Crisis, Change and Water Institutions in South East Queensland: Strategies for an Integrated Approach

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1. Introduction

With extended drought conditions and unseasonal floods affecting many regions of the world, uncertainty has become a defining characteristic of water planning and management (Pahl-Wostl 2007). The unpredictability and complexity of water systems and their processes, and the ambiguity that results from multiple understandings of the problem and different normative judgments of acceptable risk, has led to calls for a relational and contextual approach to uncertainty in water management (Brugnach et al. 2008; Isendahl et al. 2010). This chapter is focused on the uncertainty challenges posed by the recent ‘millennium drought’ in South East Queensland (SEQ), located on the sub-tropical east coast of Australia. Reduced levels of rainfall recorded from 2001 marked the onset of a drought later recognised to be the worst in recorded history (QWC 2008) – a drought of ‘crisis’ proportions.

The air of crisis surrounding contemporary discourses of water supply and management has posed novel challenges, an influential source of which is the progressive re-framing of the water issue itself. When drought is defined in terms of localised and transient conditions of scarcity, as has traditionally been the case, access to water is managed and supply assured through the control and capture of environmental flows – the ‘pipes and dams’ approach (Ioris 2008). The reliability of rainfall predictions, based on averages calculated over the past 100 or so years, has contributed to confidence in prevailing expert-led approaches to water management. Risks are minimised based on the best available information from hydrological records, and controlled with engineering knowledge of large-scale technologies, which ensures that large margins of safety are built into the water system in the form of large-scale infrastructure. Such confidence is being increasingly undermined, however, as climate variability and population growth have led to a questioning of the capacity of these conventional knowledge bases and institutions to secure a reliable supply of water to meet future needs.

In SEQ, challenges to the traditional institutions of water management since the onset of drought have had an impact across the board. First, the uncertainties associated with the science that has traditionally informed water planning are now widely recognised, so that established methods of water planning based on historical average rainfall patterns are being revised. Second, predictions of an increasingly variable climate, and of more frequent extreme weather events, has led to a questioning of traditional approaches to ‘management’ based on prediction and control. Third, the decentralised organisational environment for water planning and supply – where ownership of assets and responsibility for operations had rested with 18 local councils – was described in hindsight as ‘parochial and fragmented’ (QWC 2008: 41) and deemed to be in need of greater coordination in order to optimise the use of scarce water supplies across the region.

In response to these challenges associated with the knowledge base, the management paradigm and the organisation of water management, the Queensland state government initiated a comprehensive reform of water institutions in SEQ. We suggest that the focus on institutional reform reflects a deeper uncertainty about the capacity of traditional institutions and their prevailing knowledge cultures to effectively govern water management. In particular, policy and institutional reform associated with the drought reflects a decisive shift in the framing of water issues that is inextricably linked to a shift in the meaning of risk. Where it had been assumed that risks associated with natural hazards such as drought could be minimised through expert knowledge and large-scale infrastructure, risk takes on a more social and political character with the framing of drought as a crisis of governance. Risk management, in turn, demands attention to the institutionalised social relations that govern water practices and regulate uncertainty within the water system.

Insights on risk from social theory, and recent commentary in the water governance literature, both point to the priority of integrating the range of knowledge and perspectives in
an open-ended process that engages the range of social actors through more collaborative and dialogue-based institutions. Three decades of social analysis has helped to enrich the concept of risk beyond the probability of harm arising from physical, biological or social causes and accessible only to experts, to recognise its historically, politically and culturally embedded character (for example, Jasanoff 1999; Renn and Schweizer 2009). This has been met with a call for ‘technologies of humility’, institutionalised policy strategies that incorporate the expectation of unforeseen consequences and acknowledge the plurality of perspectives and the need for mutual learning (Jasanoff 2002). In the water governance literature, stakeholder participation, ‘institutional collaboration’ and social learning are increasingly presented as promising means of integrating diverse knowledge and perspectives to facilitate the co-production of knowledge and action under conditions of uncertainty (for example, Lane and Robinson 2009; Pahl-Wostl et al. 2010; Saravanan et al. 2009; Steyaert and Jiggins 2007).

