

# **Water management in Australia. Progressing towards institutionalisation in 2009**

**Matthew Egan**

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## **Abstract**

### **Purpose**

This study questions the motivations to develop approaches to controlling water usage within large water consuming organisations and whether those approaches were institutionalised.

### **Design methodology/approach**

Semi structured interviews have been undertaken within 7 large food and beverage producing organisations operating in Sydney, Australia.

### **Findings**

Several distinct institutional pressures were driving a diversity water management practices. Theorisation of the importance of water management was improving into 2009 suggesting that progress was being made towards the institutionalisation of related processes across this field of organisations.

### **Research limitations**

The study focuses on one component of each organisation's total environmental impacts (water). Further research could investigate how the process of institutionalisation that was developing in 2009 further unfolds.

### **Practical implications**

Water resources are subject to growing supply constraints in Australia. This paper responds by contributing to an understanding of what is required to achieve an institutionalisation of water management and accounting.

### **Originality/value**

Despite the supply constraints, water continues to be of minimal financial concern for consumers (water prices continue to be low) and so the drive to manage usage is puzzling. The study contributes to an understanding of the drivers and nature of environmental management and accounting developments in the Australian context.

**Keywords** water accounting, water management, sustainability (or environmental) management accounting

**Paper type** Case study

# 1. Introduction

This study responds to a limited understanding of the factors that drive environmental management practices and the detail of those practices in large Australian water consuming organisations. Water management was targeted as a meaningful subset of environmental management because of declining communal water supplies and the peculiar institutional pressures which were understood to be operating on water consumers in Australia into the late 2000s. Water storages on the east coast of Australia have rapidly declined into the 2000s (WSAA 2007). Furthermore, ‘climate change’ has been proven (IPCC 2007) and as a result, continued and indefinite low rainfalls can be expected in this region (IPCC 2007). As a consequence, the price charged for water is slowly increasing and regulation has been introduced that aims to put pressure on large industrial water users to minimize usage; for example, the Water Savings Order 2005 (Parliament 2005). Such factors add to a network of pressures and resistances which are likely to drive a complexity of organizational responses (Quattrone and Hopper 2001).

Some empirical efforts have been made to examine the emergence of environmental management and accounting techniques. However, such studies show that there is a need for more understanding of the complexity of the institutional pressures driving such changes and their organisational outcomes (Larrinaga-Gonzalez and Bebbington 2001). Palenburg, Reinicke and Witte (2006) have argued that stakeholders are increasingly more interested in “what companies actually do” rather than what they report (Palenburg, Reinicke, and Witte 2006 p 22). “Our understanding of factors that foster strong environmental management practices within the firm, particularly with operations at the plant level, still remains limited” (Klassen 2001 p 257). “There is a paucity of research that investigates the dynamics of how particular organisations...react to the demands for change” (Larrinaga-Gonzalez and Bebbington 2001 p 270). Egan (2009) examined the detail and impact of modernisation reforms in the Sydney water sector to 2007 arguing that water management responses within industry were likely and so he called for empirical investigation of those responses (Egan 2009). This study addresses those gaps by examining the factors driving the development of water management practices in large food and beverage water consuming organisations in Australia into the late 2000s.

This study also responds to calls to go within the organisation to examine nascent environmental management and accounting practices from Bouma and van der Veen (2002), Bebbington et al. (2007) and Broadbent and Guthrie (1992). The Chair & Chief Executive of the National Water Commission argued in 2008 that a major national water challenge at that time in Australia was securing of urban water supplies (Matthews 2008). This study locates itself in the urban sector and so speaks to that challenge. This study examines water management responses specifically within 7 large food and beverage producing organisations located in the Sydney region. The data collected from semi-structured interviews within those

7 organisations is then reviewed through the lens of institutional theory. There is a concern in the environmental management and accounting literature that related management practices may be cursory or limited and so the use of institutional theory enables a consideration of whether related processes have become embedded within the organisation.

The next section provides an understanding on what 'water management' might entail and develops the research questions for this study. Section 3 then develops a theoretical framework utilizing the full diversity of 'neo-institutionalism' (Greenwood and Hinings 1996). Section 4 explains the methodology utilised including the detailed interview questions. Section 5 presents the findings of the study. Section 6 analyses those finding by relating them back to the theoretical framework and section 7 forms the conclusions for this paper.

## **2. What is 'water management' and this study's research questions?**

There is little direct exploration within the academic literature on what 'water management' might mean for water consuming organisations. With respect to environmental management in general, O'Dwyer (2003) found that organisations have a tendency towards a "cursory and implicitly narrow recognition" of environmental responsibilities and so he expected that any evident practices would be designed primarily to address overriding goals of shareholder wealth maximisation (O'Dwyer 2003 p 532). Similarly, Dyllick and Hockerts (2002) argued that "eco-efficiency [was likely to be] their [sole] guiding principle" (Dyllick and Hockerts 2002 p 131). In contrast however, others have argued that an increasingly pro-active approach may develop over time (Woodward, Edwards, and Birkin 2001; Frost 2003).

Considering specifically the potential scope of 'water management', best practice type guidelines produced by the Australian mining industry which suggest that water management might include a publicly available overarching strategic water plan, a detailed water management plan that focuses on usage, wastage and both quantity and quality issues relating to water use and detailed internal operational procedures. Organisations may go on to invest in a variety of supporting infrastructure including water treatment and recycling systems (DRET 2008). These guidelines also consider a number of accounting tools that ought to be developed in support of those efforts including the documentation of both quantity and quality measures, water stored, water flows and rates of water input and output (DRET 2008). Hopwood (1983) would concur in his suggestion that accounting tools may include "an amazing diversity" of practices (Hopwood 1983 p 289). Jennings and Zandbergen (1995) suggest that organisational management responses to sustainability might also include 'environmental' audits, technical responses, waste management and product reviews (Jennings and Zandbergen 1995).

In the absence of specific guidance from the literature, this study imagines that an ideal or comprehensive approach to water management might be one where the organisation develops a number of processes targeted at efficiency and waste and also perhaps seeks to do some related ‘good’ to the environment or the community (for example, returning collected water to society). At the time of planning this study however (late 2000s), it was understood that related practices with large Australian water consuming organisations may have only recently begun to develop. Furthermore, because this study seeks to explore the institutionalisation of related processes, it was determined that what this study should search for should be something less than that ideal. In referring to ‘water management’ for the remainder of this paper therefore, any projects targeted directly at externalities (which perhaps, few organisations would be undertaking) are ignored. This study narrows its conception of ‘water management’ to simply a ‘thorough focus on water efficiency’. For the purposes of this study, a thorough focus on water efficiency is defined as one which is mandated and supported by senior management, where water usage data is regularly collected and efficiency is regularly scrutinized, investigated and reported to senior management, where the organization had reconciled their water management practices to the technical environment and where all staff had been instructed accordingly on specific water efficiency responsibilities.

In consideration of the calls from the literature and this study’s conception of water management, the specific research questions asked are:

*why were related responses developing within financially large Australian organisations into the late 2000s?*

Furthermore, given a concern within the environmental management and accounting literature that related processes may be tokenistic or limited, this study also asks:

*were those evident processes embedded or ‘institutionalised’ at that time across a field of organisations?*

## **2. A theoretical framework for this study**

The new institutional sociology (NIS) branch of institutional theory provides a broadly adaptable lens for understanding organisational change processes. A central premise of NIS is that organisations constantly experience a range of confusing disturbances or ‘institutional’ forces that pressure them to respond in particular ways. Meyer and Rowan (1977) argued that in a world of multiple institutional pressures, management operates with significant uncertainty and so they may be driven simply to create the appearance of conforming to stakeholder expectations. They commonly do this by mimicking the developments that they observe in similar organisations thus achieving isomorphism within institutionalised contexts. Collectively, those organisations impacted by those pressures will develop homogeneous processes and are argued to be within an ‘organisational field’. Institutional pressures lead over time to the

'institutionalisation' of practices and processes (Meyer and Rowan 1977; DiMaggio and Powell 1983). DiMaggio and Powell (1983) distinguish three ways in which institutional forces might have an impact on an organisation; the impact might be mimetic (adopting others processes due to uncertainty), normative (adopted through, for example, the influence of professional groups) or coercive.

