



## *What is the **Brian Robinson Foundation?***

*The Brian Robinson Foundation was established in 2004 by the Victorian State Government to nurture young people making a significant contribution to the future sustainability of Victoria, in recognition of Dr Brian Robinson's (AM) contribution to Victoria. Dr Robinson's commitment to sustainability principles during his 30-year career has benefited all Victorians and shaped the direction of environment protection in Australia. As EPA Victoria Chairman for 15 years, Dr Robinson established broad policies to protect Victoria's air quality, ground water, and freshwater and marine ecosystems, as well as specific policies for Port Phillip Bay, the Yarra River and Westernport Bay.*

*The 'Principles to Practice' Fellowship has enabled Dr. Brian Robinson's contribution to Victoria to be continued by enabling Fellowship recipient, Jacquie White, to lead a study tour to North America and Canada with nine emerging leaders from across the water sector increasing and demonstrating their ability to shape a sustainable water future locally, nationally and internationally.*

***“We must be the change we want to see in the world”.***

*Mahatma Gandhi*

## CONTENTS

1	EXECUTIVE SUMMARY	4
2	INTRODUCTION	5
	2.1 Rationale	5
	2.2 We have the technology	6
	2.3 Filling the gap between technology and implementation	6
3	CONTEXT	8
	3.1 The role of a change agent	9
	3.2 The story so far	9
4	METHODOLOGY	10
5	ATTRIBUTES OF A CHANGE AGENT	12
	5.1 Sight – synthesising multiple points of view	13
	5.2 Support systems	14
	5.3 Deployment strategies	15
	5.4 Language	15
	5.5 Personal practice – the consequences of change	16
	5.6 Power strategies – the value of knowledge and information	17
	5.7 The environment of a change agent	17
	5.8 Attributes of an international change agent	18
6	IMPACT AND OUTCOMES FROM THE STUDY TOUR	19
	6.1 Factors contributing to success in achieving sustainable urban water management	20
	6.2 Relevance and transferability of study tour outcomes	21
	6.3 Establishing a framework for reporting	22
	6.4 Reinforcing the key attributes of a change agent	22
	6.5 Establishing an ongoing network	23
7	FOSTERING A COMMUNITY OF CHANGE AGENTS FOR SUSTAINABLE URBAN WATER MANAGEMENT	23
	7.1 Developing change agents for sustainable urban water management	25
	7.2 Creating the environment for an effective change agent	26
	7.3 Effective capacity building interventions as catalysts for change	26
	7.4 Are interventions such as a study tour worthwhile?	27
8	CONCLUSIONS	27
9	RECOMMENDATIONS AND OPPORTUNITIES	28
	9.1 Further recommendations	30
10	REFLECTIONS	32
11	ACKNOWLEDGEMENTS	32
12	REFERENCES	33
13	APPENDICES	
	Appendix 1: <i>Principles to Practice</i> study tour itinerary	34
	Appendix 2: Media snapshot	36
	Appendix 3: <i>Principles to Practice</i> methodology	38
	Appendix 4: Key lessons from the study tour	41
	Appendix 5: International Case Studies	46
	Appendix 6: Key recommendations by participants	48
	Appendix 7: Participant reflections	50

## 1 EXECUTIVE SUMMARY

In the driest continent on earth population growth, extended drought conditions and the potential impact of climate change have driven home the need for an integrated approach to water management.

In Victoria, new policy directions such as the Victorian Government's Our Water, Our Future policy statement and changes to the Victorian Planning Provisions require widespread implementation of sustainable urban water management practices.

Yet research shows that widespread implementation is hindered by limited confidence and capacity, and a lack of technical understanding (Brown 2005, Ecological Engineering 2005 and Lloyd 2004).

Local government, water authorities, water industry organisations and developers face many challenges in delivering sustainable solutions to urban water management. One of the most significant challenges is managing the cultural and organisational changes necessary to adopt new ways of thinking and to become leaders in implementing new approaches.

Exploring ways to overcome these cultural and organisational challenges was the aim of the *Principles to Practice* project.

The *Principles to Practice* project was made possible by a Brian Robinson Foundation fellowship, designed to support young people making a significant contribution to the future sustainability of Victoria.

Inaugural fellowship winner Jacquie White developed *Principles to Practice* to explore socio-organisational issues associated with implementing sustainable water management, and identify factors that influence effective knowledge building and information sharing.

The project investigated ways for the water industry to support the development of a group of committed and experienced change agents who understand interpersonal and organisational perspectives as well as the technical aspects of sustainable urban water management.

*Principles to Practice* found that strategic investment by the water industry in the development of change agents is essential to drive a culture of change and implement sustainable urban water management.

By investing in well informed, supported and developed change agents, the water industry can fast-track the change process across all organisations, not just the high performing ones.



This strategic investment should take the following forms:

- **Establish a formal network of change agents**

A formal network comprising identified and potential change agents from a diversity of water industry organisations and organisational change professionals should be created in Victoria.

- **Create a development fund**

A development fund is essential for encouraging participation of new people with fresh ideas and new perspectives. The fund would establish innovative ways to reward and recognise sustainable water management change agents, develop their skills, and maintain momentum, energy and enthusiasm.

- **Build the capacity of change agents**

Develop a professional, multi-discipline and multi-organisational capacity building program specifically targeting the development of change agents for the water sector. Capacity building initiatives must develop the key attributes of change agents identified in *Principles to Practice* in order to develop necessary technical and inter-personal knowledge and skills.

*Principles to Practice* has had a ripple effect within the water industry; project outcomes and information continue to be disseminated to water industry stakeholders and organisations across Australia and New Zealand, well beyond the project's initial 12-month lifespan.



## 2 INTRODUCTION

This report presents the key outcomes, findings and recommendations from the 2005 Brian Robinson Foundation inaugural Fellowship - "Sustainable Urban Water Management - Transforming *Principles to Practice* (*Principles to Practice*)".

*Principles to Practice* focused on the delivery of sustainable approaches to water management in Victoria - how we translate principles (found in policy, guidelines, technical manuals, or leading-edge organisations) into practice - how we realise the vision of water sensitive urban design, water recycling, stormwater reuse, and other key elements of sustainable water management.

*Principles to Practice* looked at the role of change agents in the water industry, and examined the factors that determine their ability to influence sustainable urban water management.<sup>1</sup> Working with identified change agents, the project identified key attributes of change agents, and developed a pilot model for 'capacity building'. This model was designed to improve the transfer of scientific knowledge and expertise in sustainable urban water management (principles) into on-ground implementation (practice).

The project took eight young water industry professionals on an international study tour to speak with influential leaders of the water industry across Victoria, North America and Canada, to review best practice in sustainable urban water management, and to assess social and institutional issues associated with successful change.

The project investigated ways for the water industry to support the development of a group of committed and experienced change agents who understand interpersonal and organisational perspectives as well as the technical aspects of sustainable urban water management.

## 2.1 RATIONALE

*Principles to Practice* project manager Jacquie White:

*"In my role as Manager of the Clearwater Program I was running events and training in best practice water management for local government and industry professionals across Victoria."*<sup>2</sup>

*"I constantly heard from participants about issues and barriers to implementing more sustainable water management practices."*

*"It seemed that achieving a more sustainable approach to water management in Victoria wasn't so much about the technical issues."*

*"It was more about the capacity of individuals and organisations to translate and implement it."*

The evaluation data generated from the Clearwater events indicated the large majority of participants had less than five years experience not only in water management, but also as employees of their organisation.

This group were frustrated in their efforts to influence, to negotiate, and to drive a different approach or change to water management.

This frustration occurred across teams, departments and external stakeholders, who appeared accustomed to more traditional water management approaches.

To address these issues the Clearwater Leadership Program was established, working specifically with this group of individuals to build their skills in effective communication, listening, negotiation and influencing.<sup>3</sup>



<sup>1</sup> Change agents or champions, for the purposes of this report, are "people who decide to overtly and energetically support greater awareness and implementation of sustainable urban water management regardless of whether they have a specific or formal responsibility to do so" (Bright, 2006).

<sup>2</sup> Clearwater is the Victoria capacity building program established in 2002- a joint initiative of the Municipal Association of Victoria, EPA Victoria, Melbourne Water and the Stormwater Industry Association of Victoria.

<sup>3</sup> The Clearwater Leadership Program was developed in 2003 by Clearwater.

## 2.2 WE HAVE THE TECHNOLOGY

Many of the technical tools and resources needed to plan, design and implement more sustainable approaches to water management have been developed. However, technical capability alone does not necessarily guarantee an impact on the ground. Critical to implementation is the translation of technical principles into practice - shifting from commitment to actual on ground practice.

The ability of organisations to achieve this requires more than technical knowledge. It requires the development of individuals and the institutional capacity of organisations. It also relies on individuals and organisations to work effectively across different professional perspectives and organisational silos in order to lead innovative water management solutions and respond to new ideas and technologies.

As yet there are no manuals, guidelines or tailored training courses for building this capacity - this is where the 'technology' is still only emerging.