In this chapter, we adopt a sociological perspective to explore the institutional strategies for integrating knowledge and actors in SEQ water governance, adopted in response to the recent water ‘crisis’. In the sections that follow, we first elaborate the value of an institutional perspective on stability and change in water governance regimes, before explaining our methodology and research approach. The sources and effects of uncertainty in the SEQ water system are then described, with a focus on the influence of problem re-framing and risk-spreading strategies introduced with governmental reforms, and on the factors limiting the shift to a more integrated approach in SEQ. The final section draws lessons from the SEQ case analysis, and from international experiences, to better understand the phenomenon of crisis–response and the institutions that seem more likely to be resilient in the context of social and environmental change.

2. Understanding institutional stability and change

Institutions are vital determinants of society’s capacity to govern natural resources (Mehta et al. 1999). They represent ‘the multitude of means for holding society together, for giving it a sense of purpose, and for enabling it to adapt’ (O’Riordan and Jordan 1999, 81). While institutions are generally valued as a relatively stable set of practices and rules that structure human behaviour (e.g. March and Olsen 1999), constantly changing social, environmental and technological circumstances generate pressure on society to adapt by means of institutional innovation (Livingston 1993; Saleth and Dinar 2000). The inherent stability of institutions is thus problematic in terms of the desired capacity for flexibility in the face of social and environmental change. This is particularly acute in water governance regimes.

In Australia, institutional analyses of water governance regimes have found that the characteristics of traditional water management arrangements pose significant barriers to change (e.g. Livingston et al. 2004; Brown 2005). Urban water management has traditionally been dominated by an industrial engineering paradigm characterised by expert knowledge, practices of optimal design under predictable conditions, and technical approaches to risk management that seek to quantify uncertainties (Colebatch 2006). The co-evolution of water institutions – the rules, norms, values and shared knowledge of practitioners – alongside large-scale technological infrastructure and stakeholder expectations regarding the reliability and quality of water supply, generates an interdependence that makes urban water regimes resistant to change. In other words, inertia in both the physical ‘hardware’ (longevity of infrastructure and resource commitments) and the institutional ‘software’ (shared knowledge, rules and habits) act to prevent change (Pahl-Wostl 2009; Sendzimir et al. 2010).

The legacy of an expert culture based on engineering knowledge of technological solutions to narrowly defined problems has also meant that traditional systems of water management are insulated and risk-adverse (Lach et al. 2005). As such, they exhibit limited capacity for integrating different actors and different types of knowledge, a capacity that may
be needed to fully understand resource governance problems and to identify innovative solutions to address them (Berkes and Folke 2002). Different water practices are instead managed through specialised institutions, differentiated in terms of functional areas of expertise. This approach is increasingly problematic when responding to changing social and environmental conditions requires the continuous transfer and integration of knowledge across functional and organisational boundaries to facilitate and maintain long-term problem-solving capacity (Ingram and Bradley 2006; van Kerkhoff and Lebel 2006; Lane and Robinson 2009).

Proposals for communication across the fragmented institutional landscape that characterises water management have been dominated by calls for the ‘integration’ of all aspects of water management, preferably at the regional or catchment level (Senate Committee 2002; Global Water Partnership 2010). The benefits of cooperative and collaborative strategies to facilitate structured interaction between multiple actors, organisations and forms of knowledge in water governance regimes have been highlighted in Australia (for example, van de Meene et al. 2009; Robinson et al. 2009) and internationally (for example, Steyaert and Jiggins 2007; Pahl-Wostl 2009). Collaboration between government and non-government sectors and other civil society actors aims to manage conflict and enhance social and institutional responsibility; to enhance the coordination of effort required for more efficient and responsive management approaches; and to enable the sharing of knowledge and the inclusion of diverse perspectives to inform management programs (Lane and Robinson 2009). Communication and knowledge transfer are vital to such collaborative efforts if advances in scientific and other forms of knowledge are to be translated and integrated into organisational decision-making (Owens et al. 2006). The institutional question concerns what kind of relations can be built between different actors (or social roles) and different forms of knowledge to achieve a more integrated approach to water governance (Healey 2008).

The choice of decision-making model is important here, because the various models understand the communication, use and transfer of knowledge in different ways. The desire to optimise performance in the prevailing rational choice model (see Jaeger et al. 2001) of water management assumes that managers are strongly motivated to incorporate research results into their decision making. However, while empirical studies show that water managers have a positive attitude toward the use of scientific information in decision making, they also reveal that such information is rarely acted upon directly (Rayner et al. 2005). More generally, the assumption that good information will automatically influence strategic policy and management decisions has been discredited by a growing stock of evidence (for example, Cash et al. 2002; Roux et al. 2006). Sociological analyses help to explain this situation, finding that the use of information by water managers is inextricably connected with the shared meaning and identity within an organisation, as well as with the collective pursuit of implicit organisational goals (Rayner et al. 2005). A sociological institutional perspective is therefore warranted to assist in understanding the influence and sources of uncertainty in water management, and their effect on the capacity of traditional institutions and their knowledge cultures to effectively govern water systems.