The concept of the 'organisational field' includes those organisations that operate most effectively with each other in a recognized area of institutional life. Organisational field boundaries may fall around those organisations subject to common technologies, practices, products or regulations (DiMaggio and Powell 1983; Larrinaga-Gonzalez 2007). Scott (2001) suggested that a "commonsense" definition" of the field would simply include "a set of diverse organisations engaged in a similar function" (Scott 2001 p 137) and that specifically, the field might encompass an industry, competitors, regulators and funding sources. In earlier work Scott also argued that the field is likely to include a "community of organisations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside of the field" (Scott 1994 p 207-208 as cited in Scott 2001 p 84). Geography is important to the idea of an organisational field and so the boundary of a major city is also likely to closely correlate with many organisational field boundaries (Jennings and Zandbergen 1995). Taking Scott's 2001 guidance, this study has chosen to focus on water management practices within large food and beverage producers, within the Sydney basin, where particular regulatory, pricing and marketing frameworks operate.

With respect to 'sustainability' issues, Palenberg et al (2006) found that pressure from competitors to address sustainability was considered to be a strong unifying force and, as one respondent to their survey argued, there was a clear "herding effects at work in the sustainability world" (Palenburg, Reinicke, and Witte 2006 p 21). Hoffman also suggests other institutional forces may be driving environmental management change. A variety of "disruptive events can sharply end what has become locked in by institutional inertia" (Hoffman 1999 p 353). The drought that impacted eastern Australia through the 1990s and 2000s may be such a disruptive event. Another factor emerging across organisational fields that may drive the development of water management responses is accumulating evidence that competitive and financial advantages can be obtained by embracing water management strategies (Aragon-Correa 1998; Sharma and Vredenburg 1998).

In this study, 'institutional' forces will be taken to include organisational structures and processes that are commonly shared and "industry-wide, national and international in scope" (DiMaggio and Powell 1991 p 9). In the context of this study, institutional forces might include "products of professional groups, the state, public opinion" as well as industrial groups and other cross organisational forces (Scott 1992 p 117). Selznick (1957) was a leading early institutional theorist and argued that organisational structures are influenced by people, particular employees and their attitudes, commitments etc to it and thereby becomes

'institutionalised' over time; in this argument, institutionalisation is a natural process whereby an organisation will “infuse with value beyond the technical tasks at hand” (Selznick 1957 p 17).

Finally, this study also needs some guidance on how a novel practice might proceed to become institutionalised across a field of organisations. Of itself, NIS does not adequately theorize either “the institutionalization process through which change takes place nor the socio-political context of institutional formations” (Dillard, Rigsby, and Goodman 2004 p 506). Strang and Meyer (1993) argued that before an innovation or practice can institutionalise, a process of communication or influence, which they called theorisation, is needed in order to bring those practices to the attention of a broad population and so encourage those others to also adopt. Strang and Meyer’s model of early institutionalisation argued that leading entrepreneurial organisations would respond to emerging institutional pressures first and develop exemplar practices. Individuals in the field would then recognise the merits of those developments and so begin to theorise them into a model of how others in the field ought to respond in a similar way.

Theorisation, is “the self-conscious development and specification of abstract categories and the formulation of patterned relationships such as chains of cause and effect” (Strang and Meyer 1993 p 492) and a critical step towards the institutionalisation of a practice. The theorists involved in this process might include a variety of individuals of varying power (and therefore, effectiveness) including regulators, trade associations, leading practitioners and community action groups. Trade associations in particular are likely to be a critical source of guidance regarding proper standards of behaviour (Deephouse 1996). It is also important to note that theorisation does not necessarily involve an accurate reproduction of the early leading practices. The actual practices in the later adopters are expected to be “interpreted as partial, flawed, or corrupt implementations of theorized ones” (Strang and Meyer 1993 p 499).

Beckert (1999) argued in accord with NIS that uncertainty about the consequence of choosing between alternate strategies drives institutionalization. Managers will seek the stability of homogenization by embracing what they perceive to be institutionalized rules and routines within their own organisation. He added however, that at the same time institutional entrepreneurs are constantly destabilizing those rules as they identify contradictions that provide opportunities for them to innovate (Beckert 1999 p 779). Beckert (1999) argued that managers “act on the basis of routines” whereas entrepreneurs are “innovators who leave behind routines” (Beckert 1999 p 786) and are instrumental in destroying or dismantling institutions by setting up new rules and routines within their organisation. Of particular usefulness to a study of nascent management behaviour, Beckert adds that “early phases of institutional development [are one] in which interests can play an important role, whereas in later phases, choices are shaped by take-for-granted rules ... discretion is present whenever it is not clear to agents which means to apply to achieve a specified goal” (Beckert 1999 p 785).

In seeking to understand whether evident water management practices were institutionalised both within each of the 7 organisations in this study and across a larger field of organisations, this study will search for evidence that leading examples of water management were being effectively theorised (Strang and Meyer 1993) and will also examine whether other opposing institutionalised beliefs that might have contributed to a failure to focus attention of water usage in the past are now being questioned and receding (Zucker 1988). Finally, the political efforts of key institutional entrepreneurs to accomplish either stability or change (DiMaggio 1988) will also be searched for.

#### **4. Research methods**

This study examines water usage and the development of a variety of approaches to water management within ‘large’ urban industrial water consumers in Australia into the late 2000s. ‘Large’ was taken to mean organisations that are both ‘large’ users of water for the purposes of the 2005 NSW Water Savings Orders and also financially large. The *NSW Water Savings Order 2005* defines organisations as ‘large’ users of water where they used more than 50 megalitres of water per annum in the preceding reporting period (and required all such organisations to prepare ‘Water Savings Action Plans’). That Order disclosed a listing of all organisations in Sydney that met that criteria. This study then matched that list against the 2006 Business Review Weekly listing of organisations with total revenue exceeding AUD1billion (BRW 2006). 38 organisations met both of these criteria. Those 38 organisations were from the food and beverage, mining, property management, transport, other manufacturing processes and education sectors. In keeping with the idea of ‘organisational fields’, it was expected that by focusing on an industry subsets of these 38 organisations, we would target a distinct “recognised areas of institutional life” (DiMaggio and Powell 1983 p 148).

Of the 38 target organisations, 8 were from the food and beverage sector. This industry group was considered an ideal choice for detailed case study as the food and beverage sector uses water for a variety of purposes both as a raw material to the product produced and for ancillary purposes including heating, lubrication, washing, pumping, de-odorising and rinsing. Access was then requested and allowed to 7 of the 8 targeted food and beverage producers for detailed interviewing with 27 staff through 2008 plus 5 follow up interviews in early 2009. The enrolment of interviewees was a snowballing process starting (usually) with an environment manager and then after explaining the study’s needs, other relevant staff were approached. To preserve the anonymity of both the 7 organisations included in this study and the 27 individuals interviewed in this study, the seven organisations will be referred to as A, B, C, D, E, F and G respectively. References to individual interviewees and staff will utilise generic position descriptions such as ‘environment manager’, ‘accountant’ etc. The final list of interviewees included environment managers, operations managers, engineers, accountants and some directors and other relevant staff. In addition to

those interviews, an industry liaison manager from Sydney Water and a director from the Australian Food and Grocery Council (AFGC)<sup>1</sup> were also interviewed. Furthermore, some document reviews and site tours added to the data.

Within each organisation, a minimum of only one employee was interviewed in one with a maximum of 7 plus two follow up interviews in another. The number of interviewees was largely a function of the extent to which there was a ‘water management’ story to tell; there was little difficulty securing an interview from all who were approached. Interviews were transcribed and analysed using NVIVO for key themes and issues. The findings that follow provide the outcome of narrating those key themes. In addition site tours of key production facilities and some documentation (water usage reports, water savings plans, related capital expenditure proposals etc) were provided and reviewed for relevant data.

