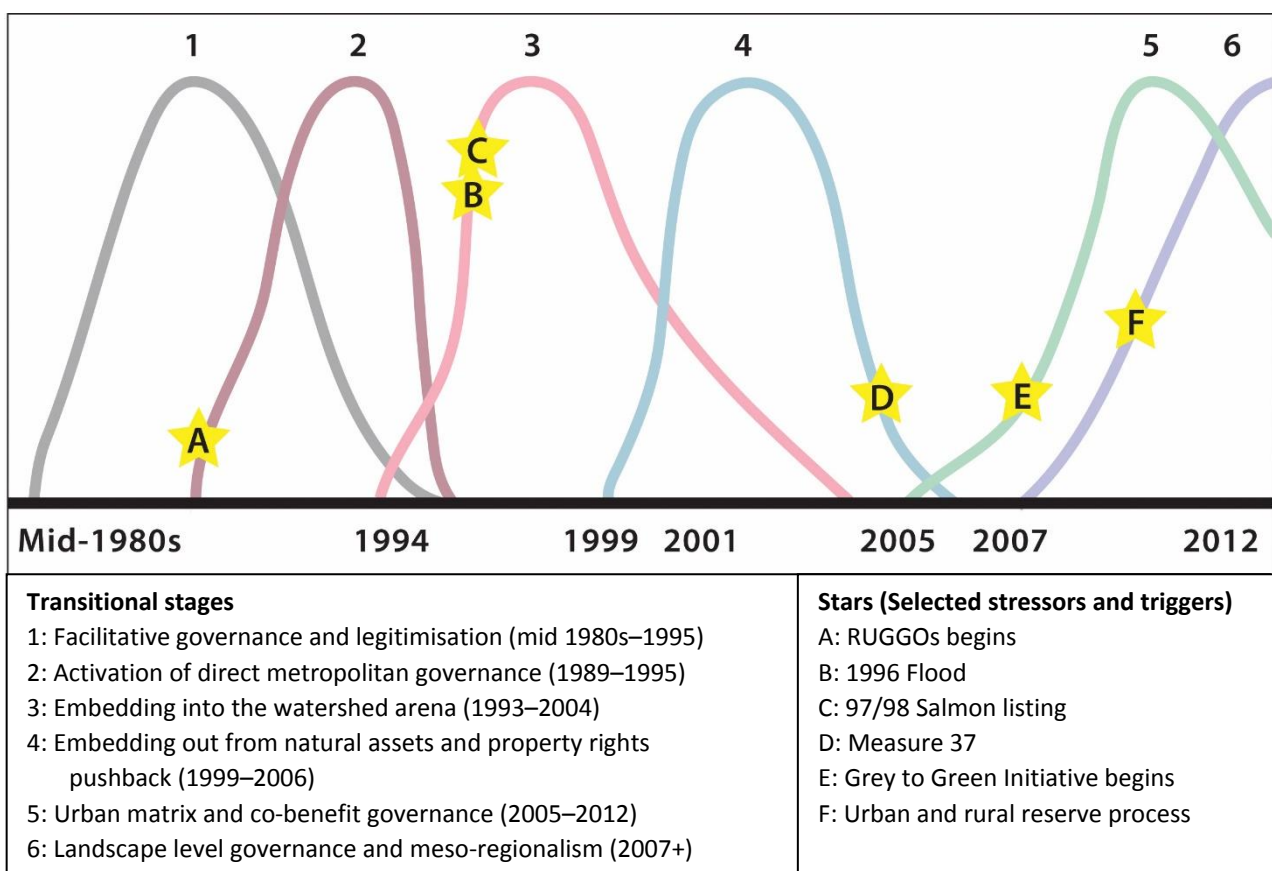
Public participation for establishing new regulation was especially noted as a drain for non-government actors. For example:

*Much of the work in policy and legislation is very technical and it is difficult to keep people engaged, or for people to understand what the implications are. Unlike a bond measure where you can build a campaign and momentum this work [the Goal 5 process for Metro's Title 13] didn't allow us to build our constituents. It is like burning your capital. And we knew that and made that decision. Since then [5 years ago] we have been working on rebuilding...our active membership.*

In contrast with institutional stressors, regime construction and flagship stressors were more specific to the metropolitan and ecological governance arena levels. Regime related stressors in Portland included RUGGOs, the establishment of Portland e-zones, and the rise of social equity concerns. These stressors were embedded firmly within the broader context and overlapping arenas. They were transformative events that introduced a new institutional logic into the governance arena. Environmental 'flagships', the final significant type of stressor was exemplified by the Grey to Green Initiative in PCC. It was a well-resourced, but time-bound initiative seeking politically driven goals. Biophysical stressors are exemplified by the urban intensification and associated vegetation clearing that launched the urban greenspace movement. The following section explains the instrument responses in relation to this range of stressors.

### 8.3.2 Institutional transitions in Portland’s urban ecological governance

Transitions in Portland’s ecological governance fell into a series of six overlapping waves (Figure 8.3): (1) facilitative governance and legitimisation (mid 1980s–1995); (2) activation of direct metropolitan governance (1989–1995); (3) embedding into the watershed arena (1993–2004); (4) embedding out from natural assets and property rights pushback (1999–2006); (5) urban matrix and co-benefit governance (2005–2012); and (6) landscape level governance and meso-regionalism (2007+). A number of important stressors furthered (e.g. participation in RUGGOs) or inhibited (e.g. Measure 37 and corresponding scale back of Title 13) the progression of these waves as the following section demonstrates.



**Figure 8.3 Transitional stages in Portland’s ecological governance**

#### Transition 1: Facilitative governance and legitimisation (mid-1980s–1995)

Although the case study began in 1991, the first wave needs to be traced from the mid-1980s when a response to urban intensification inside the UGB began via an urban greenspace movement (later named FAUNA) and the first formalised environmental

planning<sup>209</sup> emerged. These interests were taken up at the metropolitan level when planning for Metro's Greenspace system began (1989). This planning was triggered by Metro officer collaboration with FAUNA advocates. The growth of legitimacy for natural resource protection inside the UGB is traced from this point. While initial steps included responses to law suits, community advocacy, and refinement of the state planning framework, Metro also began to play a facilitative role through the Metropolitan Greenspaces grant program, 1991-2004. This role accelerated the growth of local capacity for environmental restoration. The Metropolitan Greenspaces masterplan (1992) was released and this further strengthened the legitimacy of natural resources as an urban planning interest. When voters rejected a regional bond measure for natural area acquisition funds (1992), governance responded via the transfer of Multnomah County park management to Metro (1994), making Metro a legitimate natural area manager. Following a broader advocacy campaign from FAUNA and other actors a more focused second bond measure was successful (1995), and the Metro acquisition program began.<sup>210</sup>

### **Transition 2: Activation of direct metropolitan governance (1989–1995)**

A few years earlier (1989), Metro began responding to urbanisation patterns inside the UGB by launching the RUGGOs process. This response became direct ecological governance from the metropolitan level when the metropolitan acquisition program began (1995). The newly formed Metro natural areas' team responded to opportunities and the need to establish legitimacy. Metro moved quickly to establish itself as a natural area manager and expand the capacity that had been inherited when County parks had transferred land to Metro.

### **Transition 3: Embedding in to the watershed arena (1993–2004)**

Meanwhile (1993 onwards), the watershed policy arena was formalising and ecological governance responded by embedding into the watershed arena through activities such as revegetation for riparian buffering and salmon conservation. When major floods occurred across the urban area (1996), Metro joined with the City of Portland (PCC) to assist in new flood-planning efforts. A metropolitan floodplain regulation — Metro's Title 3, 1998 — and local watershed programs in Johnson Creek were developed. Embedding of ecological

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<sup>209</sup> For example, environmental zoning and tree preservation laws emerged within some local Portland councils during the mid-1980s – Gresham, PCC and Beaverton.

<sup>210</sup> A bond measure is a proposal to issue a government bond for public expenditure that is referred to voters for approval on an election ballot. The broad coalition of advocates included industry groups like the home owners association, local city councils. The Coalition for a Liveable Future was founded in part to support the 2040 Growth Concept the bond measure (an alliance of social and environmental community groups); Portland City Club also endorsed the bond measure.

governance was strengthened with biodiversity issues recognized within watershed planning for the first time.<sup>211</sup> The federal listing of Oregon salmon species furthered the embedding process by triggering a cascade of changes. A range of local council compliance programs were implemented (1995–1997) and this accelerated the formation of urban watershed councils and in turn provided new forums for collaboration between local councils and environmental advocates.

#### **Transition 4: Embedding out from natural assets and property-rights pushback (1999–2006)**

Soon after the 1996 floods, pressure increased on Metro to fulfil commitments called for by the 1995 bond measure for development of regional parks and trails system. This gave ecological governance the opportunity to embed further into the recreation arena and establish new collaboration with suburban councils. In tandem with this process, property-rights' advocates pushed back against further embedding of ecological governance into land use planning. A project<sup>212</sup> to extend PCC's environmental zoning received strong opposition from property-rights' groups (2001). In response, environmental planners 'deformalised' their approach, and began to refine their data and planning over coming years. In addition, the methodology for this local PCC project was continued at the metropolitan level as Metro also worked towards improved protection for upland areas. This work was to become Metro's Title 13, but as it neared completion, further property rights pushback against environmental planning effectively stalled the development of regulatory approaches to environmental governance in Oregon. 'Measure 37' passed in 2004 and required the reduction of property value from new environmental regulation to be compensated as a 'regulatory taking'.<sup>213</sup> In response Metro reformed the draft Title 13 by reducing the regulatory component and increasing the voluntary programs involved. The adoption of the reformed Title 13 by voters (2006) completed the fourth transition in Portland. The bond measure associated with Title 13: provided a next instalment of acquisition funding; strengthened embedding into 'social equity' by requiring acquisition in poorer park deficient neighborhoods; and a grants program — Nature in Neighborhoods — partially compensated for the cessation of 14 years of federal greenspace funding.

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<sup>211</sup> For example: City of Portland Willing Seller acquisition program (1997); Johnson Creek Resources Management Plan (1995); and the first large watershed restoration projects in Johnson Creek (1995/1996).

<sup>212</sup> The Healthy Portland Streams project 1999–2001.

<sup>213</sup> Although Measure 49 (2007) amended some Measure 37 changes, the understanding that new environmental regulation is a form of environmental possession that requires compensation from government has remained.

### **Transition 5: Urban matrix and local co-benefits governance (2004–2012+)**

The embedding of ecological governance with other urban functions such as stormwater, transport and urban forestry continued to increase as environmental planning moved beyond natural and riparian areas to include the urban matrix. This trajectory was locked-in when engineers committed to a smaller and therefore more affordable, stormwater pipe diameter for the Big Pipe Project (2004). This meant that stormwater increases beyond those projected for 2011 capacity would require above ground management or green infrastructure. These water arena approaches carried the embedded ecological governance into new urban areas such as backyards, urban streets, and rooftops, and far beyond the earlier riparian and parks focus. To achieve this matrix focus required a high level of flexibility from ecological governance with respect to other urban concerns. Biodiversity was established as a co-benefit within an integrated approach to watershed management — e.g. the PCC Watershed Management Plan. This transition was accelerated in PCC by the Grey to Green Initiative (2008–2012) which operated as a flagship stressor. The fifth transition thus occurred as the embedded ecological governance was bundled into a whole of watershed approach to urban water.

### **Transition 6: Landscape level governance and meso-regionalism (2007–2012+)**

At the close of the case period, urban ecological governance in Portland was party to new regional planning and a new organisational level of collaboration. The new regional planning has a 50-year horizon for urban which has framed the urban area within its broader landscape. This 'urban and rural reserves process' brings Metro into new collaboration with the county level of government (Seltzer 2009). The new level of collaboration is known as the Intertwine Alliance. The Intertwine has extended urban ecological governance beyond the Portland metropolitan area. The Intertwine was formed by Metro and three advocate partners (2007) and as of 2013, membership reached 100 members including local governments, private industry, and non-government groups. The Intertwine has developed a meso-regional conservation strategy (2011) that includes Portland-Metro, Vancouver-Washington and their hinterlands. In 2010, the Intertwine joined a national coalition of similar organisations to lobby for federal funding. This sixth transition is therefore characterized by responses that establish landscape-level environmental governance. The following discussion examines structural responses to stressors in greater detail.

### **8.3.3 Shifts in governance in Portland**

The six developmental waves in Portland Metro have supported a long term transition from informal, advocacy-based and riparian-focused, to formalized, collaborative and watershed-wide ecological governance (Table 8.2). Governance shifts within each of the six transitional stages corresponded with a general response to stressors at that stage (Table 8.2). A policy arena analysis as undertaken in Chapter 6 for the whole case period was trialled for the shorter transitional stage periods but only a minor correlation of governance shifts with transitional stages was found. This resulted from small sample sizes for this stratification and uneven power distribution across individual instruments and hence this approach was not taken at the transition scale. Instead, a critical instrument approach with special focus on arenas overlapping with ecological governance was effective for displaying structural interactions with stressors (Table 8.2).

The following discussion explains the most significant findings for governance shifts — i.e. instrument level responses to change — in Portland, namely: (1) instrument responses to stressors were primarily carried out via bundling with other arenas or by accessing the triggering mechanism for an institutional stressor — e.g. ballot measures; (2) procedural instruments provided opportunities for a low-level guiding of regime-related cascades of transformative change; (3) over time, the networks involved with instruments strengthened and became more complex; and (4) networks generally responded to unmanageable stressors by cleaving along interest-based lines.

#### **Responding to context-based stressors**

First, the response to context stressors was via bundling or triggering. Bundling involved the integration of ecological governance as a component of the responses from other arenas — e.g. planning processes. Examples of bundled responses included the response to the urban intensification stressor by joining with integrated planning efforts — e.g. RUGGOs — and the response to the flooding stressor via bundling riparian protection into Metro's floodplain planning — e.g. Title 3. Each bundle required a meta-concept to provide the synergy or non-binary frame — see 2.1.2 and Neef (1991).

**Table 8.2 Shifts in ecological governance in Portland by transitional stage**

★	Stage	General	Stressor (type)	Actor responses & instrument adjustments	Supporting structures (arena)
More dynamic modes	Facilitative governance / legitimisation (mid 1980s–1995)	Via advocacy	Urban intensification (planning)	Metropolitan Greenspace Masterplan Participation in planning & FAUNA bond measure	Portland City Club (civic) RUGGOs & 2040 Growth Concept (planning)
			Failed bond measure (funding) CWA law suits (legal)	Metro takes organising role in next bond measure Embedding via Watershed revegetation program	Ballot measure system (political), FAUNA (EG) Big pipe project (water)
	Metropolitan governance activation (94–95)	Via authority	Bond measure cascade (regime)	Transfer of County parks to Metro Acquisition program Establishment of Metro Natural Areas Program	FAUNA (EG) and Inter-Government Agreement (regulatory) Metropolitan Greenspace Masterplan (EG)
More consolidated modes	Embedding into the watershed arena (1993–2001)	Via integrat'n	Flood planning (regime)	Watershed council revegetation projects Embedding into flood planning	State watershed management program (water) Floodplain & riparian protection: Title 3 (water)
			Salmon listing (legal) and PCC aims to 'restore' salmon (regime)	Strengthened embedding into flood planning	Johnson Creek Restoration Plan, 2001 (water)
	Embedding out from natural assets and property-rights pushback 1999-2006	Via content'n	Project to extend e-zones is opposed (EG)	Internalisation of e-zone extension process Metro resource inventory for upland protection	State planning goal 5, environment (planning)
			Measure 37, compensation for regulatory takings (regulatory) Implementation of regional trails system begins (regime) Federal grants end (funding)	Measure 49 reverses some Measure 37 impacts Draft Title 13 increases voluntary component Strengthened embedding into recreation arena Offset federal funding loss via Title 13 grant program	Ballot measure process (political) 1995 bond measure conditions (political / regulatory) Ballot measure process (political)
Variable pattern of modes	Urban matrix and co-benefit governance (2004–2012)	Via embed-out	Bird strikes (biophysical)	Portland Urban Bird Treaty and TEES	PWMP 2005 (water) and citizen science (EG)
			Limited storm-water pipe capacity is locked-in (regime)	Embedding into green infrastructure, e.g. biodiversity eco-roofs, meadowscaping with natives tree corridors between natural areas	PWMP 2005 & Green Infrastructure (water) New Portland Plan adopted (planning) Capacity build Meadowscape/'Depave' (water)
			Temperature TMDLs (regulatory)	Stronger embedding into water arena via trading systems and Clean Water Act compliance	Tree-for-all program (water) Clean Water Act (regulatory)
			Grey to Green (flagship)	Accelerated embedding into green infrastructure Extra co-benefits - flagship (e.g. acquisition)	Storm-water pipe capacity is locked-in (water) PWMP (water)
			Complex regulations (regime)	Advocacy for stronger tree protection	PCC Tree Regulatory Improvement (legal)
	Perception of low regulatory protection in Title 13 (EG)	Backyard Habitat Certification Program Regional Tree Code Survey	Advocacy networks (EG)		
Landscape level governance (2007+)	Via scaling up	Conflict regarding UGB expansion (regime)	Advocacy for regional level corridors (e.g. connectivity between Forest Park and rural areas)	Urban and rural reserves process; UGB expansions consider biodiversity (planning)	
		Jurisdictional divides; access to funding (EG / funding)	Intertwine Alliance established Regional Conservation Strategy	Regional trails system Urban and rural reserve process	

★ Instrument mix modes (see. 8.5.2) – Key: Blue = tended towards dynamic mode, Purple = tended towards consolidated mode dynamic.

**Abbreviations in table:** E-zone is Environmental zone; FAUNA is Friends and Advocates of Urban Natural Areas; PCC is Portland City Council; PWMP is Portland Watershed Management Plan; RUGGOs is Regional Urban Growth Goals and Objectives; TEES is Terrestrial Ecosystem Enhancement Strategy; UGB is Urban Growth Boundary



Bundling with more powerful but allied arenas was expected for ecological governance. However, bundling wasn't the only option for responses. The institutional context of Oregon also enabled a certain amount of 'triggering'. A triggering response required the ability for actors within ecological governance to access structures that could set institutional reform in motion — e.g. ballot measures. Funding and regulatory stressors were particularly linked to the Portland arena in ways that enabled governance actors to influence or trigger different stressor mechanisms. The ballot measure system was a prominent example. FAUNA piloted a ballot measure in 1993. The measure failed but managed to strengthen a funding stressor for greenspace acquisition within the metropolitan area. This then assisted Metro to take the lead on a new measure that succeeded in 1995. The ability to access these triggering mechanisms added resilience to ecological governance. For example, Metro put forward a ballot measure that partially compensated for the 2004 loss of federal funding for the Greenspaces program. As well as funding responses, there were significant regulatory stressors that were triggered by non-state actors using for example, the CWA and ESA. Although accessing trigger mechanisms could increase the resilience of ecological governance, if a network with differing interests accessed the same mechanisms it could increase the vulnerability of ecological governance. Hence, when Measure 37 was proposed by a property-rights' group and passed in 2004, it required land owners to be compensated if new environmental regulations amounted to a 'regulatory take'. This placed ecological governance in a vulnerable position in the long-term, because it decreased the feasibility of implementing new environmental regulations in the future — see Walker and Hurley 2011.

### **Responding to very strong stressors**

Second, the response to unmanageable stressors and inadequate outcomes, from the actors' perspective, saw networks cleave along interest-based lines. For example, when a property-rights' pushback from environmental planning halted the PCC Healthy Portland Streams' project, which aimed to extend environmental zoning areas, planners and managers in 2002 deformedalized their response and internalised it amongst primarily state actors and some closely allied non-state actors. The deformedalized work eventually re-formalised at the metropolitan level as a methodology which provided the scientific underpinning of Metro's Title 13 (2006). Environmental advocates showed a slightly different pattern of switching from collaboration — e.g. design of Title 13 and participation in advisory committees, to advocacy — e.g. FAUNA campaign for stronger Title 13, and public watchdog — e.g. review of tree codes and commitment from Metro to review the effectiveness of Title 13 after five years of operation. The examples of Healthy Portland

Streams and Title 13 both show a cleaving of cross-sectoral networks along interest-based lines, i.e. the cleaved networks still included state and non-state actors with a common interest in ecological governance. There is evidence that this cleaving of networks was partially coordinated by key actors in Portland. The coordination of responsive governance is the focus of Chapter 9.

### **Responding to transformative cascades**

Third, a number of cascading changes occurred, often stemming from various regulatory and regime-related stressors. Responses to these transformative changes occurred through low level guiding that drew on capacity that existed before the cascade began, and implemented minimum standards during times of change — for retrofitting with best practice at a future time. Once a cascading change had begun, it could only be guided at a low level. To a great extent, a cascading change proceeded via its own internal logic. For example, the establishment of the greenspace masterplan, contributed to the success of the regional bond which required the establishment of an acquisition program and the natural areas' program. Each change provided support or stimulus for the next change, however, in Portland these cascades were not completely beyond the influence of ecological governance actors. There were a range of opportunities to influence the change at each step of the cascade and this was closely related to, the capacities and structures that had been in place before the cascade began. For example, the strong public participation structures in Portland provided opportunities for community-based environmental groups to contribute to flood management planning. The end result was that ecological governance interests became increasingly embedded into urban water and other overlapping arenas — e.g. Johnson Creek Restoration Plan. The general tendency towards embedding as a response to transformative change is evidenced by the strength of supporting structures (Table 8.2) that were based in other arenas. The final aspect of responding to cascading change was 'establishing minimum standards'. Unsurprisingly, managers sought to manage only the most urgent responsibilities and to streamline processes where possible during times of rapid change.

*As soon as [the funding] passed we had to hire a bunch of people and organize and go and get them...you have to respond quickly....People are looking at what you will do [with public funding]. You have to take some bold steps – so in the first 5 or 6 years our [environmental] monitoring was very fundamental.*

### **Responding within and across transitional stages**

Finally, response patterns within and across transitional stages were also observed. Prominent events often exemplified the general response pattern for each stage (Table 8.2), although of course not every event adhered to this pattern. Response patterns across transitional stages were often incremental changes that accumulated over time. For example, instruments became more precise as methods improved and a scientific knowledge base developed. Yet even as incremental change accumulated, the ability for transformative change became more difficult. For example, one participant related the difference between implementing the second regional bond funding compared with the first.

*I see that once a program becomes established you become risk adverse – cautious. The first time around we had a blank slate to experiment with, the second time around we were pretty much repeating ourselves and refining the same approach. You almost have to reinvent yourself [to get back] a fresh look.*

With reference to governance as a radial phenomenon, this path dependency highlighted by this participant tends to lock a program into a particular model of governance. Over time the governance arena in Portland strengthened its metropolitan level networks as evidenced by growth of the Intertwine alliance and Portland Audubon membership. In summary, the Portland arena generally displayed response structures that were highly networked.

### **8.3.4 Disturbance events in Portland**

In Portland, the response to critical disturbance events was characterized by cross-sectoral collaboration, but also by high levels of advocacy and contention. To achieve this interplay between advocacy and collaboration, ecological governance in Portland has also exhibited structures that protect policy niches and cross-sector models from political interference and advocacy networks that are activated when issues arise. Actors that were both collaborators and advocates played a critical role and are further investigated in Chapter 9.

## **8.4 Responding to change in Brisbane**

Responses to change in Brisbane proceeded from stressors that actors could rarely control. Institutional transitions were highly dependent on political change and sectors de-coupled over time. The findings for Brisbane are presented for stressors (8.4.1), institutional transitions (8.4.2), governance shifts (8.4.3) and disturbance events (8.4.4).

### 8.4.1 Stressors on Brisbane's ecological governance

As in Portland, a range of institutional, regime-related and environmental flagship stressors were active over time in Brisbane. Four institutional stressors were identified through the coding of interview participant responses: (1) flood recovery; (2) development; (3) the economy; and (4) funding issues. All except 'development' had equivalents in the Portland case. First, 'flood recovery', was also mentioned in the Chapter 6 discussion about the biophysical context. However, the major flood in Brisbane in January 2011 was more an institutional than a biophysical stressor. As more powerful policy arenas responded to the flood, there were a range of implications for ecological governance. For example,

*A chap from council [waterways division] came to our working bees and said that some of our species weren't appropriate for planting along the creek. Since the flood they are trying to keep the waterways a bit more open, so that they can have better flood flows and hydrology... He talked to us and coordinated the work... excavating and opening up the creek that sort of thing. And he's concerned about planting right on the edge of the creek that might impede flow. That's been a recent change [in the 18 years I have worked here].* (Habitat group leader)

Besides 'flood recovery', the other three institutional stressors were concerned with economic issues. This correlation implies that the arena in Brisbane is particularly exposed to economic systems. 'Urban development' was highlighted consistently as the greatest challenge for urban ecological governance in Brisbane. 'The economy' was also seen as a stressor, particularly in reference to the 'global financial crisis' (GFC) — as interviews were conducted in 2011 to 2012. Finally, 'uncertain funding' was identified as a more difficult stressor to manage than limited funding.