3. Research approach

3.1 Regulating uncertainty: a sociological perspective on institutions
Institutions are overarching systems of beliefs, values, traditions, norms, rules and practices that shape or constrain social behaviour (Pierre 1999). As such, institutions frame and shape the way participating subjects are brought together and relate to each other, and influence the knowledge and resources that are brought to bear on the realm of collective action (Pellizzoni
2004). The analytical framework developed by Scott (1995) articulates the relationship between the cognitive, normative and regulative aspects of institutions. The first, cognitive element is characterised by shared understandings or ‘problem framings’, which influence the kinds of knowledge and expertise considered legitimate for shaping and addressing the problem. The second, normative element consists of the shared values and norms, which define roles and responsibilities for action. The third, regulative element refers to the rules and sanctions that regulate social interaction in pursuit of shared values. This framework is based on a clear distinction between institutions and organizations (North 1990; Scott 1995); the relationship between the two – between systems of values and norms on one hand, and the organisational system of government on the other – is a dynamic rather than a naturally harmonious one (Pierre 1999).

A fundamental quality of institutions is their effect in reducing uncertainty and stabilising human behaviour (North 2005). The institutionalisation of human behaviour means the emergence of relatively stable, reciprocal expectations between individuals, groups and organisations concerning what are to be regarded as suitable models of action or relationship. In this way, institutions reduce the uncertainty associated with the reciprocal dependency of social relations through rules that restrict the possibilities of agency and choice (Pellizzoni 2004). They also reduce the transaction costs of cooperation that stem from obtaining information about other agents in cooperative relationships, and from enforcing agreements made with these agents. Through this structuring of the interactions that take place around resources, institutions aim to reduce uncertainty by promoting the stability of expectations ex ante, and consistency in actions ex post (Agrawal and Gibson 1999).

Viewed as normatively compelling modes of human behaviour, institutions exhibit a constant interplay between their cognitive and normative dimensions: norms focus attention on different aspects of the world, while cognition compels action by providing information on how norms can be fulfilled, modified or discarded (Pellizzoni 2004). Rules, sanctions and rewards then structure the way a social endeavour or practice is organised to pursue shared norms and values. Human interactions with the water cycle are defined and shaped by a range of such practices, which become stable over time, or ‘institutionalised’ (Colebatch 2006). The condition of ‘institutional inertia’ or stability is maintained when the institutional framework reduces uncertainty by creating cognitive ‘black boxes’ – aspects of the problem situation that can be taken for granted (Pellizzoni 2004). By erecting boundaries around uncertainty in this way – for example, about the issue, or the preferences and abilities of other actors – it can be dealt with through organisational rather than behavioural change. Uncertainty is regulated through rules and sanctions that produce reciprocal expectations. Pressures to conform – through coercion, or the professional standardisation of techniques, for example – have the effect of reproducing the dominant cooperative scheme (Buchanan 2006). In contrast, opening the cognitive ‘black box’ can have the effect of challenging the problem framing by exposing values, norms or beliefs that are not shared, thus disrupting institutional stability. In this way, new knowledge might challenge institutional inertia to catalyse change, or competing interpretations of the problem might lead to conflict and catalyse change.

### 3.2 Research methods

A sociological institutional approach, as outlined above, was employed in this study to improve the understanding of institutional stability and change in the SEQ water sector. Investigations focused on the institutional characteristics associated with water reform from around mid-2004 in response to the severe and extended drought. Methods included literature review, document analysis (e.g. policy strategies, Hansard, public submissions) and semi-structured interviews. Interviews were conducted between December 2008 and February 2009 with 15 key informants with extensive experience in water management in SEQ. The
interviews were recorded and transcribed, and analysed using Filemaker Pro computer-assisted qualitative data analysis software. The software was utilised to identify the main themes and ideas raised within each interview transcript. This aided in systematising analytical procedures (Miles and Huberman 1994), and assisted the process of storing, searching, and managing data. Internal reliability was strengthened through cross-checks on coding and analysis by three researchers. External verification was progressed by inviting a review of the draft report by the study participants to ensure reliability of interview data analysis.