The interview issues discussed with each interviewee are reproduced in table 1. These simple and broad issues proved to be appropriate for all interviewees in this study, regardless of their position or seniority in the organisation and facilitated an open and unthreatening dialogue. Adopting a semi structured interview approach allowed related “research questions to emerge from the research process...[which can facilitate the uncovering of information which is] more pertinent to the problems of the subjects” (Hopper and Powell 1985 p 47)

**Table 1** Semi structured interview questions worked through with all final interviewees

Introductions
Uses of water at this organization
Overview of this organisation’s water management system
Roles, responsibilities, networks and integration
Data collection, reporting processes and use in decision making
Integration with broader accounting systems
Effectiveness
The past – history, motivations and hurdles
The future - challenges, threats, opportunities, vision and strategies
Other matters

## 5. Findings

### 5.1 What was water management?

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<sup>1</sup> The industry body representing the food and beverage industry in Australia

All organisations in this study had developed some efforts in recent years to collect data on water usage and effluent discharge, create reporting systems to manage that data and all used that data in searching for usage inefficiencies and leaks. Those developments were all recent; the environment manager in organization C for example explained that the pervasive (or ‘institutionalised’) practice in that organization until recently had been, “just pouring it down the drain”. Some of these activities were undertaken infrequently and were isolated from senior management, especially in organizations C and G. Others in the study were reporting water usage weekly and in some cases, daily. To improve the decision usefulness of these reports, over time, all 7 organisations have also secured expenditure approval for the installation of some strategically placed sub-meters around their production sites.

Through the frequent collection of dissected water usage data, and the regular monitoring of usage over time, together with the integration of these systems with production reporting systems, an understanding of specific sources of excessive usage and waste was becoming apparent. Explaining the usefulness of their integrated daily water reporting processes at organization B, the environment manager there explained “we have linked our flow meters now so we are preparing reports that will give us real time linking of water usage to production data. Because previously, the amount of water used in a day, well, what did it mean? ...it wasn't necessarily a number that added much in terms of understanding [decision making potential]. Relating it to the production data in real time is a key objective for me”.

In response to evidence of inefficiencies or leakages, a variety of responses were made and they can be broadly classified as high or low cost responses. The low cost options were easier to execute, especially where the environment function operated in isolation from senior management. Such options include raising staff awareness, re-engineering cleaning processes or production schedules and of course, repairing leaks. The responses to inefficiency was in some cases as simple as using a broom instead of a hose to clean floors. Beyond that, effecting water usage efficiencies tended to cost money and so little of those initiatives were able to be implemented where water management activities were not endorsed and driven by senior management. In early development phases, plants invest in relatively low cost items such as water saving nozzles for hoses and simple kill switches. Those investments are not difficult to implement as most environment managers explained that they had small discretionary maintenance budgets. A summary of the water reporting systems within each organisation including the frequency of reporting, the extent of sub-metering, the collection method and the uses of that data, is provided in Table 2.

**Table 2** Summary of water collection, reporting and reporting usage processes at the 7 case study organisations

Org'n	Frequency of reporting	Extent of sub-metering	Collection method	Uses of the data collected
A	Daily	“we know they’re not” in the right places	Manually collected - excel	Used in two key ways: At production level for investigating anomalous usage. by ‘senior management’ to ‘keep an eye’ on production issues and CAPEX needs
B	Daily integrated system	Effective but wanting to go further	Automated ‘active plant’ system collects daily data on production levels, resource usage, waste and effluent discharge.	Used at plant level: by shift teams to review for inefficient production results etc by the plant based environment manager At head office level: by the head office environment manager selective reporting for senior management and the board
C	Corporate level – Annually Plant level – varied	“We just stick it on our big users”.	Head office - manually collected – excel Plants - varied	Reporting annually allowed the head office little scope to use the data in effective decision making.
D	Weekly integrated system	Effective	Manually collected - excel	At the plant level, production staff utilized the data to investigate anomalies. Monthly teleconference ‘hook ups’ across all production sites Weekly reports scrutinized by head office environment manager, operations and manager and the CEO
E	Corporate level – monthly Plant level – weekly	Limited	Head office - generated fundamentally from invoices. Plants - manually collected - excel	Several uses: head office based management accountant - ‘historical analysis and forecasting’ selective details filter into monthly board reports plant level reports are used to facilitate weekly team talks the plant level environment manager
F	Plant level - weekly	“it would be good to have more”	Compiled manually on the weekend	<u>Actual use:</u> Limited to environment manager’s local investigations. <u>Potential use:</u> permanently accessible if ever required by the board
G	Quarterly selective reporting	Limited	Manually collected - web based system	Plant level environment manager under-resourced and so effecting little scrutiny Senior management and board review key data quarterly

Moving beyond day-to-day water usage efficiency improvements, several organizations were also pursuing larger water related infrastructure investments. Those organisations that had strong board support for water management (B and D) as well as those organisations that had tenacious and passionate environment managers (A, and F) had all recently developed larger water related capital investments. Organization E's recent water management efforts were focused on replacing obsolete and wasteful production equipment. The purpose of doing that was broader than simply wanting to utilize water more efficiently; apparently operational control had declined in recent years in organisation E and its equipment had been allowed to run down. Organisation E was therefore fundamentally motivated to upgrade aging equipment and simply effect production efficiencies. In explaining these recent capital investments the engineer was adamant that despite that savings of water, the fundamental driver for doing these projects had been financial; "like I said before looking at the big picture, the point of us being here is to make [our product], so if I was the ops director I wouldn't make water much of a thing, I would make it, [the product]". His point here was that the maximization of production was the key goal and improving water efficiency was sometimes (and only sometimes) a part of the way to do that but not a goal in itself.

In B, D, E and F in particular, other water specific infrastructure was also being approved including treatment plants to treat effluent before disposal, recycling plants to then re-circulate that treated water back into the production process and rainwater harvesting infrastructure. These larger investments were difficult to approve because the cost of water remains very cheap and so normal financial 'pay back' or IRR requirements could not be met. It must be noted however that water regulators were aware of this challenge and also very keen that large water users should develop such infrastructure where possible. So much so, that funding support was able to be negotiated through related programs both in Sydney and in other Australian water stressed cities (that is, most of the state capitals) at this time to help support such investments. Never-the-less, that funding requires determination and engagement with the regulators to secure. Furthermore, like the efforts to monitor water usage, none of these organizations had managed such technically complicated infrastructure in the recent past. The management of that sort of infrastructure was not core business for these organizations and contributes to our observation that a novel band of activities were developing and institutionalizing within these organizations. These organizations were becoming increasingly committed to undertaking related management processes as an integrated part of their longer term activities.

Company F's environment manager (who fundamentally operated in a vacuum with little support or interest from senior management) explained the financial considerations that went into the approval of a recently developed water treatment and recycling plant at his company's major Sydney production site. "Our internal rate of return is 20 per cent minimum. Now with this whole project [the water treatment plant], I basically got it to 19.9 per cent with the grant [availed from the NSW department responsible for the

provision and management of water - DECC] and they [the board] accepted it. Otherwise, I would have to have gone back [to DECC]”. Apparently F’s board had allowed only a marginal exception from normal financial controls with this project and so the environment manager had to work hard to make this happen. Similarly the plant’s management accountant argued that “that plant is not there purely for financial return by any stretch, but there is some financial return we do want to see out of it, and we need to make sure we do see that”. Implementation of such a project would not be possible in an organisation that did not have either strong board support for water management and/or tenacious environment managers who were prepared to keep working on a proposal until it could be made to work.

Finally, there was also some evidence that the focus of water management was evolving to also embrace some initiatives targeted primarily outside the organisation. B had several examples here. At B’s major Sydney production site, captured rainwater was stored and largely used (for now) to water neighboring sports fields. There was considerable cost in developing the associated storage and piping infrastructure. The intention was a goodwill initiative for the local community. Another fascinating nascent global initiative in B was the development of a goal of ‘global water neutrality’. According to this hugely ambitious goal, the global organisation aimed to eventually be able to ‘give back’ as much water as they used (not necessarily in the same place where it was extracted) for perceived community and environmental needs. While this initiative might be critiqued, the point here is that in the first instance, the primary target of these water management initiatives was not the organisation itself. As such, unlike so many initiatives that are about operational efficiency, the organisation might quite reasonably describe these initiatives, should they so choose to, as being primarily ‘social’ or ‘environmental’ projects.

