

## An international review of the challenges associated with securing 'buy-in' for water safety plans within providers of drinking water supplies

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### ABSTRACT

Since publication of the 3rd Edition of the World Health Organisation (WHO) Drinking Water Quality guidelines, global adoption of water safety plans (WSPs) has been gathering momentum. Most guidance lists managerial commitment and 'buy-in' as critical to the success of WSP implementation; yet the detail on how to generate it is lacking. This commentary discusses aspects of managerial commitment to WSPs. We argue that the public health motivator should be clearer and a paramount objective and not lost among other, albeit legitimate, drivers such as political or regulatory pressures and financial efficiency.

**Key words** | advocacy, commitment, public health, risk management, water safety plans

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### INTRODUCTION

2004 was a key year for the promotion of water safety plans (WSPs), a preventative catchment to consumer risk management approach for the provision of safe drinking water, as the limitations of end product testing were realised (Deere & Davison 1998; O'Connor 2002; Rizak *et al.* 2003). Though related approaches, such as the hazard analysis and critical control points (HACCP) methodology (Havelaar 1994; Deere & Davison 1998; Gissurason & Thoroddsson 2000; Hellie 2003) had previously been used, the revised WHO guidelines for drinking water quality, the International Water Association's (IWA) Bonn Charter for safe drinking water, and before them, the Australian guidelines for drinking water quality, placed a renewed emphasis on preventative risk management (Hrudey & Hrudey 2004; IWA 2004; NHMRC 2004; WHO 2004a). Such methods are rapidly being implemented across the globe (Table 1).

The objectives of a WSP are to prevent contamination of raw water sources, treat water to remove contamination and prevent re-contamination during storage, distribution and handling. The primary aim is to protect public health through system assessment, operational monitoring and management plans; guided by health-based targets and

overseen by surveillance (Davison *et al.* 2005). One aspect that most WSP guidance and case studies agree on is that 'buy-in' from across the organisation, particularly senior management, is imperative to successful implementation (IWA 2004; NHMRC 2004; WHO 2004a; Godfrey & Howard 2005).

A research interest in risk analysis tools and risk management frameworks within the water sector has been developed (MacGillivray *et al.* 2006; MacGillivray & Pollard 2008; Pollard 2008). These are a necessary but insufficient basis for improved vigilance on the ground. Our recent studies confirm that the organisational infrastructure of risk champions, risk management committees and risk registers are also insufficient, in isolation. One utility manager noted: 'I think that one of the main barriers is convincing senior managers – they have to buy into [preventative risk management]' (Pollard *et al.* 2007). In our experience, organisational commitment to the safe drinking water agenda cannot be taken for granted. We recognise that utility managers manage several competing priorities. However, without executive commitment, WSP development may inadvertently become a token gesture and not