The theoretical framework elaborated in section 3.1 informed the articulation of open-ended interview questions:

1. Framing the problem: How was the water ‘problem’ defined at the ‘moment’ of policy change?
2. Strategies used to deal with risk and uncertainty: What strategies were adopted to manage risk and offset uncertainty? What were the roles and responsibilities of different institutions?
3. Limiting factors: Which factors influenced the capacity to deal with ‘the problem’, and limited the adoption of a more integrated response?

The interplay between the cognitive and normative dimensions of institutions, and the consequent influence of this interplay on organisational strategies for integration, is discussed in the following section to explore the sources and effects of uncertainty in the SEQ water system.

4. Strategies for integration in SEQ

4.1 Problem/solution – securing water supply

Until the onset of drought, the water ‘problem’ in SEQ had been thought of more in terms of having too much water, rather than not enough. Policy makers who remembered the 1974 flood that had inundated Brisbane city and many of its suburbs confirmed that, in the years surrounding the flood, oversupply of water was considered to be the more pressing policy problem. In response, infrastructure provision in the form of the Wivenhoe dam was quickly commissioned and built along the Brisbane River for the purpose of flood control, rather than for water storage.

By the mid-1990s, the question of water storage infrastructure was on the radar of water professionals in government agencies, who had turned their attention to issues of water supply planning as a contingency against the impact of climate variability and population growth on water provision. Later, regional planning exercises for water supply adopted an extended time horizon for forecasting supply and demand, as is typical of inherently conservative and risk-adverse water institutions (see Lach et al. 2005): ‘That’s a key part – going right back to 2002, the reason we started the regional water supply strategy is that we wanted to take a 50-year view of what was going to be the demand and supply requirements for South East Queensland.’ As a result of this planning process, and in light of the drought conditions being experienced in other Australian capital cities, recommendations to government in 2004 included dam-building and other contingency measures to plan for the possibility of a potentially prolonged period of low rainfall in SEQ (Queensland Government 2004; 2005). This advice was not acted on by government at that time, however. One interviewee described this situation as a water supply planning ‘vacuum’ in terms of strategic government commitment, a vacuum that points to the legacy of understanding water as an issue of oversupply rather than scarcity. Notwithstanding this lack of policy action, by around
mid-2004 a sense of deepening crisis had begun to emerge in SEQ owing to growing media attention to the possibility of a severe and extended drought, given that water levels in major dams had fallen to 50 per cent of capacity. Rather than an oversupply of water and a focus on flood mitigation, there was a distinct shift to a focus on water scarcity.

Emerging uncertainties associated with the knowledge base previously relied upon were key to this problem re-framing. In particular, the practical assumption that historic rainfall records could provide a reliable basis for future water planning was overturned by the experience of the drought. In turn, uncertainties associated with the scientific basis for risk management prompted greater awareness of climate variability and change, and of the risk of surprise events. Combined with falling dam levels, these issues meant that providing a reliable supply of water to meet future expected population growth in SEQ was an increasingly complex undertaking. Bureaucrats sought to learn from the experience of policy makers in other Australian cities, where extended drought conditions had led to a strategy of flexibility in policy development and implementation. The orientation of water management institutions increasingly shifted from the structural approach that had traditionally characterised water supply provision, and toward an iterative, risk-based approach to managing water demand at the household level. The need to consider the social dimensions of this strategy – contextual dimensions previously treated as ‘external’ to the integration of physical aspects of the water system – were not lost on the water professionals we spoke to. As one interviewee noted, ‘[we became aware that] you needed to get into restriction regimes to … pull demand off earlier rather than later … to give yourself time to work with people’.

The nature of the challenge posed by the drought in SEQ was both complex and contested. Water had become a ‘wicked problem’, characterised by a combination of scientific uncertainty, competing values, and disagreement about solutions (Head 2008). According to the still challenging critique of rational planning by Rittel and Webber (1973), such complex modern problems are generally ‘ill-defined’, and rely more on political judgment than scientific certitude. It was around 2006 that just such a judgment call was made:

And so that’s when the policy and the politics and the science kind of merged at that point, and we actually got an understanding that said two things. One is, we haven’t been planning on the right basis in South East Queensland – we now need to learn a new way of planning. And two, it follows from that, that our institutional arrangements to manage this aren’t going to cope.