*It wasn't working, because NHT [National Heritage Trust] funding gave you a coordinator for one year. You didn't know what was happening for next year and by the time you embedded them in the system and given most of your intellectual capital, they were wondering about next year. A couple of times people left, while I had funding from the NHT because...they had no real prospects for the next year*

(Interview participant)

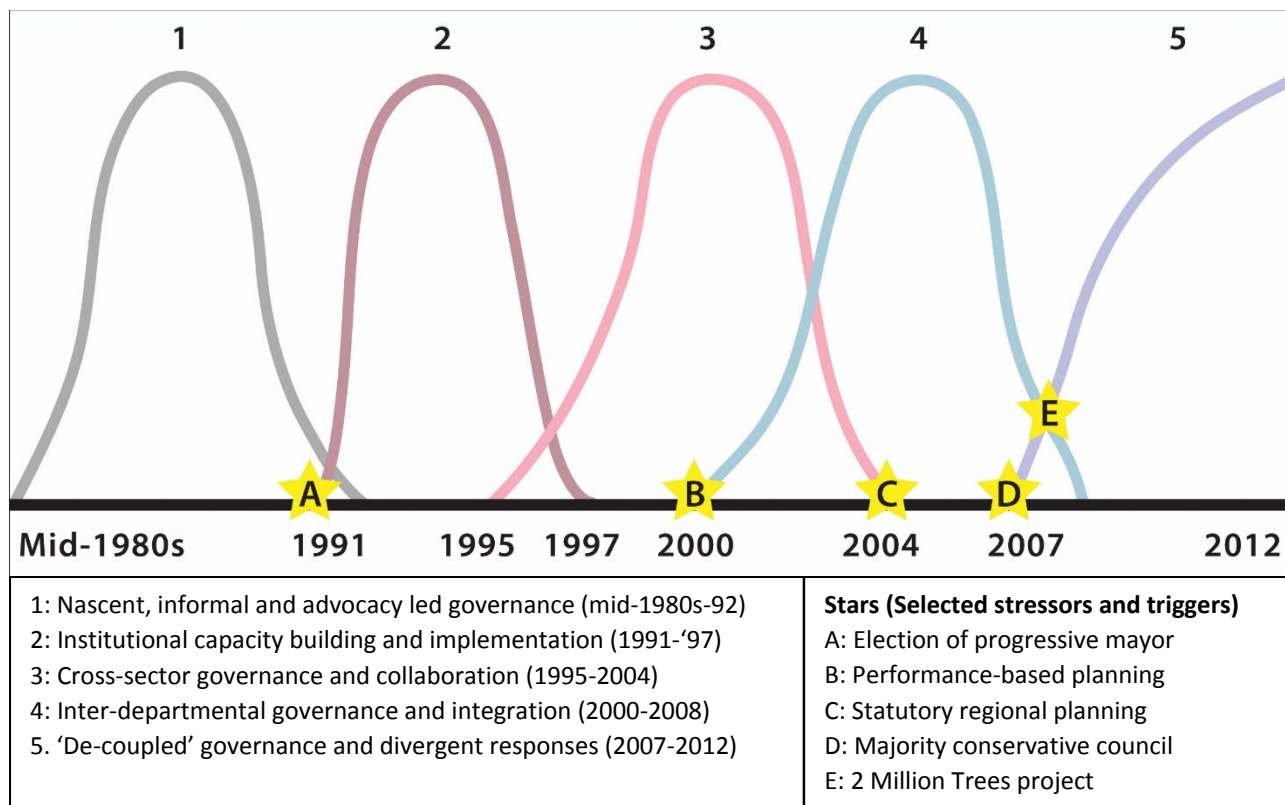
Further analysis of these federal funding stressors is found in Chapter 5, however more immediate than these, were the 'regime construction' and 'environmental flagship' stressors. Regime related stressors in Brisbane included:

- the implementation of performance based planning in the Brisbane City Plan 2000;
- the reframing of ecological governance by statutory SEQ level planning (2004); and
- the election of a majority conservative council (2007).

As with Portland, these stressors were embedded firmly in the broader context and overlapping arenas. Many were related to the development of strong vertical integration in the state planning framework. ‘Environmental flagships’, the final significant type of stressor was exemplified by the 2 Million Trees project. As with its parallel in Portland — Grey-to-Green — the project was well-resourced, time bound and seeking politically motivated goals. Brisbane instruments exhibited a range of responses to these stressors as the following discussion explains.

### 8.4.2 Institutional transitions in Brisbane’s ecological governance

As in Portland, transitions in Brisbane’s ecological governance fell into a series of overlapping waves (Figure 8.4). These were: (1) nascent, informal and advocacy-led governance through advocates that were internal and external to Brisbane City Council (pre–1993); (2) institutional capacity building and new regime construction (1991–1997); (3) cross-sector governance and formalisation of non-state networks (1995–2004); (4) inter-departmental governance and regionalism (2000–2008); and (5) ‘Decoupled’ governance and experimentation (2007–2012+). The following explores the defining events and trends for each of the governance periods. The following discussion summarises prominent events and governance responses for each wave of development.



**Figure 8.4 Transitional stages in Brisbane’s ecological governance**

### **Transition 1: Nascent, informal and advocacy-led governance (mid-1980s–1993)**

In response to the rapid loss of tree cover due to urbanisation in the mid-1980s, advocacy groups began to call for change in Brisbane. Key individuals linked local community-based resident action groups across the city. Public interest increased as rapid vegetation clearing and urbanisation became seen as a threat to the 'South East Queensland lifestyle'. Environmental education with local communities and skill development amongst core members were key strategies. The BCC environmental officer was also playing an advocacy role from within the state actor. By 1990, this officer had examined biodiversity policy in neighboring councils before designing an environmental levy and acquisition program for Brisbane. This internal advocacy did not come to fruition until a new mayor was elected in 1991, in part, on a platform of urban biodiversity protection. Advocates gave vocal support as BCC began its formal response.

### **Transition 2: Institutional capacity building and implementation (1991–1997)**

In order to activate metropolitan level ecological governance, BCC collaborated with a range of partners with capacity to plan and manage biodiversity. Activities focused on implementing new policy instruments, often through collaborative partnerships with non-government groups or resource investment from external programs. New BCC staff positions were established, and advocacy groups supported their work to implement biodiversity governance. Each new program brought a new set of lessons for those state and non-state actors involved in property acquisition, volunteer restoration groups, and council regulation on native vegetation. A number of interview participants saw this period as a 'golden age', due to the rapid addition of new policy instruments and the purchase of large ecological assets. The momentum in this period shows a cascade of transformative changes where each change built on the momentum of the last. By the mid-1990s, the initial wave of policy implementation was largely complete. The council reduced the number of local environmental staff positions. Reductions resulted from an economic downturn and the completion of vegetation inventories. The policy toolkit was seen by key BCC practitioners as largely complete, thus changes to policy instruments slowed down.

### **Transition 3: Cross-sector governance & formalisation of non-state networks (1995–2004)**

In response to a focus on watershed management, a new wave of governance structures began to emerge: watershed groups. At the same time, existing ecological governance became more refined and efficient. The costs for facilitating restoration groups were quantified, the acquisition program began purchasing koala habitat and in 1999, the

'Brisbane Biodiversity Strategy' was launched. The formalisation of watershed groups provided new opportunities for increased cross-sector collaboration, through for example, the Brisbane Catchments Network and the Biodiversity Advisory Committee. When federal funding for watershed groups ceased in 2002, some groups began to explore new grant funding and business enterprises. In 2004, the city council began to fund watershed group coordinators. Over time, this new funding arrangement reduced the political bargaining chip that these groups had formerly held.

#### **Transition 4: Inter-departmental governance and regionalism (2000–2008)**

By the new millennium, significant change at higher levels (regional and state) began to reframe environmental governance in Brisbane (Schmidt and Morrison 2012). Urban governance responded to these state and regional-level shifts. This period saw the emergence of integrated planning and regional planning across the broader region around Brisbane. The new city plan that was developed under this framework shifted metropolitan planning from a prescriptive to a performance based approach and was launched in 2000. Pre-existing ecological governance was redefined to align with the integrated approach. For example, the Vegetation Protection Orders were integrated with other concerns and consolidated to form the Natural Assets Local Law. Planning and policy now required a spatial definition, and codes for biodiversity and waterways were included in the new city plan. This was largely a technical process that increased collaboration and learning between council departments. However, community actors found it increasingly difficult to participate in the technical processes that helped to achieve integration across different government interests. These groups had similar trouble with the processes of regional planning. The fourth transition thus occurred as actors sought to align their activities with new state-level and regional-level planning frameworks.<sup>214</sup>

#### **Transition 5: Decoupled' governance and experimentation (2007–2012)**

The final period encompassed a series of changes that saw state and non-state actors respond by shifting to less collaborative types of state/non-state relationships. In 2007, when the conservative mayor was returned with a majority of allied councillors, the council took a stronger 'New Public Management' approach to governing the city (Hood 1991).<sup>215</sup> The role

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<sup>214</sup> State level—*Integrated Planning Act 1997 (Qld)*; regional level—SEQ Regional Nature Conservation Strategy 2003–2008, SEQ Regional Plan in 2004, regional NRM group established 2004.

<sup>215</sup> New Public Management is defined by Hood (1991, Table 1) as: delegated power so that key staff are 'free to manage'; clear and preferably quantifiable goals and targets; a focus on results rather than procedures; corporatized management units; competitive contracts and tendering; the application of private sector management tools; minimized resource use in the public sector, i.e. 'do more with less'.

of public participation pivoted accordingly towards the citizen as consumer (Pratchett 1999). The priority given by BCC to urban ecological governance began to decline and this was exacerbated by the advent of the global financial crisis of 2008. The interactions between non-state groups and the city council shifted from a partnership or collaborative approach to service provision or consultation. While this did provide some community actors with new opportunities to experiment with stakeholder consultation and commercial contracts, the resulting links with council were underpinned by a different institutional logic than the previous collaborative mode. For a time, this change was moderated by council staff, who played collaborative 'boundary rider' or watchdog roles, but these links between state and non-state actors waned as staff changed and environmental programs were restructured. The flagship stressor during this stage was the '2 Million Tree project' (2008–2012). This iconic, politically driven program was reformed a number of times as governance actors sought to enhance the ecological benefits from the carbon bio-sequestration project. The coordination of these changes will be investigated in Chapter 9.

There were signs that networks were adapting to this decoupled scenario by experimenting with new opportunities for sector-specific collaboration. Amongst council actors, this was shown by new interactions between staff after environmental programs were restructured (2012). In the community sector there were signs of a return to political bargaining. The Brisbane Catchment Network reformed with a community focus and local groups increased their participation in regional forums.

### **8.4.3 Shifts in governance in Brisbane**

A strong set of ecological governance instruments were evident in Brisbane. Clear integration with formal planning and management processes was established. The five transitions in Brisbane supported trends from informal, advocacy-based and low state capacity, through collaboration and then into a stage of divergence between formalized state governance, and less formal community-based approaches (Table 8.3). The following discussion examines in greater detail key instrument responses to stressors.



**Table 8.3 Shifts in ecological governance in Brisbane by transitional stage**

★	Stage	General	Stressor (type)	Actor responses & instrument adjustments	Supporting structures (arena)
More dynamic modes	Nascent, informal and advocacy-led governance (mid-80s–'92)	Via advocacy	Urban expansion (development) & native vegetation clearing (biophysical)	Campaigning from Resident Action Groups, e.g. proposed development of Boondall wetlands First BCC environmental officer (1988) SLATS studies begin (1989) Acquisition levy is designed and implemented	SLATS study (regional EG) High scale events: e.g. Rio Summit, NSESD, Year of the tree (higher EG) Centre-left State Government (political) Adjacent councils (regional EG)
	Institutional capacity building and implementat'n (1991–1997)	Via implementat'n	Voters elect a progressive mayor who implements major environmental programs (regime)	Acquisition program begins Restoration groups & environment centre — coordinated by Greening Australia Council restoration teams Vegetation Protection Orders established (VPOs)	Federal employment programs (social) Non-state actor capacity (EG) SEQ level regional planning, especially SEQ open space planning (planning) Centre-left state government (political)
More consolidated modes	Cross-sector governance and formalisation of non-state networks (1995–2004)	Via collaborat'n	Various stressors/partially to negotiate with BCC (political)	Watershed groups form	Federal/state NRM funding (funding) BRMG / HWP (water)
			Environment department funding cut, programs reach capacity (funding)	Programs become more strategic, e.g. restoration groups are refined Acquisition program targets koala habitat	State and SEQ level koala conservation instruments (state/regional EG)
			Federal/State watershed funding ceases, 2002 (funding)	Watershed groups experiment with income generation and new grant sources Watershed groups - stronger local horizontal links BCC begins funding watershed groups (2004)	Local neighborhood networks (civic) Local councillors (political)
			instrument mix complexity – a need for coordination (regime)	Brisbane Biodiversity Strategy (1999) Brisbane Catchment Network established	Australian Local Government Biodiversity Strategy 1998 (federal EG)
More consolidated modes	Inter-department governance / regionalisation (2000–2008)	Via integration  embedding in	Brisbane City Plan, 2000 & SEQ Regional Plan, 2004 (planning)	Biodiversity code (new City Plan) Text policies translated into spatial definitions VPOs rolled into Natural Assets Local Law	<i>Integrated Planning Act 1997</i> (planning) SEQ RNCS (regional EG) Regional NRM group (regional EG)
			NHT2 ends, 2008 (funding)	SEQ Catchments re-strategises and begins coordinating Land for Wildlife	Land for Wildlife Program (regional EG)
Variable pattern	'Decoupled' governance & divergent responses (2007–2012)	Via sectoral specialization (divergent)	Majority conservative council increase New Public Management approach	Brisbane Catchments Network dissolves and reforms as a non-government forum (2011) Local groups join regional forums (2012)	SEQ NRM Plan (regional EG)
			Stronger New Public Management approach-BCC	Environmental programs consolidated (2010) Increased procurement of government services Watershed groups tender for contracts	Conservative council (political)
			2 Million Trees Program (flagship)	Reformation of project delivery and project goals Watershed group advocacy for biodiversity focus	Potential ETS (funding) Environmental credentials (political)

★ Instrument mix modes (see. 8.5.2) – Key: Blue = tended towards dynamic mode, Purple = tended towards consolidated mode dynamic.

**Abbreviations in table:** BCC is Brisbane City Council; BRMG is Brisbane River Management Group; EG is Ecological governance; ETS is Emissions Trading Scheme; HWP is Healthy Waterways Partnership; NCA is *Nature Conservation Act*; NHT is National Heritage Trust; NRM is Natural Resource Management; NSED is National Strategy for Ecologically Sustainable Development; RNCS is Regional Nature Conservation Strategy; SEQ is South East Queensland; SLATS is Statewide Landcover and Tree Study; VPO is Vegetation Protection Order

As with Portland, instruments in Brisbane exhibited a general response to stressors that roughly aligned with each transition (Table 8.3). The following discussion explains the critical findings from the analysis of Brisbane with respect to different stressor types and structural features of the Brisbane arena over time. As with Portland, biophysical stressors generally were responded to indirectly although the initial response to urban intensification occurred through political action that was only one step removed from the biophysical changes. There was, however, consistent evidence of response to biophysical changes at the implementation stage which was supported by the millennium drought. Responses to the 2011 flood were too recent to observe institutional change, however initial shifts indicated that a flood management led response occurred with little embedding of biodiversity issues as of 2014.

The following discussion explains critical findings for Brisbane: (1) instrument responses to contextual stressors were limited and bundled; (2) governance generally flexed with regime-related cascades; (3) over time, instruments showed state-bundling and sectoral-decoupling; and (4) governance networks responded to very strong stressors by cleaving along sector-based lines (e.g. clusters of state and non-state actors).

### **Responding to context-based stressors**

The response to context-based stressors in Brisbane was limited. Ecological governance in Brisbane did not have strong access to triggering processes. There was some access to legal processes through Queensland's Planning and Environment Court, but little ability to trigger change through this avenue in more than a case by case basis — i.e. incremental. Participants noted that it had become difficult to access legal advocacy groups due as state level changes related to a mineral resources boom, which was prioritized over smaller scale urban environmental issues. The 2011 flood in Brisbane illustrated the manner in which governance was bundled along with stronger policy arenas — i.e. made to fit the needs of other arenas — and participants noted that this tendency had increased over time through changes in instruments and the application of instruments — e.g. the Natural Assets Local Law.

### **Responding to transformative cascades**

The general response to cascades of change was to flex with them, if possible. In most of the cascading change after the late 1990s, other interests tended to *embed into* urban ecological governance and an emphasis was placed on regional, non-urban ecological governance. The substantial ecological resources in non-urban Queensland, and their

vulnerability triggered this focus at the SEQ level. This is evidenced in Table 8.3 by the number of supporting structures that are in the ecological governance arena, but located at the SEQ or state level.

### **Responding to very strong stressors**

Very strong stressors were often transformative and context-based. This relates to the dependence of ecological governance on not only instruments operating beyond the metropolitan level, but also because of the strength of Brisbane City Council. Very strong stressors tended to strengthen intra-sector links — i.e. networks of state actors. An example of strengthened non-state links was the defunding of watershed groups when NHT1 funding ceased (see Chapter 5). Each watershed group had an individualized response to this funding stressor according to the particular aspects of each watershed. The Bulimba creek catchment group expanded their contracts with large infrastructure providers in their area and strengthened their advocacy networks. The Enoggera creek catchment group restructured around the numerous bushcare groups in their area, and developed a close relationship with the local councillor. The Oxley creek catchment group expanded a program in the large industrial area in their catchment.

### **Responding within and across transitional stages**

Although each transitional stage had a general pattern of change, there was also a long term trend towards stronger coordination from state actors and decoupling between state and non-state groups. In particular, Natural Environment and Sustainability (NES) has strengthened its coordination of policy instruments, increased its efficiency and strengthened its networking with internal stakeholders — e.g. with compliance and development assessors. In contrast, levels of collaboration with watershed groups reduced. This was not only affected by conservative political administrations in the second half of the case period, but also resulted from interactions between hierarchical structures of the city council, broader urban governance and the need to consolidate growing amongst instruments as new programs were added.

## **8.4.4 Disturbance events in Brisbane**

Brisbane has qualities that are seen as a challenge to textbook adaptive governance. Responses to disturbance events were affected by the metropolitan-wide, single-city council, which due to its size, has a strong hierarchical model. Local politics are shaped by the two major political parties in the state and elections were a major disturbance event in

the Brisbane case study. Non-state organisations assist government in the delivery of biodiversity programs, but there is little involvement with other parts of the policy cycle. Indeed, one of the unexpected negative side effects of the formalisation of community-based watershed groups was a certain amount of co-option of the agenda by Brisbane City Council which diminished the former political bargaining role of these groups (Cooke and Kothari, 2001). This in turn reduced the scope for collaboration, learning, and cross-scale interactions in Brisbane.

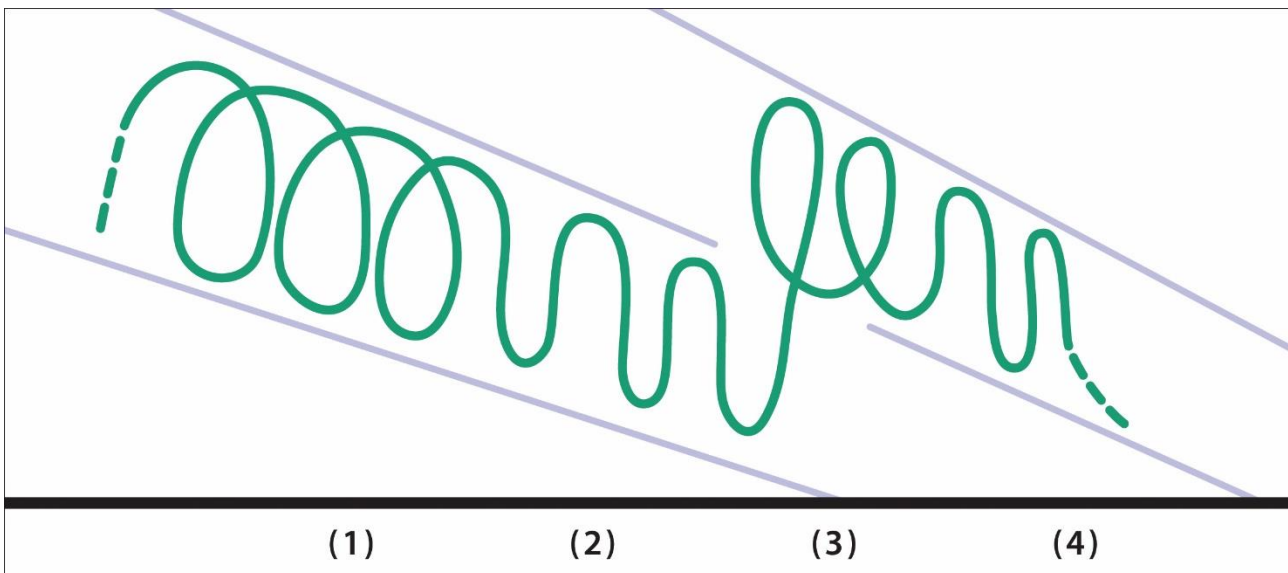
The discussion has analysed responses to change in Portland and Brisbane at levels of institutional transition, governance shift and disturbance event. The following section uses these findings to hone the conceptual lens into a more refined model of response to change within the ecological governance arena.

## **8.5 A refined model of response to change within governance arenas**

The analysis has shown that in the governance arena, adjustment to change can be examined at three levels. Differing patterns were observed in terms of institutional transitions, governance shifts and response to disturbance. Although the levels can be placed on a scale from slow and transformative to rapid and incremental it is not possible to understand them as completely nested within each other. Instead there was evidence of partial nesting where adjustment to disturbance events were influenced, but not determined by the transitional stage of governance. This section synthesises the findings from Brisbane and Portland to establish a more refined model of structural responses to change. Although the examination of ecological governance in this fashion is novel, the dynamics of each level have been studied extensively in public administration literature. Institutional transitions are studied within path dependency and institutional literature. Instrument change in terms of transformative and incremental responses is examined in the policy change literature and many of the disturbance event dynamics are explored in network analysis studies. The greater contribution to theory from this analysis and model is that the governance arena itself shows strong evidence of behaving like a complex adaptive system. This situation goes a long way towards explaining why more rational and intentional models of change such as adaptive management are challenged in complex governance settings. Not only is the managed resource an adaptive system, but the interactions between governance actors also shows complex characteristics.

### 8.5.1 Institutional transitions: pathways in governance

With respect to institutional transitions, governance became increasingly strategic and technical over time. In both cities the arena became more integrated with land use planning but also more at risk from path dependence, loss of reflexive capacity, and lower public support in the longer term (Figure 8.5). The early stages of ecological governance were characterised by cascades of transformative change where each major change provided a catalyst — i.e. a stressor — for the next change. Policy change theory generally holds that transformative change is occasional and punctuates periods of incremental change. However, this period of serial transformative change occurred in both cities and was related to the establishment of a new policy regime. This was especially the case in Portland — e.g. for urban planning in the early 1990s and ecological governance instruments in both cities, following the establishment of acquisition programs. Transformative change involved the introduction of new institutional logic into the governance arena which then triggered a cascade of responses as the new logic spread out through the instrument mix (Figure 8.5, #1). Over time the instruments were refined as programs repeated funding cycles and accumulated information (#2). However, a path generation event (#3) could occur via embedding into a new policy arena or through a flagship stressor — e.g. Grey to Green initiative in Portland. Path generation tended to widen the institutional space for a time as new instruments became established and then refined.



**Figure 8.5 Institutional transitions and pathways in governance.** Where: (1) is establishment of the policy regime; (2) is increasing formalisation, integration and path dependence; (3) is a path generation event; and (4) is a new institutional path.

Over time as transitional stages progressed there was a general shift from society-centric frames of governance — e.g. civil society and social movements — towards state-centric frames of governance. The institutional context in Portland constrained this shift through requirements for public participation (Stage planning goal 1). This had the effect of prolonging the use of cross-sector frames and a significant stressor could reactivate dormant advocacy networks and their associated society-centric frames of governance. This feature demonstrates the critical influence from patterns of embeddedness (3.3) on tendencies towards particular frames — i.e. radial categories of governance and hence patterns of adjustment to change.

### 8.5.2 Instrument mix modes: shifts in governance

Three interlinked modes of governance were identified at the instrument mix level (Figure 8.6). Each instrument mix mode included internal processes that are summarised in Table 8.4. In general the governance arena oscillated between ‘consolidated’ and ‘destabilised’ modes (see 8.5.3 disturbance event responses). However, if a stressor or opportunity was sufficient then governance could shift into a dynamic mode — e.g. innovation, refining and growth. In the dynamic mode many informal or peripheral activities were found to remain in an innovate-refining loop until a sufficient opportunity for growth and consolidation occurred. The ability to lock in an actor response at the instrument mix level was critical for the non-core arena. State managers in Portland and Brisbane were adept at creating at least informal (and temporary) lock-in mechanisms. Similarly a number of key state and non-state actors spent time scanning the urban governance setting for new opportunities, and this often coincided with a destabilisation event. At the institutional transition level, particular instrument mix modes were more associated with particular transitional periods — as indicated by colour coding in Tables 8.1 and 8.2.

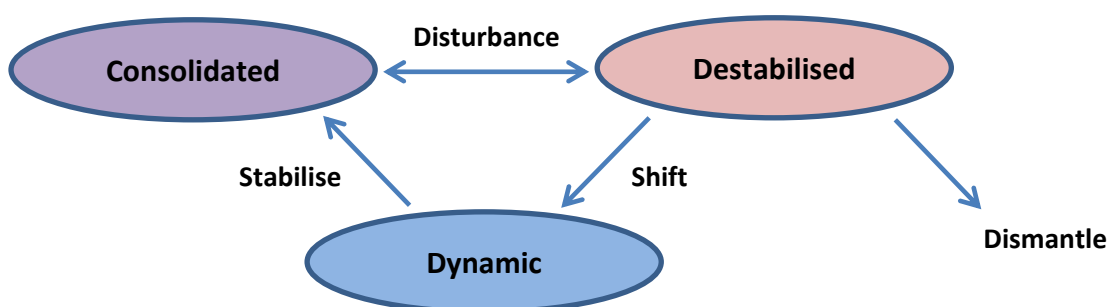


Figure 8.6 Instrument mix modes and adjustment to change

**Table 8.4 Response processes by instrument mix mode: Portland and Brisbane examples**

	<b>Mode</b>	<b>Internal process</b>	<b>Examples from Portland and Brisbane participants</b>
	Dynamic	Innovation or implementation	<ul style="list-style-type: none"> <li>• Research/design/experiment</li> <li>• Policy transfer / apply knowledge</li> <li>• Mobilise</li> <li>• Link up previously disconnected actors</li> <li>• Build on current knowledge, established experience</li> <li>• Pilot</li> </ul>
		Refining	<ul style="list-style-type: none"> <li>• Establish guidelines / codify</li> <li>• Monitor and evaluate</li> <li>• Overcome institutional barriers (e.g. start-up costs, fear of change)</li> <li>• Speed up processing</li> <li>• Develop ongoing permissions for the activity</li> <li>• Reduce 'moving parts'</li> </ul>
		Expansion or growth	<ul style="list-style-type: none"> <li>• Roll out / scale up</li> <li>• Recruit</li> </ul>
	Consolidated	Stabilise or 'lock-in'	<ul style="list-style-type: none"> <li>• Embed into more stable organisational level, (e.g. from strategy to plan, from policy to law)</li> <li>• Move from procedural to substantial instrument (e.g. from collaborative forum to a set program of action)</li> <li>• Compliance mechanisms (enforced)</li> <li>• Access recurrent funding source / revenue stream</li> <li>• Embed into another arena or process so that it is reliant on your instruments outputs</li> <li>• Acknowledge the need to maintain past investment of public funds</li> </ul>
		Integrate or associate	<ul style="list-style-type: none"> <li>• New higher level framework</li> <li>• New bundling of instruments (e.g. biodiversity strategy)</li> <li>• New partnership or strengthened partnership</li> <li>• adapted institutional logic (e.g. NGO begins commercial arm)</li> </ul>
	Absorbed (Consolidated level 2)	Incorporate or amalgamate	<ul style="list-style-type: none"> <li>• Merge/rationalise (i.e. programs)</li> <li>• 'Roll up into'</li> <li>• Embedded new institutional logic (e.g. NGO reliance on new commercial arm)</li> </ul>
		Enculturate or 'Black boxing'	<ul style="list-style-type: none"> <li>• Loss of organisational memory</li> <li>• Role specialisation</li> <li>• Legal precedents</li> </ul>
	Destabilised	Temporary	<ul style="list-style-type: none"> <li>• Toggling</li> <li>• Triggering (i.e. the application of an Act)</li> </ul>
		Incremental	<ul style="list-style-type: none"> <li>• Ratcheting</li> <li>• Review</li> <li>• Amendment</li> </ul>
		Transformative	<ul style="list-style-type: none"> <li>• Sunset</li> <li>• Reframing</li> <li>• Decoupling (of integration between sectors/interests)</li> <li>• Cascading program (e.g. establishment of a strategic plan which calls for new management plans and programs)</li> <li>• Cascading logic (new regimes that fill out until there is a complete instrument mix)</li> </ul>

### 8.5.3 Disturbance event responses: diverse interests in governance

As expected, there was little evidence of feedback models such as adaptive management and triple-loop learning within formal governance arrangements (Allen et al. 2001), although some instrument types were more associated with responsive change than others (Howlett, 2009). As was expected, public and private restoration/management exhibited higher levels of change and innovation, albeit incremental, while ‘protect’ and ‘purchase’ categories changed less frequently, but with more transformative outcomes. Some networks, actors, and even physical locations were more frequently associated with response processes over time. Response to disturbance events fell into three stages: engagement, shift, and reintegration, with each stage involving two interacting elements resulting from diversity amongst governance actors (Figure 8.7). This model is obviously expressed differently according to the governance setting — i.e. more networked as in Portland, or more hierarchical as in Brisbane, but also according to the particular governance mode and institutional transition that is taking place at higher levels.