**Table 1** | WSP initiatives around the world

Country/Region	Title/Summary	Reference
Australia	Australian drinking water guidelines, Framework for Management of Drinking Water Quality, recommend risk-management approach to water quality management based on HACCP, ISO 9001 and AS/NZ 4360. Risk management plans are a regulatory requirement in some states (Victoria)	NHMRC (2004)
Bangladesh	Development and implementation of WSPs for small water supplies in Bangladesh': Case study from describing how WSPs can be developed and implemented for small systems in developing countries. Describes development of simplified tools for community use	Mahmud <i>et al.</i> (2007)
Europe	European Commission Drinking Water Directive - working group providing guidance to the EC on how to integrate the WSP concept into revised legislation	European Commission (2008)
Europe	TECHNEAU, an integrated project funded by the European commission, challenges the ability of traditional system and technology solutions for drinking water supply to cope with present and future global threats and opportunities. Work Area 4 is focusing on risk management	Techneau (2009)
Europe	'Water Safety Plans in Pictures' A WECF initiative to provide tools to schoolchildren and local communities in rural Europe to improve water safety based on WHO WSP methodology	WECF (2008)
Hong Kong	Water Safety Plan for Water Supplies Department developed in 2005, implemented in 2007	Government of Hong Kong (2007)
Iceland	HACCP and water safety plans in Icelandic water supply: Preliminary evaluation of experience	Gunnarsdóttir & Gissurarson (2008)
India	Case study of Water Safety Plan development in Guntur, India according to WHO guidelines	Godfrey & Howard (2005)
Japan	Japan's trial introduction of HACCP into water quality management. Investigation into a practical procedure in introducing the HACCP into water quality management in Japan	Yokoi <i>et al.</i> (2006)
Latin America	'WaterPlus' Partnership between PAHO, CDC and EPA to implement WSPs in Latin American and Caribbean countries	PAHO-CDC-EPA (2009)
New Zealand	Public Health Risk Management Plans regulatory requirement for supplies to more than 500 people under The Health (Drinking Water) Amendment Act 2007 and encouraged for smaller supplies through guidance	NZMOH (2001)
Pacific Islands	Pacific Water Safety Plans Programme to implement WSPs in Pacific Islands - Joint programme with SOPAC, WHO and IAS, funding from AUSAid	SOPAC (2008)
Portugal	Water Safety Plans: methodologies for risk assessment and risk management in drinking water systems. Book chapter giving overview of first 2 years implementing WSPs in Portuguese water company, demonstrating value of the methodology	Viera (2007)
South Africa	Annex C of South African National Drinking Water Standard (SANS 241) sets out a guideline recommending implementation of WSP approach	DWAF (2008)
Taiwan	Integrated water management plans towards sustainability: the Taiwan experience. Water Safety Plan was developed as the 'Green Blue-Print' for the development of strategies and guidelines of national sustainable water environment	Chiang <i>et al.</i> (2007)
Uganda	Case study of Water Safety Plan development in Uganda according to WHO guidelines	Godfrey & Howard (2005)
UK	Funding for improvement plans under PR09 will only be considered if identified through the WSP approach, and 2007 amendments to Water Supply (Water Quality) Regulations 2000, state that risk management plans should be developed for each supply system	<a href="http://www.dwi.gov.uk/">http://www.dwi.gov.uk/</a>

fulfil its potential. Hellier (2003) noted, in describing the application of HACCP in a water company, that even the best management systems do not deliver safe water alone; well trained people committed to the protection of public health will always be essential. This commentary considers why such commitment is important; taking into account issues of leadership and organisational culture. We examine why buy-in is so challenging and emphasise the importance of leadership in public health to the delivery of preventative risk management. We reconsider the fundamental aim of WSPs – the public health imperative – and how this responsibility is expressed in the basic business assumptions of water suppliers. In doing so, we reflect on other fields such as organisational health and safety and the literature on leadership. Our comments follow recent studies that have explored risk management maturity in water utilities (Dagleish & Cooper 2005; MacGillivray 2006) and the concept of ‘mindfulness’ as applied to the water sector (Pollard *et al.* 2008b). Both we regard as essential and are dependent on organisational commitment and effective utility leadership.

## A RATIONALE FOR WSPS

A total of 884 million people (13% of the global population) lack access to improved water supplies, whilst 1.8 million deaths occur annually from diarrhoeal disease, mostly in developing countries, and which are attributable to contaminated water supplies (WHO/UNICEF 2008). Millions more become ill through water-related diseases such as hepatitis A, parasites, arsenic poisoning and fluorosis, some of which are life threatening (WHO 2004b).

Disease outbreaks are not restricted to less developed countries. Hrudehy & Hrudehy (2004) documented over 60 case studies of waterborne pathogen outbreaks in affluent nations from the last 30 years, analysing the causes of these failures in order to draw out insights that might prevent future ones. They caution against viewing public health protection as equivalent to other business priorities and offer guiding principles for the provision of safe drinking water developed from recurring themes from past outbreaks (Hrudehy & Hrudehy 2004):

- Pathogens pose the greatest risk (pathogen removal and disinfection should be of paramount concern).
- Robust, effective multiple barriers to drinking water contamination are needed based on the contamination challenge to the raw water source.
- Trouble is preceded by change, so change should be taken as a warning.
- Operators must be capable and responsive.
- Drinking water professionals must be accountable to drinking water consumers.
- Ensuring safety is an exercise in risk management, requiring sensible decisions in the face of uncertainty.