The centrepiece of the government’s institutional response to the drought was water security, understood in terms of the security of water supply. This definition of the problem simultaneously brought the solution into being: when the problem is defined as a supply-side deficit, the response automatically becomes one of enhanced supply-side solutions. A range of solutions was proposed to meet the water security imperative (QWC 2008). New infrastructure took the form of a AU$9billion ‘water grid’ to link water across the SEQ region supplied from existing and proposed dams, and from new desalination and potable water recycling facilities, with all management responsibilities being transferred from local councils to a range of new state government entities. Demand management strategies were also introduced, such as restrictions on household water use and a ban on outdoor hosing that was unprecedented in SEQ. Overall, the new strategy might be considered a precautionary, risk-based approach – one that aims to avoid the risk that water shortage will disrupt the everyday water practices that have come to define the SEQ lifestyle (QWC 2008).
4.2 Sharing responsibility, spreading risk

The policy response to the growing sense of crisis had complex foundations. On the one hand, a range of cooperative and collaborative strategies had been developing over an extended period through the 1980s and 1990s to address interconnected issues of sustainable development and integrated natural resource management (Wallington et al. 2010). Cooperative agreements reached by all states and territories at the national level, including the Water Policy Agreement (Australian Government 1994) and the National Water Initiative (Australian Government 2004), had translated into cooperative strategies at the regional level in SEQ. An alliance of the mayors of all SEQ local government councils, the Council of Mayors, was formed to cooperate on issues of integration in the form of planning for total water quality management, which recognises the interrelationships between the human uses of water and its role in the environment. New values around sustainability were addressed through the emergence of a new organisation, the Healthy Waterways Partnership, dedicated to a collaborative approach to address deteriorating water quality in SEQ rivers, estuaries and bays. The increasing complexity of water management associated with new agendas of ecosystem health and the allocation of water for environmental uses prompted the inclusion of new actors (environment agencies, farmers, conservation groups and industry peak bodies) and the integration of new expertise in the negotiation of the Queensland Water Act 2000. The strategy of affording legitimacy to new players in the negotiation of the act was adopted to avoid the potential conflict that may have resulted if stakeholders were excluded, and to ensure that stakeholders would share responsibility for the outcome based on their contribution to, and consequent ownership of, the policy.

On the other hand, the institutional landscape for water supply had become fragmented. The senior government bureaucrats we spoke to were clear in recognising that institutional arrangements for responsible and accountable water governance were not in place; nor was the strategy of cooperation that had developed in response to the agenda of integrated water management deemed to be capable of responding to drought:

*We didn’t have the right institutional arrangements in place in terms of clear responsibilities and accountabilities. There was the huge transaction costs, with the large number of institutions involved, to be able to get the cooperation and coordination and incentives to do the job that needed to be done.*

As the pressures for decisive action to deal with the water crisis increased, some of the key players began to frame the problem as one of fuzzy roles and responsibilities between the state and local bodies. According to one interviewee, there were a lot of ‘*islands [under] different regimes of governance*’. Some of these bodies were well managed and others less so. Above all, responsibilities for water supply were not ‘*integrated across the region*’. Decentralised arrangements for service delivery by local councils had been associated with a proliferation of differing policy positions on levels and standards of service, so that coordination was deemed a necessary response to optimise the use of scarce water supplies and to develop an agreed water management strategy (Queensland Government 2006). The potential for conflict across local councils meant that the voluntary model of regional collaboration and cooperation amongst mayors and others for water planning and supply did not survive the state government’s agenda for crisis response from 2006. The urgent goal was to build a governance model that would underpin the water security guarantee pledged by the government. As one observer commented, it was a governance problem rather than an infrastructure problem: ‘*So the challenge was, while there was an interconnected regional supply, there was no interconnected way of achieving efficiency in that regional supply or achieving cooperation and the best outcomes for the region for that supply.*’
In 2006, the Queensland state government initiated a series of major policy and institutional reforms. The first was to introduce the Water Amendment Act 2006 to create the Queensland Water Commission, a new organisation with the authority to develop a ‘water security’ strategy for SEQ. The creation of a new organisation is a prominent coordinating strategy – one that had been previously adopted for regional water governance in Australia with the creation of the Murray-Darling Basin Commission and the Wet Tropics Management Authority – where the aim is to ‘internalise’ the multiple sectoral and jurisdictional dimensions of a problem (Lach et al. 2005; Lane and Robinson 2009).