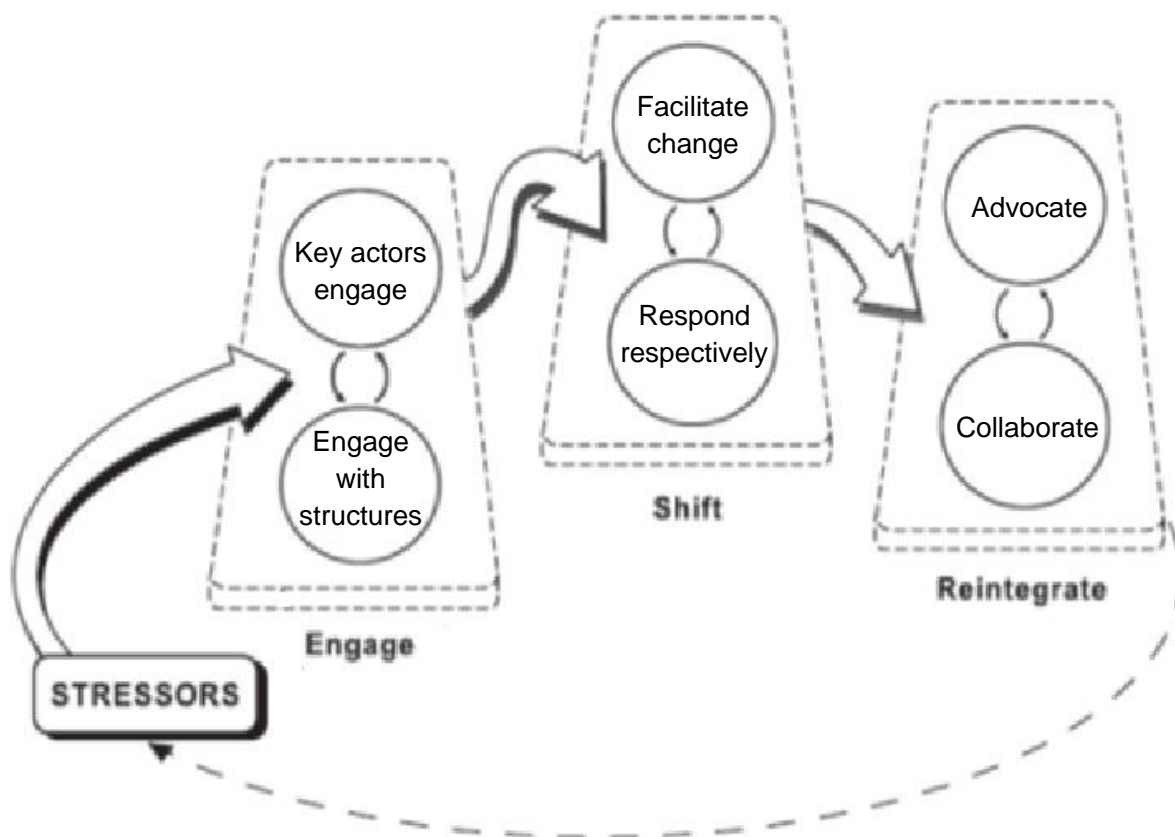


Figure 8.7 Disturbance event responses



A disturbance began with a stressor impacting on the established governance arrangements (e.g. 8.4.1). Despite the stressor, networks and instruments absorbed most low level stressors or managers made an incremental adjustment. Higher level disturbance was needed to shift policy, not only because of institutional inertia, but also because, the design and implementation of policy requires enormous effort that cannot be mobilised easily in a non-core arena. However, if a stressor engaged with a key actor and that actor responded in its networks then a low level of decoupling occurred amongst actors as they responded differently to the stressor according to specific interests. This low level decoupling had important implications for responsive change if a shift did occur. These implications and the manner in which shifts were coordinated will be examined in Chapter 9.

Following a shift, actors and networks reintegrated. Actors repositioned themselves in three important areas: formal involvement, informal responses, and metropolitan governance. *Formal involvement* concerns policy roles within the instrument mix. *Informal responses* include issue networks critiquing the new policy, partnerships to maximise benefits from the new policy, and new activities to compensate for perceived losses from the policy change. The embedded nature of ecological governance meant that a disturbance in an overlapping arena could trigger a shift in the ecological governance arena. The reintegration process itself sometimes acted as a new stressor and catalysed further engagement from key actors.

## **8.6 Chapter Conclusion**

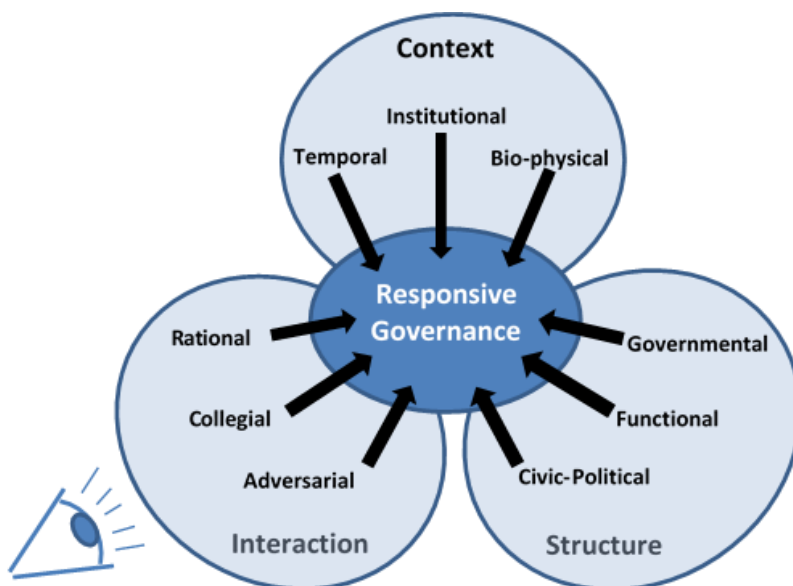
This chapter examined the response of governance structures to change at three levels: institutional transition, governance shift and disturbance event. There was strong evidence that change occurred in multiple overlapping transitions at the institutional level with more rapid change occurring amongst instruments and in response to disturbance events. Despite the initial critique of complex adaptive theory (Chapter 1), elements of this situation correspond with adaptive systems thinking, in that different variables change at different paces, with slow and fast changing variables interacting to generate ‘surprise’ (Holling and Gunderson 2002). However, in this research it was the governance arena itself which displayed features of complex adaptive systems. The analysis has established stages two of the responsive concept from the main research framework (Figure 3.1). Findings on actor responses and governance adjustments to change have been incorporated with earlier findings on the nature of embeddedness. The final analytical chapter will examine the manner in which actor responses to change were coordinated — or not coordinated — across diverse instruments and networks.

# Chapter 9

## Metagovernance, legitimacy and collective action frames

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This chapter analyses the strategies taken by key actors for metagovernance of the arena. Metagovernance refers to the management of governance actors. The analysis examines the context and structures of responsive governance through the lens of actor agency (Figure 9.1). The chapter highlights key theory on metagovernance, action frames and legitimacy (Section 9.1). Then the approach to frame analysis is outlined (9.2) before results are presented (9.3 and 9.4). The synthesis presents a new understanding of metagovernance for the arena level (9.5) which, in terms of the main research framework (Figure 3.1) achieves the development of responsive governance 0.3 – the incorporation of coordination dynamics into the earlier 0.2 concept of embedded agency (Chapter 8). The chapter concludes by exploring the implications for enhancing responsive governance through metagovernance (9.6). The coordination of responsive change is a critical challenge for governance arenas with multiple instruments and networks. Furthermore the ‘non-core’ status of ecological governance is an extra layer of complexity to this challenge.



### Chapter 9

**Figure 9.1** Interaction as a lens for viewing structure and context: analysis of collective action frames and the investigative framework

Ecological governance provides an important opportunity for analysing metagovernance because although state actors are in a position to manage most networks within the arena, the state actors in ecological governance are themselves marginal to many traditional urban state actors. In addition, the highly embedded nature of ecological governance and the broader paradigm of integrated planning and sustainable development mean that the management of governance actors for ecological governance outcomes can be complex. Therefore the aim of this chapter is to examine the role of state and non-state actors in the management of ecological governance networks.

## **9.1 Metagovernance and responding to change**

The coordination of responsive change across networks is challenged by two opposing dynamics. First, the non-unitary structure of governance arenas frustrates efforts to direct management in a centralised fashion. Second, the embedded nature of ecological governance means that other governance arenas may also influence the management of ecological governance networks according to their own priorities. In order to analyse this situation, the following discussion highlights important theory on metagovernance, legitimacy and collective action frames.

### **9.1.1 Metagovernance**

As governance settings have become more complex, the need to manage the networks involved has also become increasingly important. Metagovernance activities include: the 'steering', rather than implementing, of network processes (Meuleman 2006, Lund 2009); design of institutions; and some authors include value management or discursive framing as a higher order of metagovernance (Sørensen 2006, Kooiman and Jentoft 2009). Researchers have viewed the notion of metagovernance from state-centric, cross-sector and society-centric frames of governance. From state-centric frames the management of governance networks has been seen as a responsibility of the state and as a project to embed governance networks into state hierarchies (Jessop 2003). From cross-sector frames metagovernance has been viewed from positive and negative perspectives. Positively, metagovernance is an opportunity to mobilise principles and values that underpin networks (Kooiman and Jentoft 2009), while negatively, metagovernance is a 'roll back' of non-state actor participation (Whitehead 2003). Finally, society-centric frames see metagovernance as a way to maintain democratic accountability within governance networks (Sørensen and Torfing 2005). These perspectives are united by the common

assertion that metagovernance does not replace governance, but rather is an effort to balance and coordinate it (Lund 2009).

### 9.1.2 Legitimacy

The need for legitimacy increases in proportion with the power of other actors and their ability to organise (Mann 1986). Hence, a non-core arena such as ecological governance is dependent upon legitimacy in order to function and respond to change (Termeer et al. 2010, Cosens 2013). With this in mind it is important to consider legitimacy at both political and organisational levels. Political legitimacy is the endorsement of state actors by the public. At a higher level political legitimacy includes the endorsement of governance arrangements, where different governance arrangements are susceptible to different legitimacy crises (Sørensen and Torfing 2005, Bäckstrand 2010, Lindgren and Persson 2010). Political legitimacy is therefore concerned with the accountability of and outputs from governments. In comparison, organisational or actor-level legitimacy is the endorsement of an action by a governance actor. Therefore actor-level legitimacy also is concerned with the endorsement of response to change from various actors. This concept, developed in the field of organisational management had an initial focus on strategies to manage and elicit legitimacy from key stakeholders, but some authors also recognise that legitimacy is embodied within societal institutions to which the organisation must be aligned for legitimacy to be established (Suchman 1995). Different types of actor-level legitimacy are recognised and they form the basis for different responses from actors (Table 9.1), although in practice, the endorsement given by an actor is a multi-faceted, hybrid of different legitimacy types (Wallington et al. 2007).

**Table 9.1 Typology of legitimacy actions**

	<b>Episodic</b>	<b>Continual</b>
<b>Pragmatic Legitimacy</b>	Exchange	Influence
<b>Moral Legitimacy</b>	Consequential	Procedural
<b>Cognitive Legitimacy</b>	Predictability (Comprehensible)	Inevitability (Taken for granted)

Source: adapted from Suchman 1995, p584

Both political and actor-level legitimacy can be further divided into input and output legitimacy. Input legitimacy, is established when actors perceive options for contributing their views into decision-making processes, such as by voting or public participation in planning.

Output legitimacy is the endorsement of results or outcomes and is established when the actors are seen as achieving the right things in the right way (Lindgren and Persson 2010).

### **9.1.3 Collective action frames**

'Collective action frames' is a component of broader theory on 'contentious politics' and social movements (see Section 2.2.3). The approach provides an important strategy for explaining the coordination of multiple actors through 'framing' — e.g. Benford and Snow 2000. 'Collective action frames' investigate the generation of meaning amongst leaders, development into collective action frames, and efforts to align the frames of leaders and participants. This school of thought contributes to a number of society-centric models of governance (Table 2.1). Snow et al. (1986) identify four types of frame alignment: frame bridging, frame extension, frame amplification and frame transformation. These types are summarised by Schock (2005, p28):

- *Frame bridging* is linking with unmobilised actors with similar sentiments on the issue
- *Frame extension* is connecting primary frames with the priorities of potential allies
- *Frame amplification* is the activation of "latent values or beliefs"
- *Frame transformation* is the ascendance of the new beliefs over previous ones.

Although collective action frames were developed for democratic contexts, Schock (2005) applies the approach to non-democracies and notes the importance of frame amplification and frame transformation in non-democratic contexts. Interestingly, this has implications for frame alignment processes at the governance arena level even within democratic settings. Professional, hierarchical and partnership interactions are not primarily democratic in nature and differ in their acceptance of dissent.

## **9.2 Investigating metagovernance through collective action frames**

Taken together, the theory on metagovernance, legitimacy and collective action frames enables the analysis for this chapter. Metagovernance generally has a focus on the responsibilities and strategies of state actors. For urban ecological governance this means a focus on environmental officers and the staff they report to. To better examine the governance arena, the metagovernance analysis in this chapter incorporates elements of collective action frames and legitimacy for the following reasons. First, the role of non-state actors involved in ecological governance is more extensive than in many alternative settings.

This means that attention needs to be given to the collective action by prominent non-state actors, as well as state-based officers in steering the responses of ecological governance to change. Second, urban environmental officers report to positions that are involved in *urban governance* but are almost certainly external to *ecological governance*. In addition to this, environmental officers are peripheral to the power structures in most urban governance settings. This means that urban environmental officers need to be investigated as metagovernors for ecological governance, and these officers themselves are ‘metagoverned’ with respect to broader urban governance arrangements. From this semi-pluralist perspective, urban ecological governance interacts to maintain legitimacy amongst a field of interests represented by different state actors. In order to investigate this situation the concepts of legitimacy and collective action frames are important for understanding how less powerful urban actors can govern the arena for which they are responsible.

It was not practical to investigate all actor responses over the study’s 20 year timeline, therefore the adjustments in Tables 8.2 and 8.3 were used to sample key events from the different institutional transitions for each city. Governance was analysed as a radial concept (Table 3.1). This means that the primary governance frame – cross-sector, society-centric and state-centric – was identified for each frame alignment stage leading up to the adjustment in governance (Snow et al. 1986). Then the use of these frames for collective action was examined. In this analysis cross-sector refers to state-society interactions, rather than urban functions. Urban functions and their integration are indicated separately in the data presented.

The following sections present the results for the collective frame analyses for Brisbane then Portland. For each city, an overview of urban governance and legitimacy is provided and then action frames are explained with a focus on critical cases of responding to change.

### **9.3 Arena metagovernance in Brisbane**

The collective action analysis for Brisbane demonstrated an urban governance context with strong vertical integration and state hierarchy — i.e. state-centric frames (3.3). Legitimacy was achieved especially through output legitimacy — i.e. state-performance. The following section presents the details of this analysis, beginning with an overview of urban governance and legitimacy for the city.

## **Urban governance and legitimacy in Brisbane**

Earlier chapters have shown that the overarching urban governance for Brisbane is hierarchical and uses a 'strong-mayor' system (Chapter 4). This means that it is also a form of institutionalised heterarchy — i.e. through an institutional process, in this case the electoral process, priorities within the urban regime can be re-ordered. Ecological governance in Brisbane has a strong focus on biodiversity, but is not strongly embedded into related arenas, such as water management, in a manner that facilitates strong co-benefits for biodiversity (Chapter 7). Governance actors do not have strong access to institutional triggers and generally have needed to flex with, rather than guide a transformative change within the arena (Chapter 8). This system is sensitive towards output legitimacy, especially criticisms about silos, not only because of the large size of BCC, but also because of the strong new public management model, which is focused on efficiency and outputs (Bevir et al. 2003). The large council hierarchy can create distance between council and community and engaged community groups assist councillors to make community connections. There is a strong compliance approach from council to community (state-legitimacy frame) and this has at times created a dialogue between BCC officers and watershed groups as a resolution is sought for landholder grievances — e.g. weed management (cross-sector-legitimacy). It can also create a trigger for conflict and change (society-legitimacy). In general, state actors who did not work directly with 'the community' perceived the need to consult with non-state actors as an obstacle, or even a risk to achieving their responsibilities. For example, state and non-state actors cited several past incidents where a program that was rumored to be altered and community groups, who were referred to as 'powerful', advocated for the programs to remain, or to be extended, and were supported by a local councillor in this endeavour — e.g. the appointment of a creek ranger to a watershed group that did not yet exist (state-centric disapproval of society-centric frames). However, environmental officers were also skilled at connecting with community energy and strengthening it, in situations where state actor goals could be furthered in some way (cross-sector-performance), as the following discussion highlights.

## **Collective action frames and responding to change in Brisbane**

Table 9.2 displays seven key governance adjustments from the Brisbane frame analysis. The full frame analysis summary is included as Appendix 7. Rows one to four are the adjustments most frequently mentioned by interview respondents and rows five to seven are unique and critical cases. NES is the primary meta-governor for the arena, with LAS playing a specialized secondary role. Different adjustments in governance (column 1) were

associated with different frame strategies (column 3). Different types of legitimacy underpinned each action and had different sources (column 4). The following discussion illustrates features from the full frame-analysis Appendix 7 using Table 9.2

**Table 9.2 Brisbane action frame summary: significant examples**

1.Example adjustments	2.Coordinat'n actors	3.Frame alignment strategies <sup>a</sup>	4.Source instrument/resource Types of legitimacy <sup>b</sup>
<b>Adjustments most commonly noted by participants</b>			
1.Protection of Boondall Wetlands – acquisition starts (advocacy to protect iconic places)	RAGs, Elected representatives, NES officers	<i>Bridge</i> : soc-centric (advocacy) <i>Extend</i> : x-sector (state allies) <i>Amplify</i> : x-sector (state allies) <i>Transform</i> : soc-centric (election)	<i>From strong voter support</i> metropolitan input legitimacy; pragmatic-continual (state actors); moral-continual (RAGs & voters)
2.Sustained tree canopy targets (NES link BCC activities with strategic plan/target)	NES	<i>Bridge</i> : state-centric (actor level) <i>Extend</i> : state-centric (BCC actors) <i>Amplify</i> : state-centric (weak) <i>Transform</i> : state-centric (underpinned by strategic plan)	<i>From strategic plan and canopy target</i> internal BCC-output legitimacy pragmatic-continual / pragmatic-episodic
3.Shift of 2 million trees to include biodiversity goals (WSG advocates get NES & BCC buy-in)	NES, WSGs	<i>Bridge</i> : soc-centric (ext.advocacy) <i>Extend</i> : x-sector (int.advocacy) <i>Amplify</i> : state-centric (BCC actors) <i>Transform</i> : state-centric (biodiversity goals added)	<i>From strategic plan, canopy target, investment protection</i> internal BCC-output legitimacy pragmatic/moral-continual pragmatic-episodic
4.WSG links with infrastructure providers (WSG revenue stream with LAS support)	LAS-Creek Ranger WSGs	<i>Bridge</i> : soc-centric (actor level) <i>Extend</i> : x-sector (creek ranger) <i>Amplify</i> : soc-centric (commercial) <i>Transform</i> : soc-centric-performnc (reduce state participation)	<i>From contracts and sponsors</i> NGO output legitimacy pragmatic-episodic
<b>Critical cases of adjustment</b>			
5.Compulsory acquisition (acquisition gets BCC support due to strategy)	NES	<i>Bridge</i> : state-centric (actor level) <i>Extend</i> : state-centric (BCC actors) <i>Amplify</i> : state-centric (weak) <i>Transform</i> : state-centric (underpinned by regulation)	<i>From core biodiversity network strategy</i> internal BCC-output legitimacy moral-continual pragmatic/cognitive episodic
6.WSG Enterprise (WSG propose business, officers listen & enforce)	Council officers, WSG	<i>Bridge</i> : soc-centric (actor level) <i>Extend</i> : state-centric (compliance) <i>Amplify</i> : state-centric (allow) <i>Transform</i> : state & soc-centric (negotiated permission)	<i>From economic argument, compliance</i> output and input legitimacy (WSG); pragmatic (both), moral (WSG) & cognitive episodic (BCC)
7.Quasi offset policy through NALL bargaining (buy-in from RaD pilots new policy informally)	LAS WSGs	<i>Bridge</i> : state-centric (actor level) <i>Extend</i> : state-centric (bargaining) <i>Amplify</i> : state-centric (agreement) <i>Transform</i> : state-centric (underpinned by regulation)	<i>From bargaining, NALL, policy transfer</i> internal BCC-output legitimacy moral-continual pragmatic/cognitive episodic
<b>Key</b>			
<u>Frame alignment</u>		<u>Legitimacy</u>	
Bridging:	link with like-minded unmobilised	Input:	views are heard
Extension:	buy-in from potential allies	Output:	outcomes are satisfactory
Amplification:	activation of latent value/beliefs	Pragmatic:	exchange and influence
Transformation:	new beliefs	Moral:	consequential and procedural
		Cognitive:	comprehensible and inevitable

**Sources:** <sup>a</sup> Schock (2005, p28); <sup>b</sup> adapted from Suchman (1995) and Lindgren and Persson (2010)

**Abbreviations in table:** BCC is Brisbane City Council; Ext.advocacy is non-state advocacy; Int.advocacy is internal state advocacy; LAS is Local Asset Services; NALL is Natural Assets Local Law; NES is Natural Environment and Sustainability; RAG is Resident Action Group; soc-centric is Society-centric frames; WSG is 'watershed group'; x-sector is cross-sector frames



Most adjustments in governance were associated with output legitimacy (column 4), as was expected for a city with a strong new public management model (state-performance frame). However, the output legitimacy often was required from other BCC stakeholders, which highlights the internal power dynamics involved with responding to change in Brisbane. In addition this highlights the important of a disaggregated approach to government to understand state-state interactions in governance.

Adjustments can be viewed according to their 'bridging' stage of frame alignment - the first stage. The full frame analysis sample (Appendix 7) contained roughly even proportions of cross-sector, society-centric and state-centric bridging — 8, 9 and 11 adjustments respectively. Cross-sector bridging virtually always involved significant input legitimacy and there were two types. 'Pure' cross-sector adjustments used a cross-sector frame for all four frame alignment stages – i.e. bridging, expanding, amplifying and transforming. In Brisbane, this type was associated with the formation of networks – i.e. Brisbane catchments network - and the regionalization of ecological governance to the South East Queensland level – i.e. membership of watershed councils in the SEQ Healthy Waterways Partnership. In contrast, cross/state adjustments also used state-centric framing for some stages of alignment. This type also involved output legitimacy and the adjustment of state-frame governance towards cross-sector priorities – i.e. the design and implementation of the Bushland Acquisition Levy. Hence this type provides evidence of functional integration.

Adjustments that began with society-centric bridging at the arena level were a small group in the sample, but all were significant and unique. They were adjustments that displayed a penetration – or withdrawal - of society-based interests into state-structures – i.e. watershed group advocacy for biodiversity goals in the 2 Million Trees project and the removal of BCC from participation in the Brisbane catchments network. Society-centric bridging at the actor level were of two types. Type A was associated with the emergence of cross-sector governance (institutional transition #3) – i.e. strengthening of local community and business partnerships by watershed groups - while type B was associated with state-society decoupling (institutional transition #5) – i.e. watershed group business proposal (Table 9.2, example 6). They respectively represented community re-alignment with cross-sectoral governance and community realignment with the shift in governance towards new public management.

Many of the examples of state-centric bridging were purely state-centric across all four stages of frame alignment. They divide into adjustments that displayed weak amplification

and those that did not. This demonstrates situations where the actor making the adjustment does not need other actors to buy-in in order to implement the adjustment – i.e. transformation stage. Most state-centric bridging at the actor level were of this ‘weak alignment’ type. The main actors were NES and LAS and they were able to draw on regulatory or functional authority to enable reform. Two examples of this are the 40% tree canopy target in the Brisbane Vision 2026 document and the Natural Assets Local Law. These instruments provided opportunity structures that enabled environmental governance actors to negotiate the hierarchical structure of BCC and leverage authority for the adjustment from elsewhere in the urban governance framework. Influence and consequential legitimacy (9.1.2) were rare, further emphasizing the importance for state actors to acquire procedural legitimacy and thereby leverage pragmatic exchanges when the opportunities arose

The BCC city planning division played a reflexive role during the transition to the Brisbane City Plan that made significant contributions to metagovernance. A number of interview participants noted that debates with staff in the city planning division during this time helped to hone the arguments behind environmental planning and policy in Brisbane. The other main example of the reflexive role occurred when attempted innovation by watershed groups came into conflict with BCC policy. In these situations, if the group was sufficiently entrepreneurial, they repeatedly returned to BCC officers with an adapted proposal until an option acceptable to formal policy was found. This illustrates a key interaction between watershed groups and the general hierarchical structure of BCC where bargaining took place, innovations were honed and incremental change took place in formal policy or its real world implementation (see Lipsky 1980). In this fashion the watershed groups played a minor metagovernance role at the metropolitan level. Watershed groups played a stronger metagovernance role within more local regimes. For example, they participated in multiple programs such as Habitat Brisbane and Creek Rangers, and some had a close relationship with the local councillor. In this fashion watershed groups were able to play a localised metagovernance role with political feedback into the hierarchy of council via the local councillor, although, it is important to note that not all watershed groups had the capacity needed to activate this potential role.