## 5.2 The embedding of water management requires senior management support

A focus on water management was commanded from the board level in two of the case study organisations; B and D. As a consequence, inefficient water usage practices were required to be searched for throughout both of those organizations. Water efficiency was the responsibility of all staff and investment proposals which promised increased efficiency (such as more water sub-meters) were able to be put before senior management. B and D had comprehensively installed water sub-meters. B used those sub-meters to affect a plant level daily reading, reporting and review process. In those reviews, local management scoured for anomalous usage and senior management reviewed for compliance with organisational goals. D also had well established weekly and monthly reporting processes which were scrutinised with close interest and direction from the engaged CEO. The plant manager at D explained enthusiastically that the organisation had a “commitment” to producing “our reports weekly, which go to [head office] and are evaluated to see how we are tracking. So there is a genuine senior level interest in our water consumption in the projects we are involved in”.

In organization B the plant shift manager explained that “everyone’s aware that it [water efficiency] is their responsibility ... if we see them [floor staff] using water in the wrong way they are referred back to the responsibilities and they’re also referred back to the [organisational values]”. The corporate affairs manager explained the board’s focus; “there is a sub-committee of our board ... and we report to them on environmental issues and social issues three times a year”. As a consequence of that commitment, the engineer argued that water management had become too embedded now to unravel. “I think it’s embedded, entrenched in [the organisation’s] psyche now or values, that it would be extremely hard to back away from that, almost impossible”. Similarly in organization D, the environment manager explained the regular water scrutiny by senior management; “all of the site managers, all of the general managers, the senior leadership team and the executive, so almost all of those people are in these teleconferences every week. So we’re very, I guess, hands on in terms of that side of the management structure. The CEO knows exactly who’s saving water and who’s not”. That systematised focus on water monitoring was also embedded at the operational level; the plant manager explained “we have meetings regularly during the week and our staff are certainly aware of the cost of water. They are certainly aware to report any leaks that they find or taps that don’t turn off”.

In the other 5 organisations in this study, the limited water management practices evident were largely attributable to the championing efforts of mid management level. The environment managers in these organizations enjoyed little support of encouragement from their boards. Never-the-less, in several cases, the tenacity and passion of particular managers had enabled significant water management change initiatives. In the main Sydney based production site of organization A the production manager explained that “compared to four or five years ago ... now anyone walks past a tap they’ll be turning it off and if it starts dripping they’ll be straight up here reporting it ... where five years ago taps would be left fully on all the time”. Something of a focus on water management had apparently become embedded in the minds of staff in that plant. However he added that more recently, the team that had pioneered these nascent water processes “has fizzled away” and “we just don’t have that leader to push it”. The head office based environment manager in organization C explained that he was “trying to create that [water efficiency] culture” however, without board endorsement he was largely on his own in trying to effect “small incremental cultural steps to try to raise the profile of water”. He lamented that “we have different business units that operate ... in silos. ... it’s cases of [water efficiency monitoring] excellence in some, and complete ignorance in others”. In organisation C the limited water management efforts were undertaken in isolation with little support from the local staff.

In organization E, the bigger current concern (as noted earlier) was their the poor internal control and so while several new initiatives to improve water efficiency were evident, as the head office management accountant explained it, “what we’re trying to achieve is to become more integrated with the operations guys”. The board in organization E was trying to improve that integration however, ‘water management’

was not a specifically endorsed goal in this organization. In organization F several plant level initiatives that interviewees described as distinct ‘water management’ practices had recently developed however, as the plant based environment manager lamented, “I am it for environmental for this business”. He added, “I don’t know what his [the CEO’s] views or anything are” on the activities that the environment manager was largely managing in isolation. Like organization F, the plant level environment manager in organization G also explained that, “at the moment I am the environment manager and that is more or less it”. However, unlike organization G, significantly more ‘water management’ was happening in organization F which can be attributed to the tenacity and passion of the incumbent in organization F.

### 5.3 What were the motivations for these disparate water management practices?

Interviewees argued that a number of factors had driven the disparate evident approaches to water management. All spoke of more than one motivating factor and many of the factors referred to were intertwined. Despite the complexity, a key group of factors is apparent in each organisation and two overarching themes were evident. Organisation’s B, D, E and F were concerned by issues broadly regarding their ‘social contract’. In all 4 cases, these concerns also inter-twined with concerns to secure long term access to necessary water resources. The other 3 were fundamentally driven by regulation and as a consequence, the water management initiatives evident were limited. At the end of this section, table 3 presents an overview of the factors motivating the 7 organisations to develop their varied water management systems. Table 3 shows that the factors driving these water management developments were both internal to the organisation and external. In addition to the two key external forces (social contract concerns and regulation), the extent and unique form of water management in most organisations were also impacted by internal water champions. In some cases these champions were at the board or senior management level however, the impact of mid level management champions can also have some effectiveness at driving change.

#### Social contract and secure water supply

##### *Organisation B; concern about community criticism and securing water supply*

Organisation B commonly encountered community opposition where it established production facilities. At one New South Wales production site, the corporate affairs manager explained there had been “a very public furore with the community, with the government, with the local council” specifically about issues related to the organisation’s water usage and so organisation B was compelled to respond. The head office based environment manager argued that organisation B was “attacked for various different reasons and so of course you’ve got to be more squeaky clean than your competitors because the goal posts are different”. A plant shift manager explained that “there is a lot of negativity around ...[and] so we do try to promote ourselves as when these initiatives do come up as being a good corporate citizen and doing I guess, pioneering a lot of things for not just us, but for the industry as well”. There was also internal consensus

that the ‘public furore’ against the organisation would never be overcome completely however, it could be responded to. The corporate affairs manager explained that “what we try and do is go out and forge relationships with stakeholders in relation to the issues we’re managing”. She added that “you need to talk about the other things that you’re doing, because people will bash you over the head if you don’t”. In this violent metaphor, water management initiatives were developed in order to have good stories to tell (and so avoid bashing).

Several other motivations for the comprehensive water management practices in organisation B were explained. A key factor addressed by several interviewees was that it was felt that water management was necessary in order to secure long term access to this shared communal scarce resource. The plant engineer manager argued for example that the rain harvesting system was a very important pilot study in consideration of potential future scarcity problems. “You are better off doing that and understanding those issues now for the future when you may have to harvest every drop of water you get off every roof ... we may have to do that in the future”. Similarly, the corporate affairs manager reiterated that “one of the biggest risks is ... making sure we have enough to meet demand. And again, how you manage that is just to work with the water authorities and look at water efficiencies and things like that”.

#### *Organisation D; concern about regulator scrutiny and securing water supply*

Unlike organisation B, regulator relations for D could be described as still a ‘work-in-progress’ and therefore a key factor driving management to demonstrate good water stewardship. In explaining the drive to embrace water management in organisation D, interviewees spoke of pressure from water suppliers and related regulators, concern about long term access to resources and also the important influence of a passionate and tightly controlling CEO. Collectively these forces drove the company to want to demonstrate comprehensive water management efforts. The fundamental concern was simply that this organisation needed to use significant volumes of water. D’s environment manager explained, “I guess the driver has been the recognition from a long time ago, and it must be – it would be almost 10 years, if not longer, that we were a big water user, and that wherever we are located we use a lot of water compared to other people or other industries in that area”. The key stakeholder that would know how exactly this organisation’s water usage compared to others would be the local water utility.