Whilst the WSP concept has been familiar for some years in high and middle income countries, WSPs *per se* are still not common, and in low income countries are rare. Many water suppliers argue they have been managing risk in this way for years, yet outbreaks and accidents continue in spite of reports identifying the reasons behind such events. In the UK for example, we have witnessed a number of *Cryptosporidium* incidents, with boil notices issued (Table 2) despite *Cryptosporidium* risk assessments being a regulatory requirement since 1999 (DWI 1999) and the active promotion of WSPs since 2004 (DWI 2004).

**Table 2** | Publicised *Cryptosporidium* incidents in the UK 2005–2008 (BBC 2009)

Location	Date	Details
North Wales	August 2008	45,000 people issued boil water notice following increase in <i>Cryptosporidium</i>
Northampton	June 2008	250,000 people issued boil water notice following contamination of water
Catterick Garrison	Dec 2007	Boil water notice for military area and 2,000 residential properties following contamination
Scotland	Summer 2007	Several Scottish towns issued with boil water notices following detection of cryptosporidium over summer months
Norfolk	June 2007	6,000 households told to boil water
North Wales	November 2005	231 cases of cryptosporidiosis. 70,000 homes told to boil water for 2 months

## MANAGERIAL COMMITMENT AND 'BUY-IN'

In developed countries, WSPs assist in refining operating procedures, raising awareness of the causal agents of waterborne disease, and establishing investment priorities (Rouse 2007); yet despite the benefits, organisational buy-in can be elusive. WSPs may be misconstrued as bureaucratic exercises in auditing unit processes, as an imposed regulatory burden, or as 'another head office initiative'. Preventative risk management, by its very nature should deliver fewer adverse incidents, but because tangible operational evidence for this can be scarce especially when operations appear 'OK', investment may be hard to justify. A recent IWA survey (Zimmer & Hinkfuss 2007) discusses a range of barriers that prevented water suppliers implementing WSPs effectively, such as a lack of skills, knowledge and finance, poor institutional arrangements, and uncertainty over how best to implement them. This uncertainty may result in an unwillingness to invest in WSP development. Reasons for this resistance (Zimmer & Hinkfuss 2007) include:

- More work for staff.
- Competition with other projects.
- Resistance to change/cultural barriers.
- Cost/time constraints.
- An absence of upfront investment, with a lack of demonstrable outcomes.

In response, the IWA is developing a toolbox of resources that will assist utilities in overcoming these barriers and implementing the aims of the Bonn Charter, specifically WSPs (Pollard *et al.* 2008a).

### Existing WSP guidance

Rudimentary attempts have been made at guiding utility managers on the benefits of WSPs. The WHO publication 'Water Safety Plans' (Davison *et al.* 2005) offers some arguments that senior managers may find attractive in the WSP concept, such as the demonstration of best practice application, potential savings and improvements in asset management. The guidance is concise and managers may require a more developed rationale. The WHO WSP manual acknowledges 'Implementation requires commitment at all levels within the organisation' (WHO 2009).

The Australian guidelines for the management of drinking water quality (NHMRC 2004) suggest actions such as WSP policy production, communication and engagement of stakeholders as demonstration of commitment. Godfrey & Howard (2005) offer valuable suggestions to those in developing countries promoting benefits such as cost savings, the demonstration of best practice, quality assurance versus quality control and offer a decision tree for promoting the case for WSP development. One might argue, however, that listing benefits such as cost savings first, though of added value, might detract from the primary aim of WSPs: the protection of public health.