The final key feature to note from Table 9.2 was an iconic advocacy campaign behind the launch of the acquisition program. This adjustment was supported by input as well as output legitimacy. There was strong moral-episodic legitimacy involved and the response was

legitimised by the electoral process — i.e. election of Mayor Jim Soorley 1991. Metropolitan level advocacy was rare in the Brisbane case study (8.4), but contributed to a major transformative shift in ecological governance — i.e. the launch of major policy instruments. The response was successful because the advocacy campaign was strong, but this also illustrates the potential for campaigns or initiatives to link different strategies to progress through the frame alignment process. Advocacy campaigns were more common in the Portland case as will now be discussed.

## **9.4 Arena metagovernance in Portland**

The collective action analysis for Portland demonstrated an urban governance context that was networked and participatory. Input legitimacy was therefore strongly associated with adjustments in governance. This section presents the main findings of this analysis, beginning with an overview of urban governance and legitimacy for the city.

### **Urban governance and legitimacy in Portland**

The overarching urban governance of Portland is networked and public participation is institutionalized into the Oregon planning goals (Chapters 4 and 7). Voters have direct access to budgeting and law making processes through the ballot measure system (Chapter 8), and therefore the overarching governance arrangements are sensitive towards political legitimacy in general and input legitimacy in particular. In general state actors expected to consult with non-state actors in order to establish legitimacy for their actions. State actors and non-state actors referred to past situations where non-state actors were not consulted on issues that they perceived as important and that this affected the ability for state actors to fulfill their responsibilities until the resulting conflict was sufficiently resolved — e.g. transportation planning in the South West corridor, and the Healthy Streams program in Tualatin. This was emphasised by the commission style of government in PCC as the following quote demonstrates.

*The way things get done is through participation and negotiation and the commission form promotes this. It is a situation of dynamic negotiation. Different interests are involved in a number of ways. They sit on advisory committees and are involved in budget negotiations. But what you have to realize is that the government is not separate from the community. Every bureau is involving different interest groups within the community in their decision making. Bureaus also negotiate with each other. Increasingly elected officials are actively involved in the bureaus too.*

As the above quote illustrates, state actors expected a strong need to consult with other state actors within their government unit (e.g. different bureaus in PCC) and between government units with overlapping or adjacent jurisdictions — although some local councils displayed this characteristic more than others. Portland Metro, although a higher level of government than local councils found its legitimacy challenged in situations where buy-in from local councils had not been established — e.g. the reticence to comply with Title 13 from councils in Washington County and PCC. The development of Title 13 was identified as a process that tested the limits of Metro’s legitimacy in ecological governance.

## **Collective action frames and responding to change in Portland**

Table 9.3 displays eight key governance adjustments from the Portland frame analysis (Appendix 7). Rows one to four were the responses most mentioned by interview respondents and rows five to eight were unique and critical cases. For simplicity, local level responses are selected from PCC. As with the Brisbane case, different adjustments in governance were associated with different frame strategies, which in turn were underpinned by different sources and types of legitimacy. In this analysis Metro, BES and Audubon are the primary meta-governors for the arena, with Metro having the more central role. The following discussion uses Table 9.2 to illustrate features from the full frame-analysis Appendix 7.

Most adjustments in governance were associated with input legitimacy, which theory expected for governance with strong participation and bargaining approaches (Lindgren and Persson, 2010). However, output legitimacy was also important in many cases, probably because there was an expectation from actors involved that a suitable instrument would be produced. Healey (2008) noted the pragmatist tendencies of policy in general and US policy in particular. To achieve the high level of buy-in required from other actors a pragmatic approach was needed and yet the strong role of advocacy meant that moral legitimacy was also central. Metagovernors often linked their coordination with a metropolitan narrative that referred to history (e.g. Olmsted plan), risk (e.g. water pollution) and/or culture (e.g. public participation). This narrative contributed to cognitive legitimacy ( i.e. comprehensibility) and usually involved exchange legitimacy, to achieve buy-in from other actors, or general pragmatic legitimacy — i.e. the benefits of pitching a proposed change in a manner that attracted support from influential environmental advocates.

**Table 9.3 Portland action frame summary: significant examples**

<b>Example adjustments</b>	<b>Coordinat'n actors</b>	<b>Frame alignment strategies (9.1.3) <sup>a</sup></b>	<b>Sources of legitimacy Types of legitimacy (9.1.2) <sup>b</sup></b>
<b>Adjustments most frequently noted by interview participants</b>			
1, 1994 Bond measure (builds networks, plan, business case)	Audubon-collaboration, Metro Multnomah county	<i>Bridge</i> : x-sector (core, p&r) <i>Extend</i> : state-centric (soft) <i>Amplify</i> : x-sector (civic-political) <i>Transform</i> : soc-centric (election)	<i>From voter support</i> input and output legitimacy pragmatic/moral-continual, cognitive-episodic
2. Greenspaces Masterplan	Audubon-collaboration, Metro	<i>Bridge</i> : soc-centric (advocacy) <i>Extend</i> : x-sector (advocates) <i>Amplify</i> : x-sector (in planning) <i>Transform</i> : soc-centric (election)	<i>From voter support, RUGGOs &amp; 2040 growth concept</i> input and output legitimacy pragmatic/moral/cognitive-continual, cognitive-episodic
3. Title 13 (state-NGO partnership)	Metro, Audubon – advocacy	<i>Bridge</i> : state-centric (regs) <i>Extend</i> : state-centric (+local interests) <i>Amplify</i> : state-centric (lower regs) <i>Transform</i> : x-sector (+partnerships)	<i>From voter support &amp; Measure 37</i> input legitimacy pragmatic/moral-continual
4. The Intertwine Coalition	Metro and partners	<i>Bridge</i> : x-sector (core) <i>Extend</i> : x-sector (early adopters) <i>Amplify</i> : x-sector (+more state actors & urban interests) <i>Transform</i> : x-sector (+more state actors & urban interests)	<i>From collaborative tradition &amp; potential funding</i> input legitimacy (some output) pragmatic/moral-continual, cognitive-episodic
<b>Critical cases of adjustment</b>			
5. TEES (PWMP)	BES-WS team, Portland Parks	<i>Bridge</i> : state-centric (WS+eg) <i>Extend</i> : state-centric (+int.stake) <i>Amplify</i> : state-centric (+int.stake) <i>Transform</i> : state-centric (+land managers)	<i>From collaborative tradition &amp; PWMP</i> input and output legitimacy pragmatic/moral-continual, cognitive-episodic
6. Acceleration of green infrastructure	BES-WS team, BES-engineers	<i>Bridge</i> : state-centric (ws) <i>Extend</i> : state-centric (+engineers) <i>Amplify</i> : state-centric (+council) <i>Transform</i> : x-sector (+other interests)	<i>From Big-pipe capacity &amp; Grey-to green initiative</i> Output legitimacy Pragmatic/Cognitive-all
7. FoT capacity build	BES-WS team, PSU	<i>Bridge</i> : soc-centric (actor level) <i>Extend</i> : soc-centric (+soc. partners) <i>Amplify</i> : x-sector (BES support) <i>Transform</i> : x-sector (BES contract)	output legitimacy pragmatic-continual cognitive-episodic
8. Coalition for a Liveable Future	Audubon (and other civil society)	<i>Bridge</i> : soc-centric (core) <i>Extend</i> : soc-centric (early adopters) <i>Amplify</i> : soc-centric (+more actors) <i>Transform</i> : state-centric (planning for liveability)	input legitimacy (values), pragmatic-moral continual cognitive-episodic? (insufficient data)
<b>Key</b>			
<u>Frame alignment</u>		<u>Legitimacy</u>	
Bridging:	link with like-minded but unmobilised	Input:	views are heard
Extension:	buy-in from potential allies	Output:	outcomes are satisfactory
Amplification:	activation of latent value/beliefs	General pragmatic:	exchange and influence
Transformation:	new beliefs	General moral:	consequential and procedural
		General cognitive:	comprehensible and inevitable

**Sources:** <sup>a</sup> Schock (2005, p28); <sup>b</sup> adapted from Suchman (1995), and Lindgren and Persson (2010)

**Abbreviations in table:** BES is 'Bureau of Environmental Services'; FoT is 'Friends of Trees'; int.stake is 'internal stakeholders'; P&R is parks and recreation interests; PSU is 'Portland State University'; PWMP is Portland Watershed Management Plan; 'Regs' is regulations; Soc. is society; TEES is the Terrestrial Ecosystem Enhancement Strategy; ws is BES watershed team; X-sector is 'cross-sector'

Adjustments can be viewed according to their 'bridging' stage of frame alignment - the first stage. The full frame analysis sample (Appendix 7) contained roughly even proportions of cross-sector and state-centric adjustments, while and society-centric bridging was a smaller group - 12, 12 and 7 adjustments respectively. Cross-sector bridging was evenly spread between input legitimacy, output legitimacy and those with both. They divide into adjustments that had an emphasis on actor buy-in – i.e. the 1994 regional bond measure - and adjustments with an emphasis functional integration – i.e. design and implementation of the regional trails system. In practice these adjustments showed a certain degree of overlap between the actor-buy-in and function integration.

State-centric bridging displayed a range of legitimacy types that did not have a simple correlation with particular framings. They divide into three main types. Type A had 'pure' state framing and concerned the interplay between different government actors and their responsibilities – i.e. the Terrestrial Ecosystem Enhancement Strategy (Table 9.2, example 5). All used roughly equal input and output legitimacy. Types B and C both involved state and cross-sector framings. They are differentiated by whether state-buy-in or cross-sector buy-in was more important for moving through the frame alignment process. Type B required a certain level of state buy-in, were mostly associated with function integration and used roughly equal input and output legitimacy i.e. the acceleration of green infrastructure in PCC with the Grey to Green initiative. Type C required cross-sector buy-in and displayed a diverse emphases on input and output legitimacy – i.e. the BES watershed revegetation program, which employs many community partnerships.

Society-centric bridging was the smallest group. All of these adjustments used strong input legitimacy and progressed directly into cross-sector framing for the extension stage of frame alignment – i.e. the Backyard Habitat Certification Program. The one iconic exemption to this was the 'Coalition for a Liveable Future' campaign which used a society-centric framing for bridging, extension and amplification, before shifting to a state-centric framing for uptake into planning processes – i.e. transformation stage.

The role of shared and non-state metagovernance was a key feature in Portland. Shared metagovernance meant that a primary metagovernor (e.g. Metro) was reliant on supporting metagovernors (e.g. local councils) to avoid a significant reduction in legitimacy. This relates to Mann's (1986) observation that legitimacy becomes more important as a state actor's relative power is reduced and the ability of other actors to organize is increased. This demonstrates the very strong role of legitimacy in metagoverning the Portland arena. In

addition, this shows how a larger set of actors can take stronger metagovernance roles as the need for legitimacy, especially input legitimacy, becomes more important.

This metagovernance community in Portland also included non-state actors who played various roles. These roles included collaborators, advocates and quasi-actors. Audubon was the primary actor in the former two roles. State actors held contributions from Audubon in high regard because of extensive membership, commitment to the Portland 'community' and ecological knowledge. This included participation in 20 to 30 advisory committees across the Portland Metro area included consultancy to state actors on urban biodiversity issues — e.g. the Urban Biodiversity Institute, which technically is a separate organisation, but for these purposes is included as 'Audubon'. However, Audubon also played an advocacy role which achieved metagovernance status. Taking Meuleman's (2008) approach that the metagovernance role involves the ability to shift governance between modes such as network and hierarchy, Audubon demonstrated clear evidence of advocacy metagovernance. If, from Audubon's perspective, collaboration lost legitimacy, the group would switch to a strategy of advocacy. This could involve a complete break with state collaboration — e.g. resign from advisory committee — or a partial maintenance — e.g. Urban Biodiversity Institute continued collaborating while FAUNA network undertook advocacy. Regardless, of the approach taken, there was often a general strategy of positioning the group closer to state actors than more litigious groups, thereby retaining higher levels of exchange and procedural legitimacy from a state actor perspective. The switch to advocacy involved moving from cross-sector governance to society-centric governance — i.e. civil society — and also involved an appeal to different types of legitimacy than those used during collaboration. In particular, pragmatic-exchange legitimacy was reduced and moral legitimacy was increased. It also involved new processes of frame alignment that sought to extend and amplify the advocate view for the particular issue. This shift was supported by informal institutional structures. Informal support was especially through mobilisation of the FAUNA network — which included key individuals from neighborhood associations — and most importantly a shared attitude amongst state and non-state actors that Audubon's advocacy/collaboration role was legitimate — i.e. that Audubon was "just doing their job" and that advocacy was part of a healthy democratic culture.

A final type of non-state metagovernor was more temporary. This was the reflexive role played by property-rights groups and those critical of bond measures for natural area

acquisition. Although an organisation was rarely identifiable, institutional processes surrounding ballot measures and advocacy transformed them into a quasi-actor. That is to say, the aggregate behavior of these individuals was understood by decision makers as if they were a unitary actor — i.e. a segment of the community acting in a unitary manner for its own interests. The reflexive metagovernor role, as in Brisbane, encouraged ecological governance to be refined because through opposition, key governance actors honed their policy arguments. For example, the property rights quasi-actor was significant in causing the 1993 bond measure to fail. This then led to the transfer of county parks to Metro, the development of refined and more transparent acquisition targets and a lead role for Metro — instead of FAUNA — for the following successful bond measure in 1994.

## **9.5 Arena level metagovernance: invoking legitimacy and summoning institutions through collective action frames**

In both Portland and Brisbane, a simple view of a single state metagovernor was not supported by the analysis. Instead metagovernance involved a set of prominent actors, different types of legitimacy and collective action frames. The set of metagovernance actors who played different roles, appealed to different types of legitimacy. Metagovernance actors negotiated amongst themselves and with the broader urban governance setting via collective action frames. The lead actor also changed over time, depending upon the particular response to change and metagovernance role involved (Table 9.4). The set of metagovernance actors has elements in common with the ‘community of enquiry’ as applied to public administration (Shields 2003). ‘Community of enquiry’ was first developed by classic pragmatists - e.g. Dewey (1938). Shields (2003) summarises the community as having: a focus on a problematic situation; a scientific attitude to that problem; and dynamics of deliberative democracy amongst community members. Furthermore the democratic elements are critical as without them the process is simply a rationalised enquiry for data collection (Shields 2003). Hence the set of metagovernors in Portland show strong alignment with this organising principle, however Brisbane misses some elements. The exploration of metagovernance in terms of ‘communities of enquiry’ is a fruitful area for further research.

In this setting, collective action frames supported important horizontal and vertical processes of metagovernance. Horizontally, collective action frames were used to manage legitimacy amongst the set of metagovernance actors. This also facilitated contributions



from reflexive metagovernance roles and shared roles — i.e. where ‘buy-in’ was required from supporting actors in order for a response to progress. Here were managers in both cities who matched the description of ‘policy entrepreneur’ used by researchers —e.g. Mintrom and Norman 2009. For example, these individuals emphasised the importance of moving outside beyond government silos to collaborate with whoever had knowledge and influence for the matter in hand. Vertically, collective action frames were used to negotiate a response from more powerful actors, often involved in more central urban interests. This process is vertical as it involves a ‘metagoverning up’ role. This role was usually played by state actors within the arena — most evident in Brisbane — although it could also occur when non-state actors played an advocacy role.

**Table 9.4 Metagovernance roles in Brisbane and Portland**

<b>Role</b>	<b>Brisbane</b>	<b>Portland</b>
Primary state actor role	Natural Environment and Sustainability	Metro-natural areas
Secondary state actor role	*	Local councils
Supporting state actor role	Local Asset Services	Local legitimacy regimes (e.g. BES)
Reflexive role	City Planning	Property-rights quasi-actor
Non-state advocate role	Watershed groups	Audubon
Non-state collaborative role	*	Audubon – and The Urban Biodiversity Institute

\*No clear actor identified in this role

Abbreviations in table: BES is Portland City Bureau of Environmental Services

Finally, it is important to note that metagovernance activities, action frames and therefore legitimacy management, also interacted with the particular transitional stage of the governance arena (Chapter 8). Earlier transitional stages involved higher levels of value management through non-state advocates and to a lesser extent, policy champions working within state organisations. Although transformative change was often forced by institutional change beyond the metropolitan scale, these processes combined with local level action frames for their implementation.

## **9.6 Chapter conclusion**

These findings hold a range of practical and theoretical implications for responsive governance. The analysis shows that non-core governance arenas can coordinate responses to change from within their institutional structures. Metagoverning actors in both cities demonstrated a range of strategies to enhance stability within broader urban governance arrangements — e.g. linking with strategic plans. Stability then was used as

leverage for further responses. The findings of this chapter demonstrate basic principles for designing a frame alignment strategy that includes legitimacy management. When combined with findings from earlier chapters — especially Chapter 8 — regarding structural and contextual responses to change, the analytical chapters build a tool for governance actors to plan and implement a strategy for enhanced responsiveness to change within their governance arena.

The most significant theoretical implications from this analysis are the set of metagovernance actors involved and the role of non-state metagovernors. The metagovernance set contrasts with much of the metagovernance literature which posits a state actor, usually a single actor, for this role (Bell and Hindmoor 2009). The various roles amongst this set of actors, the dynamics of legitimacy management and the frame alignment strategies present a situation that is responsive. The role of non-state metagovernors particularly challenges metagovernance theory in that, at the arena level at least, a non-state actor was found to add responsiveness and resilience. Non-state metagovernors contributed capacity to the governance arena by, for example advocating for ecological governance interests in situations where environmental programs were defunded. Furthermore, non-state metagovernors attempted to maintain defunded programs as an informal community activity where possible. This was a critical example of redundancy within the arena. Redundancy is an important component of adaptive capacity (Wardekker et al. 2010) and by sharing this quality between state and non-state sectors, adaptive capacity became a more feasible goal for governments.

This final analytical chapter for the thesis focused on the metagovernance of responsive change across the instrument mix (Jessop 2003). The action frame analysis of significant actors showed the influence of broader urban governance and the manner in which the governance arena negotiates a role within it. The results showed that metagovernance occurred through a set of significant actors rather than as a simple role played by a single state actor. In Portland especially there was strong evidence of a non-state metagovernor, which is a situation that is under-theorised in the governance literature. Even in Brisbane, with a single large council, it was possible to identify a metagovernance community of state actors amongst hierarchical structures. Furthermore, assertive actors that were not involved in metagovernance also could influence the manner in which planning and management was coordinated through the use of 'opportunity structures' for engaging directly with metagovernors, or indirectly with more powerful actors who could then intervene on their

behalf (Tilly and Tarrow 2007). These findings are significant for understanding responsive governance in non-core arenas. They demonstrate that even in settings with high levels of vertical, top-down integration, a less powerful arena (through skilled leaders) can influence decision making and change over time. This is a critical component of responsive governance and will be emphasised further in the next and final chapter. The following chapter synthesises the findings within the analytical chapters around the main research questions and demonstrates how they have been answered.

## Chapter 10

### Synthesis and conclusion

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This chapter concludes the thesis and synthesises the main findings from the research. This synthesis revisits the three main research questions through the main findings from each chapter. The challenge of responsive governance is significant for theorists and decision makers. As decision makers face contemporary challenges around climate change and sustaining cities into an uncertain future, the ability to respond to change has become highly valued. For an arena such as urban ecological governance this is especially important because control over contextual factors may be low, the influence from more central policy arenas is likely to be high and there is a risk of losing capacity during times of rapid change (Jänicke 1997). This situation is not limited to urban ecological governance, but has implications for many public efforts towards sustainability.

While much of the attention on responsive governance has necessarily focused on specific adaptive models — e.g. Plummer 2009, Booher and Innes 2010 — there is an increasing need to go beyond the study of governance *for* adaptation and instead analyse, governance *and* adaptation, which means the study of policy mixes and their response to change over time. This research was therefore not concerned with how to implement a model such as adaptive governance in an urban setting, but in analysing how governance in an urban setting has actually responded to change over time. The focus on a non-core policy arena emphasised the uneven power distribution that many managers need to navigate in order to respond to change. The research was driven by three main research questions: (1) “How do actors in a ‘non-core’ urban policy arena interact with the broader institutional context over time?”; (2) “How and in what respects does policy arena governance across the metropolitan area adjust to change over time?”; and (3) “What are the implications for enhancing how this governance adjusts to change?” The study investigated how and in what respects, responsive change occurred within this policy arena over time. This resulted in a

broader understanding of adaptive responses in complex institutional settings and the research outcomes contribute to the discourse on resilience and governance.

This chapter synthesises major findings in the following manner. First, the contributions to theory from the research are discussed according to the three main research questions for the research: interactions of ecological governance with the broader context; response of governance to change over time; and implications for enhanced responsiveness. Second, the implications for practice are reviewed. For state managers, the findings provide support for analysis, planning, institutional design and communication with stakeholders. Finally, future research opportunities in this area are discussed with a particular focus on the issue of coordinated responses to change in governance.

## **10.1 Contributions to theory**

The central aim of this thesis was to analyse how responsive change occurred over time in an urban policy arena that was not a traditional urban concern. The need for governance to respond to change is increasingly emphasised (Djalante et al. 2011, Cosens and Williams 2012, Termeer et al. 2013). Chapter 1 introduced this problem of responsive governance in urban policy arenas by surveying the contribution of resilience theorists towards more adaptive models of governance. Knowledge in this area has progressed rapidly from simpler models of intentional change through adaptive management (Gunderson 1999), towards governance level approaches that seek collaborative learning amongst diverse actors (Goldstein 2009). The goal is to design governance mechanisms that can respond to change and therefore achieve resilient societies.

However, in urban settings, the implementation of a particular model for adaptive governance is difficult. Urban settings are institutionally complex. There are a range of established arrangements in place that increasingly have become interlinked through the sustainable development paradigm, and often in a contentious manner (Godschalk 2004). The research has shown that collaborative learning approaches in a network need to manage contention between actors as well as collaboration. The research focused on this issue by carrying out empirical analysis of the ecological governance arena in Portland and Brisbane. The aim was to study the manner in which the 'non-core' arena adjusted to change over time.

Accordingly, Chapter 2 examined theory on public governance and inter-actor responses to change. The literature showed that implemented governance arrangements involve a hybrid of state focused, cross-sector and society-centric frames. Hence, the extensive theory on governance was framed according to these three foci (state-centric, cross-sector and society-centric) and further bisected into sub-groups of effectiveness and legitimacy. To understand inter-actor responses to change, literature was surveyed on public policy, institutions and social movements. This enabled the research on different configurations of agency and structure to be reviewed for their influence on inter-actor responses to change. The broad framework that was developed has theoretical implications for recent efforts to theorise hybrid governance and metagovernance (Meuleman 2011) by moving beyond state-centric frames of governance to include non-state frames. The multiple frames approach showed how governance could be thought of as a complex of overlaid arrangements with different sectoral foci. The framing of theory in this way also engaged with theorising on the democratic anchorage of governance networks and illustrated an approach that was sufficiently broad to include the public within research on public governance (Sørensen and Torfing 2005, Zimmer et al. 2008).

Chapter 3 applied the findings from the literature review to develop a case study methodology for empirical analysis of the urban ecological governance arena and its response to change over time. Brisbane (QLD), Australia and Portland (OR), USA were selected as two 'most different' cases in order to highlight the effect of the institutional context on responsive governance (Sellers 2005). Data was collected through: semi-structured interviews; participant observation; key informant dialogue; organisational documents; public reports and media. The research and investigative frameworks, not only supported an inductive, but theoretically informed approach to the case study analysis. The multiple framing of governance in the literature was also harnessed within the methodology to avoid problems of concept stretching from the broad approach to governance (Collier and Mahon 1993).

The investigative framework was applied to the case studies (Chapters 4 to 9) to examine the responses of governance to change over time in Portland and Brisbane. In Chapter 4 the background to the cases was examined with respect to contextual — i.e. biophysical, institutional and temporal — facets from the investigative framework. The main purpose of this analysis was to frame later chapters within their temporal context. However, the temporal analysis (Chapter 4) in itself demonstrated the long history of local development

involved with many contemporary characteristics in each city. These characteristics were then shown, in later chapters to be significant for both institutional design and adaptive responses of ecological governance.

### **10.1.1 Research question 1: ‘Non-core’ policy arenas and the broader institutional context**

With respect to research question (1) “How do actors in a ‘non-core’ urban policy arena interact with the broader institutional context over time?” the results demonstrated the strong effect that the broader context has on urban ecological governance. Chapter 5 piloted the governance analysis in one watershed of Brisbane — Oxley Creek. While Chapter 7 examined the manner in which the governance arena was embedded within the broader institutional context.

The analysis of Oxley Creek (Chapter 5) showed that institutional change in the broader context had a strong effect on the manner in which urban ecological governance was implemented. Transformative changes in urban ecological governance were observed as regional and integrated planning was implemented in Queensland, causing a cascade of change. These shifts triggered a loss of capacity in the urban watershed group, but also encouraged the city council to step into the funding gap and take up a strong ecological governance role. Chapter 5 also gave a glimpse into the processes that took place at the watershed level. Space did not permit a full presentation of watershed level responses for the three focal watersheds in each city, but this data was a major component of the metropolitan level findings.

The analysis in Chapter 7 examined the contextual interactions as a problem of embeddedness (Granovetter 1992). Increased embeddedness meant that governance had stronger links with its surrounds, and was hence more legitimate. However, increased embeddedness also meant that governance was more dependent on changes within the context and hence less efficient and able to respond to priorities that were specific to ecological governance. Embeddedness was found to occur both in terms of levels of processes that have different levels of stability — e.g. management, policy and law — and overlapping policy arenas — e.g. urban planning, water management and greenspace planning. Furthermore, the embeddedness analysis demonstrated that the three contextual facets within the investigative framework were significant — i.e. biophysical, institutional and temporal). However, the nature of embeddedness differed across policy roles, instruments and case settings. In addition, the arena became more embedded within its formal context

over time and hence more divergent between Portland and Brisbane. The results implied that actors within policy networks were likely to respond differently to change according to the nature of their embeddedness, which also changed over time as the actor and the governance arena developed.

### **10.1.2 Research question 2: Urban ecological governance and response to change over time**

With respect to research question (2) “How and in what respects does governance of this urban policy arena across the metropolitan area adjust to change over time?” the analyses in Chapters 6 and 8 were especially important. Chapter 6 opened the ‘black box’ of policy in order to analyse the policy instruments involved in ecological governance in Portland and Brisbane. Chapter 8 focused on the shift in these instruments over time, with a focus at the governance level.