As with organisation B, these concerns about social contract in organisation D, also overlapped with concerns about ensuring long term access to resources. The management accountant’s opinion was that “continuity of water supply is far more important to us than the actual cost”. Later again reiterating that current water costs were not the driver he added; “while it [water] may be cheap it’s also rather scarce [that is, authorities restrict their use] ... I know [our] Queensland [plant] have just spent a lot of money putting in a recycling unit and that’s all in response to the future that water is going to be increasingly scarce to get and we’re acting now before we have to react”. Touching on all of the factors motivating this organisation,

the environment manager later explained that “if we don’t have water, and if we don’t have space, and if we don’t have energy that we can afford and we’ve got nowhere to put our waste, then we can’t produce our product. So I guess that’s why we’ve got the strategy in place. But the CEO and the company really does have that vision of being around for a lot longer and continuing to do a good job and being a leader in the industry”. In this comment it is difficult to separate the impact of corporate culture from long term business strategising and a concern for the organisation’s external impacts.

*Organisation E; social concerns inter-twined with a concern to improve efficiency*

The organization also suffered from community criticism regarding both its products and its water usage practices. The director responsible for issues of environment felt that his organisation was, for some elements in society, in a “bad basket” (similar to organisation B). Considering this fact and also the fact that they used a lot of water he concluded, “we are a target”. He continued by explaining that these concerns had driven the organisation to reduce water usage as a percent of production significantly in recent years. A key factor contributing to that reduction in water usage KPI ratios was likely to have been the recent development of the water treatment and recycling plant in their Queensland plant where over 70% recycling was now being achieved. The head office management accountant also referred to these social contract concerns but with less melodrama; “it is quite vital and [taking a] long-term [perspective] especially with the drought in the past few years there was a real push by our senior management to make our [production sites] compliant to world class as regards to the amount of water they use to produce a [unit of output]”. By demonstrating responsibility, the board felt that they could avoid being dictated to.

*Organisation F; council demands and a tenacious environment manager*

Water management was not a significant focus for the board of organisation F. The environment manager argued that environmental objectives in general were “not a real strong consideration”. Never-the-less, despite that disinterest, a relatively impressive approach to water management was evident at the major production site. These developments were effectively a ‘snow-balling’ story with one achievement effectively providing the opportunity for further developments and initiatives. An important element of the overall explanation is the impact of a tenacious plant level management team. ‘Tenacity’ was an important theme in the comments of interviewee’s in this organisation. The engineer commented that “unless you’ve got the tenacity to keep following it through it’s not going to become a habit”. The impact of the environment manager was particularly critical. His negotiation skills had been critical in developing the recycling project; “before I started, there was not really a lot of emphasis on water recycling”.

The environment manager explained that the organisation’s early focus on ‘water reduction’ initially by the local council who had demanded that all local industrial sites reduce effluent loads in their sewage because the local sewerage infrastructure was being overtaxed. Organisation F responded by developing a water treatment plant to remove suspended solids prior to discharging into the sewerage network. The

environment manager explained that “it [the journey towards developing the recycling plant] more or less started off as improving the waste water, because we had to. We entered into an effluent improvement program. But as we progressed through that, we thought we could do a lot more with the water. Not just cleaning it up to send it down to sewer. We could recycle it. So why not?”

### Regulation

#### *Organisation A – some board rhetoric but fundamentally driven by regulation*

The Sydney based production facility visited in Organisation A produced a similar range of products to organisation B, the company that suffered the significant ‘public furore’ regarding its activities and products as discussed above. However, there was no such story of ‘furore’ in organisation A. In the absence of any significant social contract type pressures, the board in organisation A provided only a general encouragement or support for water consciousness. Never-the-less at the plant level, that encouragement had been responded to enthusiastically and several specific achievements that arguably went beyond compliance were evident. Those achievements were fundamentally due to the efforts of several specific staff employed at the plant level and especially, a recently resigned environment manager. The production manager lamented that he “was the biggest pusher for all this ... if he was still around here now then something like that [a roof rain harvesting system] would have been pushed”.

#### *Organisation C – regulatory compliance in a slowly opening vacuum*

Organisation C’s focus on water management was simply driven by the most basic concern; regulatory compliance. As the environment manager described it “we’ve taken a ... compliance approach, to date and that’s been largely around just the [limited] availability of resources and people to work on it. So we’re certainly compliant ... but as to going beyond that, we really haven’t”.

#### *Organisation G – some board rhetoric but fundamentally driven by regulation*

There appeared to be little energy for water management in organisation G. The head office based environment manager dismissively commented that “this is not something we have got our heads around”. Commenting on what he felt were the motivating factors, the plant level environment manager explained that “probably one of the biggest things [motivations] ... [was that the global parent] got ‘hammered’ in a report regarding their care for the environment. So from there, there was a really big cultural shift in the business”. What exactly that ‘hammering’ was for, was not explained. Never-the-less, as a result of that ‘hammering’ he explained that water management “is part of the global focus [of the organisation]” especially with regards to issues of effluent quality and discharge. Despite those drivers, like the head office environment coordinator had said, the plant level environment manager also argued that the resources made available for issues of the ‘environment’ were in fact limited and so in short, there were limited water management efforts evident or explained at the plant. He finished that the Water Savings Action Plans imposed on the plant in 2005 were “probably the bigger driver behind a lot of it”.

**Table 3** Overview of the factors motivating the 7 organisations in this study to develop water management systems. A summary description of each organisation is also provided

Org	Summary descriptor	EXTERNAL FORCES					INTERNAL FORCES	
		Regulation	Social contract concerns			Board interest/support	Champions and location	
			Local/global community pressure	Local council pressures	Regulator scrutiny			
					Immediate concern	Longer term concern		
A	Past plant level management champion	<b>Major</b>	Minor	No	Minor	Minor	Limited	Yes; Plant level (past)
B	'Integrated sustainability strategy' of which water management was a key element	No	<b>Major</b>	No	Minor	<b>Major</b>	<b>Major</b>	<b>Yes; Board level<sup>2</sup></b>
C	Emerging head office level management champions	<b>Major</b>	No	No	Minor	Minor	No	No
D	Pervasive water management culture	No	Minor	Minor	<b>Major</b>	<b>Major</b>	<b>Major</b>	<b>Yes; Board level</b>
E	Driven to improve operational efficiency and internal control	No	<b>Major</b>	No	Minor	Minor	Limited	No
F	Current plant level management champion	Minor	No	<b>Major</b>	Minor	Minor	No	<b>Yes; Plant level</b>
G	Deflection	<b>Major</b>	No	No	Minor	Minor	Limited	No

<sup>2</sup> A general enthusiasm or passion for water management was apparent in all staff interviewed. However, this organisation is not described as having any particular plant level 'champion' because for many staff, a water focus was incentivised (through bonuses and other means)

## 6. Discussion

### 6.1 Two institutional pressures driving water management change

All seven organisations examined in this study operated in the food and beverage industry. All have production facilities within the greater Sydney area. This area, the Sydney water catchment basin, is largely isolated from all other Australian fresh water sources and so has limited ability to draw from water supplies elsewhere. The Sydney basin has also been subject to significant water supply constraints as a result of drought in recent years. Hoffman argued that ‘catastrophes’ (which the case study organisations might consider the drought to be) might also have a significant ‘disruptive’ effect that motivates a development of sustainability practices (Hoffman 1999). All of the production facilities examined were also subject to the *New South Wales Water Savings Order 2005* which required them to complete Water Savings Action Plans. The implementation of regulation is argued to be among the most critical potential institutional drivers of change (Buhr 1998; DiMaggio and Powell 1983; Oliver 1992). Some of the 7 organisations produced products that directly competed with each other on the supermarket shelf. Furthermore, all could be regarded as broadly competing for the same household food and beverage budget. Palenburg found that a strong isomorphic drive towards sustainability existed among common competitors (Palenburg, Reinicke, and Witte 2006).

All of these industry, geographic, hydrological, regulatory and marketing similarities might operate as effective ‘organisational fields’ within which some isomorphic water management practices might be evident. Institutional theories provide an expectation that some “herding effect” (Palenburg, Reinicke, and Witte 2006 p 21) ought to be evident regarding how organisations address issues of sustainability such as water management. The ‘herding’ idea usefully suggests a number of features ought to be evident; there ought to be a significant understanding of who all of the organisations within the field were and where they were all ‘at’ in terms of the development of water management approaches. There also ought to be an evident struggling amongst a few to be a water management ‘leader’ and there also ought to be a jockeying of all others in their efforts to fall not too far behind that benchmark. Accumulating evidence of potential competitive and financial advantages obtainable by developing water management practices may be an element of any evidence of such herding (Aragon-Correa 1998; Sharma and Vredenburg 1998).