Notwithstanding the useful pointers above, there remains a lack of documented evidence that describes what attributes and actions of leaders might instil the enthusiasm and competency of their workforce and relevant stakeholders to be mindful, and proactively manage risk. This raises a broader and arguably more fundamental issue of the differing motivations between the various stakeholders associated with WSPs, and the differing motivations within any single stakeholder group. For example, in the context of low-income countries, public health and water quality are often the main drivers of national Governments, public health professionals and organisations such as WHO. For donor organisations, water quantity is often emphasised, especially in emergency and relief contexts: 'in the initial phase of a disaster, quantity is more important than quality' (Sphere 2004). For those implementing projects, completion within budget and time are often the main drivers. For the collectors of water, invariably women and children, improved access is the primary concern, whereas for men, water quality is paramount (Webster 2006). Similar differences occur within organisations in developed countries: the vision of public health may originate with leaders, but managers are under pressure to deliver the corporate vision to budget and time, and field implementation may be more concerned with quality and service. The danger is that the rationale and vision get diffused.

### Leadership and organisational culture

Despite the lack of documented guidance on generating buy-in for WSPs and the specific influence of leaders in this regard, much can be learnt from the organisational culture

literature. Setting the right tone at the top of an organisation has a marked influence on an organisational culture of risk management. [Tolbert & Zucker \(1996\)](#) identify three stages for the implementation of a new practice, which can be applied to WSPs:

1. 'Pre-institutionalisation', where there are few adopters and limited knowledge.
2. 'Semi-institutionalisation', where knowledge of the practice is widely diffused but it has a short history and is not yet permanent, possibly with a 'fad' quality.
3. 'Full institutionalisation', where the practice is efficient and necessary.

One could argue that WSPs within the global water sector are in the semi-institutionalisation stage (2). What happens during this stage determines whether the practice becomes institutionalised, or forgotten as a 'fad'. [Tolbert & Zucker \(1996\)](#) are clear that acceptance of a new practice as the norm is strongly affected by the actions of management.

Managerial commitment extends beyond the supply of resources. Leadership influences the organisational culture of risk management. [Schein \(2004\)](#) defined organisational culture as 'a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems'. More simply, the attitudes, experiences, norms, beliefs and values of an organisation. [Hall \(1973\)](#) defined 'explicit culture' as being represented by things people talk about and can be specific about, and 'implicit culture' as referring to those aspects that are not readily talked about, but rather are often taken for granted or exist on the fringes of awareness. [Webster \(2006\)](#) stresses the importance of the distinction between explicit and implicit culture, and the need to move towards explicit culture with regards the development of WSPs. Given the challenges of implementing any change within a sector with challenging skills shortages and the loss through retirements of corporate expertise, the consideration of organisational culture is gaining more attention among bodies seeking to implement effective risk management ([Pollard \*et al.\* 2008b](#); [McGillivray & Pollard 2008](#)). For example, PricewaterhouseCoopers (PWC) undertook

a risk culture survey suspecting that less than optimal cultures hinder a company's risk management practices ([PWC 2003](#)). The concern expressed was that any organisation can 'go through the motions' of risk assessment, or by extension, produce a WSP, but to be truly effective the whole organisation must be behind the implementation. [PWC \(2003\)](#) identify key points that indicate cultural problems within an organisation:

- A lack of awareness and understanding of business risks throughout the enterprise.
- Business risks and control perspectives at the 'top' not linked to perspectives of people on the 'front lines'.
- An inability to operationalise risk management strategies through action plans that align key business initiatives with systemic risks.
- Improper ethics and compliance practices.
- 'Ineffective people strategy'.