The Chapter 6 analysis found that patterns of inter-linkage between political arenas (Lowi 1972), policy roles (Bridgman and Davis 2003) and actor networks were significant for determining responsive change within the policy arena. The findings demonstrate differences between Brisbane and Portland that could be explained by their differing institutional contexts. However, unexpectedly strong patterns of commonality were also identified between the two cities. These commonalities provided a glimpse into the underlying phenomenon of urban ecological governance. The results show that the ecological governance arena contains aspects that are only partially embedded in context and could therefore be used for institutional design in other contexts (See Section 10.2). The political arena analysis in Chapter 6 presents a theoretical contribution for investigating governance arenas. As far as the author could determine, the application of the political arena model at the policy instrument level was a novel approach. This enabled the internal anatomy of the governance arena to be investigated in terms of the governance resource drawn upon — i.e. authority, nodality, organisation and treasure — political dynamics generated within each instrument — i.e. regulatory and distributive, redistributive and constituent — and the linkages to other policy arenas, which provided useful detail about the arena in general and its embeddedness within the broader context.

Chapter 8 analysed the relationship between structural aspects of governance and change over time. In doing so it synthesised and progressed the findings from Chapters 6 and 7. This chapter developed a basic model of arena response to change over time. It found that over time ecological governance progressed through a number of overlapping transitional



stages. This was particularly the case in Portland and was contributed to by higher levels of complexity and embedding out from ecological governance into other arenas. This analysis showed that embeddedness could operate not only as a constraint on responding to change, but also as a resource. In Portland the institutional structure provided governance actors with access to trigger mechanisms for legal and financial stressors, while in Brisbane, there was little scope to trigger institutional stressors. At the instrument level, certain instrument types responded to change in differing ways, however, only some actor roles and instruments — usually procedural instruments — had a clear link between governance level dynamics and those internal to the policy instrument. This result aligned with the general finding that actors operating with management, policy and planning often did not have strong connections, especially in Brisbane.

The final analytical chapter focused on the metagovernance of responsive change across the instrument mix (Jessop 2003). Chapter 9 undertook a frame analysis of significant actors involved in change and examined the role of 'legitimacy' (Suchman 1995), 'institutional logic' (Reay and Hinings 2009) and 'heterarchy' (Crumley 1995) in steering the responses to change that occurred. The results showed that metagovernance occurred through a set of significant actors rather than as a simple role played by the state. In Portland there was strong evidence of a non-state meta-governor, which is a situation that is not well examined in the governance literature. Even in Brisbane, by analysing the large state actor as comprised of a set of internal stakeholders, it was possible to see a metagovernance community at work even amongst hierarchical structures. Furthermore, assertive actors that were not involved in metagovernance could also influence the manner in which planning and management was coordinated through the use of 'opportunity structures' for engaging directly with metagovernors, or indirectly with more powerful actors who could then intervene on their behalf (Tilly and Tarrow 2007). These findings are significant for understanding responsive governance in non-core arenas. They demonstrate that even in settings with high levels of vertical, top-down integration, a less powerful arena (through skilled leaders) can influence decision making and change over time.

### **10.1.3 Research question 3: Implications for enhancing responsive governance**

The final research question (3) "What are the implications for enhancing how this governance adjusts to change?" was answered from findings across the thesis chapters. Firstly, a non-core governance arena is constrained in its responses by a lack of control over

contextual and regime-related factors, and because more powerful arenas are embedded into it. Chapters 4, 5 and 7 demonstrated many ways that embedded governance is dependent upon its context. Even the structure of the political arenas (identified in Chapter 6), showed a strong contextual influence — e.g. the strength of legal instruments). However, the notion of heterarchy helps to explain that genuine responses to change can occur and these also have the potential to be enhanced. Opportunities for change result from the ability to use context embeddedness as a resource rather than simply a constraint. Actors, networks and instruments are embedded in multiple ways within its context and amongst other instruments. Chapter 9 demonstrated that a response can be generated, even temporarily when these different types of embeddedness are reordered for particular purposes.

However, despite this general potential, metagovernance strategies need to have expectations that are set firmly by the context that the arena is embedded within. For a city such as Brisbane, the notion of collaborative, adaptive and cross-sectoral governance may be one stage within a broader process rather than an end in itself. This situation has important implications for efforts to make governance arrangements more responsive; namely, that strategies investing in collaborative and participatory governance will be most effective when aligned with the broader sequence of governance change. Collaborative governance arrangements did not endure the transitions in the broader process of governance change in Brisbane. Actors that over-invested or were rigidly committed to collaborative approaches were seriously affected by the shift to decoupled governance. There are opportunities to increase the adaptive capacity of both state and non-state actors in order to achieve a more effective transition between styles of governance. It is important to note that for Brisbane, the integration of ecological governance into a large state actor is critical, and it is this primary need which has driven much of the behaviour from influential state actors involved in ecological governance.

## **10.2 Practical implications**

This section reviews the major practical implications from the research, which are of interest for both state and community based actors. The theoretical language of responsive governance was not found to be common amongst practitioners in the two case studies, although those with a biological science background had an awareness of resilience thinking and complex adaptive systems. In many cases, key actors did not have a clear way to

articulate responsive governance or a metagovernance role. However, the most skilled managers undertook this work, often — at least temporarily — outside their strict position descriptions. However, this situation is changing rapidly. Just as governance is commonly understood by managers today, but was a virtually unknown term a decade ago, so too is adaptation and resilience emerging as the language of the future for public administrators.

For state-based practitioners, the framework in this research identified potential instruments, from a metagovernance approach that may not be intentionally recognised and employed, particularly in cases where state and non-state networks have diverged, or advocacy is strongly discouraged. Furthermore the approach in Chapter 6 can be used as a tool for analysis of a governance arena and the interlinkages between political arenas. It also provides avenues for communication with other state actors and prominent non-state actors, and the inventory of policy instruments provides opportunities for communicating the governance assets involved with non-core governance arenas.

The nature of public participation in western societies has been shifting for a number of years. There has been a general reduction in this participation, or a concentration into a particular stage of the policy cycle. This is particularly the case in sustainability-related arenas such as ecological governance, which are undergoing a process of formalisation and an increase in technical procedures. The new understandings of responsive governance that are supported by this research allow the changing role of public participation to be explored within its institutional and temporal context. It encourages actors to become aware of broader transitional changes and to develop efficient strategies in response to these shifts.

Finally, this research demonstrates the value of advocacy to managers and vice versa. Particularly across state/non-state interfaces, there is a tendency in arenas such as ecological governance for particular governance roles to be perceived as more important. However, this research showed that advocacy and management, contention and collaboration are important for the long term responsiveness of a governance arena. While in some settings, state managers may be cautious about non-state advocates, this research demonstrated that advocates are a resource for state managers when interests align, a reservoir of alternative approaches that may be suitable for piloting in a more formal sense, and a safety net for instruments that are dismantled in a formal sense, but continue on in an informal fashion amongst non-state actors.

### **10.3 Future work in this area**

The research provides a platform for further research and policy advice in these case study areas. Actors in both cities expressed interest in the research findings. The broad nature of this research meant that a high level view on some processes had to be taken (Chapter 8). There are opportunities now to investigate critical processes in far greater detail through a process tracing methodology (Checkel 2006). This also includes the potential for watershed-focused research to examine differing responses within the same city according to local level factors. For Brisbane, there are also opportunities to analyse the higher scale processes that the city increasingly is nested within, for example the SEQ Healthy Waterways Partnership, regional NRM and the SEQ regional planning process. A range of interesting processes have taken place as these SEQ level processes have strengthened. For example, the water governance transition to the regional level, and the scale up of metropolitan level actors to a broader SEQ level — e.g. Healthy Waterways Partnership and Greening Australia. In Portland recent developments with respect to urban and rural reserves, a successful regional ballot for natural area maintenance and the New Portland Plan provide opportunities to update data and findings. Finally, the failed ballot that proposed for the Bureau of Environmental Services to be disbanded provides a very interesting case of how far the process of embedding out can go, even in a progressive setting such as PCC.

Case study research is regularly critiqued as difficult to replicate in other settings and although there are limits to the application of findings in other settings, this research has identified a range of characteristics that are partially independent of context and can be used for institutional analysis and design elsewhere. This could begin in cases that are similar to either Portland or Brisbane to further test and extend the findings of this research. For example, Melbourne, Australia has a number of institutional parallels with Portland, and Chicago is a city-wide municipality as in the case of Brisbane.

### **10.4 Conclusion**

In the initial phases of this research the examination of ecological governance, at first appeared to be concerned with management, monitoring and environment resources. These elements are of course important, but with a focus on responsive governance it was issues of politics, public participation and 'sense of place' that participants continually foregrounded as important. For state actors in particular there is an ongoing tension between the need for efficient and effective outcomes — i.e. output legitimacy — and representative processes

— i.e. input legitimacy. For non-state actors there is a tension between collaboration — input legitimacy — and advocacy — output legitimacy.

In conclusion, the cases of Brisbane and Portland demonstrate that the divide between adaptive approaches and conventional governance is not absolute. This is a very hopeful finding with respect to the uncertainties and challenges that are expected in the future as most settings are not amenable to an intentional model of adaptive governance. Theoretical models of adaptation continue to examine institutions, political and other social dynamics. The developments in these areas hold great potential for governance approaches, for public decision making and for designing evidence based policy.

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# Appendices

## Appendix 1: Glossary

<b>Actor:</b>	A state organisation, non-government group or key individual that participates formally or informally, directly or indirectly in policy design, implementation, and management. (Ch5)
<b>(Actor) Network:</b>	Formal or informal assemblies of actors with a common function, concern or capacity
<b>Adaptive Management:</b>	A management model that incorporates monitoring, evaluation, and active experimentation into management and policy processes (Ch5)
<b>Agency:</b>	The ability to act and interact with social structures
<b>Biodiversity:</b>	The diversity of life 'native' to an area, with respect to genetics, species, ecosystems and landscapes
<b>Bond measure</b>	A type of ballot measure in Oregon. It is a proposal to issue a government bond for public expenditure that is referred to voters for approval on an election ballot.
<b>Change, Incremental:</b>	Frequent small scale adjustments to an instrument and/or network in which governance may become further refined and integrated
<b>Change, Transformative:</b>	Infrequent dramatic change to the instrument mix and/or networks resulting from large-scale shifts in biodiversity policy or adjacent policy arenas (see Baumgartner & Jones).
<b>Concept Stretching</b>	The loss of explanatory power that occurs if a concept is applied into more settings (Chapter 3)
<b>Embeddedness</b>	The connections of an actor with its context (Chapter 7)
<b>Floating Signifier</b>	A term that is virtually empty of meaning until interpreted by key actors for a particular situation (Chapter 3) – also known as a 'empty signifier'
<b>Governance Arrangements:</b>	Formal (e.g. inter-organisational contracts) or informal inter-relationships (e.g. advocacy movements) between actors, networks and institutions. They aim to produce new outcomes by inhibiting certain aspects of existing

	institutional patterns or reordering the relative influence between them. Synonymous term with 'institutional arrangements'
<b>Governance, change to:</b>	Virtually always associated with factors within the broader context for governance and to biodiversity governance arrangements, but external factors also combine with internal characteristics to influence the change that occurs. Change in significant instruments and their networks can trigger adjustments in other instruments and networks, although, networks are far more responsive to policy change than instruments. (Ch.5)
<b>Governance, Environmental:</b>	The structures and processes of environmental planning and management that involve multiple state agencies, and/or different levels of government, and non-state organisations. (adapted from Emerson, Nabatchi & Balogh 2012)
<b>Heterarchy</b>	Heterarchy is defined by Crumley (1995, p3) as, "the relation of elements to one another where they are unranked or where they possess the potential for being ranked in a number of different ways". For example, a democratic election is a formalised heterarchical process.
<b>Instruments</b>	The tools of government (Hood 2007) for the implementation of policy and planning. Primary strategies for instruments include: command and control, market-based and information dissemination. Instruments sit within a broader policy development process
<b>Instrument mix:</b>	A set of instruments focused on a particular policy problem
<b>Instruments for biodiversity governance:</b>	Fall into categories of purchase, protect, public restore/manage, private restore manage and coordination (Ch.4).
<b>Institution</b>	An enduring [formal or informal] pattern of behaviour between state or non-state actors that participate directly or indirectly in policy processes (see Goodin 1996).
<b>ICM</b>	See 'Watershed Management'
<b>Metagovernance:</b>	The management of governance networks

<b>Organisation:</b>	A non-state organisation or a government department or division
<b>Political Arena</b>	A set of political processes and structures that develop on the basis of what participants hope to achieve from a particular policy. Different types of political arenas have different dynamics, which are strongly influenced by the type of policy shaping the arena (Ch6)
<b>Policy Cycle:</b>	A heuristic tool that envisages the process of policy and planning development as a cycle. These cycles theoretically move from design and implementation to management and evaluation (see Bridgman and Davis 2004). – Ch.6
<b>Quasi-actor</b>	A group of individuals or organisations that respond similarly to a situation and the aggregate of their response have the emergent characteristics of an actor – e.g. rejection of a policy change by the ‘public’. Quasi-actors emerge in response to particular circumstances and participate in governance. They are usually transient in nature. (Chapter 9)
<b>Stressor:</b>	An environmental event or social change that pressures the established governance interactions to change. Stressors are partially internal to the governance setting, or more commonly, an external factor such as state-level policy change (Ch.4).
<b>Special Service District</b>	A unit of government in the USA with an elected board that provides a specific service such as water, sewerage or parks. They often span a number of small local councils. Prominent examples in the Portland case study are: Tualatin Hills Parks and Recreation District; and Clean Water Services.
<b>Trigger (for policy change):</b>	An interacting cluster of factors sometimes dominated by a key stressor and harnessed by a call for change amongst key actors. (Ch.5)

## Appendix 2 – Interview participant summary

**Table A1: Brisbane interview participant summary**

Organisational affiliation	Number of interview participants
Brisbane City Council – policy focused roles	4
Brisbane City Council – program focused roles	9
Catchment Groups (i.e. Watershed Groups)	6
Community-based programs (e.g. Habitat Brisbane)	5
Greening Australia	2
Queensland Museum	1
Resident Action Groups	2
SEQ Catchments	2
World Wildlife Fund for Nature	1
<b>Total</b>	<b>32</b>

**Table A2: Portland interview participant summary**

Organisational affiliation	Number of interview participants
Audubon Society of Portland / Riverkeeper Groups	4
Cornelius City Council	1
Friends Groups / Neighborhood Associations	2
Gresham City Council	2
Metro	10
PCC - Bureau of Environmental Services	10
PCC - Portland Parks & Recreation	2
PCC - Portland Planning & Sustainability	3
Portland State University	1
Tualatin Hills Parks and Recreation District	1
Washington County	2
Watershed Councils	6
Urban Environment Resource Consortium	1
<b>Total</b>	<b>45*</b>

*Abbreviations: PCC = Portland City Council*

\*The organisational complexity of the Portland case required a greater number of interview participants to establish comparable information with Brisbane for policy roles and policy instruments.

## Appendix 3 – Questions to frame semi-structured interviews

Participant Name:

Organisation:

Position:

Division/Section:

Location:

Specific role:

Length of time in this role:

### PART A: BIODIVERSITY GOVERNANCE AND YOUR ORGANISATION

- Concerning the involvement your organisation has had with biodiversity programs in the urban area over the last 20 years, please list 3 or 4 most significant milestones. How have the programs, in your experience have changed over time?

Discussion Checklist:

- The greatest challenge to effective outcomes (protection/management/restoration)
  - The most significant obstacle for managing this challenge
  - The most effective change to programs to engage with this challenge
  - The most effective/significant program for biodiversity outcomes over the last 20 years
  - Are there any other significant events that have impacted biodiversity protection, management and restoration in the urban area? If yes, please give an example
- In what situations have you found these programs to be most flexible? i.e. able to adapt or innovate, respond to environmental or socio-political change. Please give an example
  - What 2 partnerships are most important for your organisation?
  - What ideas or concepts come to mind when thinking about the term ‘Biodiversity’ and the urban area?
  - What level of involvement has your organisation had with vehicles for protection, restoration and management of biodiversity in the urban area? (Instrument mix participation)

		High	Some	None	Don't Know
a.	Land Acquisition Programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Regulation (zoning, codes, laws)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Conservation Easements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Landholder agreements/partnerships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Revegetation and Tree Planting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Impact Management (e.g. weeds, recreation, feral animals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Watershed Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Other Important Involvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For ‘high involvements’ above - when and in what capacity? (If not already mentioned)

- Please nominate a ‘program’ that best illustrates your highest level involvements from the list above over the last 20years

Use this program to answer the remaining questions on that basis. From here on your selection is referred to as ‘the program’.

- Concerning ‘the program’ you have selected, please describe the involvement your organisation has had and how this may have changed? How has your organisation changed as a result of being involved?



Checklist:

- Why/how did your organisation get involved?
- How has your organisation's involvement and interests changed over time?
- How has involvement in the program changed your organisation? (e.g. partnerships, capacities, interests?)

8. If the program were to finish unexpectedly what impacts would it have on your organisation?

9. Please rank the following to describe the program.

	Very	5	4	3	2	1	Not at all
a. Effective		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Resource Efficient		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Popular		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Flexible		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments:

The following questions are grouped into stages on the policy cycle in order to examine flexibility and responsiveness in more detail.

**PART B: GOVERNANCE & INSTITUTIONAL DESIGN**

Continuing with the program you described in the previous questions.

1. What circumstances led to the proposal, development and launch of the program? Was it a spin-off from a previous program? What previously learnt lessons were involved?
2. Who are the stakeholders in the program? (E.g. Groups or individuals who are significantly involved or impacted, have a strong interest in or influence over program activities) Which of these groups has had the greatest influence and why?
3. Please describe the way the program is coordinated. To what extent could coordination and objectives be described as flexible? Please give an example
4. What gives the program stability?
5. How has the ability to adapt the program been affected by 'higher level' plans or policy, regulation or departments? (whether in response to environmental or socio-political change) Has this changed over the life of the program?

Checklist:

- Supports                       Constrains

6. Is the program coordinated, monitored or evaluated with other programs? If yes, how is this done, with which programs and since when?

7. Have any of the following changed over the lifetime of the program? If yes, please give an example.

	Yes	No	Don't Know	Example
a. Coordination, goals or objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
b. The regulatory framework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
c. The administering agency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
d. Funding packages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
e. Key responsibilities or important stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
f. The number or diversity of stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
g. The way the program is put into action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
h. Monitoring and evaluation of the program and its outcomes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
i. 'Spin off' programs (or likely 'spin offs')	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

8. Please choose a significant example of change from the above list and outline the issues or opportunities involved. What/who enabled the change? How was it put into action?

- What issues or opportunities was the shift in response to?
- What/who enabled the response to these issues/opportunities? Using what information?
- How would you describe the way these responses were put into action? What factors supported or inhibited the transition?

**PART C: POLICY AND PLAN FORMATION**

1. What has been the 2 most important strategies or plans developed by/for the program? (formal or informal)

Please select one of the above to answer the following questions.

- 2. What types of information were most important for development of the plan/strategy?  
E.g. scientific, social, environmental, economic.
- 3. Concerning the development of effective policy and plans: What factors are most challenging? What important lessons have been learnt and how have these lessons been applied? Please give an example

**PART D: IMPLEMENTATION AND MANAGEMENT**

(For this research 'implementation' is the way a program is put into action)

- 1. What are the main activities and management priorities of the program?
- 2. What 'ingredient' has been most important for actually putting those activities into practice?
- 3. Who undertakes the day to day decisions in the activities of the program and to what extent can they use their discretion in decision-making?
- 4. Which situation has been the greatest test to the 'normal' management of the program? How was this dealt with?

**PART E: MONITORING & EVALUATION**

(Monitoring & Evaluation is the collection and interpretation of data from/about the program)

1. Is data routinely collected by the program?
  - a. If yes, why? What type of data is collected and how frequently?
  - b. If no, why isn't data collected?
2. What needs to be done to enhance monitoring and evaluation? .....

**PART F: REVISION & ADJUSTMENT**

('Revision and Adjustment' are changes that are based on results from monitoring and evaluation)

1. How are the results from monitoring used? If used to adjust the activities of the program how often? Please give an example
2. Have results from monitoring contributed to adjust 'higher level' plans, policy or regulation behind the program? If yes, please give an example?
  - Did important stakeholders respond to / participate in that change, and if so, how?
3. What has been the most important adjustment with respect to environmental outcomes from the program, whether positive or negative. What factors were most significant? E.g. efficiency, popularity or stakeholders, monitoring results or other scientific data
4. Where have the most innovative ideas come from for the program?
5. Are there important lessons learnt from the program that have not (yet) been acted on? If yes why not? Please give an example
6. What is the most important behavioural change that the program has achieved in those beyond the program? How significant was this change?

**PART G: FEEDBACK**

1. Any other issues that should be addressed in this study? Any further comments?
2. Referrals
  - a. Which other people are important to talk to about these matters
  - b. Are there available documents concerning these matters, your organisation's goals, structure and history? If yes, who is best to ask?

## Appendix 4 – Ethics approval letter



School of Geography Planning and  
Environmental Management

19 April 2011

TO: Paul Schmidt  
FROM: Greg Brown, GPEM Ethics Officer  
CC: Dr. Tiffany Morrison

RE: Application for Ethics Approval

PROPOSAL TITLE: *Institutional flexibility for urban ecological management?:  
Implications for institutional and program design* [GPEM number 20110005]

In my capacity as the School of GPEM Ethics Officer, I have reviewed the above research proposal for compliance with University and School regulations governing human subjects research.

The proposed research is not subject to higher level review by the University Behavioural and Social Sciences Ethical Review Committee (BSSERC) for the following reasons: 1) the research does not directly involve human subjects from vulnerable or special populations, 2) the research does not involve any risk above “everyday living”, 3) the research is not intrusive, and 4) informed consent will be obtained before data collection, participation is voluntary, and participants may withdraw at any time. The research is thus classified as low risk and School level ethics approval is appropriate.

The research proposal, as presented, complies with the National Statement on Ethical Conduct in Human Research and the associated university regulations. You may conduct the research subject to the following conditions. 1) interviews should be conducted as described in the research protocol, 2) participants should not be personally identifiable in the results without explicit permission of the participant, 3) the data collected is to be kept in a secure location. Should any of the above conditions change, you must refer the amended research protocol back to the GPEM Ethics officer.

If you have questions about the ethics review process, please contact me.

A handwritten signature in blue ink that reads 'Greg Brown'.

Dr. Greg Brown (greg.brown@uq.edu.au)  
Ethics Officer  
School of Geography, Planning, and Environmental Management

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## Appendix 5: Portland instrument table

Arena and linkage	Instrument name	Governance Resource	Resource category
constituent (constituent)	Advisory Committee - Cross-sector - JC Corridor Committee	authority	effector
constituent (constituent)	Advisory Committee - SW Tree Committee	authority	effector
constituent (constituent)	Forum - Formation - Intertwine 1: Connecting green	authority	effector
constituent (constituent)	Forum - Tualatin Basin Partners for Clean Water forms	authority	effector
constituent (constituent)	Forum - Formation - watershed council	authority	effector
constituent (constituent)	Forum - legal structure change - Intertwine	authority	effector
constituent (constituent)	Law - general obligation bonds - SWCDs authorised	authority	effector
constituent (constituent)	Law - SWCDs authorised to hold conservation easements	authority	effector
constituent (constituent)	Law - Watershed Council Formation by local government	authority	effector
constituent (constituent)	System development charge authorised for PCC	authority	effector
constituent (constituent)	Tree City USA	authority	effector
constituent (constituent)	Actor - Legal structure change - Auspice - SWCD	authority	procedural
constituent (constituent)	Johnson Creek Corridor Committee	authority	procedural
constituent (constituent)	SW Tree committee	authority	procedural
constituent (constituent)	Watersheds 2000 IGAs to study riparian corridors to support Metro Streamside CPR Program (Cities in Washington County, Unified Sewerage District, THPRD)	authority	procedural
constituent (constituent)	Eco-roof program	nodality	detector
constituent (constituent)	NMFS review of Portland's development plan for the North Macadam District - river setbacks & eco-roofs	nodality	detector
constituent (constituent)	PCC urban tree canopy study	nodality	detector
constituent (constituent)	Research (Xerces-Friends of TidemanJohnson Partnership)	nodality	detector
constituent (constituent)	The Oregonian Newspaper	nodality	detector
constituent (constituent)	TWRC Annual reports	nodality	detector
constituent (constituent)	urban natural resources directory	nodality	detector
constituent (constituent)	guidelines: bird friendly building	nodality	effector
constituent (constituent)	Inter-governmental Agreement - study coordination	nodality	effector
constituent (constituent)	Metro greentrails guidelines	nodality	effector
constituent (constituent)	Protocol - bird survey protocol - Gresham	nodality	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (constituent)	UERC	nodality	effector
constituent (constituent)	REIN conservation registry - government	nodality	procedural
constituent (constituent)	REIN conservation registry - public	nodality	procedural
constituent (constituent)	Tideman-Johnson Corridor committee	nodality	procedural
constituent (constituent)	UERC (Urban Ecological Research Consortium)	nodality	procedural
constituent (constituent)	Urban natural resources directory	nodality	procedural
constituent (constituent)	Wild in the City	nodality	procedural
constituent (constituent)	Wild in the city (2nd ed)	nodality	procedural
constituent (constituent)	Floodplain restoration - BES - Ramsey refuge restoration project	organisation	effector
constituent (constituent)	Forum - Formation - Collaboration - West Willamette Restoration Partnership (launch)	organisation	effector
constituent (constituent)	Watershed Wide Event – JCWC	organisation	effector
constituent (constituent)	Wetland Education Center - Jackson Bottom	organisation	effector
constituent (constituent)	Audubon partnership with Friends of Trees (delivery of Gift Tree Program)	organisation	procedural
constituent (constituent)	Auspicing MOU - SWCD for TRWC	organisation	procedural
constituent (constituent)	Bureau-community partnership (PPR, BES and NGOsP	organisation	procedural
constituent (constituent)	City Nature (PPR) - formation process	organisation	procedural
constituent (constituent)	Ecological indicators of sustainability - Urban forest canopy, portland Sustainable Development Commission	organisation	procedural
constituent (constituent)	Formation of Connecting green - which became Connecting Green Alliance and then Intertwine Alliance.	organisation	procedural
constituent (constituent)	Formation of CSWC - adoption of by-laws (state and non-state forum)	organisation	procedural
constituent (constituent)	Formation of TRWC - Washington Council recognition	organisation	procedural
constituent (constituent)	Formation of TRWC - Washington Council recognition	organisation	procedural
constituent (constituent)	Formation of West Willamette Restoration Partnership	organisation	procedural
constituent (constituent)	Legal structure change - Intertwine becomes a 501c3	organisation	procedural
constituent (constituent)	Legal structure change from auspiced to 501c3 - JCWC	organisation	procedural
constituent (constituent)	Legal structure change from auspiced to 501c3 - TRWC	organisation	procedural