Two key institutional pressures are identified to be impacting on the water management practices in the 7 organisations in this study into the late 2000s. The first pressure was acute community criticisms and concerns about resource impacts, products produced or organisational activities in general. While the existence of a broad ‘community concerns’ organisational field was real, the extent to which each of the 7 organisations in this study felt that they were in it and the precise outcomes were all different. As such, little homogeneity was found in that field. The second identified organisational field in this study is one where regulator scrutiny was a major institutional pressure. All 7 organisations in this study were

concerned to comply with the *New South Wales Water Savings Orders 2005*, which was targeted at reducing water usage. In that sense, all 7 were placed within a ‘regulator scrutiny’ organisational field. However, of greater importance than that dull story of regulatory compliance, organisations B and D, who had pervasive water management cultures, were also concerned about a more specific regulator scrutiny of their operations. That scrutiny, or perception of scrutiny, drove these two organisations to go well beyond compliance with their water management practices and so for them, related regulation was not a pressure driving their focus on water management (Nehrt 1996).

Comments made by the environment manager in organisation B are a good place to start with these organisational field arguments. He felt that there was a growing normative or competitive pressure for isomorphic water management practices across all large water users; “I think the fact is that, this may be idealistic of me, but leading companies will shame or actually render other products I suppose inferior, not just from a quality point of view but from an environmental point of view as well”. These comments strongly suggest a competitive ‘herding’ type response (in line with the expectations of (Palenburg, Reinicke, and Witte 2006)). The environment manager continued elsewhere that “everyone is mustering to say, ‘yeah, we want to be responsible’”. His argument here is that the outcome of this mustering or herding would always be variation rather than isomorphism. The organisational field here was felt strongly by this environment manager however, the preferred outcome was not isomorphism but rather, a drive to be different and better.

An important point to note here is that these arguments were directed towards the future; ‘leading companies will shame’. Similar future tense comments were made by other interviewees in organisation B. These comments confirm that fact that many of the other large water consuming organisations in this study were not feeling any significant sense of mustering towards water management at that time. That therefore suggests that water management was no more than an emerging institutional force, and that organisation’s like organisation B, or key individuals within it, may emerge as the necessary and important ‘institutional entrepreneurs’ (Beckert 1999) and lead that shift (as staff in organisation B were indeed predicting) in due course.

Organisation A produced a similar range of products to organisation B and yet water management was not a pervasive activity in organisation A. The interviewees in A dismissively explained that the only community criticism that the organisation suffered was about “small things”. Apparently organisation A largely went ‘under the radar’ of community criticism in the late 2000s. Organisation C produced products which did not directly compete with organisation B and organisation C was not a multi-national (although it was a large Australian listed company). Organisation C was the most laggard in terms of its embracing of water management and spoke of no significant community criticism of its practices. Organisation C was therefore clearly not an organisation that the environment manager in B was thinking of when he argued that ‘leading

companies' were 'mustering' to be 'responsible'. Organisation C was not placed within the identified 'community concern' organisational field in the late 2000s. With respect to water therefore, the only organisational field that impacted organisation C was 'regulatory scrutiny'.

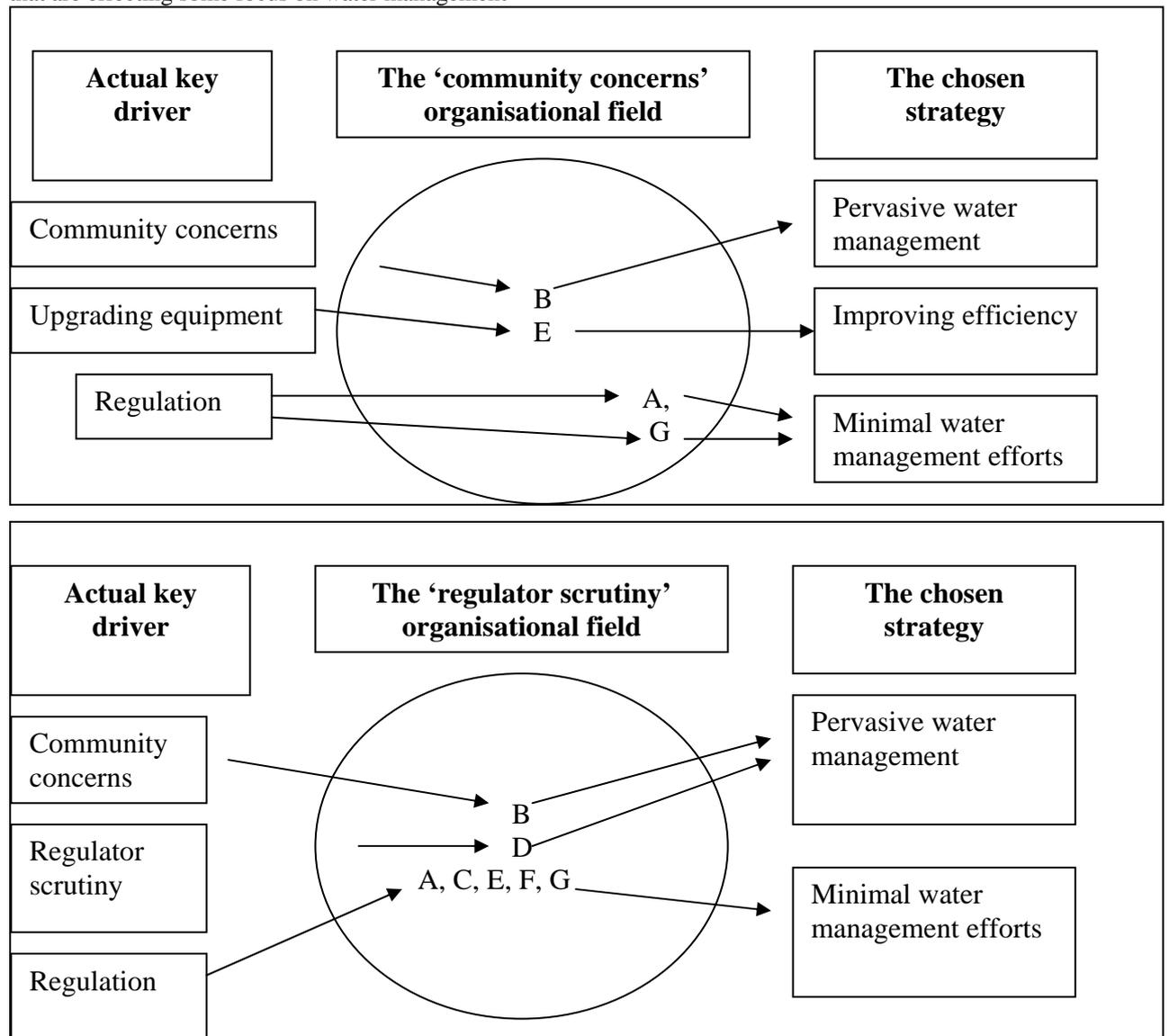
The key organisational field impacting on organisation D was distinct from the key field of concern to organisation B. In relation to issues of 'environment', organisation D was more concerned and aware of the 'regulator scrutiny' organisational field. This was not a concern about regulation as such because organisation D's water management practices were already arguably well 'beyond compliance'. Organisation D's regulator concerns were more about the longer term potential that their water supply might be cut simply because they were such a large user. Their strategy in response to that was to benchmark several elements of their operations, including water usage, against other organisations throughout the world that produced the same specific product. As such, the outcome in organisation D was similar to organisation B (a pervasive water management culture).