Coordination was also achieved by placing contingency planning on a whole-of-region basis, assisted by a large investment in a water grid with greatly increased capacity to move bulk water between major storages. The aim was to increase certainty around water supply by spreading the risk of water shortage across the region. Risk-based planning favoured diversification of water sources beyond existing catchment-based storages – hence the strategic investments announced in 2007 included a new desalination plant and a new potable recycled water plant. The risk-based approach also involved the introduction of more innovative, non-structural solutions such as demand management to complement the traditional supply-oriented approach and its reliance on large-scale infrastructure. The idea of shared responsibility underpins the strategy of demand management – expressed, for example, in restrictions on outdoor use of water in residential homes – by enlisting the participation of individuals and households. The focus on external water use imbued this strategy with a public rather than a private function, signalling the role of community responsibility in the response to water scarcity (Gearey and Jeffrey 2006). Water restrictions meant that every citizen was enrolled both in modifying their behaviour to limit outdoor water use, and in policing and thereby regulating the actions of their neighbours.

On the whole, however, the drive for clarity of responsibilities and accountabilities, and for a simplification of governance arrangements, entailed substantial centralisation. Prior to this restructuring, local authorities had owned about 80 per cent of the water infrastructure in SEQ, and each council was responsible for water supply and sewerage functions within their area of jurisdiction. As the water crisis deepened, the state government acquired most of the water infrastructure assets to consolidate control over the resources required to secure supply, and transferred local government roles to a range of new state-owned entities (see Harman and Wallington 2009). A centralised locus of responsibility is implicit in the creation of a ‘water grid’, which suggests centrally administered, hierarchical relations of political power. The regional spatial framework created by this grid allows patterns of production and consumption to be aggregated, an approach which aimed to overcome the problem of conflicting policy positions across different local councils. Rather than the voluntary approach that had characterised the early days of water supply planning, policy makers we spoke to emphasised that, at moments of crisis, there was a perceived need to concentrate political authority in the state to regain central control.

At the same time, the broader agenda for sustainable water supply and use remained in the background as an element of the overall water governance regime. Interviewees noted that strategies of cooperation, collaboration and knowledge sharing are unlikely to maintain a hold when there is intense conflict over resources, and when authoritative and responsible action must be taken in the short term to secure the public good – in this case, the good of water security. The responsibility for strategic decision-making based on government authority was generally perceived to be functionally separate from the role of collaboration in the implementation of those decisions.

4.3 Limiting factors
The ‘shared responsibility’ model of risk response associated with the enlistment of individuals and households in the delivery of demand management strategies reflects a somewhat more ‘social’ understanding of risk response, in that it involved behavioural rather than organisational change. This model was nonetheless confined to the implementation of regulation strategies, as the wider engagement of citizens and stakeholders was not extended to the cognitive (re)framing of issues and innovation pathways to be adopted in the new water security planning agenda (Harman and Wallington 2009; Keath and Brown 2009). Alternative public meanings and concerns exist that go beyond a focus on targets for water use; for example, social research on the security of water supply services has found that it is the service itself (e.g. cleanliness) and related social obligations, rather than the volume of water per se, that structures everyday practices at the household level (Shove 2003). The recognition of such alternative public meanings might serve to open the cognitive ‘black box’ to re-frame the ‘shared value’ of water security in terms of wider societal understandings, and to catalyse institutional change.

The conservative culture of traditional water management institutions has continued to pose a significant barrier to the wider engagement of multiple perspectives in the SEQ water industry. The culture of corporatised water businesses was described by interviewees as risk adverse (see also Environment Business Australia 2002), a culture that underpins an accepted water industry strategy for reducing system complexity and uncertainty: the strategy of reducing risk by delimiting the jurisdiction of water management organisations to reflect narrowly defined purposes (Lach et al. 2005). The response of local council mayors is illustrative of this strategy: when the drought hit, the first line of defence for local councils to meet organisational goals was to consolidate control over water resources within their service area. The impact of this move was felt in Council of Mayors’ deliberations when proposals to share water between councils, made by those councils affected by the drought, were deemed unacceptable as a topic of discussion by councils not immediately affected by water shortages.