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (constituent)	Legal structure change from 'friends group' to conservancy - Forest park conservancy	organisation	procedural
constituent (constituent)	Metro Regional Parks and Greenspaces Department - formation process	organisation	procedural
constituent (constituent)	Partnership Friends of Trees-BES pilot	organisation	procedural
constituent (constituent)	Position creation - Natural Resources Manager (Hillsboro Parks & Rec dept)	organisation	procedural
constituent (constituent)	Scale Up - Friends of Trees opens an office in Eugene	organisation	procedural
constituent (constituent)	Tree regulatory improvement project	organisation	procedural
constituent (constituent)	Original Portland Planning vision (40 mile loop etc.	authority	procedural
constituent (distributive)	City of Hillsboro Strategic Plan	authority	effector
constituent (distributive)	Columbia Slough Sediment Watershed Action Plan 2003	authority	effector
constituent (distributive)	Columbia Slough Watershed Action Plan 2011	authority	effector
constituent (distributive)	Cooper Mountain Masterplan- Regional Park	authority	effector
constituent (distributive)	Fanno and Tryon Creeks Watershed Management Plan – BES	authority	effector
constituent (distributive)	Greenspaces Master Plan	authority	effector
constituent (distributive)	Healthy Streams Plan – CWS	authority	effector
constituent (distributive)	Hillsboro Parks & Recreation Department Strategic Plan, 2011-2016 (1st)	authority	effector
constituent (distributive)	Invasive species management plan	authority	effector
constituent (distributive)	Invasive species management strategy - PCC	authority	effector
constituent (distributive)	Jackson Bottom Wetland Preserve Strategic Plan	authority	effector
constituent (distributive)	Johnson Creek Action Plan 2002	authority	effector
constituent (distributive)	Johnson Creek Resource Management Plan	authority	effector
constituent (distributive)	Johnson Creek Restoration Plan	authority	effector
constituent (distributive)	Master Plan - Corridor - Springwater corridor	authority	effector
constituent (distributive)	Master Plan - Hillsboro1 - "Parks and trail plan" (updated from 2003 one)	authority	effector
constituent (distributive)	Master Plan - Parks Master Plan Hillsboro2 - 2003	authority	effector
constituent (distributive)	Master Plan - Recreation, Trails and Natural Areas, Gresham	authority	effector
constituent (distributive)	Master Plan - regional park - Cooper Mountain	authority	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (distributive)	Master Plan - Site - Jackson Bottom	authority	effector
constituent (distributive)	Master Plan - System - Parks System	authority	effector
constituent (distributive)	Masterplan - Parks & Trails Master Plan & Natural Resource Analysis – Hillsboro	authority	effector
constituent (distributive)	Metro Greenspaces Master Plan - regional trails plan 2	authority	effector
constituent (distributive)	Metro Refinement Plan - acquisition - Cooper Mountain	authority	effector
constituent (distributive)	Metro Refinement Plan - acquisition - East Buttes	authority	effector
constituent (distributive)	Portland watershed management plan - BES	authority	effector
constituent (distributive)	PP&R 2010 Restoration Plan	authority	effector
constituent (distributive)	PPR Ecosystem Management Plans	authority	effector
constituent (distributive)	PPR inventory and survey of ecological health	authority	effector
constituent (distributive)	Strategic Plan - Westwillamette Restoration Partnership	authority	effector
constituent (distributive)	Strategic Plan - PP&R Strategic Plan1 2008-2011	authority	effector
constituent (distributive)	Strategic Plan - PP&R Strategic Plan2 2012-2015	authority	effector
constituent (distributive)	Tualatin River Watershed Council - strategic plan 1	authority	effector
constituent (distributive)	Tualatin River Watershed Council - strategic plan 2	authority	effector
constituent (distributive)	Tualatin river watershed council action plan	authority	effector
constituent (distributive)	Urban Forest Action Plan	authority	effector
constituent (distributive)	Urban forestry management plan - Gresham	authority	effector
constituent (distributive)	Urban Forestry Management Plan - Gresham (adoption)	authority	effector
constituent (distributive)	Urban forestry management plan - portland 1	authority	effector
constituent (distributive)	Urban forestry Management Plan - Portland 2	authority	effector
constituent (distributive)	Watershed framework and management plan - PCC	authority	effector
constituent (distributive)	Advisory committee for "Pacific NW Urban Meadowsclaping Collaboration	authority	procedural
constituent (distributive)	BES - Expert panel on ecosystem services benefits	authority	procedural
constituent (distributive)	Citizen oversight committee - 2006 natural areas bond measure	authority	procedural
constituent (distributive)	Forest Park feasibility committee	authority	procedural
constituent (distributive)	GPAC 1: Greenspace Policy Advisory Committee - Metro	authority	procedural
constituent (distributive)	GPAC 2: Greenspace Policy Advisory Committee - Metro	authority	procedural



<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (distributive)	Greenspaces Blue Ribbon Committee	authority	procedural
constituent (distributive)	Inter-agency agreement: BES, PPR & US Army corps of engineers interagency agreement on design & construction of ecological restoration projects	authority	procedural
constituent (distributive)	Inter-bureau collaboration: BES, PPR & Urban Forestry Commission to restart the tree stewardship program	authority	procedural
constituent (distributive)	Inter-bureau committee on reduction of invasive plants – PCC	authority	procedural
constituent (distributive)	Intra-team collaboration - weekly meeting between head of watershed group & chief engineer.	authority	procedural
constituent (distributive)	Joint Management IGA - THPRD & Metro joint management of Cooper Mountain	authority	procedural
constituent (distributive)	Metro Environmental action team	authority	procedural
constituent (distributive)	Metro Green ribbon committee - Open Space development	authority	procedural
constituent (distributive)	metropolitan conservation strategy planning group - Informal but recognised group	authority	procedural
constituent (distributive)	MPAC Parks sub-committee	authority	procedural
constituent (distributive)	PPR Board (to carry out Parks 2020 vision)	authority	procedural
constituent (distributive)	Smith & Bybee advisory committee	authority	procedural
constituent (distributive)	TEES - Technical advisory group	authority	procedural
constituent (distributive)	TWRC - Technical advisory committee	authority	procedural
constituent (distributive)	Urban forestry management plan - Gresham (design process)	authority	procedural
constituent (distributive)	2008 State of the Watershed Report - JCWC	nodality	detector
constituent (distributive)	Audubon birdstrike predawn surveys	nodality	detector
constituent (distributive)	Biodiversity Eco-roof research project	nodality	detector
constituent (distributive)	Campaign in Gresham to protect upland habitat	nodality	detector
constituent (distributive)	campaign to establish a permanent fund for regional natural areas management,	nodality	detector
constituent (distributive)	Forest Park feasibility report - Portland City Club 2	nodality	detector
constituent (distributive)	Grassroots campaign for Measure 26-1 lead by FAUNA	nodality	detector
constituent (distributive)	Grassroots campaign for Title 13 - lead by FAUNA	nodality	detector
constituent (distributive)	Independent study of Portland Parks - Portland city club1	nodality	detector
constituent (distributive)	Johnson Creek Restoration Project Census	nodality	detector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (distributive)	Lower Willamette Salmon study - BES-ESA team & ODFW	nodality	detector
constituent (distributive)	Mapping project - Terrestrial ecology mapping	nodality	detector
constituent (distributive)	Metro Portfolio project on greenspaces program	nodality	detector
constituent (distributive)	Report - "Forest Park a call for action" - City Club 3	nodality	detector
constituent (distributive)	Urban greenspaces movement	nodality	detector
constituent (distributive)	Zehren Report - MPAC Parks Committee	nodality	detector
constituent (distributive)	TEES - Habitat enhancement guidelines	nodality	effector
constituent (distributive)	TEES guidelines - Guidelines: Avoiding Impacts on Nesting Birds During Construction and Revegetation Projects	nodality	effector
constituent (distributive)	County in the City Symposia	nodality	procedural
constituent (distributive)	Gresham amphibian survey process	nodality	procedural
constituent (distributive)	Johnson Creek Summits	nodality	procedural
constituent (distributive)	Metro volunteer monitoring process	nodality	procedural
constituent (distributive)	New communication between engineers and watershed group brokered by taking an new asset management approach – BES	nodality	procedural
constituent (distributive)	No Ivy League monitoring process	nodality	procedural
constituent (distributive)	Gresham amphibian survey program	organisation	effector
constituent (distributive)	Invasive species management work plan - PCC	organisation	effector
constituent (distributive)	Johnson Creek Restoration Project to implement the Resources Management Plan	organisation	effector
constituent (distributive)	Meadowscaping Pilot	organisation	effector
constituent (distributive)	Meadowscaping Program	organisation	effector
constituent (distributive)	Metro Monitoring program	organisation	effector
constituent (distributive)	No ivy league program	organisation	effector
constituent (distributive)	peregrine watch – Audubon	organisation	effector
constituent (distributive)	Rapid reponse program – PPR	organisation	effector
constituent (distributive)	Regional Greenspace System planning program - Metro	organisation	effector
constituent (distributive)	regional parks, trails, and greenspace system - Metro	organisation	effector
constituent (distributive)	Green asset capitalisation (BES)	organisation	procedural
constituent (distributive)	PCC - willing seller program - Restoration Plan	organisation	procedural

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (distributive)	Portland Urban Meadowsaping Pilot Project	organisation	procedural
constituent (distributive)	Asset management approach to watershed planning (BES)	organisation	procedural
constituent (distributive)	Asset management group (PPR)	organisation	procedural
constituent (distributive)	FAUNA 'friends group' formation strategy	organisation	procedural
constituent (distributive)	FAUNA 'friends group' formation strategy - Friends of Beaverton Creek	organisation	procedural
constituent (distributive)	Formation – CSWC	organisation	procedural
constituent (distributive)	formation - Fans of Fanno Creek	organisation	procedural
constituent (distributive)	formation - Friends of Ross Island	organisation	procedural
constituent (distributive)	formation - friends of Springwater corridor	organisation	procedural
constituent (distributive)	formation - friends of Tideman Johnson	organisation	procedural
constituent (distributive)	formation - Smith & Bybee Lakes	organisation	procedural
constituent (distributive)	Formation of Coalition for a liveable future	organisation	procedural
constituent (distributive)	Formation of FAUNA	organisation	procedural
constituent (distributive)	Friends of Tideman Johnson partnered with Xerces Society to collect and count macroinvertebrate species	organisation	procedural
constituent (distributive)	greenspace masterplan planning program	organisation	procedural
constituent (distributive)	Greenspace Vision	organisation	procedural
constituent (distributive)	Invasive plant strategy (BES Invasive Species program)	organisation	procedural
constituent (distributive)	Johnson Creek Acquisition Strategy	organisation	procedural
constituent (distributive)	Johnson Creek Land Acquisition Partnership and Implementation Strategy	organisation	procedural
constituent (distributive)	Johnson Creek Resource Management Plan	organisation	procedural
constituent (distributive)	Johnson Creek Vision	organisation	procedural
constituent (distributive)	Master Plan - Olmstead (Vision)	organisation	procedural
constituent (distributive)	Metro Parks and Natural Areas Planning program	organisation	procedural
constituent (distributive)	Parks 2020 Vision – PCC	organisation	procedural
constituent (distributive)	Partnership Friends of Trees-BES scale up	organisation	procedural
constituent (distributive)	PCC Natural Area Aquisition Strategy 2006	organisation	procedural
constituent (distributive)	Portland parks vision1	organisation	procedural

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (distributive)	Portland Parks Vision2 "Vision 2020"	organisation	procedural
constituent (distributive)	Portland Watershed Management Plan Monitoring Strategy	organisation	procedural
constituent (distributive)	Public master planning process - Cooper Mountain	organisation	procedural
constituent (distributive)	Regional Conservation Strategy Project (launched)	organisation	procedural
constituent (distributive)	Springwater corridor master planning	organisation	procedural
constituent (distributive)	Terrestrial Ecological Enhancement Strategy	organisation	procedural
constituent (distributive)	BES capital improvement program - and criteria for selecting natural systems projects	Treasure	effector
constituent (redistributive)	Inter-bureau collaboration: BES & PPR Elk Island Oak release project	authority	procedural
constituent (redistributive)	Management transfer IGA - management of properties in Fanno Creek Greenway Target area from Metro to THPRD	authority	procedural
constituent (redistributive)	Management transfer IGA - Masden property from metro to Jackson Bottom Wetlands Preserve	authority	procedural
constituent (redistributive)	Management transfer IGA - Multnomah parks and greenspace from Multnomah county to Metro	authority	procedural
constituent (redistributive)	Regional Equity Atlas (Coalition for a liveable future)	nodality	procedural
constituent (redistributive)	Healthy Portland Streams Strategy	organisation	procedural
constituent (regulative)	CWS Healthy Streams plan for Tualatin Basin	authority	effector
constituent (regulative)	Migratory Bird Park Certification	authority	effector
constituent (regulative)	Urban Conservation Treaty for Migratory Birds - Portland signatory	authority	effector
constituent (regulative)	Airport Futures Committee	authority	procedural
constituent (regulative)	Committee IGA to form Tualatin Basin Natural Resources Coordinating Committee	authority	procedural
constituent (regulative)	GPAC Expert panel on high priority landscapes for acquisition	authority	procedural
constituent (regulative)	MPAC: Metro Policy Advisory Committee	authority	procedural
constituent (regulative)	Pleasant Valley Concept Plan Steering Committee	authority	procedural
constituent (regulative)	Reserves steering committee (for SB1101)	authority	procedural
constituent (regulative)	Columbia Slough - Watershed Characterization study	nodality	detector
constituent (regulative)	draft riparian corridor and wildlife habitat inventory - Metro	nodality	detector
constituent (regulative)	Habitat Inventory for Fanno creek - PCC	nodality	Detector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (regulative)	Invasive Plant Policy Review and Regulatory Improvement Project - Planning Bureau & BES	nodality	Detector
constituent (regulative)	Inventory - Significant natural areas - Cornelius	nodality	Detector
constituent (regulative)	Inventory - Significant natural areas - Local/County - Forest Grove	nodality	Detector
constituent (regulative)	Inventory - Significant natural areas - Metro - approval	nodality	Detector
constituent (regulative)	Inventory - Significant Natural Areas - Metro Resolution 89-1189	nodality	Detector
constituent (regulative)	Inventory - Significant natural areas - Washington County 1990	nodality	Detector
constituent (regulative)	Inventory 2001 - Significant natural areas - Hillsboro	nodality	Detector
constituent (regulative)	mapping project - Higher resolution mapping project USFWS	nodality	Detector
constituent (regulative)	Mapping project 1990 - Natural areas - Audubon, PSU, Metro	nodality	Detector
constituent (regulative)	Metro - preliminary maps of inventory working towards Title 13	nodality	Detector
constituent (regulative)	Metro regional parks study 1992	nodality	Detector
constituent (regulative)	Metro's Riparian Corridor and Wildlife Habitat Inventories 2005	nodality	Detector
constituent (regulative)	Partial Inventory 1991 - Significant natural areas - Local/County – Hillsboro	nodality	Detector
constituent (regulative)	Portland Plan background reports	nodality	Detector
constituent (regulative)	Priority Landscapes map - from expert panel	nodality	Detector
constituent (regulative)	Regional Attitudes Toward Population Growth and Land Use Issues - Metro report	nodality	Detector
constituent (regulative)	Regional Urban Forestry Assessment report - Report - independent policy assessment - Audubon & PSU	nodality	Detector
constituent (regulative)	Significant natural areas Inventory - Beaverton	nodality	Detector
constituent (regulative)	State of the watershed monitoring report - Metro	nodality	Detector
constituent (regulative)	stream mapping project 2002-2004 - significant natural areas - local/county – PCC	nodality	Detector
constituent (regulative)	Streamside CPR Program - Research program - Metro	nodality	Detector
constituent (regulative)	vegetation mapping project 2002-2004 - significant natural areas - local/county – PCC	nodality	Detector
constituent (regulative)	PCC & Ducks unlimited salmonid survey	nodality	Procedural
constituent (regulative)	Airport Futures project	organisation	Effector
constituent (regulative)	Columbia Slough Salmonid Monitoring - PCC & Ducks unlimited	organisation	Effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
constituent (regulative)	Metro - Watershed Monitoring Program	organisation	Effector
constituent (regulative)	Street Tree inventory Project - PCC	organisation	Effector
constituent (regulative)	framework for integrated watershed management health (PCC)	organisation	Procedural
constituent (regulative)	Function plan amendment - inclusion of title 13 - Nature in Neighborhoods	organisation	Procedural
constituent (regulative)	ESA Program 1 (Housed in BoP)	Treasure	Procedural
constituent (regulative)	ESA Program 2 (transferred to BES)	Treasure	Procedural
constituent (regulative)	ESA Program 3 (becomes Science fish & Wildlife Division)	Treasure	Procedural
distributive (constituent)	Metro 2006 regional bond measure	authority	Procedural
distributive (constituent)	Public Meetings re. Regional Bond 2 & Local Share planning - Metro & PPR	nodality	Detector
distributive (constituent)	5000 acres initiative - Tualatin Riverkeeps	organisation	Effector
distributive (constituent)	Campaign - tree planting - seed the future - FoT	organisation	Effector
distributive (constituent)	Depave program	organisation	Effector
distributive (constituent)	Plant it portland – FoT	organisation	Effector
distributive (constituent)	Urban naturalists program - Audubon	organisation	Effector
distributive (constituent)	BES Watershed grant program	organisation	Procedural
distributive (constituent)	Depave capacity build partnership - through watershed grant program	organisation	Procedural
distributive (constituent)	Capital Grants Program - Social Equity-Access to Nature Program – Metro	Treasure	Effector
distributive (constituent)	Watershed grant program - BES	Treasure	Effector
distributive (constituent)	Watershed grant program - BES funding depave	Treasure	Effector
distributive (constituent)	Watershed grant program - BES funding Friends of Trees	Treasure	Effector
distributive (constituent)	Friends of trees capacity build partnership - through watershed grant program	Treasure	Procedural
distributive (constituent)	Meadowscaping research parterships	Treasure	Procedural
distributive (distributive)	Backyard Habitat Certification Program - iteration 1 - Pilot	authority	Effector
distributive (distributive)	Backyard Habitat Certification Program - iteration 2 - Lake Oswego	authority	Effector
distributive (distributive)	Backyard Habitat Certification Program - iteration 3 - PCC	authority	Effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (distributive)	Backyard Habitat Certification Program - iteration 4 - Metro	authority	Effector
distributive (distributive)	Exise tax 3 - undedication of solid waste tax - metro	authority	Effector
distributive (distributive)	Exise tax1 established - to help fund parks - Metro	authority	Effector
distributive (distributive)	Exise tax2 - metro increases and extends the solid waste tax	authority	effector
distributive (distributive)	Ezone amendment to streamline environmental review in exchange for site improvements or fee-in-lieu of site improvements	authority	effector
distributive (distributive)	Flood and landslide Mitigation plan - recommendation to establish local acquisition program - PCC	authority	effector
distributive (distributive)	Mult county natural area protection fund	authority	effector
distributive (distributive)	Oregon plan - Steelhead supplement	authority	effector
distributive (distributive)	Portland recovery plan for salmon and trout - PCC	authority	effector
distributive (distributive)	System development charge - PPR land acquisition	authority	effector
distributive (distributive)	Tax base EMSWCD	authority	effector
distributive (distributive)	Tax base THPRD	authority	effector
distributive (distributive)	Tax base WMSWCD	authority	effector
distributive (distributive)	Watershed investment fund - PCC	authority	effector
<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (distributive)	Watershed revegetation fund - PCC	authority	effector
distributive (distributive)	1993 failed regional bond measure	authority	procedural
distributive (distributive)	East Multnomah SWCD ballot measure - tax base for conservation planning programs	authority	procedural
distributive (distributive)	Metro 1995 regional bond measure	authority	procedural
distributive (distributive)	Restoration IGA for Beggars Tick Marsh - BES & Multnomah County	authority	procedural
distributive (distributive)	State ballot measure 76 - permanent lottery funding for parks and natural resources	authority	procedural
distributive (distributive)	West Multnomah SWCD ballot measure - tax base for conservation planning programs	authority	procedural
distributive (distributive)	FoT Training	nodality	effector
distributive (distributive)	PP&R Tree Steward Training	nodality	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (distributive)	Adopt a Park Program - PPR (& Tree Liason program)	organisation	effector
distributive (distributive)	Americorps conservation volunteer program	organisation	effector
distributive (distributive)	Clean river program - PCC - early 90s	organisation	effector
distributive (distributive)	Council-led stream channel restoration project on private land - Johnson Creek	organisation	effector
distributive (distributive)	Friends of Trees plantings	organisation	effector
distributive (distributive)	Mount Tabor Weed Warrior Program	organisation	effector
distributive (distributive)	Mt. Tabor Invasive Plant Control and Revegetation Project	organisation	effector
distributive (distributive)	Neighborhood Tree Liason Program - PP&R	organisation	effector
distributive (distributive)	Protect the best - PP&R	organisation	effector
distributive (distributive)	Restoration - Local - BES - Oak release project	organisation	effector
distributive (distributive)	Restoration project - reed college	organisation	effector
distributive (distributive)	Restoration team - Local - Gresham Parks operation team	organisation	effector
distributive (distributive)	Restoration team - WSC - Johnson Creek	organisation	effector
distributive (distributive)	System development charge - Tabor to the River	organisation	effector
distributive (distributive)	Backyard habitat certification program - cross-jurisdiction roll out.	organisation	procedural
distributive (distributive)	Backyard Habitat Certification Program - local roll out	organisation	procedural
distributive (distributive)	Backyard Habitat Certification Program - nested program - within Tabor to the river project	organisation	procedural
distributive (distributive)	Backyard Habitat Certification Program - Pilot	organisation	procedural
distributive (distributive)	Network expansion - Friends of Trees new partnerships - ODOT, Verde etc,	organisation	procedural
distributive (distributive)	Protect the Best program (weed management program PPR)	organisation	procedural
<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (distributive)	Undedication of solid waste excise tax	organisation	procedural
distributive (distributive)	Community watershed grant program - BES	Treasure	effector
distributive (distributive)	Development density bonuses for Eco-roofs	Treasure	effector
distributive (distributive)	EMSWCD grant programs: Small Projects and Community Events Program, Watershed Council Support Grants, Conservation Landowners, Inctive Program, Partners in Conservation Program	Treasure	effector



<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (distributive)	EMSWCD grants for Backyard Certification program	Treasure	effector
distributive (distributive)	Exise tax dispersed for park funding	Treasure	effector
distributive (distributive)	Exise tax2 for nature parks dispersed by Metro	Treasure	effector
distributive (distributive)	Fee for Service Program - Gresham, streamside landowner restoration program	Treasure	effector
distributive (distributive)	Land Donation - Natural Area	Treasure	effector
distributive (distributive)	Metro greenspace (grants) program	Treasure	effector
distributive (distributive)	Meyer memorial trust grants	Treasure	effector
distributive (distributive)	Multnomah county natural area protection fund	Treasure	effector
distributive (distributive)	Nature in Neighborhood grants I-205 Multi-Use Path Project - ODOT Fot, Metro	Treasure	effector
distributive (distributive)	Nature in Neighborhoods Funding	Treasure	effector
distributive (distributive)	Nature in neighborhoods grants	Treasure	effector
distributive (distributive)	OWEB funding - restoration grants	Treasure	effector
distributive (distributive)	Permanent funding for WSCs parks and natural areas (via ballot measure 76)	Treasure	effector
distributive (distributive)	Wild Heritage Fund - maintenance funding - Metro and the National Fish and Wildlife Foundation	Treasure	effector
distributive (distributive)	WMSWCD funding	Treasure	effector
distributive (distributive)	Grey to green funding (other than protect the best)	Treasure	procedural
distributive (distributive)	Nature In Neighborhoods Initiative	Treasure	procedural
distributive (distributive)	Oregon Plan for Salmon and Watersheds	Treasure	procedural
distributive (distributive)	Protect the Best funding	Treasure	procedural
distributive (redistributive)	Acquistion IGA for Gabbert Hill - Metro & Gresham City	authority	procedural
distributive (redistributive)	Acquistion IGA for Orenco Woods Golf Course - Metro & Gresham City	authority	procedural
distributive (redistributive)	Acquistion IGA for Riverview natural area (Metro, BES, PPR, Trust for public land)	authority	procedural
distributive (redistributive)	Gresham local bond measure (1990 as above?)	authority	procedural
distributive (redistributive)	Inter-bureau agreement: BES & PPR contribution to PCC acquisition	authority	procedural