The head office management accountant in organisation E spoke of a sense of 'herding' within an organisational field. "You can kind of see by what's happening; not only the water issue within Australia (and that's trying to be ahead of the curve) but also you can sort of see ... that changes are coming". From that management accountant's perspective, there was a 'curve' of organisations which were all within a particular field. The field that organisation E found themselves in, like organisation B, was one of organisations subject to community scrutiny and criticism. These comments therefore provide some suggestion of an isomorphic outcome between B and E. On further inspection however, it is apparent that neither the drivers nor the outcome in organisation E were precisely the same as organisation B. Organisation E had a number of other very specific challenges including technically dated equipment and significant operational inefficiencies. The apparent 'water management' efforts in organisation E were really more about upgrading production facilities and improving efficiency.

Organisation F provided another story yet again. Organisation F had recently been sold out of a larger multi-national and was now a mid sized private company. The interviewees in organisation F made little or no comment about stakeholders, competitors, 'mustering' or the community. If anything, the organisational field in which staff from organisation F *wanted* to sit was simply the field of 'responsible members of the public'. For example, the plant engineer argued that "we're still like a member of the public so the environment is front of mind ... [including] recent droughts across the country ... [So we all ask ourselves], what else can we do with our water?" Finally, organisation G also spoke of some community criticism. Like organisation E, that criticism was not specifically about water however unlike organisation E, it was not about the range of products produced either. Organisation G is therefore placed within the same general 'community concern' organisational field as organisations A, B and E but, like organisation A, it was positioned at the fringes of that field.

The two key institutional pressures driving water management are diagrammatically described in figure 1. Because these are distinct institutional pressures, they are visualized to be operating within two distinct organisational fields. The 'community concern' organisational field shows organisations B and E in the centre and A and G on the fringes. It also shows that despite where each organisation sat in that field, the key driver of the water management efforts were not necessarily that identified institutional pressure. For example, in organisation E, despite sitting centrally in that organisational field, the key driver was a goal to improve efficiency. Finally, the 'community concern' organisational field shows that the outcomes for each of these 4 organisations was heterogeneous. The second diagram in figure 1 represents the 'regulator scrutiny' organisational field. As was found in the 'community concern' organisational field, the actual key drivers for each organisation also varied in that second field. The water management practices also varied within the 'regulator scrutiny' organisational field as did the way these efforts were made to appear to regulators (the key stakeholder). Scott (2001) supports the observations that particular organisations may be located at different places within an organisational field and also that "all organisations within a field may not be equally subject to the institutional processes at work there" (Scott 2001 p 162).

**Figure 1** Diagrammatic representation of the two organisational fields identified in this study that are effecting some focus on water management



6.2 Water management was institutionalized in organizations B and D in 2009

The findings of this study demonstrate that to be able to argue that a practice has become institutionalised, board endorsed rules are critical. Those rules must clearly explain what these new water management practice are, why they are important, and how staff must respond. Without those rules, any water management practices evident will simply be a complex of disparate routines. Simply endorsing a general commitment or concern for the environment by way of contrast, (as all of the organisations in this study have publicly argued in one forum or another), says nothing about whether related practices are institutionalised. Organisations A, C, F and G all demonstrated several impressive and unique diagnostic water management routines and controls. They also enjoyed the influence of capable and enthusiastic champions who were critical to explaining those developments. While all of that would be of some interest to a community concerned about water consciousness, in the absence of board endorsed rules, belief

systems and appropriate interactive controls, those practices were marginalised, fragile, and not institutionalised. In organisations A, C and G, there was clearly some related reporting to the board however those efforts were minor. Clearly, these organisations were aware of these new institutional pressures however they were only perceived to be a secondary risk. While A, C and G they felt some regulator and community scrutiny, it was no-where near as intense as the scrutiny felt in organisations B, D and E.

In short, in 2008/2009 water management was a recently institutionalised practice in organisations B and D. It operated within, and had been reconciled to, the technical environment however its development reflected an expansion of those technical boundaries. Despite these institutionalised observations however, there was little homogeneity between the specific practices of those two organisations. That heterogeneity does not however detract from these institutionalised arguments and reflects in part the fact that both organisations were driven by relatively distinct institutional drivers. Water management was also a growing focus in the other organisations in this study however, in general, the missing link in those organisations on a journey towards institutionalisation was board endorsement and mandate of specific rules, beliefs, interactive reporting and dialogue, and the formalisation of related responsibilities for all staff.

### 6.3 Water management was institutionalizing across the entire field in 2009

The discussion above has confirmed that a thorough focus on water efficiency was not institutionalized across an organisational field of large Sydney industrial water users in 2008/2009. Never-the-less, a comprehensive focus on water management had institutionalized in organisations B and D. Something deceptively similar was developing in organisation E however what it really was, was simply a re-institutionalisation of the fundamentals of operational control. Furthermore, some institutionalization of water efficiency practices was evident at the plant level in at least organisation A. However without senior management support those practices were at risk of being aborted and so the apparent institutionalization there was fragile. A thorough approach to water efficiency had not also institutionalised in the other 5 organisations in this study by 2009, largely because water was too cheap to justify investing significant time and money in efficiency efforts.

This final section will utilize Strang and Meyers (1993) conception of theorization to demonstrate that some mustering and growing pressure on the laggards was also evident in 2008/2009. That mustering was driving those laggards to being the process of catching up. By the end of 2009, the tools necessary to assemble a cohesive and relatively isomorphic approach to water management across a broader organisational field were in place. As a consequence, an institutionalization of at least a thorough approach to water efficiency was beginning to develop within large water consuming organizations in 2008/2009. It was becoming clear that at least the thorough approach to water efficiency that had institutionalized in some

organizations would not prove to have just been a passing fad or a fashion (Abrahamson 1991) and would in fact go on to also institutionalize in a similar way in other organisations.

The lack of commitment to water management amongst the boards of especially organisation's A, C and F in 2009 can be attributed to the fact that the importance of a thorough approach to water efficiency in Sydney had not been adequately theorized across this organisational field at that time. There was some theory for the importance of water management at that time however, its arguments were poor. The 'Every Drop Counts business program' (EDC) was a service provided to industry in Sydney at that time to help organisations improve their water efficiency practices. The EDC maintained a substantial collection of on-line resources and guidance on water management in this period. At the entry portal to these resources, the EDC argued (or theorised) that a thorough approach to water efficiency was a good idea because it "gives businesses a competitive advantage by helping them get the most out of the water they purchase" (SW 2009 p 4). While that was a 'theory' for water management, it was not a convincing one. Many of the interviewees in this study commented that water was cheap and so they felt that little competitive advantage could be achieved by being more efficient.

It is clear that a better theory for water management was needed at that time to motivate the laggards in the organisational field. That better theory did exist and it was one of the main arguments for water management that was provided by the leading water management organisations in this study (organisations B, D and E). That superior theory was that strong control of water consumption, together with possibly some programs directed at related externalities, was a good thing because it can contribute to securing access to the organisation's long term water needs. Greenwood et al (2002) also argued that along with the need to present a clear and substantial argument (or theory) in favour of a new institution, theorisation must also clearly explain the failings of old or obsolete institutionalised approaches. In the case of water management, that obsolete approach was nicely summarised by the environment manager in organisation C who lamented that water was "so cheap that businesses like ours have been pouring it down the drain, and it never even registered as a material cost".

A director of the Australian Food and Grocery Council (AFGC) was also interviewed. He too feared that as water supplies continued to decline, particularly in very dry locations such as the Murray-Darling Basin, companies operating into those regions would be increasingly required to justify why they should get any. The failings of just 'pouring it down the drain' therefore, were being identified by the leading organisations and the industry's representative body in this study. The laggard organisations on the other hand, were yet to be convinced that those pressures were a significant priority. If those perceived threats were real, effective theory was now necessary into 2010 to shake those laggards up. It is apparent therefore, that a statement akin to that superior theory was necessary if water management was to become a practice that was institutionalised within a broader field of organisations. Furthermore, it would appear (at the time of

writing this paper in early 2010) that it was likely that the transmuting of that superior theory would eventuate and would be carried by not only the EDC and industry leaders such as the environment manager from organisation B, but also through the AFGC.