5. Understanding crisis – response

The dynamic nature of urban water reform in SEQ in recent years highlights the possibility of institutional innovation and change in a sector long characterised by stability. The analysis presented in this chapter reveals the interplay between cognitive and normative aspects of strategies for institutional integration. From 2004, public recognition of uncertainty around future rainfall patterns was associated with extensive institutional reform to centralise responsibility for water supply security with the Queensland state government, and to clearly delineate the organisation of management operations by local councils from the strategic decision-making role of the state (see also Colebatch 2006). The need to develop the adaptive capacity of water governance regimes by spreading the risk of scarcity across the water system with the introduction of a diversity of supply and demand management strategies was also achieved by means of structural reform.

At the ‘moment’ of crisis and policy change, the cognitive and normative uncertainties associated with the intrusion of values seen to be in conflict with the water security agenda, such as environmental quality, were ‘black-boxed’. Uncertainty associated with the decentralised water system, and with the potential for conflict across local councils, was redressed through organisational restructuring and the consolidation of central control. Uncertainty was effectively regulated through the introduction of new rules and a new organisation (the Queensland Water Commission) to reduce the transaction costs of cooperation by reducing the possibilities of local government agency within the new system of organisational routines. The strategy of demand management, a novel innovation within the Queensland water industry (though it had been adopted several years earlier in other
capital cities), proved to be the exception to the general rule of coordination. Demand management sought to generate a sense of shared responsibility for reducing the risk of water scarcity by engaging individuals in new water conservation practices, and in regulating the outdoor use of water in line with the new restriction regime. That experience is perhaps indicative of the increased flexibility that might be achieved through more widespread institutional innovation in the SEQ water system.

On the whole, the results of this research indicate that there are a range of different organisational responses to uncertainty and the associated challenges facing water management. As the influence of different values constrains existing decision systems, new organisational forms, structures and responses are created. Rather than replacing existing management strategies, however, these emerging responses introduce additional strategies for dealing with uncertainty so that a range of institutionalised practices co-exist in a dynamic process of ebb and flow. This conclusion is in line with the experience of water management elsewhere (see Lach et al. 2005). A key lesson drawn from a comparative study across 16 cases internationally was that the adoption of innovative governance strategies does not necessarily mean that such strategies will displace centralised regulatory approaches altogether (Meijerink and Huitema 2010). In a similar vein, comparative research conducted in European and non-European contexts has found that water governance regimes characterised by a balance of top-down, government dominated processes, alongside bottom-up processes with strong stakeholder participation and integration, exhibited higher levels of learning than regimes dominated by centralised government control (Pahl-Wostl 2009; Pahl-Wostl 2010). One conclusion to draw from this range of experience is that ‘integration of valuable new and old components might well form an element of a transition towards more sustainable water management’ (Meijerink and Huitema 2010: 4).

From the analysis presented in this chapter, it is clear that the idea of ‘integration’ is open to a differentiated response: while it suggests the instrumental goal of coordination, it might also involve the re-framing of problems and solutions through collaborative interactions between stakeholders, as was notable in SEQ with attention to total water cycle management by the Council of Mayors. Understanding the combination of instrumental (coordinative) and potentially transformative (collaborative) modes of governance evident in the recent state government response to the water crisis in SEQ thereby requires an acknowledgement of the Janus-faced tension, or duality, exhibited by institutions – between their outward ‘purity’ (stability) and lived ‘messiness’ (or instability) (Shackley et al. 1996). In this sense, perhaps an outward veil of control conceals a deeper ambivalence about the messiness of collaborative modes of governance and their inevitably uncertain outcomes, but also aims to build on the public values and goals created and progressively institutionalised through collaborative practices of decentralised water planning and water quality management.

The question of how collaborative governance processes might contribute to more resilient water governance regimes in the ‘hybrid’ of centralised and decentralised arrangements that increasingly make up the pattern of institutionalised water management practices is deserving of more attention. Dialogue-based strategies in particular hold the potential to open the cognitive ‘black box’ that reinforces a normative focus on regulating irregularities in contemporary water systems (Pellizzoni 2004). A cognitive openness to uncertainty in the form of alternative practices and perspectives – and the space this creates for innovative re-framing of problems based on alternative versions of ‘reality’ – is more likely to build water governance regimes that are simultaneously more robust, and more resilient in the face of change. While some measure of centralised control may be a necessary coordination strategy to secure the public good, such authority needs to be actively maintained through the engagement of citizens and stakeholders in the framing of issues and
innovation strategies, as well as in the regulatory strategies designed to implement them (Wallington and Lawrence 2008).

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