These problems are inherently linked to what management researchers refer to as the 'tone at the top'. To change cultural attitudes that have become embedded within an organisation for many years is not easy, but organisations can make steps to improve it through effective leadership ([Schein 2004](#)). In his studies of culture and organisational incidents, [Reason \(1998\)](#) argues that by changing aspects such as the structures, practices, policies and procedures within an organisation, then beliefs, attitude and norms can be attuned. Much can be learnt here from the activities of so-called 'high reliability organisations' (HROs). HROs, such as nuclear power plants, navy submarines and air traffic control centres have few accidents ([Roberts & Bea 2001](#)). Investigations into their management culture reveal important insights for water utilities seeking to progress towards best practice ([Bradshaw \*et al.\* 2009](#)). Leaders within HROs recognise that human error occurs, but also that human variability and an ability to adapt to changing events is an important safeguard. These organisations focus on the system at large, seeking to remove error promoting properties through ([Reason 1998](#)):

- establishing of an effective reporting culture;
- analysing in detail the occurrence of incidents and close calls to uncover the recurrent 'error traps'; and
- striving to imagine new scenarios that could occur and protect against these.

These features contribute to developing a 'mindful' organisation; one that has a collective preoccupation with the possibility of failure and its root causes, has a reluctance to oversimplify, is sensitive to operations, committed to resilience and deferential to expertise (Weick & Sutcliffe 2006). Leaders are instrumental in creating this mindful culture. Kotter (1990) proposed six tasks that are needed to effect culture change, of which Ruchlin *et al.* (2004) argued three were leadership tasks and important in creating a high reliability organisation: (i) establish direction; (ii) aligning people; and (iii) motivating and inspiring people. Clarke & Ward (2006) also highlighted the pivotal role of leaders in high reliability organisations relating to safety behaviour, showing that leader influence tactics such as rational persuasion, consultation, coalition and inspirational appeals had a significant effect on individual employee behaviour. Lessons may be learned from these organisations by leaders wishing to influence behaviours relating to public health and safety in the provision of drinking water. Hrudefy *et al.* (2006) developed ideas on HROs to suggest elements that water utilities may wish to consider when trying to develop mindfulness:

- Informed vigilance actively promoted and rewarded.
  - An understanding of the entire system, its challenges and limitations are promoted and actively maintained.
  - Effective, real-time treatment process control, based on understanding critical capabilities and limitations of the technology, is the basic operating approach.
  - Fail-safe multi-barriers are actively identified and maintained at a level appropriate to the challenges facing the system.
  - Close calls (near misses) are documented and used to train staff about how the system responded under stress and to identify what measures are needed to make such events less likely in the future.
  - Operators, supervisors, lab personnel and management all understand that they are entrusted with protecting the public's health and are committed to honouring that responsibility above all else.
  - Operational personnel are afforded the status, training and remuneration commensurate with their responsibilities as guardians of the public's health.
  - Response capability and communication are improved.
- An overall continuous improvement, total quality management mentality pervades the organisation.

In stressing the need for commitment, we do not suggest the sector is not committed to public health protection; rather that in our view, it requires a renewed visibility. We seek to avoid a 'badge on the wall' mentality for WSPs, which has been associated with the inappropriate implementation of procedures such as HACCP and ISO 9001 for example (Hamilton *et al.* 2006). Kostova & Roth (2002) discuss the 'ceremonial adoption' of a practice, which occurs where a practice is implemented but employees do not believe in its true value, and thus results in a low level of 'internalisation'. This may occur where there are regulatory pressures to implement, yet the practice appears contrary to the organisational beliefs and values; for example, where a regulator stipulates that WSPs should be produced, yet the culture of the water supplier is rooted in compliance testing alone. Internalisation is vital for staff, because positive perceptions of improvement impact on implementation as well as ensuring longer term institutionalisation (Kostova & Roth 2002). It is here, in internalising WSPs within the organisation, where we believe managerial commitment is vital.

We perceive two problems for utility managers seeking to secure executive support for WSPs: (i) the lack of guidance on developing a compelling narrative that will secure buy-in; and (ii) an absence of a clear picture of what true commitment looks like. Mahmud *et al.* (2007) describe the successful implementation of WSPs in community-managed supplies in Bangladesh; systems traditionally challenged by the use of untrained community members to operate the water supply. The authors detail how the WSP was developed, but less so on how commitment was generated. The first stage of development was a conference where the discussions on the importance of WSPs took place and this 'resulted in a firm commitment from all stakeholders to implement WSPs in rural water supplies in Bangladesh'. A number of questions arise:

- What were the important aspects of WSPs that generated this commitment?
- Who were the stakeholders involved?
- Were the community operators involved at this point?
- What constituted *firm commitment*?