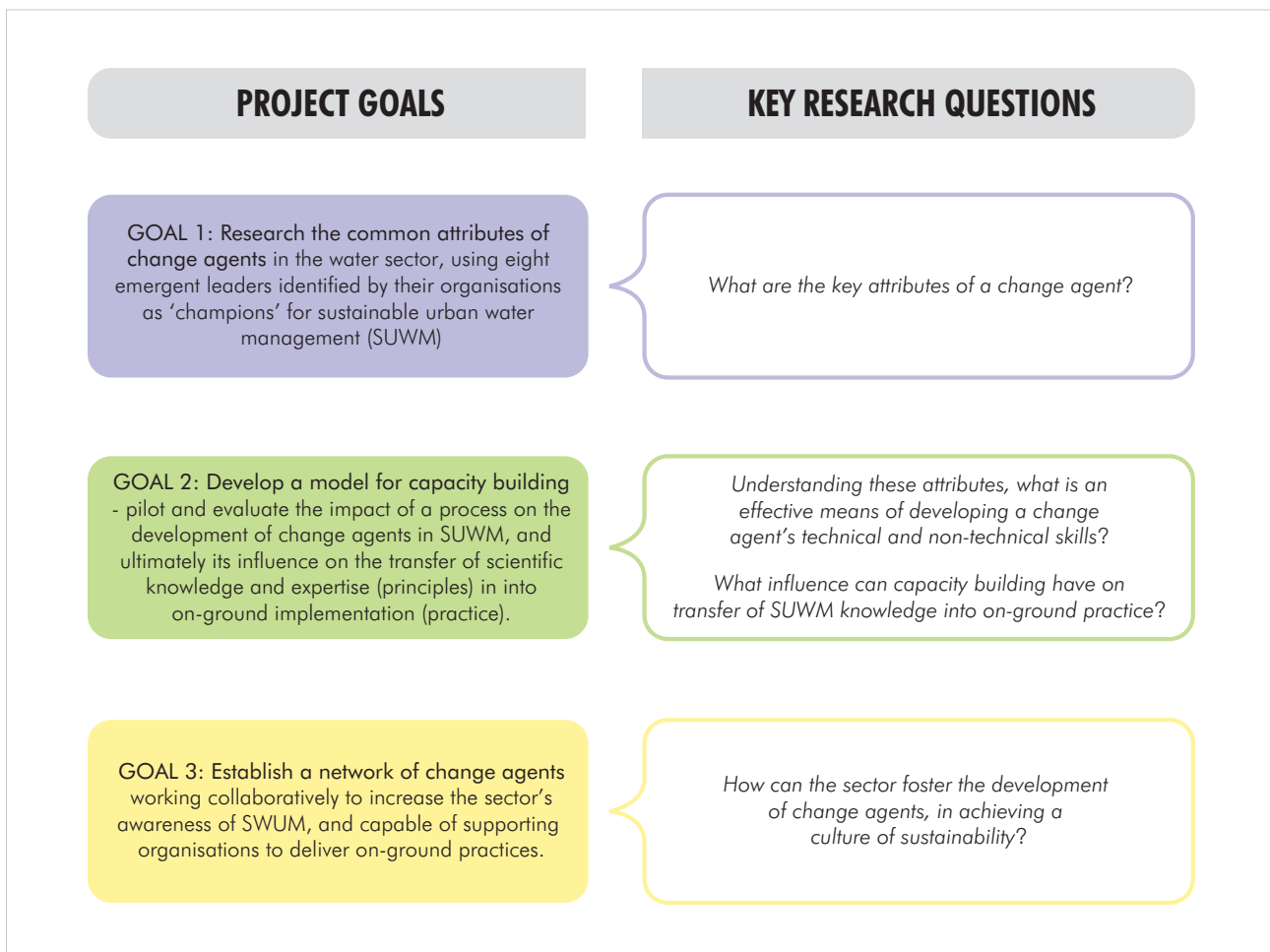
## 2.3 FILLING THE GAP BETWEEN TECHNOLOGY AND IMPLEMENTATION

*Principles to Practice* addresses a number of the institutional capacity issues associated with achieving sustainable urban water management in Victoria. The project focused specifically on the individuals - the change agents able to influence organisations and fast track the sector's ability to achieve a more sustainable approach to water management.

*Principles to Practice* was a 12-month project involving eight individuals identified by their organisations as change agents for sustainable urban water management.<sup>4</sup> They participated in research, capacity building, evaluation and debriefing initiatives including an international study tour to North America and Canada in October 2005.

*Principles to Practice* developed a process demonstrating how to recruit, identify, develop and foster a community of change agents for sustainable urban water management. This process is based on three key goals, and is described in the following diagram along with associated key research questions.

DIAGRAM 1 Principles to Practice goals and key research questions.



<sup>4</sup> Participating organisations: Melbourne Water, Coomes Consulting, Yarra Valley Water, MWH Australia, Auckland Regional Council (New Zealand), Melbourne City Council, Healthy Waterways Program (Brisbane).



***“Institutional impediments are not well addressed, and are often beyond current concerns of many sectors of the urban water industry, which are more concerned with strengthening technological and planning process expertise.”***

*Tony Wong (2006), Editor-in-Chief of Australian Runoff Quality*

The project identified common attributes of change agents involved in water management. These attributes were used to develop a clearer picture of how these individuals operate to influence and facilitate change in the water industry. This information helped identify ways the sector could develop existing and future change agents, and more formally recognise their role and impact.

The project also demonstrated how investment in training and development of change agents could improve the organisations' effectiveness in delivering sustainable on-ground practices.

Traditionally, change agents are recognised at the middle to senior management level, and literature focuses on the impact these individuals have on managing the economic costs of change. To date there has been limited research on the capacity and development needs of change agents focused on influencing environmental and social change. In particular, there is little analysis of the challenges change agents face in resolving potential conflicts between cost management and promoting environmental and social change within organisations and across the water sector.

There is however a growing awareness of the need for change agents in the water industry, and recognition of their influence on the institutional capacity of an organisation (Brown, 2005; Dunphy *et al*, 2003). This increased recognition was apparent at the recent International Conference on Water Sensitive Urban Design (April 2006). For the first time institutional capacity was a key conference theme, highlighting a variety of emerging non-technical issues associated with the implementation of a more sustainable approach to urban water management. (Dahlenberg, 2006; Edwards *et al*, 2006 and Newton *et al*, 2006).

*Principles to Practice* builds on this momentum. Although this project's sample size was relatively small, the commonality of the findings outlines a model informing the future identification, development, retention and nurturing of change agents for sustainable urban water management.

The findings begin to clarify how change agents build the institutional capacity of an organisation to deliver more sustainable approaches to water management. *Principles to Practice* also has the potential to act as a model for capacity building, applicable to a broader range of sustainability issues beyond urban water management.



### 3 CONTEXT

Traditionally, water management in Australia has seen water supply, stormwater and wastewater managed as independent systems. However, drought, ageing infrastructure and water quality decline have driven a significant shift from traditional engineering water management approaches to more holistic principles and concepts.

These concepts include integrated urban water management and total water cycle management, involving the integrated management of wastewater, water supply, stormwater and groundwater resources (Keath and White, 2006). For the purposes of this report, these new approaches will be collectively referred to as sustainable urban water management.

In Victoria, this 'shift' has been seen at the state and local level, as the principles of more sustainable water management become more widely accepted by industry, State and local government. New policy directions such as Our Water Our Future and changes to the Victorian Planning Provisions propose widespread implementation of more sustainable practices.

Yet Brown (2003) and Brown *et al* (2006) suggest that the institutional capacity of an organisation to deliver sustainable urban water management is contingent on four key factors (diagram 2):

- human resources
- intra-organisational issues
- inter-organisational issues
- institutional rules and incentives.

These issues represent a significant shift from the more commonly cited barriers to implementing sustainable urban water management, such as technological standards, capital and operations or maintenance costs (Lloyd, 2004).

The *Principles to Practice* project used the framework below (diagram 2) to guide the methodology and develop a series of capacity building interventions.

As a process these interventions were designed to:

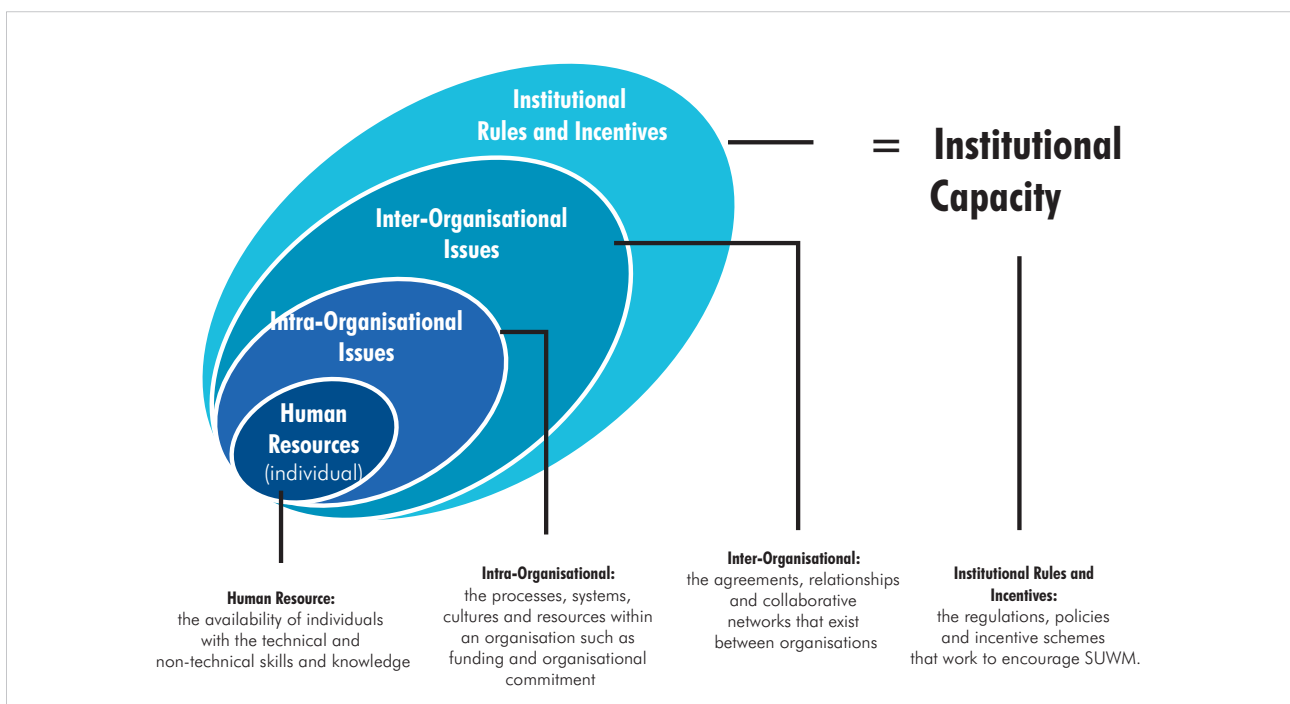
- impact on participating individuals and organisations
- influence the relationships between the individuals and organisations
- establish a broader network for knowledge sharing and learning.