The director interviewed from the AFGC also argued that the AFGC was “keen to progress the debate” on water management in general with his members. That debate did then develop through the release of AFGC’s November 2009 ‘Water Reuse Industry Survey, Review and Policy Development’ report (FSA 2009). The stated purpose of that report was to overview current water management and reuse practices in the food and beverage industry, examine the state of related regulation, and uncover the related perspectives of their AFGC members. In other words, what is being done and why (similar to the questions asked in this paper). The AFGC’s study obtained 108 responses to its survey from 30 organisations which are all named (including 6 from this study) (FSA 2009). The AFGC’s study was undertaken before the field work stage of this study.

The AFGC’s report corroborates the findings of this study. It notes firstly that some impressive and innovative water related capital investments (such as water treatment and recycling plants) had been developed in some organisations. It explains most of the 30 organisations in its study were developing some water management practices and that the stated driver by several respondents was a desire to “do the right thing” for both society and the environment. However for many of the respondents, the fact that water remained cheap meant that major investment proposals could not be justified to senior management/the board. As also found in this study, the report noted that several organisations were unwilling to be proactive or to go beyond regulation and so argued that they were looking to regulators to lead the way in driving a consistent industry wide approach to water management. A key difference between those organisations that were leading and those that were reactive or laggard (as also uncovered in the findings of this study), was that in the leaders, “a board and corporate commitment is required to drive the uptake of these initiatives at the site level” (FSA 2009 p 36).

While the corroboration of the findings in this study is encouraging, the key question at this point is whether that AFGC report represents, or has the potential to be, an effective ‘theorisation’ or ‘carrier’ of the importance of a comprehensive approach to water efficiency within the food and beverage industry. The FSA who undertook the study for the AFGC provided a number of recommendations in the report that effectively encourage the AFGC to now theorise water management. The report recommended that the AFGC both communicate related information and best practice to their members and also engage with government bodies in order to debate how investment in water use technology could be better incentivised. The report concluded that the AFGC has an “industry enabling opportunity” through its ability to now use the data collated to communicate with members on identified best practice (FSA 2009 p 58). In short,

armed with this data, at the end of 2009 the AFGC was now in a position to help better theorise the importance of a thorough approach to water efficiency.

Finally, the theorising impact of other key institutional entrepreneurs can be considered. In this study, the impact of individual water management ‘champions’ was clearly evident and was an important factor explaining the variation in water management outcomes within each of the 7 organisations. Some of these internal champions, in both the leaders as well as the followers, were also making an important theorisation contribution across the organisational field. For example, despite the fact that water management was fragile and not institutionalised in organisation F and that the environment manager there managed related processes in isolation, he finished his follow up interview in 2009 noting that he was now working on a document with Sydney Water on the challenges of installing a water treatment and recycling plant. This document was to be shared across other large water using organisations and would become an important part of theorising the case for that particular water management initiative.

Organisation B was also beginning to contribute to a theorising of water management across the organisational field. For example, the head office based environment manager there explained that he was the leader of a committee within the AFGC. He stressed a theorizing role; “what are we going to do with the data? Share it. Share it and recognise that no-one is an expert ... from an accounting point of view, how do you account for externalities?; that’s where it [the importance of sharing] comes in”. Enthusiasts are not content to enjoy the benefits of their water management achievements internally and so seek to share or theorise those benefits across the organisational field.

To conclude on the issue of theorisation, a thorough approach to water efficiency in Sydney in 2008/2009 was in the process of moving from pre-institutionalisation to theorisation. By late 2009, a theorisation of the importance of a thorough approach to water efficiency existed but was not effective. Available theory still lacked a clear and convincing argument of the specific failings that it addressed, a clear description of a simple and achievable solution that recognised other threats (such as the global financial crisis of 2008), and a strong justification of the benefits of adopting that solution. Ineffective efforts at theorisation had been developed to 2009 through the resource provider (Sydney Water), the food and beverage industry’s key professional association (the AFGC) and through several institutional entrepreneurs. Never-the-less, by late 2009 the release of an AFGC report on the potential for water management within the food and beverage industry (FSA 2009) had the potential to be the next critical development in that theorisation process into 2010.

Water management in Sydney in 2008/2009 was maturing but not mature. The limited theory arguing for the importance of water management in 2009 was disparate, lacking in cohesion and unconvincing. Never-the-less, there was also the promise of stronger and more convincing layers to those arguments into 2010.

Institutional entrepreneurs or champions are expected to become critical at this time (Tolbert and Zucker 1996) and so into 2010, it is expected that we will see the likes of the environment managers from organisation's B and F becoming increasingly active as carriers of the theory of the importance of a thorough approach to water efficiency. It can also be noted that at the end of 2009, the overarching context of water scarcity was not going away and drought conditions and low dam levels persisted in major urban centres in Australia.

## **7. Conclusions**

Looking into the field of 'large water consuming food and beverage producing organisations in Sydney in 2008/2009' it is apparent that it was populated by organisations with varied water management drivers, efforts and features. In some organisations water management was a pervasive but nascent development supported and driven by the board. Some impressive practices were evident in those organisations that were subject to acute community concern. The impact of passionate internal champions was also an important driver. By contrast, other companies in this study had less developed approaches to water management and little board support or interest. It is apparent that the story that this study reveals is a picture of early institutionalisation. Water management in the food and beverage industry in Sydney in 2008/2009 was not institutionalised.

The key institutional pressures evident were concern and criticism from community groups and regulatory scrutiny. Underpinning and supporting these forces was regulation in the form of the *NSW Water Savings Orders 2005*. Never-the-less, there was also a sense that those disparate institutional pressures were converging and increasingly centring on one overarching institutional pressure; a sense of threat to the organisation's long term water needs. For organisations in the food and beverage industry, water is critical. Therefore, this pressure threatens the very sustainability of the organisation. In addition to this converging of institutional forces, there was also a sense that there was increasingly only one rational choice in response to that converging institutional pressure. The right (homogeneous) response was to increasingly demonstrate good resource stewardship and also an effort to reduce reliance on external water utilities as far as possible through, for example, developing water treatment and recycling plants. Organisation B and D understood this converging pressure and responded in that relatively homogeneous way. Organisation E also understood that pressure but was currently pre-occupied with modernising and improving operational efficiency in general. Senior staff and directors in organisation B, D and E also sensed that other organisations in the field were slowly becoming aware of the mustering and herding that was starting to happen in the field.

At the beginning of 2010 the best theory for the importance of a thorough approach to water efficiency was that good water stewardship continued to be necessary to convince both regulators and community that the

organisation's long term water needs should continue to be provided. That theory was well understood in those organisations where a comprehensive focus on water management was institutionalized (B and D). However, at the beginning of 2010, this ideal theorization of the importance of water efficiency was still poorly articulated across a broader organisational field. It now needed to become tight, cohesive and clear. Across the organisational field, clear patterns of mustering, domination and coalition would need to develop (DiMaggio and Powell 1983). As this superior theory for water management is increasingly better theorised, and with the on-going pressures of water scarcity, it was unlikely, at the beginning of 2010, that at least a thorough approach to water efficiency was doomed to dissolve and prove to have just been a fad or a fashion (Abrahamson 1991) across this organisational field.

This study therefore stops at a point where water management was on the verge of becoming institutionalised across a broad field of organisations. In due course, evidence may emerge of a drive to 'catch up' to the likes of organisation B and D. Or it may not. It is possible that the converging institutional pressures evident in this study in 2008/2009 may dissipate in coming years. Never-the-less, what can be concluded for now is that heterogeneity was pervasive and also that there was an expectation that institutionalisation probably would continue to progress and that water management practices would become increasingly homogeneous. The leading organisations in this study were convinced that there was a field of organisations driven to embrace water management and that the others in it would increasingly become aware that they were in that field and so seek to 'catch up'. This leads to a clear potential for further research. Further research could explore how that expectation of developing homogenization then progressed. Will water management proceed beyond 2009 to be institutionalized in large water consuming organisations in Sydney and how will that unfold and come to pass?

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