Following success of a pilot project, evidence could be used to generate more commitment using this example through regular interaction and sharing of information between organisations undertaking WSPs in Bangladesh (Mahmud *et al.* 2007). The WSP manual (WHO 2009) includes a number of case studies, one of which in the UK, briefly mentions managerial commitment, sought via provision of a short document outlining the methodology, implementation and expected achievements to senior managers and the board to obtain approval. Again, detail on the mechanisms and demonstration of commitment is limited.

Many examples from developing countries benefit from external funding and/or expertise in the form of research projects, and future commitment could have been generated by the implementation phase. Commitment may not be so easy to get in an organisation with little money, or in those organisations yet to undertake a pilot project. Gregor (2007) comments on the importance of local commitment and buy in when implementing WSPs in developing countries, where the driver comes from external aid agencies and non-governmental organisations (NGOs). Commenting on WSP implementation in the Pacific Islands, Gregor (2007) describes the aim of enhancing local capacity and involving governments in water safety planning so that when external agencies leave, a legacy of local ownership and sustainability is secured. Local commitment was developed through participative workshops, and one-on-one training for water utilities with experts. Similarly, reflecting on the development of a separate WSP in the Caribbean (EEM Ltd 2006), senior managers at the water authority and key stakeholders were not engaged until the end of the process, which then proved difficult. Had regular meetings with senior management been incorporated, buy-in to the recommendations from the plan may have been easier to secure.

From developed nations, there is limited reference to managerial commitment in the case study literature. Mullenger *et al.* (2002) describe the experience of South East Water Limited, Australia, in implementing HACCP plans for drinking water. They document a wide range of benefits for the organization, such as a greater understanding of water quality issues, more streamlined work procedures and improved customer responses, giving rise to

a reduction in the number of complaints received. Initial managerial commitment is not discussed, but it was noted that 'the initial reaction of most staff to the implementation of HACCP was not favourable'. Although these attitudes changed towards the end of the project, little detail was given on attempts to secure commitment at the outset, and the role that senior managers played.

## LESSONS FROM OTHER FIELDS

There is a substantive literature on safety culture relevant to this discussion. In considering safety culture, Hopkins (2005) argues that creating the right mindset among employees is ultimately an issue of managerial commitment. Woerner (1996) also comments: 'Without true management commitment and visibility throughout the operation, the safety program will never reach its greatest potential'. Cooper (2006) and Gyekye & Salminen (2007), demonstrated a close correlation in workplace safety perception and the perceived support from management. Flin (2003) suggests once managers are committed, they should regularly check this commitment is communicated to their employees through surveys of perceptions and upward appraisal. Fernandez-Muniz *et al.* (2007) showed that managers influence the safety culture of employees in two ways: indirectly through support and funding for implementation and development of a safety management system; and directly through positive attitudes and behaviours. They argue that positive words in formal declarations are insufficient to modify employee behaviour, and so managers must become personally involved in day to day actions in order to demonstrate commitment and modify behaviours. Likewise Flin (2003) argues that good safety management goes beyond knowing the 'safety script' and Hopkins (2005) cautions that too often, leaders think that they can achieve safe operation by publicly stating that safety comes first, but then leaving it to others. This, he argues, inadvertently conveys a message about priorities and he then summarises several surveys which found that whilst senior managers considered they put safety first, 'coal-face' workers did not agree. Given these observations, we propose further investigations into the communication of the basic business assumption of water suppliers, both within the

organisations and to external stakeholders. Cost–benefit arguments and being able to demonstrate that best-practice is being undertaken may be helpful in getting the ‘go-ahead’ for a project but may inadvertently, promote a ‘badge on the wall’ mentality and foster complacency. [Hrudey & Hrudey \(2004\)](#) observed: ‘So many outbreaks appear to have been caused by neglect or complacency that is incompatible with recognizing safe, clean drinking water as a top priority in life. No amount of economic rationalisation can make sense of providing mediocre service to the public for something so vitally important’.