Secondly, the framework provided a means for demonstrating the contribution of change agents necessary to build institutional capacity and meet the challenges of achieving sustainable urban water management.

***“Our most significant challenge is not one of developing technical expertise... the most significant challenge for achieving sustainable environmental outcomes is the development of new and appropriate institutional and cultural values - a culture of sustainability.”***

*Rob Skinner (2006), Managing Director, Melbourne Water*

DIAGRAM 2 Framework for analysing the institutional capacity of organisations to deliver sustainable urban water management (Brown, 2003 and Brown *et al* 2006).





### 3.1 THE ROLE OF A CHANGE AGENT

Change agents are critical for effective management of many human resource, internal and external organisational issues associated with an institutions capacity to achieve change.

**“Champions, or change agents, are imperative to an organisation’s ability to commit to and implement sustainable practices.”**

*Dunphy et al (2003)*

As facilitators of knowledge and information, change agents not only drive the implementation of sustainable urban water management, but also create momentum and establish widespread organisational commitment to the principles (Brown, 2005).

Change agents are particularly relevant to local government, where one of the key success factors for councils to deliver sustainable urban water management is “well skilled and politically astute ‘champions’ at the senior officer level”.<sup>5</sup>

**“It’s been important for us to help develop and then work with a network of champions, across organisational boundaries to create momentum”**

*Cheryl Batagol (2006), Chair, Melbourne Water*

It is often assumed that leaders can be ‘made’ by providing skills, training and exposure to situations that develop leadership capabilities. *Principles to Practice* asks how the water sector can facilitate the development of change agents who understand the technical aspects, interpersonal and organisational culture factors that contribute to achieving sustainable urban water management.



In considering this question *Principles to Practice* recognises that:

- Change agents are often located in or attracted to the limited number of high performing organisations.
- Local government in particular faces the significant problem of re-skilling, attracting and/or keeping staff with the relevant knowledge and skills to implement more sustainable techniques and processes (Ecological Engineering 2005).
- Potential change agents are often officers in water and environment type positions funded through short-term state government grant programs. New knowledge and skills gained are usually lost when the contract is over (Ecological Engineering 2005).
- A high proportion of water industry professionals have less than 10 years experience in water management (Context 2004, and Bright 2005).
- Individuals in this role are, more often than not, young and/or at the officer level moving into middle management roles - and not senior executives that traditionally would receive tailored development programs of this nature.

### 3.2 THE STORY SO FAR

Clear principles are emerging as we experience a shift in thinking and a change in our approach to water management:

- We need to develop a culture of sustainability and build institutional capacity.
- A number of barriers exist at individual, organisational and sector levels.
- Change agents are essential to the change process.
- Change agents need to be developed and supported in order to be effective.

While this context provides direction and a framework for this project, the key knowledge gap being addressed is the application of these principles to practice. If change agents are imperative to achieving a culture of change in the way we manage water in Victoria then, who are they and how can they be identified, developed and nurtured by organisations and the water sector as a whole? What interventions can act as a catalyst to fast-tracking their development, and provide an effective environment for them to function? What impact does this have on translating sustainable urban water management principles to widespread on-ground implementation?

**“It is possible to find and nurture champions, who start out as change agents and over time exercise increasing influence over an organisation and even end up leading them.”**

*Chris Chesterfield (2006), General Manager Waterways, Melbourne Water*

<sup>5</sup> Research across Victoria and NSW regarding the capacity of local government identified only 10-18 councils (out of a possible 245) as ‘high performing’ - with regards to their success in delivering sustainable urban water management (Ecological Engineering, 2005 and Brown and Taylor, 2005).

## 4 METHODOLOGY

The various research techniques used or developed for the *Principles to Practice* methodology comprised a combination of social research and assessment techniques, providing a two-part inter-related framework (diagram 3).

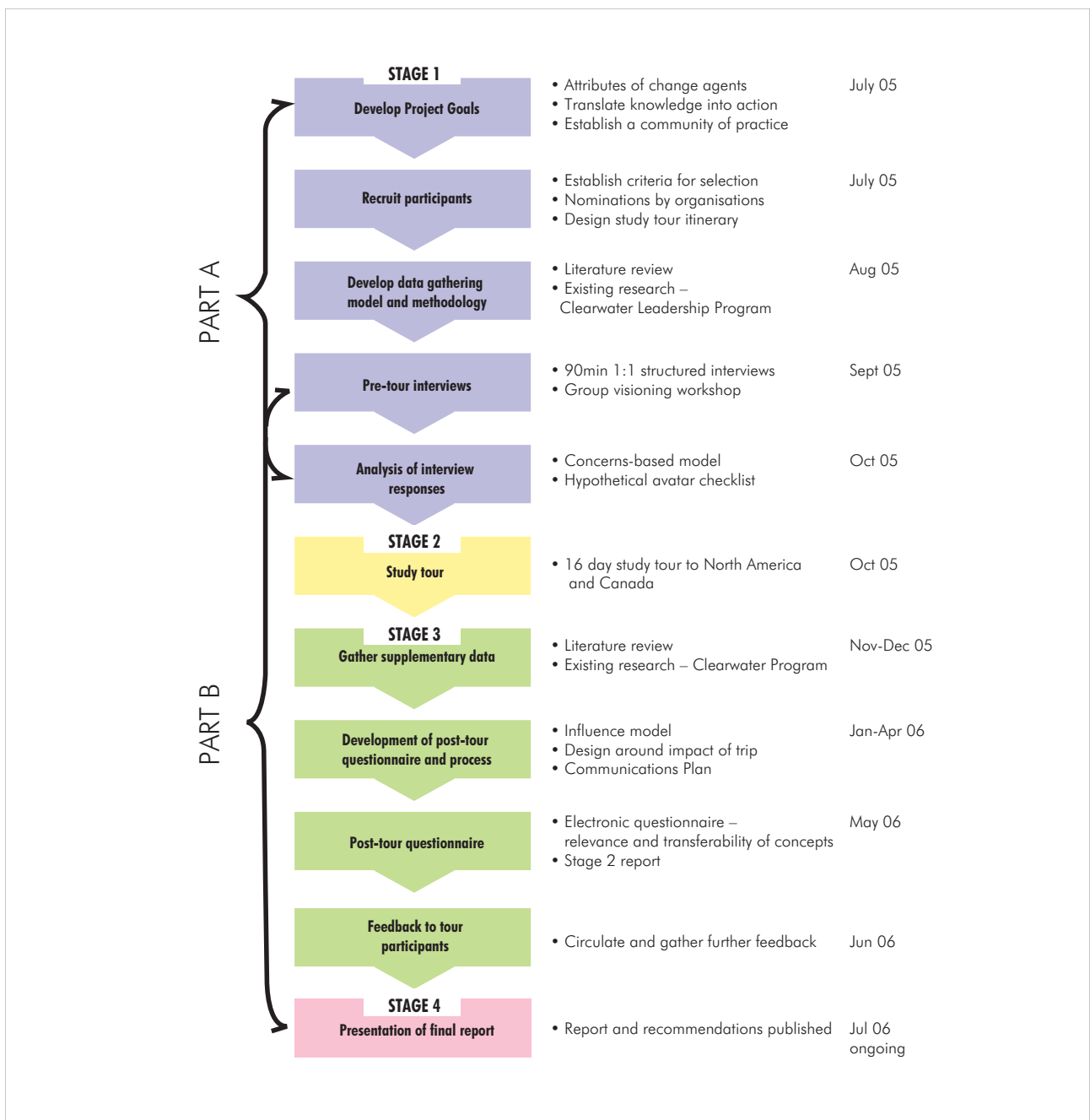
Part A identified the common attributes of identified change agents for sustainable urban water management:

- Stage 1 - recruitment of change agent and analysis of common attributes.

Part B developed, implemented and evaluated a pilot model for capacity building:

- Stage 2 - international study tour (capacity building)
- Stage 3 - evaluation of study tour impacts
- Stage 4 - dissemination of outcomes.

DIAGRAM 3 Overview of the Principles to Practice methodology.



Eight change agents were nominated, representing local government, regional government, non-government organisations, industry consultants and water authorities from across Victoria, Brisbane and New Zealand.

*Principles to Practice* identified the common attributes of change agents involved in sustainable urban water management through detailed interviews, which sought to define:

- each participant's understanding of the role of a change agent
- whether they saw themselves as a change agent (or champion)
- what skills they had developed or used to influence their organisation's ability to deliver sustainable urban water management.