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (redistributive)	Local bond measures	authority	procedural
distributive (redistributive)	PPR Local bond Bond measure 1	authority	procedural
distributive (redistributive)	THPRD Bond measure 1	authority	procedural
distributive (redistributive)	THPRD Bond measure 2	authority	procedural
distributive (redistributive)	Advocacy - internal champions	nodality	detector
distributive (redistributive)	Acquisition goal amendment - Cooper Mountain	organisation	procedural
distributive (redistributive)	Regional Bond 2 Local Share planning, PCC	organisation	procedural
distributive (redistributive)	Scale up - Legal structure change - Land trust to Land Conservancy	organisation	procedural
distributive (redistributive)	Scale up / Merger - Conservancy & Landtrust into Landtrust	organisation	procedural
distributive (redistributive)	Acquisition program - local - Gresham	Treasure	effector
distributive (redistributive)	Acquisition Program - Local - PCC - Willing Seller Program	Treasure	effector
distributive (redistributive)	acquisition program - local - PP&R	Treasure	effector
distributive (redistributive)	Acquisition Program - Local Share	Treasure	effector
distributive (redistributive)	Acquisition Program - Metro1	Treasure	effector
distributive (redistributive)	acquisition program - Metro1 Wtaker Pond Nature Park	Treasure	effector
distributive (redistributive)	acquisition program - Metro2 - Ballot Measure	Treasure	effector
distributive (redistributive)	Acquisition program - Metro2 - Chehelam Ridge acquired	Treasure	effector
distributive (redistributive)	Acquisition Program - Metro2 - East Butte purchase	Treasure	effector
distributive (redistributive)	acquisition program - Metro2 - resolution	Treasure	effector
distributive (redistributive)	Acquisition Program - Metro2 & Gresham Local Share - Gabbert Hill	Treasure	effector
distributive (redistributive)	acquisition program - Metro2, Cooper Mountain Acquisition goals amended	Treasure	effector
distributive (redistributive)	Acquisition program - Multnomah County	Treasure	effector
distributive (redistributive)	Aquisition program - nongovt - lake oswego land trust	Treasure	effector
distributive (redistributive)	Acquisition program - nongovt - three rivers land conservancy acquisition program	Treasure	effector
distributive (redistributive)	acquisition program - nongovt -columbia land trust	Treasure	effector
distributive (redistributive)	acquisition program - nongovt -columbia land trust (merger)	Treasure	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (redistributive)	acquisition program - THPRD1	Treasure	effector
distributive (redistributive)	acquisition program - THPRD1 - ballot measure	Treasure	effector
distributive (redistributive)	acquisition program - THPRD2	Treasure	effector
distributive (redistributive)	acquisition programs - local	Treasure	effector
distributive (regulative)	Lower Columbia Steelhead Recovery Plan	authority	effector
distributive (regulative)	Tabor to the River program	authority	effector
distributive (regulative)	State ballot measure 66 - lottery funding for parks and natural resources (2014 sunset clause)	authority	procedural
distributive (regulative)	Forest park neighborhood association community survey	nodality	detector
distributive (regulative)	Boeing Green Infrastructure facility project	organisation	effector
distributive (regulative)	Columbia Slough Confluence Restoration Project:	organisation	effector
distributive (regulative)	Contracts with FoT & SOLVE for tree planting in Columbia Sloughwatershed revegetation program	organisation	effector
distributive (regulative)	East Lents Floodplain restoration/Foster Floodplain Natural Areal - BES	organisation	effector
distributive (regulative)	First big Johnson Creek restoration project - BES	organisation	effector
distributive (regulative)	Floodplain Restoration - Local - PCC - Water Control Structures	organisation	effector
distributive (regulative)	Floodplain restoration - Metro1 - Water Control Structures	organisation	effector
distributive (regulative)	Floodplain restoration - Metro2 - Water Control Structures	organisation	effector
distributive (regulative)	Floodplain restoration project - BES Team - Powell Butte project is completed - creating 100 acre-feet of flood storage	organisation	effector
distributive (regulative)	Floodplain restoration project - Foster Floodplain	organisation	effector
distributive (regulative)	Metro - restoration team program	organisation	effector
distributive (regulative)	Nature in Neighborhood program (incorporated local programs)	organisation	effector
distributive (regulative)	Oregon's local watershed management program	organisation	effector
distributive (regulative)	PCC planting teams - 26,000 trees and shrubs throughout the Slough watershed - Watershed management program	organisation	effector
distributive (regulative)	Restoration - Local - PCC - Restore then Steward	organisation	effector
distributive (regulative)	Shade plantings - Clean River Plan - BES	organisation	effector
distributive (regulative)	Shade plantings - Clean River Plan - BES	organisation	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
distributive (regulative)	SOLV's Team Up for Watershed Health program (Columbia Slough)	organisation	effector
distributive (regulative)	Stephens Creek Confluence Habitat Enhancement Project - PCC - Restore then Steward	organisation	effector
distributive (regulative)	Tree for all challenge - CWS	organisation	effector
distributive (regulative)	Tree Stewardship Program -PP&R	organisation	effector
distributive (regulative)	watershed revegetation program - colombia slough - scale up from CS & Johnson Creek.to whole of PCC	organisation	effector
distributive (regulative)	Watershed revegetation program - contract out	organisation	effector
distributive (regulative)	Watershed revegetation program - johnson creek	organisation	effector
distributive (regulative)	Watershed revegetation program = revegetated site management activities	organisation	effector
distributive (regulative)	Partnership-CSWC & Boeing.	organisation	procedural
distributive (regulative)	Pre-approved Project list - BES	organisation	procedural
distributive (regulative)	Watershed Investment Fund - institutionalised within BES capital improvement program	organisation	procedural
distributive (regulative)	Acquisition Program - local - Grey to Green	Treasure	effector
distributive (regulative)	Acquisition Program - Local - PCC - Willing Seller Program	Treasure	effector
distributive (regulative)	Boeing Land Donation - Green Infrastructure	Treasure	effector
distributive (regulative)	Salmon and watershed funding (via Ballot Measure 66)	Treasure	effector
redistributive (constituent)	Management regime transfer - categorisation of some parks into natural areas	organisation	procedural
redistributive (constituent)	Management regime transfer - Oaks Bottom from park to wildlife refuge	organisation	procedural
redistributive (constituent)	Program management transfer - local watershed councils brought under GWEB guidance.	organisation	procedural
redistributive (distributive)	Land transfer IGA - Beggars tick from Metro to BES	authority	procedural
redistributive (distributive)	Land transfer IGA - Parks from Multnomah County to Metro	authority	procedural
redistributive (distributive)	Transfer of springwater corridor (disused rail) to City of Portland Parks Bureau	authority	procedural
redistributive (regulative)	NPDES Permit - Water Quality Trading (Tree shading)	Treasure	procedural
redistributive (regulative)	Wetland credit trading	Treasure	procedural

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (distributive)	E-zone amended to better integrate e-zone and erosion control with exemptions	authority	effector
regulative (distributive)	Surface vegetated facilities for management of stormwater (PCC)	authority	effector
regulative (distributive)	Binding City Policy - Stormwater Management using Onsite Surface Vegetated Facilities	organisation	procedural
regulative (distributive)	E-zone amendment - integrate e-zone & erosion control exemptions (PCC)	organisation	procedural
regulative (distributive)	E-zone amendments - from tree-regulatory improvement project	organisation	procedural
regulative (distributive)	Ezone amendment to streamline environmental review in exchange for site improvements or fee-in-lieu of site improvements	Treasure	effector
regulative (redistributive)	Clean Water Act law suits	authority	detector
regulative (redistributive)	ESA law suits	authority	detector
regulative (redistributive)	Environmental Zone Streamline Project Advisory committee	authority	effector
regulative (redistributive)	Airport Futures Project - Mapping	authority	effector
regulative (redistributive)	Approval of environmental codes (p-zone protection- significant resource) and c-zone, conservation- high quality resource) - PCC	authority	effector
regulative (redistributive)	City of Tigard City Code - post title 3 compliance	authority	effector
regulative (redistributive)	East Buttes, Terracts and Wetlands Conservation Plan & zoning maps	authority	effector
regulative (redistributive)	Ezone amendment - Environmental Code Improvement (ECI) project	authority	effector
regulative (redistributive)	E-zone amendment to clarify stormwater outfalls in an E-zone	authority	effector
regulative (redistributive)	Ezone ammendment to modify setbacks so that buildings can be brought closer to the street and outside of the e-zone	authority	effector
regulative (redistributive)	Fanno Creek & Tributaries Conservation plan & zoning maps	authority	effector
regulative (redistributive)	Gresham comprehensive plan - post title 13 model ordinance regulations	authority	effector
regulative (redistributive)	Hillsboro - Significant natural resource inventory, iteration 1	authority	effector
regulative (redistributive)	Hillsboro comprehensive plan - post title 13 - Habitat benefit areas	authority	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (redistributive)	Hillsboro comprehensive plan - regulation of development within Significant Natural resources Overlay (inc. mitigation)	authority	effector
regulative (redistributive)	Hillsboro Comprehensive plan - significant natural resources overlay, iteration 2	authority	effector
regulative (redistributive)	Hillsboro adopted a Goal 5 Natural Resources Management Plan	authority	effector
regulative (redistributive)	Inclusion of Pleasant valley district to apply portland zoning over annexed area from UGB expansion - update portland plan, Ord. No. 178961, effective 6/13/05;	authority	effector
regulative (redistributive)	Lot size-conservation exchange - PCC E-zone amendment	authority	effector
regulative (redistributive)	Metro - title 3 - Stream and Floodplain protection plan - Stream and Floodplain protection plan	authority	effector
regulative (redistributive)	Metro (Title 3) fish and wildlife habitat plan	authority	effector
regulative (redistributive)	Metro Fish and Wildlife Habitat Plan	authority	effector
regulative (redistributive)	Metro Title 13	authority	effector
regulative (redistributive)	Natural Resource Protection Plan - Cornelius	authority	effector
regulative (redistributive)	New Portland Plan	authority	effector
regulative (redistributive)	North west Hills Natural Area Protection Plan and zoning maps	authority	effector
regulative (redistributive)	NRM Plan - PCC - Smith and Bybee2 - NEW Comp NRM Plan	authority	effector
regulative (redistributive)	NRM Plan - PCC - Smith and Bybee2 - NEW Comp NRM Plan	authority	effector
regulative (redistributive)	NRM plan - THPRD	authority	effector
regulative (redistributive)	NRM plan - THPRD2 - 2005 update	authority	effector
regulative (redistributive)	NRM plans - comprehensive NRM plan mechanism	authority	effector
regulative (redistributive)	NRM program - Hillsboro (State goal 5 compliance) - 2003	authority	effector
regulative (redistributive)	Ordinance for Vanport NRM plan - PCC	authority	effector
regulative (redistributive)	PCC Comprehensive plan -post Goal 8 expansion	authority	effector
regulative (redistributive)	portland ezones - Environmental Zone Streamline Project.	authority	effector
regulative (redistributive)	portland Fanno Creek ezones - defined resource area in places where it would normally have been zoned transition area	authority	effector
regulative (redistributive)	Portland Plan - post alignment with state goal 5.	authority	effector
regulative (redistributive)	Significant Environmental Concern overlay zone as a temporary measure until new environmental zone regulations could be adopted - PCC"	authority	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (redistributive)	Skyline West Conservation Plan & zoning maps	authority	effector
regulative (redistributive)	Southwest hills resource protection plan & zoning maps	authority	effector
regulative (redistributive)	Strengthen invasive plant management by amending E-zones with respect to the invasive plant strategy	authority	effector
regulative (redistributive)	The Balch Creek Watershed Protection Plan & Zoning Maps	authority	effector
regulative (redistributive)	the Significant natural Resources Overlay map for North Bethany	authority	effector
regulative (redistributive)	Tree code - local - gresham1	authority	effector
regulative (redistributive)	Tree regulatory improvement project: amends E-zones to require the replacement of non-native non-nuisance trees if they are removed (recognition of their functions, a bi-product of invasive plant strategy?, would not trigger environmental review as long as they are replaced, )	authority	effector
regulative (redistributive)	ugb 4 (law) - allows Portland metro region to consider a range of factors when dciding where to urbanise (not just soil) - includes significant nature resources/habitat etc.	authority	effector
regulative (redistributive)	UGB 4 (proposal) - development of a performance based UGB	authority	effector
regulative (redistributive)	UGB1 - Urban growth boundary law - state planning goal 14 (wikipedia), and other state wide land conservation policies (goals 5-7) adopted under Governor Tom McCall	authority	effector
regulative (redistributive)	UGB2	authority	effector
regulative (redistributive)	Urban and rural reserves - The Core 4 approved a map of proposed urban reserves	authority	effector
regulative (redistributive)	urban and rural reserves designation - Multnomah county	authority	effector
regulative (redistributive)	urban and rural reserves system	authority	effector
regulative (redistributive)	US Endangered Species Act Listing - Chinook	authority	effector
regulative (redistributive)	US Endangered Species Act Listing - Steelhead	authority	effector
regulative (redistributive)	Washington County plan - post Metro title 13 - habitat friendly development practices	authority	effector
regulative (redistributive)	Washington county plan - post Metro title 3 - protect fish and wildlife habitat & coordinate with CWS	authority	effector
regulative (redistributive)	Land transfer IGA - Area 93 from PCC-Multnomah County to Washington County	authority	procedural
regulative (redistributive)	Land transfer IGA - Parks from THPRD to Hillsboro City Council	authority	procedural
regulative (redistributive)	adoption of inventory - significant natural areas - regional - Metro (Habitat Conservation Area Map)	nodality	detector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (redistributive)	Community Advocacy - e.g. Forest Park Neighborhood Association writes to Mult County rejecting their "West Forest Park Concept Planning Area"	nodality	detector
regulative (redistributive)	Community Advocacy - e.g. Mike Houck addresses a letter to the core 4 re. urban natural resources in the reserve process	nodality	detector
regulative (redistributive)	Community Advocacy - Forest Park Neighborhood Association: renew and clarify our request for a Rural Reserve in this area [west hills]	nodality	detector
regulative (redistributive)	Community Advocacy - the Forest Park Neighborhood Association (FPNA) wrote to the Metro Council to explain why the portions of our neighborhood outside the Urban Growth Boundary (UGB) together with the "Coastal Corridor" at the north end of Forest Park should be designated as important natural resources that should not be urbanized (2008 letter on file)	nodality	detector
regulative (redistributive)	Inventory 2012- Significant natural areas - PCC	nodality	detector
regulative (redistributive)	Metro Technical report for fish and wildlife habitat	nodality	detector
regulative (redistributive)	Nth Bethany - final wetland inventory - Significant natural areas - Greenfield design - Washington county	nodality	detector
regulative (redistributive)	public hearings - various types of hearings.	nodality	detector
regulative (redistributive)	City of Cornelius Natural Resource Protection Plan	organisation	procedural
regulative (redistributive)	Environmental code improvement project (PCC)	organisation	procedural
regulative (redistributive)	E-zone amendment - clarified requirements for removal of nuisance plants (PCC) - doubled up with above?	organisation	procedural
regulative (redistributive)	E-zone amendment - clarify e-zones and improve public acceptance (PCC)	organisation	procedural
regulative (redistributive)	E-zone amendment - clarify stormwater outfalls in an E-zone (PCC)	organisation	procedural
regulative (redistributive)	E-zone amendment - exemption of review for removal of invasive trees (PCC)	organisation	procedural
regulative (redistributive)	E-zone amendment - failed work to expand e-zones as per the Healthy Portland Streams strategy.	organisation	procedural
regulative (redistributive)	E-zone amendment - Fanno creek e-zone area amendments	organisation	procedural
regulative (redistributive)	E-zone amendment - FEMA mapping alignment (PCC)	organisation	procedural
regulative (redistributive)	Ezone amendment to modify setbacks so that buildings can be brought closer to the street and outside of the e-zone (PCC)	organisation	procedural
regulative (redistributive)	E-Zone Streamline project advisory committee	organisation	procedural



<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (redistributive)	E-zone streamline project amendments - clear and objective development standards.	organisation	procedural
regulative (redistributive)	Function plan amendment - title 3 adopted into functional plan	organisation	procedural
regulative (redistributive)	Gresham Title 13 Model ordinance adoption - compliance with Metro title 13.	organisation	procedural
regulative (redistributive)	Hillsboro comprehensive plan - Habiotat Benefit areas (compliance with Metro Title 13)	organisation	procedural
regulative (redistributive)	Hillsboro List of Significant Goal 5 Natural Resource Sites (Metro Title 3 compliance)	organisation	procedural
regulative (redistributive)	Hillsboro Significant Natural Resources Overlay (Metro title 3 compliance)	organisation	procedural
regulative (redistributive)	Hillsboro Zoning amendment to comply with Metro Title 13.	organisation	procedural
regulative (redistributive)	Land Division Code Rewrite Project	organisation	procedural
regulative (redistributive)	PCC - Significant Environmental Concern overlay zone (a temporary measure until new environmental zone regulations could be adopted)	organisation	procedural
regulative (redistributive)	Portland Comprehensive plan - goal 8 expansion	organisation	procedural
regulative (redistributive)	Portland plan - goal 5 alignment (Clarfiy)	organisation	procedural
regulative (redistributive)	Tigard City Code amendment to comply with Metro Title 13	organisation	procedural
regulative (redistributive)	Washing County Comprehensive plan amendment - to comply with Metro title 13.	organisation	procedural
regulative (redistributive)	Washington County plan amendment to comply with Metro title 3	organisation	procedural
regulative (regulative)	Beggars Tick NRM plan - PCC	authority	effector
regulative (regulative)	Forest Park NRM plan - PCC	authority	effector
regulative (regulative)	Habitat Friendly Development Practices - Gresham (Title 13 compliance)	authority	effector
regulative (regulative)	Multnomah natural areas protection and management plan - county	authority	effector
regulative (regulative)	NRM plan - PCC - Smith & Bybee1	authority	effector
regulative (regulative)	Permits - tree removal for large developments - PCC	authority	effector
regulative (regulative)	Policy - Trees First - Gresham	authority	effector
regulative (regulative)	portland ezone iteration - exempt from environmental review the removal of trees in e zones that are listed on the Nuisance or Prohibited Plant Lists	authority	effector

<b>Arena and linkage</b>	<b>Instrument name</b>	<b>Governance Resource</b>	<b>Resource category</b>
regulative (regulative)	portland ezones - Amendments to E-zone codes to align with new FEMA mapping	authority	effector
regulative (regulative)	THPRD Comprehensive plan 1997 - iteration 1 (1998 THPRD Trails Master Plan)	authority	effector
regulative (regulative)	THPRD Comprehensive plan - assets inventory	authority	effector
regulative (regulative)	THPRD Comprehensive plan - iteration 2,	authority	effector
regulative (regulative)	tree code - Local - Beaverton	authority	effector
regulative (regulative)	Tree code - Local - Gresham2	authority	effector
regulative (regulative)	UGB - Metro	authority	effector
regulative (regulative)	Code amendments - remove regulatory barriers to green energy technologies (PCC)	organisation	procedural
regulative (regulative)	UGB expansion - brings in Pleasant Valley (headwaters of Johnson Creek)	organisation	procedural

## Appendix 6: Brisbane instrument sample

Arena and linkage	Instrument name – Brisbane	governance resource	resource category
constituent (constituent)	Healthy Waterway Awards	authority	effector
constituent (constituent)	Landcare Awards	authority	effector
constituent (constituent)	Collaborative policy development forum - GA with BCC (2 million trees program)	authority	procedural
constituent (constituent)	Local (resident) management committees - for natural areas	authority	procedural
constituent (constituent)	Habitat Officers / Creek Rangers	nodality	detector
constituent (constituent)	State of the Environment Reports	nodality	detector
constituent (constituent)	Annual Reports	nodality	detector
constituent (constituent)	Bat box monitoring program	nodality	procedural
constituent (constituent)	Water quality monitoring program	nodality	procedural
constituent (constituent)	Annual THECA forum at The Hut	nodality	procedural
constituent (constituent)	Know your creek - OCEG publication	nodality	procedural
constituent (constituent)	The Creek in Your Backyard - SOWN publication	nodality	procedural
constituent (constituent)	Sustainability centre - B4C Sustainability centre	organisation	effector
constituent (constituent)	Peaks to Point Festival	organisation	effector
constituent (constituent)	BCN Iteration 1 - auspice	organisation	procedural
constituent (constituent)	BCN Iteration 2 - facilitated by BCC	organisation	procedural
constituent (constituent)	BCN Iteration 3 - non-state facilitation	organisation	procedural
constituent (constituent)	Environment Committee Minutes	organisation	procedural
constituent (constituent)	Community Biodiversity Strategy	organisation	procedural
constituent (constituent)	Brisbane Rainforest Information Network (BRAIN)	organisation	procedural
constituent (constituent)	SEQ Catchments	organisation	procedural
constituent (constituent)	SOWN Catchment Management committee	organisation	Procedural
constituent (constituent)	OCCA Catchment Management committee	organisation	Procedural
constituent (constituent)	B4C Catchment Management committee	organisation	Procedural
constituent (constituent)	City in the bush	organisation	Procedural
constituent (distributive)	Resident Action Groups	authority	Detector
constituent (distributive)	Ecosystem Services Projects	authority	Detector
constituent (distributive)	Complaints-Watershed groups - 2 million trees	authority	Detector
constituent (distributive)	Complaints-Watershed groups - attempted HB Shutdown	authority	Detector
constituent (distributive)	Brisbane River Plan	authority	effector
constituent (distributive)	BCP - Strategic Plan	authority	effector
constituent (distributive)	Strategic Planning targets e.g. canopy targets	authority	effector
constituent (distributive)	Oxley Creek Catchment Management Plan	authority	effector
constituent (distributive)	Ramsar listing – Boondall	authority	effector
constituent (distributive)	Ramsar listing – Moreton	authority	effector
constituent (distributive)	SEQ NRM plan	authority	effector
constituent (distributive)	Natural area management plan (for large sites)	authority	effector
constituent (distributive)	Standard Voluntary Conservation Agreement	authority	effector
constituent (distributive)	Higher Voluntary Conservation Agreement	authority	effector
constituent (distributive)	mayoral decree - doubling 1 million to 2 million trees	authority	effector
constituent (distributive)	Biodiversity Advisory Committee	authority	procedural
constituent (distributive)	Brisbane River Management Group	authority	procedural
constituent (distributive)	BCC Parks and Environment Committee	authority	procedural
constituent (distributive)	Development of Strategic Planning targets e.g. canopy targets	authority	procedural
constituent (distributive)	District Open Space Studies	nodality	detector
constituent (distributive)	Brisbane Biodiversity and Climate change reports (Low)	nodality	detector
constituent (distributive)	GIS Canopy Survey – biannual	nodality	detector
constituent (distributive)	Inventory of Rare and Threatened Species	nodality	detector
constituent (distributive)	WWF Subregional biodiversity analysis	nodality	detector

<b>Arena and linkage</b>	<b>Instrument name – Brisbane</b>	<b>governance resource</b>	<b>resource category</b>
constituent (distributive)	Bushland Taskforce Reports, 1992	nodality	detector
constituent (distributive)	Healthy Waterway report cards	nodality	detector
constituent (distributive)	Ward Councillor access	nodality	detector
constituent (distributive)	Toohey Forest Roundtables	nodality	procedural
constituent (distributive)	SEQNRM Atlas	nodality	procedural
constituent (distributive)	Creek Care program – Oxley	organisation	effector
constituent (distributive)	Backyard Habitat program - B4C	organisation	effector
constituent (distributive)	Open Space / Natural Area Network	organisation	effector
constituent (distributive)	Healthy Waterways network	organisation	procedural
constituent (distributive)	Healthy Waterways partnership inc	organisation	procedural
constituent (distributive)	Healthy Waterways	organisation	procedural
constituent (distributive)	BCP - Vision Statement	organisation	procedural
constituent (distributive)	SEQ Waterway strategy	organisation	procedural
constituent (distributive)	2010 Watersmart Strategy	organisation	procedural
constituent (distributive)	Natural area conservation strategy for Brisbane City	organisation	procedural
constituent (distributive)	Mountains to Mangroves 'strategy'	organisation	procedural
constituent (distributive)	BCC green team - sustainability strategy	organisation	procedural
constituent (distributive)	Biodiversity Research Framework (under the BDS)	organisation	procedural
constituent (distributive)	BCC Environmental Management Strategy	organisation	procedural
constituent (distributive)	Bushland and Wetland Protection Strategy	organisation	procedural
constituent (distributive)	Brisbane Biodiversity Strategy (brought together existing instruments)	organisation	procedural
constituent (distributive)	Conservation action statements	organisation	procedural
constituent (redistributive)	Oxley Creek taskforce	authority	procedural
constituent (redistributive)	Core Biodiversity Network	organisation	procedural
constituent (redistributive)	SEQ Nature Conservation Strategy	organisation	procedural
constituent (regulative)	Koala Coast Policy	authority	effector
constituent (regulative)	Regional Biodiversity significance map (RNCS)	authority	effector
constituent (regulative)	Vegetation Protection Advisory committee	authority	procedural
constituent (regulative)	Neighborhood Planning Committees	authority	procedural
constituent (regulative)	Corinda Neighborhood Planning	authority	procedural
constituent (regulative)	Lower Oxley Neighborhood Planning	authority	procedural
constituent (regulative)	Rochdale Neighborhood Planning process	authority	procedural
constituent (regulative)	SLATS - Statewide Landcover and Trees Study 2	nodality	detector
constituent (regulative)	SLATS - Statewide Landcover and Trees Study 1	nodality	detector
constituent (regulative)	Common Nature Classification System	nodality	detector
constituent (regulative)	Brisbane City Council Ecological Assessment Guidelines	nodality	effector
constituent (regulative)	Woody Weed Tree enterprise (SOWN)	organisation	effector
constituent (regulative)	Community Nurseries	organisation	effector
constituent (regulative)	Brisbane Waterway Strategy	organisation	procedural
distributive (constituent)	2 million trees program - outsourcing of delivery & mgmt	authority	procedural
distributive (constituent)	HB volunteer training	nodality	effector
distributive (constituent)	HB: bushland care program (old name for habitat brisbane) – iteration 1	organisation	effector
distributive (constituent)	HB: Habitat Brisbane – iteration 2	organisation	effector
distributive (constituent)	Ithaca Intact (SOWN project)	organisation	effector
distributive (constituent)	Land for Wildlife agreement	organisation	effector
distributive (constituent)	Land for Wildlife program	organisation	procedural
distributive (distributive)	Bushland Levy	authority	effector
distributive (distributive)	2 million trees program - outsourced management	authority	procedural
distributive (distributive)	2 million trees program - delivery & mgmt	authority	procedural
distributive (distributive)	2 million trees - delivery - outsourced delivery	organisation	effector
distributive (distributive)	2 million trees program - government delivery	organisation	effector

<b>Arena and linkage</b>	<b>Instrument name – Brisbane</b>	<b>governance resource</b>	<b>resource category</b>
distributive (distributive)	Creek Rangers (BCC catchment coordinators)	organisation	effector
distributive (distributive)	Creek Rangers (current name)	organisation	effector
distributive (distributive)	Catchment Care-team OCCA	organisation	effector
distributive (distributive)	Conservation Volunteers –volunteer programs	organisation	effector
distributive (distributive)	Fire Management Program	organisation	effector
distributive (distributive)	Weed Management	organisation	effector
distributive (distributive)	Bush Rehabilitation Unit	organisation	effector
distributive (distributive)	Ward teams program	organisation	effector
distributive (distributive)	Contracted Regeneration Contractors	organisation	effector
distributive (distributive)	Wipe Out weeds	organisation	effector
distributive (distributive)	Wildlife Movement Solutions	organisation	effector
distributive (distributive)	OCCA Biodiversity Services Unit - Granards Wetlands Restoration	organisation	effector
distributive (distributive)	Catchment group contracts - e.g. Powerlink	organisation	effector
distributive (distributive)	Creek Rangers (catchment coordinators)	treasure	effector
distributive (distributive)	Caring for Our Country grants	treasure	effector
distributive (distributive)	Natural Heritage Trust 1	treasure	effector
distributive (distributive)	BCC Environment Grants (BDS)	treasure	effector
distributive (distributive)	Community Benefit Fund	treasure	effector
distributive (distributive)	Community Bushland Care Grants	treasure	effector
distributive (distributive)	Landcare funding	treasure	effector
distributive (distributive)	Local Councillor Park Funds	treasure	effector
distributive (redistributive)	Bushland Acquisition Program – iteration 5	authority	effector
distributive (redistributive)	Bushland Acquisition Program – iteration 1	treasure	effector
distributive (redistributive)	Bushland Acquisition Program – iteration 2	treasure	effector
distributive (redistributive)	Bushland Acquisition Program – iteration 3	treasure	effector
distributive (redistributive)	Bushland Acquisition Program – iteration 4	treasure	effector
distributive (redistributive)	Defacto habitat funding - using weed management funding	treasure	effector
distributive (redistributive)	Bushland Acquisition Program - defacto consolidation funding (by using 2 million tree to connect patches)	treasure	effector
redistributive (constituent)	employment programs - jobskills program (not sure when started and finished)	organisation	effector
redistributive (constituent)	Roll up of Brisbane River Plan into BCP 2000	organisation	procedural
redistributive (distributive)	Creek rangers (BCC creek rangers)	organisation	effector
redistributive (distributive)	Creek rangers (BCC creek rangers)	organisation	effector
redistributive (distributive)	Creek rangers (BCC creek rangers)	organisation	effector
redistributive (distributive)	RNCS regional biodiversity significance map	organisation	procedural
redistributive (distributive)	HB mid 90s reform process	organisation	procedural
redistributive (distributive)	HB post VPO restructure process	organisation	procedural
redistributive (distributive)	HB 2010 reform process	organisation	procedural
regulative (distributive)	Covenant on Title (local)	authority	effector
regulative (distributive)	NCA Iteration 2 (Newman reforms)	authority	effector
regulative (distributive)	Natural Assets Local Law – iteration 2 (NALL)	authority	effector
regulative (distributive)	Covenant on Title (regional nested)	authority	effector
regulative (distributive)	Planning Act Iteration 3 – Sustainable Planning Act 2010	authority	effector
regulative (distributive)	Planning Act 2 – Integrated Planning Act 1997	authority	effector
regulative (distributive)	Planning Act 1 - Local Government (Planning and Environment) Act 1990	authority	effector
regulative (distributive)	De Facto Offset Policy	authority	effector
regulative (distributive)	Voluntary Conservation covenants	authority	effector
regulative (distributive)	FGK corridor Memorandum of Understanding	authority	procedural
regulative (distributive)	Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands Version 1.1. (HWP)	nodality	effector