Charismatic leaders influence commitment in the workforce. This is supported by ([Shamir \*et al.\* 1993](#)) who argue that charismatic leaders engage followers self-concepts in the interest of the mission articulated by that leader. [Schein \(2004\)](#) highlights however that such leaders are rare, and most actively embed values in the organisation and thus influence commitment to practices such as WSPs through:

Primary embedding mechanisms:

- What leaders pay attention to, measure & control on a regular basis.
- How leaders react to critical incidents and crises.
- How leaders allocate resources.
- Deliberate role modelling, teaching and coaching.
- How leaders allocate rewards & status.
- How leaders recruit, select, promote and excommunicate.

Secondary articulation and reinforcement mechanisms:

- Organisational design and structure.
- Organisational systems and procedures.
- Rights and rituals of the organisation.
- Design of the physical space, facades and buildings.
- Stories about important events and people.
- Formal statements of organisational philosophy and character.

‘Following the incident, the director came to us and asked us what we could do to prevent any similar thing from happening again’. This quote comes from an interview with a water utility employee ([Pollard \*et al.\* 2007](#)). While this shows that leaders in the organisation paid attention to quality and was concerned that incidents didn’t occur in the future, it also highlights a concern that in order to take risk

management seriously, such an event needs to occur in the first place. If such events do not happen for some time, there is risk of complacency. Again, we may learn from the experiences of safety culture. In their guidance document ‘Strategies for leadership’ the American Hospital Association ([Conway 2001](#)) considered hospital executives and their role in patient safety and acknowledged that through effective leadership, significant safety improvements could be made ‘Without waiting until a highly public sentinel event forced their hand’.

### WILL DEEPER COMMITMENT INFLUENCE UPTAKE OF WSPS?

We observe that commitment to public health appears infrequently within corporate aims and objectives. During this review, 91 English language water supplier websites from across the world were looked at, of these, 61 presented some form of corporate statement (aims, objectives, visions and mission). Of these 61, 42 (69%) included references to financial goals, 36 (59%) to environmental goals and 25 (41%) included reference to public health or safety of the water supplied. How should these priorities be managed in concert to ensure water safety and good risk governance? [Roberts & Bea \(2001\)](#) show that HROs balance long term safety with short term financial goals and observe that ‘when organisations focus on today’s profits without consideration of tomorrow’s problems, the likelihood of accidents increases’. Serious water quality incidents continue to occur. What is needed, we believe, is a restatement (with evidence) of the commitment to protect public health driven by the broader requirements of organisational reliability, rather than financial efficiency—a refreshed set of basic business assumptions for the water sector.

[Schneider & Shrivastava \(1988\)](#) maintain the strategic behaviour of organisations can be understood by exploring these basic business assumptions - the content and structure of which determines organisational culture. Using [Schein’s \(2004\)](#) definition of basic assumptions, perceptions, thoughts, feelings and actions can be articulated in stories, symbols and behaviours that ‘reinforce, institutionalise,



and promote organisation-wide sharing' (Schneider & Shrivastava 1988). The authors describe three levels at which these psychodynamics operate: individual, group and organisational, with the individual and group level contributing to the organisational level, and *vice versa*. Individual psychodynamics contribute to organisational mission, particularly of those at the top such as Chief Executive Officers. Wider organisational buy-in for projects or new ways of working may be helped or hindered by the views of these key individuals. Group dynamics also facilitate or hinder performance, particularly within strategic decision-making groups. As Schneider & Shrivastava (1988) note, there are often sub-cultures within organisations with different basic assumptions. Within the context of WSP implementation, where stakeholder involvement (both internal and external) is so often quoted as important, this may be highly influential; for example where the organisation is responsible for water supply (public health protection) and wastewater treatment (environmental considerations) and, where privatisation of the water supply has occurred, financial considerations will be prevalent. There are different aspects to these basic assumptions that must also be considered; namely, the number, pervasiveness, intensity and explicitness (Schneider & Shrivastava 1988). Broadly shared basic assumptions (e.g. guardian of public health) between departments and levels may promote greater commitment (e.g. to WSPs). The intensity with which this is held may result in uncommitted compliance ('lip-service') or incorporation (the belief that WSPs are truly implemented with the aim of protecting public health). The ongoing questioning and testing of these basic assumptions may help ensure performance and good decision making, and in this case ensure employees are aware of *why* public health protection is important.