In addition to the detailed interviews a group workshop was held one month prior to the study tour, based on ideas generated by participants as a result of the interview process.

The capacity building model involved a series of interventions designed to:

- build the capacity (knowledge and skills) of change agents
- build a network, or ongoing community of practice
- influence the transfer of technical knowledge (principles) in sustainable urban water management into on-ground implementation (practice)
- act as a catalyst for future capacity building initiatives.

The interventions included collaborative development of a study tour itinerary, a group visioning workshop, the international study tour itself, collaborative development and delivery of an extensive communications plan, and debrief and evaluation questionnaire.

The 16-day tour of North America and Canada comprised technical demonstrations, opportunities to explore and understand international examples of institutional and cultural barriers to sustainable urban water management, and investigation of ways to overcome these barriers. Refer to Appendix 1 for more detail.

Following the tour, participants developed a communications plan for raising awareness of study tour outcomes among peers, networks and organisations.

Over 20 presentations have been delivered across Australia and New Zealand along with local media coverage, industry journals and ABC radio. An overview of media coverage is provided in Appendix 2.

In June 2005, seven months after the study tour, participants completed an electronic questionnaire designed to assess the impact of the study tour as a development tool for change agents and as a catalyst for achieving change in the water industry.

It is important to note that this research is based on the perspectives of eight identified change agents for sustainable urban water management. Given the limitations of this relatively small sample size, the project is considered as a micro-project of the broader research required into change agents and their influence on sustainable urban water management in Victoria. However the extent of commonality in participant responses provides some assurance of the project findings and contribution to the emerging body of research and literature in this field.

More detailed description of the *Principles to Practices* methodology is provided in Appendix 3.



Six broad categories emerged, describing the **key attributes** (characteristics) of change agents involved in sustainable water management (diagram 4):

1. Sight
2. Support systems
3. Deployment strategies
4. Language
5. Personal practice
6. Power strategies.

## 5 ATTRIBUTES OF A CHANGE AGENT

The first goal of *Principles to Practice* was to identify the key attributes of change agents involved in sustainable urban water management.

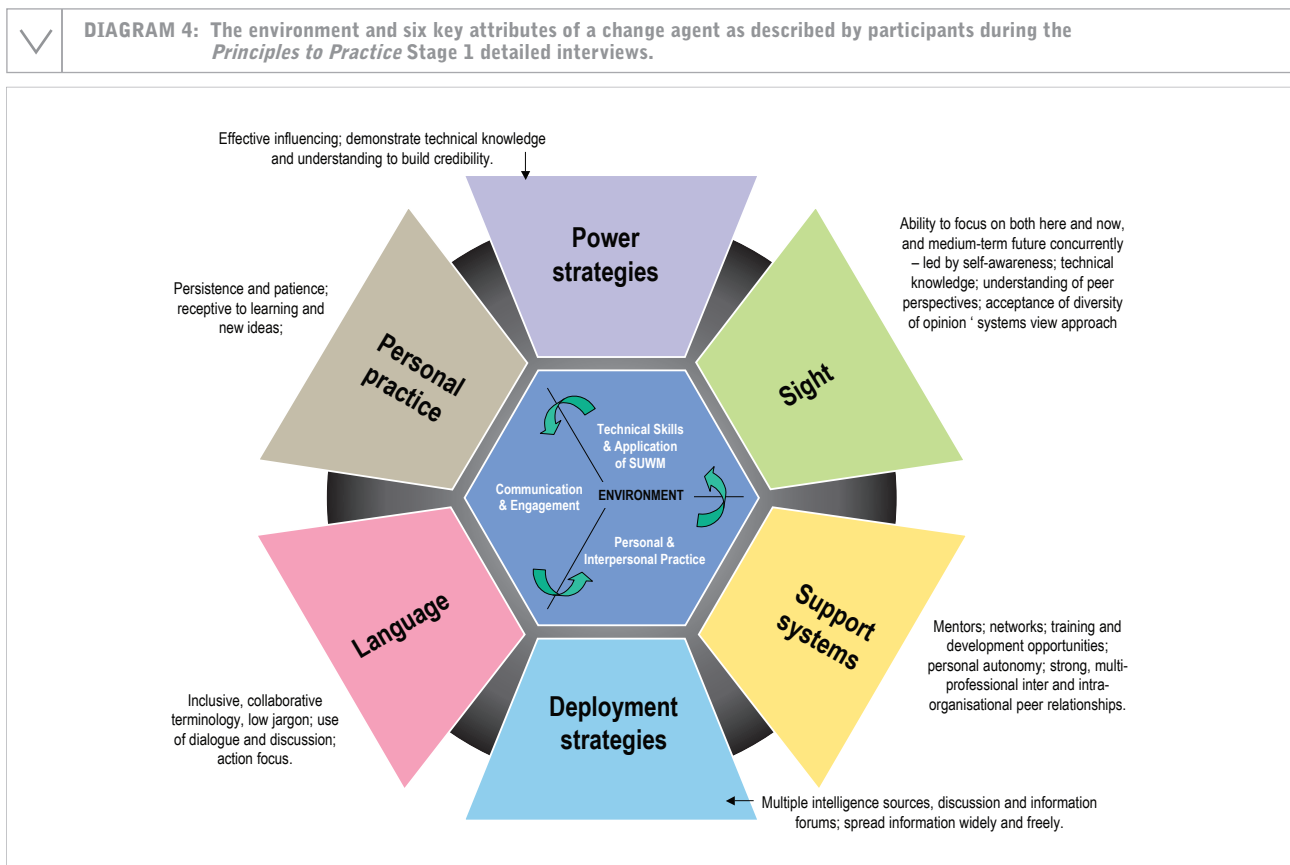
Two clear themes consistently emerged from the detailed interviews - one relating to the common characteristics of a change agent, and the other to their preferred operating environment.

The process of using detailed interviews and subsequent analysis provides a tool for future identification and development of change agents in the water sector. This process can be replicated in order to benchmark potential change agents, develop targeted capacity building interventions, and evaluate their development.

The effective **environment** of a change agent was described as requiring a balance of three inter-related factors:

1. Technical skills and information (access to demonstrations and applications of best practice)
2. Communication and engagement (with a diversity of people, professions, experts and mentors both internal and external to their organisation)
3. Personal and interpersonal practice (individual persistence and patience, conflict management and receptivity to learning and new ideas).

Of particular note was participants' reference to mentors, learning through practices, and support networks. The following points provide further insight into the attributes identified by participants:



## 5.1 SIGHT - SYNTHESISING MULTIPLE POINTS OF VIEW

Participants spoke about the different ways they viewed their work environment and the people they work with. There were multiple viewing 'lenses' and these lenses helped participants understand and deal with different points of view according to five themes:

1. **Self-awareness:** Understanding how they went about their role as change agents, seeing themselves as having an impact and practising specific strategies to influence change within individuals and across their teams, departmental silos and organisations.
2. **Technical knowledge:** A clear understanding of their work environment - where technical skills and knowledge were important, but not critical. The need to be aware of what constitutes 'best practice' on an on-going basis.
3. **Understanding of peer perspectives:** Strong awareness of the needs of fellow practitioners in terms of information, access, dialogue, trust and support.
4. **Acceptance of diversity of opinion:** Participants recognised and developed specific strategies for engaging those in positions of equal or greater formal power to themselves.
5. **A systems view of problems:** All participants described their approach to change as a dialogue involving multiple stakeholders with multiple agendas, rather than attempts to influence single stakeholders one at a time through compliance or demands.

Participants also had a clear understanding of how they go about their role as a change agent. They recognised the impact and specific strategies there were using to influence change across their teams, silos and their organisation. They had a strong awareness of the needs of fellow practitioners in terms of information, access, dialogue, trust and support and a systems view of problems.

Bright (2006) suggests these responses indicate a fairly sophisticated view of change, one that allowed for personal growth, multiple engagements with difficult stakeholders, and a 'hasten slowly' ethos that is usually found in more experienced managers.





## 5.2 SUPPORT SYSTEMS

### a. The role of mentors

A common issue raised by every participant was his or her reliance on mentors as a form of formal organisational support. There was no prompting or mention of mentoring in the interview framework. Participants spoke specifically and at length about these individuals and the influence they had on their own development and effectiveness as change agents.

Each participant indicated they have one or more mentors (usually at least two levels above them in the organisation) who have focused on them and put in extra time and effort to build their capacity. The experience of being taken seriously, of being recognised as someone who wanted to learn and would respond to new ideas was critical to 'energising' a change agent. These mentors were described as individuals who had taken a personal and professional interest in their work and career and had taken significant action to ensure they had opportunity to succeed.

The contribution of mentors covered more than technical knowledge and included:

- personal and career support
- access to information and networks
- opportunities for new experiences and learning
- enhanced visibility and credibility.

These mentors were described as having a strong impact on the individuals via three specific qualities:

- good listening skills - an ability to 'hear out' others and focus on what they are saying
- clarity of vision - a specific picture of the future state of the organisation
- practicality - the capacity to communicate in terms that are easily understood.

Some participants talked about the support they also received from human resources or development policies, but others did not see this as relevant. It is not clear whether the individual change agent's success is linked to general organisational structures and processes. Given the extent of unprompted discussion, an effective and supportive individual mentor is possibly far more important to the individual.

***“Organisations, like people, mature and change over time. An organisation’s dynamics affect its capacity to implement sustainable water management practices, just as an individual’s experience and the surrounding support structures affects their capacity.”***

*Chris Chesterfield (2006), General Manager Waterways, Melbourne Water*

### b. The role of networks

All participants described their effectiveness as change agents as being linked to networks - internal and external, formal and informal. There was a strong sense that formal networks were seen as tactical, organisational and intentional. This contrasts with informal learning spaces, which were seen as more strategic, externally focused and opportunistic: “the knowledge to give you the momentum and the clout and the weight to your argument when you are trying to create change” (participant, 2005).