<b>Arena and linkage</b>	<b>Instrument name – Brisbane</b>	<b>governance resource</b>	<b>resource category</b>
regulative (distributive)	Biodiversity Offset Policies	organisation	procedural
regulative (distributive)	BCP The "Green Space System" central to the Strategic Plan, including the creation of a "Conservation Areas",	organisation	procedural
regulative (distributive)	Bushland Acquisition Program - shifting the acquisition targets	organisation	procedural
regulative (distributive)	Bushland Acquisition Program	treasure	effector
regulative (redistributive)	Nature Conservation Act – iteration 1 (pre-Newman)	authority	effector
regulative (redistributive)	NALL 1 (Vegetation Protection Orders)	authority	effector
regulative (redistributive)	Vegetation Management Act	authority	effector
regulative (redistributive)	Environmental Overlays	authority	effector
regulative (redistributive)	Urban Footprint	authority	effector
regulative (redistributive)	1st conservation zone - old bris town plan	authority	effector
regulative (redistributive)	conservation zone introduced to the town plan	authority	procedural
regulative (redistributive)	Environmental Defenders Office legal advice	nodality	procedural
regulative (redistributive)	Covenants	organisation	effector
regulative (redistributive)	Statutory Koala planning	organisation	procedural
regulative (redistributive)	Bushland Acquisition Program	treasure	effector
regulative (redistributive)	Developer 'gifting'	treasure	effector
regulative (regulative)	biodiversity code 1- BCP, updated 2014 in the new Bris Plan	authority	effector
regulative (regulative)	conservation zones – BCP	authority	effector
regulative (regulative)	waterway code – BCP	authority	effector
regulative (regulative)	Oxley Wedge	organisation	procedural
regulative (regulative)	BCP Biodiversity Code	organisation	procedural
regulative (regulative)	BCP Natural Assets Planning Scheme Policy establishes a "Natural Assets Register"	organisation	procedural
regulative (regulative)	HEC - High Ecological Significance	organisation	procedural

## Appendix 7: Frame analysis tables: Brisbane and Portland

### A7.1 Brisbane frame analysis table

Transition -see Fig 8.4	#	Responses / adjustments	Bridging	Extending	Amplifying	Transfor- -ming	Input/ Output	Type	Who acts?	Who is heard? (input) / Who is satisfied? (output)
1.Nascent, informal and advocacy- led (mid-80s– 1992)	1.1	Resident Action Group campaigns, e.g. proposed development of Boondall wetlands	society- centric (linked with 2.1)	linked with #2.1			I	moral- episodic	RAGS & civil society	RAGs & civil society
	1.2	First BCC environmental officer (1988)	cross-sector	state- centric	state- centric	cross- sector	I ≈ O	all-continual	councillors	all? - hard to say because high on pol agenda
	1.3	Acquisition levy is designed and implemented	cross-sector	state- centric	state- centric	cross- sector	I ≈ O	all-continual	councillors- NES	civil society & scientists, professional environmental policy networks
2.Capacity building and implement- ation (1991– 1997)	2.1	Acquisition program begins	society- centric (links to 1.1)	cross- sector	cross- sector	society- centric (election	I ≈ O	all-continual	councillors- mayor	civil society, NES
	2.2	Restoration groups & environment centre — coordinated by Greening Australia	cross-sector? ( <i>insuff. data</i> )	cross- sector	state- centric	cross- sector	I ≈ O	all-continual,	NES	BCC general, Greening Australia & allied environmental networks, RAGs
	2.3	Council restoration teams	state- centric? actor level? ( <i>insuffic. data</i> )	state- centric	state- centric? or weak cross- centric? ( <i>insuffic data</i> )	state- centric (weak strength )	O	all-continual	LAS	NES
	2.4	Vegetation Protection Orders established (VPOs)	state- centric? actor level? ( <i>insuffic. data</i> )	state- centric	state- centric & civic (variable strength)	cross- sector	O	prag/moral continual, moral episodic	NES	NES, professional policy networks, environmental networks

Transition -see Fig 8.4	#	Responses / adjustments	Bridging	Extending	Amplifying	Transforming	Input/ Output	Type	Who acts?	Who is heard? (input) / Who is satisfied? (output)
3. Cross-sector governance and formalisation of non-state networks (1995-2004)	3.1	Watershed groups form	cross-sector	cross-sector	cross-sector (variable strength)	cross-sector	$I \approx 0$	prag/moral continual, cog episodic	Habitat groups, RAGs and assoc networks.	Professional watershed management networks, Habitat groups, RAGS
	3.2	Restoration groups are refined	state-centric	state-centric	state-centric (weak strength)	state-centric	0	prag/cog continual	NES	BCC budget actors
	3.3	Acquisition program targets koala habitat	state-centric? actor level? (insuff. data)	cross-sector & civic	cross-sector & civic	state-centric (actor level)	$I < 0$	all-continual	NES	ecologists, environmental networks, 'koala national icon' people
	3.4	Watershed groups experiment with income generation and new grant sources	society-centric (actor level)	cross-sector	society-centric (actor level)	society-centric (actor level)	0	prag/cog continual	WSGs	WSGs-membership, BCC-general, BCC-budget actors
	3.5	Watershed groups - stronger local horizontal links	society-centric (actor level)	cross-sector	cross-sector	cross-sector	$I < 0$	prag-continual, prag/cog-episodic	WSGs	WSGs-leadership, local actors and networks
	3.5	BCC begins funding watershed groups (2004)	society-centric? (insuff. data)	state-centric	cross-sector	cross-sector	$I > 0$	prag-continual? (insuff. data)	BCC-budget actors	WSGs -membership & allies, Councillors
	3.7	Brisbane Biodiversity Strategy (1999)		cross-sector	state-centric	cross-sector	cross-sector	0	prag/moral continual, cog episodic	NES



Transition -see Fig 8.4	#	Responses / adjustments	Bridging	Extending	Amplifying	Transforming	Input/ Output	Type	Who acts?	Who is heard? (input) / Who is satisfied? (output)
Transition 3 continued	3.8	Brisbane Catchment Network established	cross-sector	cross- sector	cross- sector (variable strength)	cross- sector	I	prag- continual, cog-episodic	WSGs	WSGs, NES, environmental networks
4. Inter- division governance / regionalis- ation  (2000- 2008)	4.1	Biodiversity code (new City Plan)	state-centric	state- centric	state- centric	state- centric	I < O	prag/cog continual	NES, BCC- planners	BCC-planners, professional planning networks, institutional-context actors
	4.2	Text policies translated into spatial definitions	state-centric	state- centric	state- centric	state- centric	O	prag/cog continual	NES, BCC- planners	BCC-planners, professional planning networks, institutional-context actors
	4.3	VPOs rolled into NALL	state-centric	state- centric	state- centric	state- centric	O	prag/cog continual	NES, LAS	BCC-general, "integrated policy" people
	4.4	SEQ Catchments re-strategises and begins coordinating Land for Wildlife	cross-sector	cross- sector (actor level)	cross- sector (actor level)	cross- sector	I < O	prag/moral- continual, cog-episodic	SEQ Catchments	SEQ local councils, LFW members & allies
5. 'Decou- pled' governance & divergent responses (2007- 2012)	5.1	Brisbane Catchments Network dissolves and reforms as a non- government forum (2011)	society- centric	society- centric	society- centric	society- centric	I	prag/moral- continual, cog-episodic	WSGs	WSGs-subactors,
	5.2	Local WSGs join regional forums (2012)	cross-sector	cross- sector	cross- sector	cross- sector (variable )	I	prag- continual, cog-episodic	SEQ Catchments, Healthy Waterways, WSGs	SEQ Catchments, Healthy Waterways, WSGs
	5.3	Environmental programs consolidated (2010)	state-centric	state- centric	state- centric (weak strength)	state- centric	O	prag/cog continual	BCC-general	BCC-budget people
	5.4	WSG enterprise proposal (critical case)	society- centric (actor level)	state- centric	state- centric	state- centric & society centric	I ≈ O	all-episodic	WSG	WSG sub-actors, LAS, BCC- compliance

Transition -see Fig 8.4	#	Responses / adjustments	Bridging	Extending	Amplifying	Transfor- -ming	Input/ Output	Type	Who acts?	Who is heard? (input) / Who is satisfied? (output)
5. 'Decoupled' governance & divergent responses (2007- 2012)	5.5	Watershed groups tender for procurement contracts	society- centric (actor level)	state- centric	state- centric	state- centric & society centric	I < O	cognitive- continual, prag- episodic	WSGs	BCC-budget people, NES, WSGs
	5.6	Reformation of project delivery and project goals	state-centric	state- centric	state- centric (weak strength)	state- centric	O	cognitive- continual, prag- episodic	NES & BCC-procure- ment	BCC-procurement, Mayor, NES
	5.7	Watershed group advocacy for biodiversity focus	society- centric	cross- sector	state- centric	state- centric	O	prag/moral- continuous, cog-episodic	WSGs	WSGs, environmental networks, NES
	5.8	compulsory acquisition (critical case)	state-centric (actor level)	state- centric	state- centric (weak strength)	state- centric (actor level)	O	prag/cog- episodic	NES	NES
	5.9	quasi-offset policy (critical case)	state-centric (actor level)	state- centric	state- centric	state- centric	O	moral- procedural, prag/cog- episodic	LAS-officer	LAS

## A7.2 Portland frame analysis table

Transition -See Fig 8.4	#	response / adjustment	Bridging	Extending	Amplifying	Transform- ing	Input/ Output	Type	Who acts?	Who is heard? / Who is satisfied?
1.Facilitative governance / legitimisation (mid-80s- 1995)	1.1	Metropolitan Greenspaces Masterplan	society- centric	cross- sector	cross-sector (+ P&R)	cross-sector (+ P&R)	$I \approx 0$	prag/moral continual, cog episodic	civil society, Audubon, FAUNA	civil society (Audubon, Fauna and allies)
	1.2	Participation in planning & FAUNA bond measure	society- centric	cross- sector	cross-sector (+civic- political)	society-centric (election)	I	prag/moral- continual, cog- episodic	civil society, Audubon, FAUNA	civil society (Audubon, Fauna and allies)
	1.3	Next bond measure (Metro takes a role in organising)	cross- sector (core +parks, rec)	state- centric: soft (metropol- itan)	cross-sector (+civic- political)	society-centric (election)	$I \approx 0$	prag/moral- continual, cognitive- episodic	Metro	Metro sub-actors (O), civil society (I), other government actors (I&O)
	1.4	Embedding via Watershed revegetation program	state- centric (actor- level)	cross- sector (+ WS)	cross-sector (+ WS)	cross-sector (+WS & more state actors)	$I \approx 0$	prag/moral- continual, cog-episodic	BES	watershed councils, Fauna, Audubon, other Portland governments
2.Metropolitn governance activation (94-95)	2.1	Transfer of County parks to Metro	cross- sector (core)	state- centric	state-centric	state-centric (metropolitan )	0	prag- episodic	Metro & Multnomah county	general public, Audubon, FAUNA
	2.2	Acquisition program	state- centric: soft (actor level)	state- centric (metropoli tan)	state-centric (metropolita n)	state-centric: soft (metropolitan )	$I \approx 0$	prag/moral continual, cog episodic	Metro-Natural areas	Audubon, FAUNA and allies
	2.3	Establishment of Metro Natural Areas Program	state- centric: soft (actor level)	state- centric (metropoli tan)	state-centric (metropolita n)	state-centric: soft (actor level)	$I \approx 0$	all-continual	Metro	Audubon, FAUNA and allies

Transition -See fig 8.4	#	response / adjustment	Bridging	Extending	Amplifying	Transform- ing	Input/ Output	Type	Who acts?	Who is heard? / Who is satisfied?
3.Embedding into the watershed arena  (1993-2001)	3.1	Watershed council revegetation projects	cross- sector (+ WS)	cross- sector (+ WS, local interests)	cross-sector (+ WS, local interests)	cross-sector (+ WS, local interests)	I	all- continual, cognitive- episodic	BES	Audubon, FAUNA, Watershed Councils & allies, institutional context actors
	3.2	Embedding into flood planning	state- centric	cross- sector (+ local public)	cross-sector (+ local public)	cross-sector (WS) - links to 3.3	I ≈ 0	prag/moral continual, cog episodic	Metro	watershed council, council actors, Audubon, FAUNA and allies, institutional context actors
	3.3	Strengthened embedding into flood planning	cross- sector (WS) - linked to 3.2	cross- sector (WS+BD)	cross-sector (WS +BD+more state actors)	cross-sector (WS +BD+more state actors)	I ≈ 0	prag/moral continual, cog episodic	BES	watershed councils, government actors in Johnson creek, Audubon, FAUNA & allies, institutional- context actors
4.Embedding out from natural assets and property- rights pushback (1999-2006)	4.1	Internalisation of e-zone extension process	state- centric: soft	state- centric:soft (+ local interests)	state-centric (core)	state-centric (core)	I ≈ 0	moral- episodic	property rights movement, BoP, Metro	EG-state actors, Audubon
	4.2	Metro resource inventory for upland protection	state- centric (core)	cross- sector	cross-sector	state-centric (metropolitan )	I ≈ 0	cognitive- continual	Metro, PCC	Audubon, FAUNA, PCC, Watershed councils and allies, institutional context actors
	4.3	Measure 49 reverses some Measure 37 impacts	cross- sector (civic- political)	cross- sector (civic- political)	cross-sector (+civic- political)	society-centric (election)	I ≈ 0	all-episodic	Metro? (insuffic. Data)	general public, environmental advocates e.g. Audubon, FAUNA

Transition -See fig 8.4	#	response / adjustment	Bridging	Extending	Amplifying	Transform- ing	Input/ Output	Type	Who acts?	Who is heard? / Who is satisfied?
4.Embedding out from natural assets and property- rights pushback (1999-2006)	4.4	Draft Title 13 increases voluntary component	state- centric (standard regulatory )	state- centric (regulator y +local interests)	state-centric (less- regulatory)	cross-sector (+ local interests)	0	pragmatic- continual	Metro	property rights movement
	4.5	Strengthened embedding into recreation arena	cross- sector	cross- sector (+ P&R)	cross-sector (+ P&R)	cross-sector (+P&R, more state actors)	0	pragmatic- continual	Metro	general public, environmental networks, allied networks
	4.6	Offset federal funding loss via Title 13 grant program	cross- sector (core)	cross- centric (former MGS partners)	cross-sector (+civic- political)	society-centric (election)	0	pragmatic- continual	Metro/voters	environmental networks - including Audubon, & FAUNA
5.Urban matrix and co- benefit governance (2004-2012)	5.1	Portland Urban Bird Treaty	cross- sector	cross- sector (+more state actors)	cross-sector (+more state actors)	state-centric	I ≈ 0	moral- continual	PCC	Audubon, Bureaus
	5.2	TEES (critical case)	state- centric: (WS actor level +BD)	state- centric (WS+BD +internal stake- holders)	state-centric (WS+BD +internal stakeholders)	state-centric (WS+BD +internal stakeholders +land managers)	I ≈ 0	prag/moral- continual; cog-episodic	PCC	Audubon, PCC- Bureaus
	5.3	Embedding into green infrastructure, e.g. meadowscape with natives	cross- sector (core)	cross- sector (+WS, local interests)	cross-sector (+WS, LGA interests)	cross-sector (+WS, metropolitan interests)	I ≈ 0	prag/moral- continual; cog-episodic	BES, Audubon & coalition of partners	BES, Audubon, environmental networks

<b>Transition -See fig 8.4</b>	<b>#</b>	<b>response / adjustment</b>	<b>Bridging</b>	<b>Extending</b>	<b>Amplifying</b>	<b>Transform- ing</b>	<b>Input/ Output</b>	<b>Type</b>	<b>Who acts?</b>	<b>Who is heard? / Who is satisfied?</b>
5.Urban matrix and co- benefit governance (2004-2012)	5.4	Embedding into green infrastructure, e.g. biodiversity eco-roofs	society- centric (actor level)	cross- sector (research)	cross-sector (research partnership)	X	I	prag/moral- continual; cog-episodic	PSU researchers, Metro monitoring	Audubon, FAUNA, environmental advocates
	5.5	Embedding into green infrastructure, e.g. tree corridors between natural areas	state- centric (WS actor level)	state- centric (WS+BD +internal stake- holders)	state-centric (WS+BD +internal stake- Holder)	cross-sector (WS+BD +internal stakeholders)	$I \approx 0$	prag/moral- continual; cog-episodic	BES, CWS and government allies	Audubon, FAUNA, environmental advocates, Federal EPA, institutional context actors
	5.6	Stronger embedding into water arena via trading systems	state- centric (actor level)	state- centric (Basin wide, +BD)	cross-sector (+BD. developers)	cross-sector (+BD. Developers, local interests)	0	prag/moral- continual; cog/prag- episodic	CWS, Jackson Bottom Preserve	Audubon, FAUNA, environmental advocates, institutional context actors (e.g. Federal EPA), potential trading partners
	5.7	Accelerated embedding into green infrastructure (critical case)	state- centric:soft (actor- level)	state- centric:soft (WS +elected represent- ative)	state- centric:soft (WS +elected represent- ative)	cross-sector (WS+elected representative +other bundled interests)	$I < 0$	all- continual, all episodic?	BES-engineers	BES watershed team, Audubon, environmental advocates
	5.8	Extra co- benefits - flagship (e.g. acquisition)	state- centric:soft (actor- level)	state- centric:soft (WS +elected represent- ative)	state-centric (WS+elected represent- ative, BD, P&R)	state-centric (WS+P&R)	$I > 0$	prag/moral- continual; cog/prag- episodic	BES	PPR, environmental advocates

<b>Transition -See fig 8.4</b>	<b>#</b>	<b>response / adjustment</b>	<b>Bridging</b>	<b>Extending</b>	<b>Amplifying</b>	<b>Transform- ing</b>	<b>Input/ Output</b>	<b>Type</b>	<b>Who acts?</b>	<b>Who is heard? / Who is satisfied?</b>
5.Urban matrix and co- benefit governance (2004-2012)	5.9	Regional Tree Code Survey	society- centric (core)	cross- sector (core +Metro)	cross-sector (core+Metro +local govts)	cross-sector (core+Metro)	I ≈ 0	prag/moral continual, cog episodic	Audubon, PSU	Audubon, Fauna, environmental advocates
	5.10	Backyard Habitat Certification Program	society- centric (core)	cross- sector (+Local govt)	cross-sector (+Local govt)	cross-sector (metropolitan )	I	all-moral, cog-episodic	Audubon, Land trust and allies	Audubon members, environmental voters, environmental advocates
	5.11	Fot capacity build (critical case)	society- centric	society- centric +civil groups	cross-sector (BES grants)	cross-sector (contract)	0	prag- continual, cog-episodic	FoT, BES	BES
	5.12	Coalition for a liveable future (critical case)	society- centric (core)	society- centric (early adopters)	society- centric(+mo re actors)	state-centric (planning for liveability)	I	moral- continual	Audubon & partners	Audubon & partners
6.Landscape level governance (2007+)	6.1	Advocacy for regional level corridors (e.g. connectivity between Forest Park and rural areas	cross- sector	cross- sector (+local interests, state actor committee	cross-sector (+local interests, state actor committees)	cross-sector (+planning)	I	all-moral, cog-episodic	Metro-Science, Forest park conservatory, Audubon, Fauna and allies	Audubon, FAUNA and environmental networks
	6.2	Intertwine Alliance established	cross- sector (core)	cross- sector (early adopters)	cross-sector (early adopters + other state actors, other interests)	cross-sector (early adopters + other state actors, other interests)	I	prag/moral continual, cog episodic	Metro and partners	actors involved in bond measures, greenspace program actors (temporal embedded)
	6.3	Regional Conservation Strategy	cross- sector (core)	cross- sector (core+mor e state actors)	cross-sector (core+more state actors)	cross-sector (core + other state actors, other interests)	I	prag/moral continual, cog episodic	Metro and partners, including Audubon	environmental advocates - Audubon, FAUNA etc.

## Appendix 8: Example Portion of Case Study Database – Portland timeline 1996 & 1997

Year	Event	Theme	Scale	Jurisdiction/descr	Watershed	Program	Actor
1996	Maggie Skendarian becomes BES JC Watershed manager. She is still in the role.	Watersheds & Water Quality	Local Council	Portland	Johnson Creek	BES-Watersheds	BES
1996	Jim Francesconi became the new Commissioner of [Portland] Parks this year.	Greenspace & Natural Areas	Local Council	Portland			PPR
1996	<b>Willing seller program begins:</b> Land acquisition becomes realistically possible as an alternative to flood mitigation: as a result of the multiple objectives identified in the JCRMP, the changing national sentiment toward flood mitigation approaches, and the 1996 floods. Previously it was unpopular & politically non-viable. After public involvement in target setting, FEMA, regional Bond & other funding assisted the willing seller program to get going.	Watersheds & Water Quality	Watershed	JC Councils	Johnson Creek	Willing Seller Program	BES
1997	Metro council adopts <b>regional framework plan</b> (Mmetro website). The Regional Framework Plan focuses Metro's work to manage urban growth. The Framework plan is based on the 2040 Growth Concept: preserving access to nature and building better communities for today and the future. The 2040 Growth Concept is a set of objectives; the Regional Framework Plan provides overall guidance for more detailed policies. Framework plan is then amended in 2005 and in 2010. framework plan & functional plan establishes regional policy direction for conservation	Urban Growth & Liveability	Regional	Metro Portland		Framework plan	Metro
1997	Regional Framework plan aims to keep rural and urban separate, ribbons of green will be maintained between urban areas (Inter-governmental Agreements).	Urban Growth & Liveability	Regional	Metro Portland		Framework Plan	Metro
1997	Functional plan goes into effect	Urban Growth & Liveability	Regional	Metro Portland		Functional Plan	Metro
1997	Metro regional street design study, sponsored by ODOT - leads to 1st edition of the liveable streets guidelines - aiming to support the 2040 growth strategy	Urban Growth & Liveability	Regional	Metro Portland		Green Streets	Metro
1997	Ordinance putting in an NRM plan for part of the Vanport area, this means that the E-zones are over-ridden by stronger enviro-planning. ...TITLE: Adopt Natural Resources Management Plan for Peninsula Drainage District No. 1 and amend official zoning maps (Second Reading Agenda 842) - one of 3 NRM plans in CoP	Natural Resources & Nature	Local Council	Portland	Columbia Slough	NRM plan	BoP
1997	founding of the environmental justice action group	Urban Growth & Liveability	Regional	Metro Portland		Social Equity	
1997	The City amended Chapter 33.430 as part of a continuing effort to <b>streamline the environmental zone regulations</b> . The proposed amendments included clear and objective standards for utility connections and stormwater outfalls (source Ordinance 179540). The Planning Commission approved only the standards for utility connections to existing utility lines at that time. Stormwater outfall proposals remained subject to the environmental review process, including an analysis to determine which project alternative would have the least significant detrimental impacts on significant resources.	Natural Resources & Nature	Local Council	Portland		Streamline Project?	BoP
1997	<b>TRWC membership expands:</b> Washington County Board of Commissions approved an amendment to expand the TRWC Council membership list to include a commercial and recreational fisheries category	Watersheds & Water Quality	Watershed	TR Councils	Tualatin Basin	TRWC	TRWC
1997	TRWC completed five watershed assessments of the main Tualatin River basin and the sub-basins	Watersheds & Water Quality	Watershed	TR Councils	Tualatin Basin	TRWC	TRWC
1997	Metro Urban Growth Report 1997-2017. First Urban Growth Report. Functional Plan (1996) and Regional Framework Plan (1997) had provided coordinated guidance to local jurisdictions to manage future urban growth	Urban Growth & Liveability	Regional	Metro Portland		UGB	Metro
1997	<b>P&amp;R Neighborhood Tree Liason Program starts:</b> Portland Parks & Recreation and the Urban Forestry Commission have been offering the Neighborhood Tree Liason program, now called the Neighborhood Tree Steward program, since 1997 (2010 facebook entry)	Natural Resources & Nature	Local Council	Portland		Urban Forestry	PPR
1997	Portland Parks & Recreation worked in conjunction with the Bureau of Environmental Services to restore the banks in Columbia Slough and the newly-acquired Johnson Lake	Greenspace & Natural Areas	Local Council	Portland	Columbia Slough	Watershed Revegetation Program	PPR
1997	<b>Metro Parks and Greenspaces acquired ten priority parcels on Cooper Mountain</b> identified by the Refinement Plan; (purchased with regional bond money)	Greenspace & Natural Areas	Site	Metro Portland	Tualatin Basin	Regional Acquisition Program	Metro
1997	<b>Oregon Plan for Salmon and Watersheds established</b> ...feb went to legislative hearing, march - final draft went to National Marine Fisheries Service. (source: Executive Summary of the Oregon Plan 1997), 1997, the Legislature expanded its original scope and renamed it the Oregon Plan for Salmon and	Watersheds & Water Quality	State	Oregon		Salmon Plan	State Legislature
1997	The Oregon Plan for Salmon and Watersheds is renamed and scope is lifted from the initial 2 year coastal	Watersheds & Water Quality	State	Oregon		Salmon Plan	State Legislature
1997	ESA listing of Coho Salmon (Oregon Plan Exec Summ expects decision by April 25) - did it end up getting postponed until 2005? (refer date in Portland Plan Watersheds Background Report 2009)	Natural Resources & Nature	Federal	USA		ESA listing	U. S. Fish and Wildlife Service