DiMaggio & Powell (1983) identified three typologies for organisations adopting new practices:

1. Coercive, where the practice is imposed by a more powerful authority.
2. Mimetic, where an organisation adopts the practices of more successful organisations; and
3. Normative, when the organisation adopts practices that it considers appropriate.

One might argue that where the process is normative, internalisation of the practice will be greater.

We argue, with others (Hrudey & Walker 2005), for a restatement to staff, customers and stakeholders, of the organisational commitment to safe drinking water and the adoption of preventative risk management. It is easy to assume the basic assumptions of public health protection are universally shared within a water supplier, but we know from bitter experience, this is rarely the case. Staff turnover, retirements, downsizing, outsourcing and generational influences all affect how pervasive the public health imperative is within water suppliers. Particularly when the regulatory push to implement is strong, as it currently is, organisations rooted in compliance may not see the strategic value of new practices (Kostova & Roth 2002).

## CONCLUSIONS

Water safety plans represent a generational opportunity to promote preventative risk management within water suppliers. However, to ensure success, the whole organisation – especially senior management – need to be advocates of the method as a means for protecting public health. Guidance on securing buy-in is limited and too often focuses simply on endorsing a policy, or using financial efficiency arguments to generate support.

In advancing these ideas, we do not wish to appear naive. We recognise the difference of emphasis between public health professionals and water utility managers on the role of WSPs and risk based approaches. In practice, water utility managers have a broader view of the objectives of their organisations and the benefits that a risk-based approach could bring. The Bonn Charter recognises these broader objectives such as customer trust and water acceptability, as well as health. Additionally, most utilities, certainly in developed countries, place a huge emphasis on customer service. Their customers regard the safety and reliability of water as paramount, but this is often articulated in a personalised way rather than as a societal commitment to the public health agenda. Possibly, this is because the importance of water and sanitation as a public health measure is taken for granted and has thus been inadvertently demoted as a primary motivator of behaviour.

Water managers have to manage a wide range of varying priorities including the latest external political, media or regulator external pressures to manage (leakage, drought, bills, flooding, social tariffs). We recognise this does not mean that they regard health and water safety as less important; rather that it risks dropping off their radar under normal operating business conditions. We argue here that the public health motivator should be more clearly brought out in the WSP process as a paramount objective and not lost among the other legitimate drivers. Further, this should apply to all stakeholders and not just utilities. We offer the following initial suggestions to water utility leaders:

- Recognise that the benefits of supporting risk management are likely to include fewer incidents.
- Recognise that organisational culture will have a great influence on the effectiveness of WSP implementation and that leaders are key in developing this.
- Reinforcing the public health responsibility of the organisation amongst staff may help generate buy-in to WSPs.
- Avoid complacency, events of public health significance still happen, even in developed countries, be proactive.
- Do not neglect long term safety improvements over short term financial gains.
- Value sound risk governance as a strategic business asset in its own right.
- Consider the benefits of improved regulatory (and stakeholder) confidence that flow from good risk management.
- Greater knowledge is likely to deliver improved implementation.
- Challenging the beliefs and attitudes of staff with regards to WSPs will support internalisation as well as implementation.

Ongoing IWA-funded research is providing resources for water utilities seeking to implement preventative risk management practices. Continued research in the area of buy-in and commitment by the authors will feed into this, providing additional insights and practical assistance.

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