Networks included existing groups of people that the change agents associated themselves with in order to have access to emerging ideas and the latest new technologies, guidelines, manuals etc. Networks also included those established by interviewees to influence others - creating an environment for dialogue to hear differing perspectives, to gauge receptivity to change, and to be informed and able to respond.

Prior to the study tour the majority of participants had not worked directly with one another before, being from different professional backgrounds, different organisations and for two participants, a different state or country. However all but two participants had communicated in some form, were aware of each other's work, or had a similar network of mentors and peers. This suggests that the participants were already developing an informal network.





### 5.3 DEPLOYMENT STRATEGIES

Results show that change agents deploy a range of problem-solving strategies. Given that they are often operating in their organisation without the positional or coercive power associated with management or leadership, their success lies in their capacity to engage - and they have a number of strategies for doing this.

The two main strategies used were 'internal and external politics' and 'social influence'. Internal and external politics referred to the influencing and relationship strategies deployed to get a message across to those are not open to formal or traditional influence structures.

These included:

- regular information meetings
- lunchtime discussions
- creation of steering committees that include those who do not support the change
- presentations from peers or perceived experts
- training and development opportunities
- use of mailing lists
- invitations to specific informal influencers to participate.

***"I deliberately put the people who were fighting the change on that working group. I was able to present my ideas and discuss the benefits of those. But they also changed our ideas as well. It's not necessary to go in and tell people how to do things. You've got to listen as well."***

*Project participant (2005)*

Social influence related to networking - being visible, credible and projecting a coherent and consistent view on complex multi-dimensional issues. Also, being present at important events, engaging socially with peers and superiors through external activities such as committees and other extracurricular activities, which feed back into increasing awareness of the sustainable urban water management message they were championing.

***"Person to person. It's about meeting with people and a culture of dialogue. It's about listening. I used never to listen - this is learnt, it's not something that's innate. I think you can learn to listen to people."***

*Project participant (2005)*

### 5.4 LANGUAGE

The importance of inclusive and collaborative language, dialogue and limited jargon was identified by participants during the interviews, but also clearly demonstrated at the pre-tour workshop. If we are to accept and support change we need to have the information and understanding of what it is we're changing and why - this needs to be an easy to understand message, free of jargon. This is hard among all the acronyms, but participants spoke about their focus on trying to achieve this.

At a workshop prior to the study tour participants were asked to develop a common vision for sustainable urban water management in Victoria. After brainstorming a number of key words and concepts such as "intergenerational", "continuation", "competition", "integration" and "dialogue", the result was a clear and simple statement, free from jargon, inclusive and action focused:

*"Passing the environment on in better condition - sharing the knowledge and skills to do so (socially, environmentally and financially)."*

This focus on language continued as participants discussed how this vision might be achieved:

*"Sustainable urban water management is not about finding a definition, it's about values and ideas, people working together to achieve - sustainability is about the dialogue."*

*"Leadership in sustainable urban water management needs a simplified message, making it more understandable; bridging the gap from 'philosophical to actual' in order to inspire and create an environment that people can see the change that needed."*



## 5.5 PERSONAL PRACTICE - THE CONSEQUENCES OF CHANGE

Personal practice describes a change agent’s astute awareness of how they act and the impact their actions have on individuals and their organisation. Participants indicated that their success as change agents was achieved through incremental rather than large-step change.

Participants described the need to operate with respect, integrity and openness - somewhat like a ‘duty of care’ in bringing about change within their organisation. It was about having, and taking responsibility for their actions working within a personal framework that was respectful, considering the values and perspectives of others and the need for good data to back their decisions.

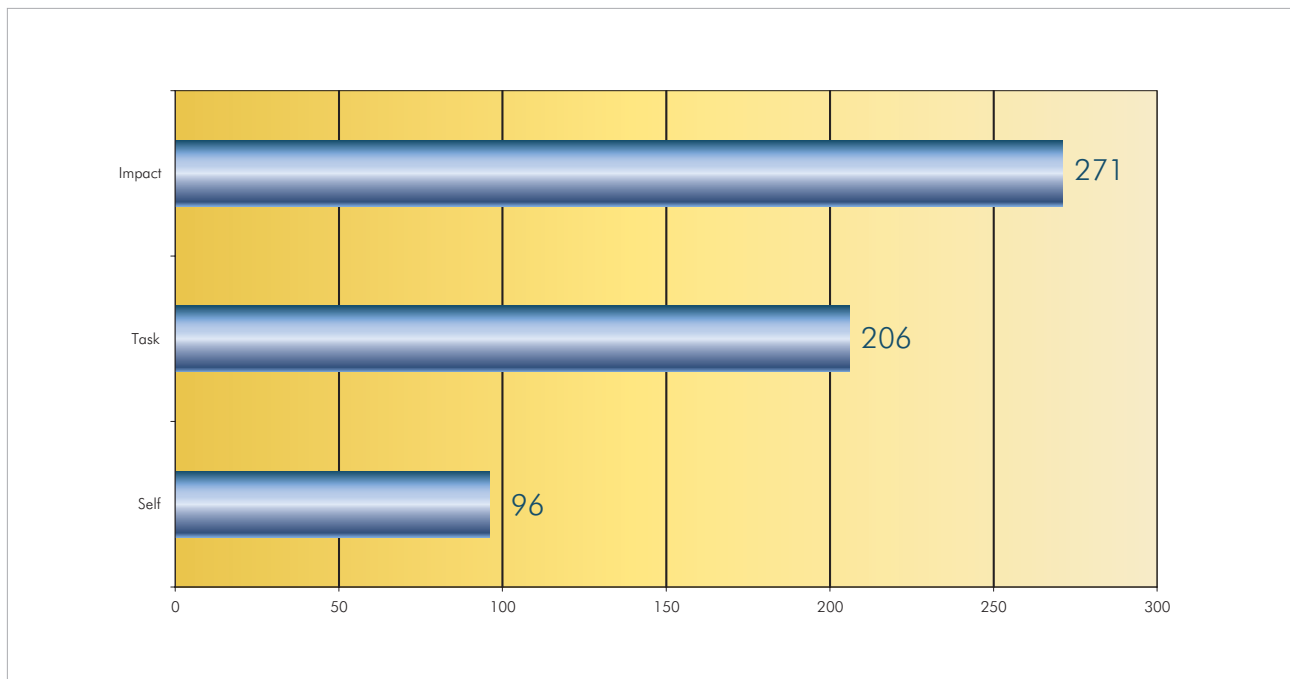
Participants frequently commented on the issues associated with the ‘impact’ and ‘task’ of managing change i.e. consequences of the change (diagram 5). They described this impact in terms of “what will we be doing differently in the future?” “How can we get others involved and let them know the good things we are doing?” Whereas ‘task’ referred to “what will I/we have to do differently around here and how do we do it?”

This focus balances the tension of the ‘doing’ and engagement parts of their work associated with the need for management and collaboration while also being concerned about consequence. There was significantly less commentary on issues relating to ‘self’ - relating to their individual awareness, knowledge and personal response to the change.

This result may have been influenced by the frame of mind with which participants approached the interview, given they were about to embark on a study tour, a personal development experience that would potentially have a significant impact on their career.



DIAGRAM 5: Focus of discussions relating to self, task or impact concerns described by participants during the detailed interviews.



## 5.6 POWER STRATEGIES - THE VALUE OF KNOWLEDGE AND INFORMATION

Participants saw them themselves as having power through information and knowledge. However they regarded this information of high worth but low value. Participants felt the value of knowledge and information was increased in worth when it was spread around a community of change agents or colleagues. Conversely, that information and knowledge was devalued when it was controlled or used to gain a competitive advantage.

Participants all indicated a strong focus on personal learning - seeking information and knowledge primarily through discussion and sharing ideas with colleagues rather than relying on formal or professional expertise.

Analysis also consistently highlighted the need for a change agent to be multi-skilled and adept at learning through practice in order to be effective. Much of this learning was reliant on a mentor and a strong network of peers.

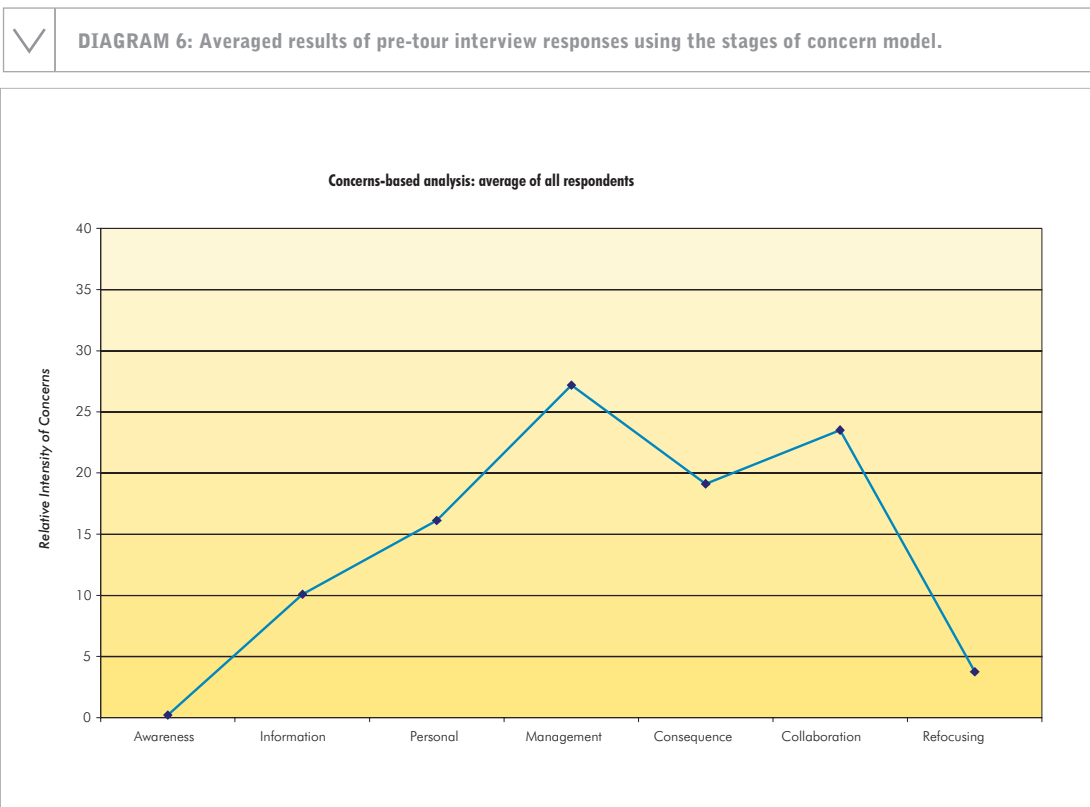
## 5.7 THE ENVIRONMENT OF A CHANGE AGENT

A significant issue raised by participants during the interviews was the difficulty of balancing the 'doing' part of their work with the 'engagement' part. This difficulty creates tension. An interesting observation was the desire of these individuals to 'take on' this tension despite it not necessarily being a requirement of their position and more traditionally a role for middle/senior managers. Yet participants described their frustrations at what they see as intentional or chronic inability on the part of middle management to "get with the program" (participant, 2005).

All participants spoke at length of the need for a change agent to be "patient and persistent" in order to influence changes in "emotions and feelings" as much as the operational tasks associated with implementing more sustainable water practices.

Diagram 6 depicts the 'stages of concern', that is, the change in focus of an individual in their work environment as they come to grips with a series of predictable and manageable 'concerns' such as "what does it mean?" and so on (Bright, 2006).

It could be expected that individuals new or inexperienced in sustainable urban water management (or their role as a change agent) would be primarily concerned about 'awareness and information' (what is it, what does it mean?). In contrast, more experienced individuals would be mostly concerned with issues around management, consequence and collaboration (who's involved, who can help me learn?).



***“I don’t give up on making change happen, so does that make me a change agent? I seek out people that are motivated by similar things to me. There’s that extra time put into going to conferences, talking to people, following up, asking about national guidelines, wanting that little bit more.”***

*Project participant (2005)*

The overall results support this theory, demonstrating relatively low concerns amongst participants in the first three stages (awareness, information, personal) indicating the group felt secure in their knowledge of sustainable urban water management and their ability to discuss it with others, and advocate a position. As predicted, the graph shows increasing concerns towards the right hand continuum. Note the twin peaks of management and collaboration concerns.<sup>6</sup> It is unusual to see these two peaking at the same time.

This profile raises an important question for those guiding change in organisations - how does an individual deal with the tension between management (predictable) and collaboration (emergent) concerns? This tension between ‘doing’ and ‘involving’ was a recurrent theme in the comments of all participants. Most participants said they take a dualistic approach - working within the structural complexities of their organisation, while collaborating with extended networks.



## 5.8 ATTRIBUTES OF AN INTERNATIONAL CHANGE AGENT

The six identified attributes of a change agent emerged over the *Principles to Practice* project - through discussions, formal meetings and workshops, during the study tour interactions with individuals and organisations overseas, and then through the ideas and strategies that were developed upon return. This occurrence reinforced these attributes and began to inform a model for using this understanding to direct the way the water sector could recruit, identify and develop change agents.

### Case study:

Tom Lipton, an identified change agent from the City of Portland, characterised many of the attributes identified by the *Principles to Practice* project. Participants had the opportunity to meet Tom as part of the study tour. Tom suggested the key factors to consider in influencing an organisation to achieve sustainable urban water management are:

- Key people (leaders) make a difference
- Keep chipping away at ideas - it all adds up
- Take a calm and open approach to promoting innovative ideas
- Share your knowledge
- Be willing to compromise
- Promote benefits of multiple outcomes from innovative stormwater solutions - for roads, urban design, open space, aesthetics, etc
- Never blame anyone else for not understanding your perspective - always look at yourself and how you present an idea - you may have to present it differently.

Tom Lipton (2005), City of Portland, Oregon USA

***“I don’t see myself “as a trailblazer” but I’m “certainly willing to challenge perceptions and traditional thinking”.***

*Project participant (2005)*

<sup>6</sup> ‘Management’ refers to the task of implementation (primarily a control-oriented activity, often to a distinct plan, and often alone or in a small group). ‘Collaboration’ refers to a willingness to learn and do more with others (Context, 2004).

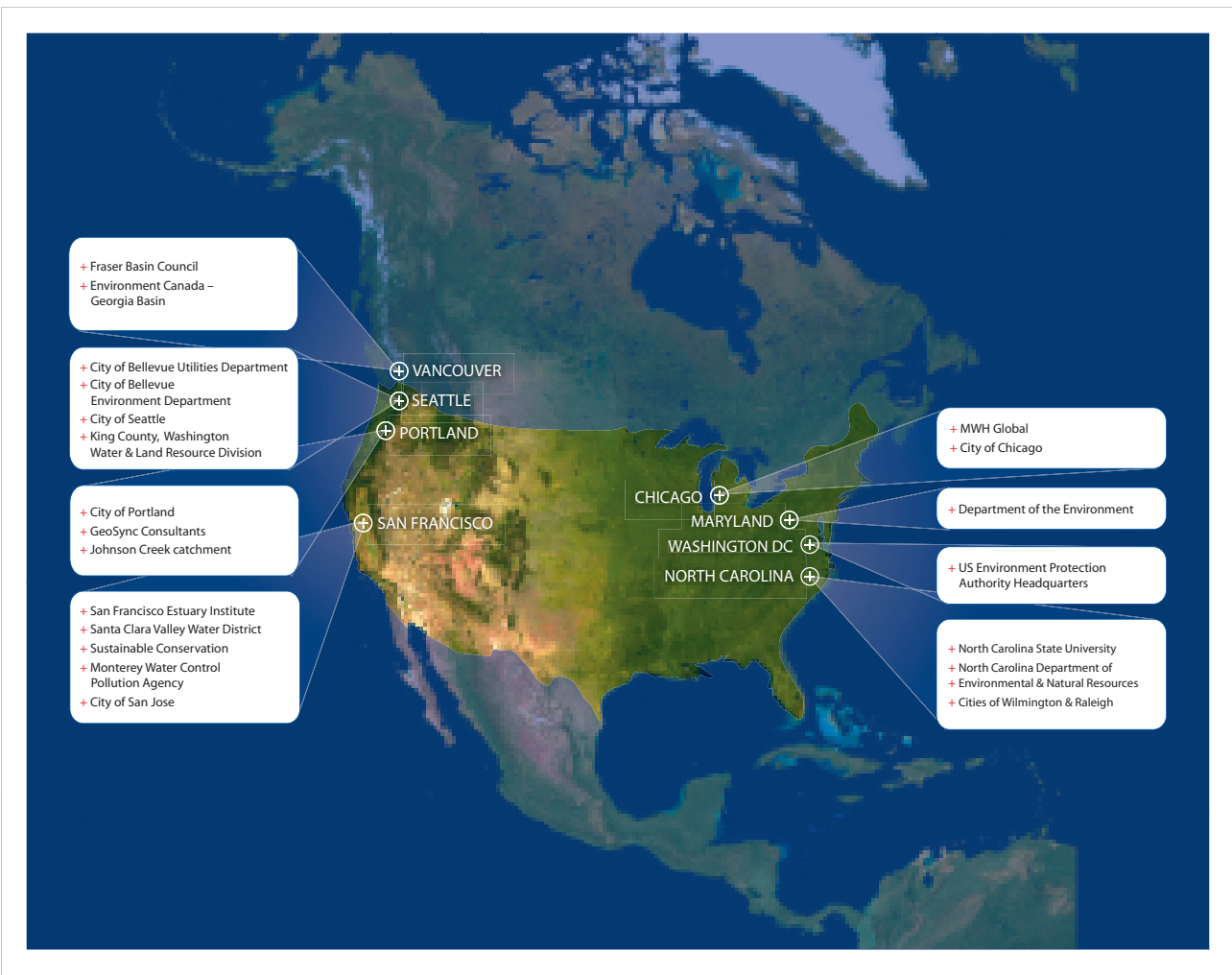
## 6 IMPACT AND OUTCOMES FROM THE STUDY TOUR

Having identified the common characteristics of change agents, the second goal of *Principles to Practice* was to develop and pilot a model for building their capacity.

Primarily this involved a study tour to North America and Canada, visiting demonstrations of best practice water management (diagram 7).



DIAGRAM 7: Principles to Practice study tour itinerary, October 2005. Refer to Appendix 1 for more information.





The study tour focussed on the opportunity to meet a diverse range of people to understand not only the technical practices but the non-technical processes, interventions and strategies that helped them become change agents and manage inter-agency relationships, organisational capacity, political attention, and so on.

Often study tours focus on the technical aspects of best practice - looking at examples of projects that have been successfully implemented and stand out as examples of what can be achieved. In contrast, *Principles to Practice* also provided opportunities for dialogue with a diversity of individuals from various organisations to explore the links between external (on-ground) results and the internal culture that enabled the results.

Participants commented on the study tour being a “very rich learning experience” and “a great opportunity to learn from others experiences, meet experts and develop a network of contacts”. Participants identified a number of key lessons from the study tour (Appendix 4):

- use of icon species as drivers for behaviour change e.g. salmon
- value of collaboration and engagement
- involvement of targeted science in decision-making
- collaborative decision-making and effective partnerships
- community engagement and social marketing
- benchmarking: targets for sustainability and local government benchmarking for performance
- innovative urban design
- financial incentives for urban development

***“In contrasting the study tour experience to conferences I have attended in the past, I feel like I have gained a significantly greater insight into the implementation of sustainable urban water management practices that I could ever have gained through attending a conference.”***

*Project participant (2006)*



## 6.1 FACTORS CONTRIBUTING TO SUCCESS IN ACHIEVING SUSTAINABLE URBAN WATER MANAGEMENT

### 6.1.1 Achieving sustainable urban water management in North America and Canada

A questionnaire was developed as part of the *Principles to Practice* project to evaluate the impact of a study tour as a means for developing a group of committed and experienced practitioners in sustainable urban water management.

The questionnaire was distributed to participants seven months after the study tour. It asked participants to assess the interactions they experienced with each organisation visited on the study tour against three criteria:

- \* Knowledge transfer (content): information, tools and practices used to ensure people in the organisation had access to knowledge necessary to perform their tasks to a high standard.
- \* Capacity building (process): how training and development, cultural change, improved internal communication, feedback and assessment processes, and alliances or partnerships with key suppliers or stakeholders are used to build organisational and personal performance.
- \* Culture of change (capacity building): degree to which change was a normal part of the way things were done, and whether change was an inclusive, collaborative activity.

The responses provided insights into what participants regarded as important contributors to individual and/or organisational success in achieving sustainable urban water management. Responses clearly showed that participants were not focused on the technologies (as might be expected). Instead participants discussed the value of shared learning experiences, lessons from ‘champions’, and insights into organisational performance to achieve change - not just from the people and places visited but also from the colleagues they travelled with.

There was significant agreement among participants as to which organisations were most relevant in terms of the potential to transfer knowledge and experience back to the participants’ organisations or local situation.

It is important to note that the participants were not asked to nominate the best performing organisations. The questionnaire specifically sought views about participants’ experiences and learning which would deliver greatest potential transfer of sustainable urban water management practices.

The following organisations were rated highly by participants were:

- North Carolina State University
- City of Portland
- Fraser Basin Council, Vancouver, Canada
- Maryland Department of the Environment
- San Francisco Estuary Institute

Participants were asked to describe why they assessed these organisations highly and what did they specifically observe to support their view. Appendix 5 provides a snapshot of participant responses, extracted directly from the questionnaire.



## 6.1.2 Achieving sustainable urban water management in Victoria, Brisbane and New Zealand

Participants were also asked to consider how their own organisations were performing using the same three criteria. The average rating given was 5.6 out of a possible 15. 50 per cent of participants rated their organisation's performance equivalent to the highly rated organisations visited. 25 per cent of participants rated their organisation's performance as 'poor' and all provided very similar comments of what they thought was needed to improve this rating based on their experiences from the study tour:

- "better communication and collaboration"
- "a need to build personal and professional skills"
- "integrate internal effort through multi-disciplinary teams"
- "develop a culture of change".

## 6.2 RELEVANCE AND TRANSFERABILITY OF STUDY TOUR OUTCOMES

A goal of *Principles to Practice* was to influence the transfer of sustainable urban water management principles to practice through individuals participating in an international study tour.

The questionnaire provided a means of evaluating this, by asking participants to consider the top three organisation they had previously rated the highest, and describe them in terms of their:

- 'relevance' (to their situation and that of their organisation)
- 'transferability' (possibility of being able to replicate).

***"Australia (Victoria) is doing a pretty good job overall. We have a got a great base and framework to move forward with confidence and conviction. Whilst no place we visited was a fully integrated water management organisation, the opportunities were available to pick 'the eyes out' of the best and learn from the 'not so good'."***

*Project participant (2006)*

Participants were instructed to use the same criteria outlined in section 6.1 (knowledge management, capacity building and culture change) when considering the reasons for their assessment.

### a. Knowledge management

Participants generally indicated a shared view of the relevance and transferability of knowledge management approaches observed with 75 per cent of responses indicating organisations had a highly relevant approach to Victoria. Similarly, 75 per cent of responses indicated these approaches were also highly transferable to Victoria. The standout organisation in terms of relevance and transferability of knowledge management was North Carolina State University with 35 per cent of responses.

***The study tour highlighted that "in Australia we have more than enough reason and more than enough opportunity to work towards sustainable water management".***

*Project participant (2006)*

### b. Capacity building

There was less agreement between participants as to whether approaches to capacity building demonstrated by organisations were relevant or transferable to a Victorian, Brisbane or New Zealand situation.

Relevance was defined in the questionnaire as an expression of the mission, values and objectives of an organisation together with the way it relates to its stakeholders. It could be argued that participants assessed these organisations as having objectives and stakeholders that are significantly different to those in Australia or New Zealand. Having said this, the data clearly shows that participants nonetheless assessed these organisations as highly effective in their ability to build capacity.

***"Integration of knowledge and capacity building into interdisciplinary environments acts as the most effective catalyst for change."***

*Project participant (2006)*

### c. Cultural change

Participants demonstrated significantly less certainty as to the relevance or transferability of organisations demonstrating a culture of change. However results show a small cluster of participant responses indicating the City of Portland and Fraser Basin Council as having the greatest relevance and transferability.

Participant responses indicate a minimal and diverse understanding of what constitutes 'cultural change' compared to providing commentary of knowledge sharing and capacity building - terms that participants have experienced and are more familiar with as concepts.

## 6.3 ESTABLISHING A FRAMEWORK FOR REPORTING

The process of using a questionnaire to report on learning outcomes provided participants with a framework for debriefing. Results informed the impact of the tour in building the capacity of individuals and their subsequent influence on the delivery of sustainable water management practices.

Participants were able to recall detailed site-specific information and knowledge from the study tour, even after a seven-month break between returning from the study tour and undertaking the questionnaire. Many of the responses focused on people, indicating an emotional connection to the information and knowledge that was shared.

## 6.4 REINFORCING THE KEY ATTRIBUTES OF A CHANGE AGENT

Participants were asked to identify valuable learning from both the study tour and the *Principles to Practice* project, and provide examples of how they were applying the learning in their work environment.

Responses were again assessed using the three criteria: knowledge management, capacity building and culture of change.

The key learning described by participants reinforced the common attributes that emerged from the detailed interviews conducted prior to the study tour.

Participants' greatest learning came from information and examples that supported existing knowledge, or informed new approaches to the six identified attributes of a change agent for sustainable urban water management.

For example:

Identified attribute:	Reinforced through study tour learning as:
• Power strategies	the value of knowledge when it is shared
• Personal practice	the importance of relationships and collaboration, and of individual commitment, risk-taking and action
• Deployment strategies	specific extension activities that move from learning to doing
• Support systems	the knowledge and confidence of a network

Responses relating to knowledge management primarily focused on the "value of developing relationships" in bringing together "the views of a variety of stakeholders", building trust and integrating interdisciplinary knowledge into decision-making. Community engagement and specific communication and extension activities that move from learning to doing were seen as the key elements of capacity building.

*"The experiences and learning from colleagues was something that I valued just as much as from external hosts."*

*Project participant (2006)*

The focus of cultural change was around individual action, and included the need for energy, commitment, risk-taking and individual action. Interestingly, participants did not see the issue of cultural change in anything other than individual terms.

*"The study tour gave us the knowledge and confidence as a network to implement sustainable urban water management practices - the principles were already there."*

*Project participant (2006)*



## 6.5 ESTABLISHING AN ONGOING NETWORK

Participants were asked to describe how they would be applying outcomes from the study tour over the next 12 months. The resulting commentary carried a sense of continuity - the idea that participants saw their involvement in *Principles to Practice* as the beginning of a journey rather than the end of one, for example "I see no reason why what I learnt will be any less relevant over the next 12, 24 or 36 months".

There was strong interest in the establishment of a formal ongoing network. A number of responses indicated participants had assumed an informal network had already established itself as a result of the *Principles to Practice* project and study tour. Results from the detailed interview suggested that these individuals actively create networks as a means of engaging a wide range of stakeholders, building their capacity and as a mechanism for implementing change.

The feature in this case is that the network participants described supports them in managing the tension and challenges of being a change agent.

The following responses are direct extracts of participant responses to the questionnaire. They indicate the strong potential for establishing an ongoing, confident and capable network of change agents for sustainable urban water management.

"I'd really like to see this network fostered, to have some sort of formal framework to maintain our interaction and development. I really value the experience that my colleagues have in the field of sustainable urban water management - both in terms of technical expertise, capacity building and behaviour change."

"I'd like the group to have opportunity to get together and discuss the advantages and disadvantage of Victoria's current approach - and to identify opportunities in our organisations to better manage urban water. The strength of the group is that we're not too senior to have to carry political opinions or 'managerial statements'."

"I would like the tour group itself to keep sharing ideas and experiences. This happened with the water sensitive urban design conference held in Melbourne in April but hopefully will continue."

"I believe this circle of people have the potential to deliver and shape the sustainable path in building capacity within the water industry."

**"We have bright scientists and practitioners who understand the technical requirements of water sensitive development, and provided they are able to network their ideas the science or technology will serve us well."**

*Rob Skinner (2006), Managing Director, Melbourne Water*



## 7 FOSTERING A COMMUNITY OF CHANGE AGENTS FOR SUSTAINABLE URBAN WATER MANAGEMENT

It is clear that all organisations strive to attract and retain change agents for sustainable urban water management. *Principles to Practice* has developed a framework that begins to inform the industry about change agent attributes to successfully recruit and develop such individuals.

Outcomes of *Principles to Practice* have also identified a model for the design and evaluation of effective capacity building interventions to support both the development of change agents and the transfer of scientific principles into on-ground practice.

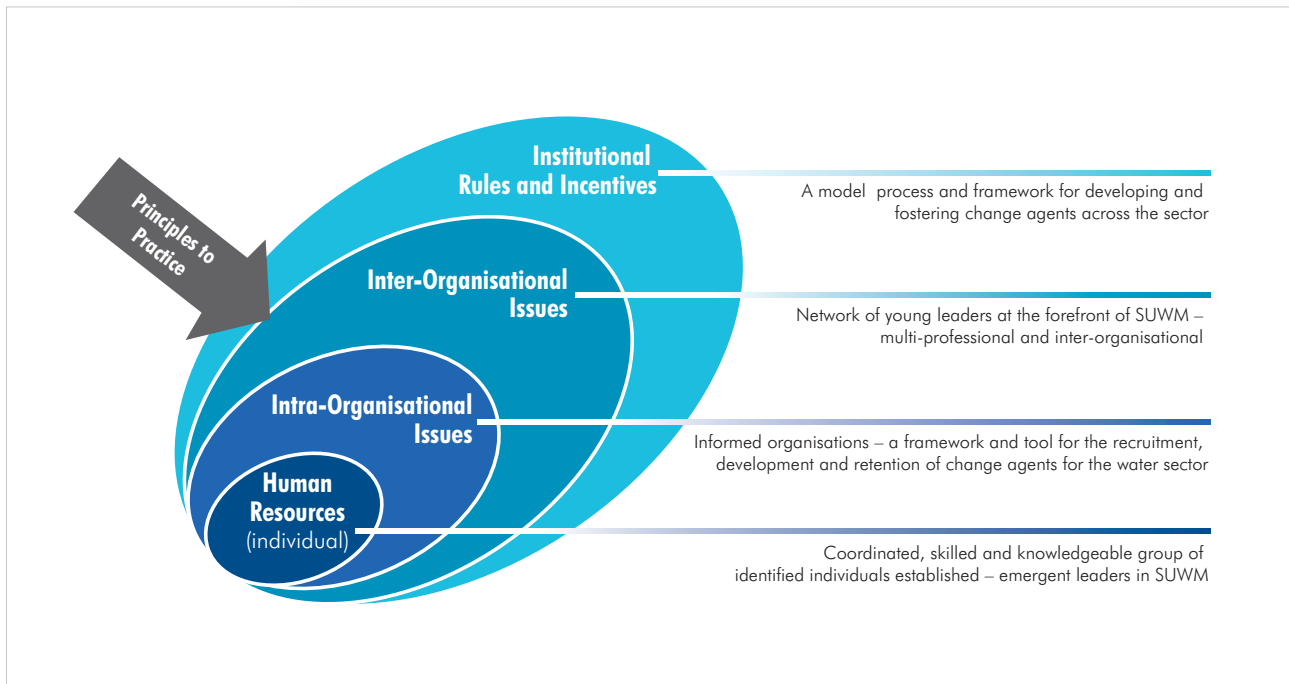
In addition, *Principles to Practice* findings have begun to inform:

- A tool for identifying change agents and assessing their development needs.
- A generic process for building the capacity of change agents - the impact of multi-disciplinary and cross-organisational learning.
- Guidelines to assist organisations develop and foster effective change agents for sustainable urban water management.

These outcomes and findings inform the design of effective interventions which help organisations deliver more sustainable water management.

The focus of this discussion is the influence *Principles to Practice* process (and associated interventions) had on informing the human resource, intra-organisational and inter-organisational issues associated with achieving institutional capacity (diagram 8).

DIAGRAM 8: Influence of Principles to Practice project in achieving institutional capacity (adapted from Brown 2003 and Brown *et al*/2006).



- **Individuals (human resources)**: a coordinated and formal network of change agents, emergent leaders in the water industry, with access to new knowledge and information and a desire to translate this into on-ground demonstrations, through developing effective relationships, knowledge sharing and leadership.
- **Within organisations (intra-organisational)**: change agents that are informed by new practices and examples of water management, equipped with new strategies for achieving best practice water management, confident, capable and well supported. A model for cost-effective investment in capacity building and in leadership, and knowledge that can lead to on-ground practice.
- **Between organisations (inter-organisational)**: a well established network of connected, committed and capable individuals - across Victoria, Brisbane, New Zealand, North America and Canada. An externally supported network, not reliant on each individual organisation's support systems, reducing 'burnout' and providing a greater realm of influence - across organisations and across the sector.
- **Water Sector (institutional)**: a mechanism for identifying, recruiting and fostering a community of change agents for sustainable urban water management.

***“It’s our responsibility to be providing opportunities for team members and other young leaders in the business to be involved in projects.”***

*(Project participant, 2006)*

***“We need to facilitate internal capacity building to foster integration and recognise opportunities across the broad range of professional disciplines.”***

*(Project participant, 2006)*

***“We must present our study tour findings to politicians and senior management, specific industry groups, architects and landscape designers.”***

*(Project participant, 2006)*

***“Success is going to be something about institutional change to me.”***

*Project participant (2005)*

## 7.1 DEVELOPING CHANGE AGENTS FOR SUSTAINABLE URBAN WATER MANAGEMENT

Prior to the study tour, eight individuals were identified by their organisations as change agents and came together as an uncoordinated group to participate in *Principles to Practice*. Over 12 months participants were involved in a number of collaborative interventions that acted as catalysts for the group's rapid transformation into an informal and coordinated network of young leaders in sustainable urban water management.

*Principles to Practice* used the following key interventions to build the capacity of a community of change agents and establish an ongoing network.

### a. The selection process

The selection process for involvement in *Principles to Practice* identified and recruited individuals who were committed, aware and relatively sophisticated in their understanding of the organisational drivers and constraints for change in sustainable urban water management. However, being nominated and funded by their organisations gave these individuals external acknowledgment of their status as an emerging leader and change agent.

### b. Collaborative design of a study tour

Preparation for the study tour provided opportunity for collective learning as participants began to identify the collective knowledge the group already had as ideas were shared and argued. Ultimately the group achieved 'common-ground' in terms of what they wanted to achieve in sustainable urban water management. This was not a personal purpose or goal, but rather a broader organisational one.

### c. International study tour

The study tour provided participants with new and special knowledge and they returned energised and full of ideas.

Responses to the questionnaire provided strong evidence that participants saw innovative solutions, but more importantly, they have understood what they had seen and how it might be translated into their own organisations. Responses also provided examples of how they have started to achieve this translation.

Participants' suggested they experienced an increase in their 'power' in the organisation, particularly in relation to credibility and gaining a sympathetic hearing and access to decision makers. Bright (2006) suggest this highlights one of the most powerful, but least visible outcomes of this type of capacity building intervention - that participants accrue credibility, power and an audience that sees them build their own effectiveness and confidence in their ability to lead change.

Outcomes also indicate that a change agent's inspiration needs to be from people, not just technical sites. Participants really took on board the people, networking focus and opportunity of the study tour. The identified change agents involved in *Principles to Practice* clearly see themselves as being expected to achieve change - not just in terms of on-ground technical innovation but also in terms of the way people in the water industry address barriers, generate solutions and collaborate to achieve results in sustainable urban water management.

### d. Collaborative dissemination of outcomes

On return from the study tour all participants expressed keen interest in continuing to work together to progress ideas and share knowledge, experiences and insights into sustainable urban water management (Stage 4). The group established an ongoing network, meeting regularly to discuss future opportunities for shared learning, and ways of integrating what they experienced overseas into their current roles and organisations.

***“As a tour participant it is important that I share my experience and contribute to the development of other young leaders.”***

*Project participant (2006)*

The group had become an informal organisation. It could be argued that these individuals would have become a co-ordinated group, or network, eventually - once they became senior enough within their organisations. However, the findings suggest that their involvement in these capacity building initiatives fast-tracked that development and was a catalyst for quickly establishing a co-ordinated network.

The common factors for success as a change agent are:

- Building trust internally and externally.
- Access to mentors, and eventually moving to a position of mentoring others.
- Building networks (teams) internally and externally to create an environment for change, champion sustainable urban water management and provide a forum for peer support.
- Aligning themselves with organisational values, and helping others align their values with the vision of the organisation in order to gain their commitment and engagement.

***“I need to know I'm not the only one.”***

*Project participant (2005)*

Individuals face challenges in finding avenues for developing these skills and creating this environment because creation of avenues and creation of the environment are dependent, yet rarely are they part of typical position descriptions or professional development programs.



## 7.2 CREATING THE ENVIRONMENT FOR AN EFFECTIVE CHANGE AGENT

*Principles to Practice* has begun to inform a means of identifying and fast-tracking the development of change agents. This research begins to address the challenge for organisations in how to recruit, support and retain change agents for sustainable urban water management.

Techniques for developing change agents include:

### a. Mentoring

While change agents can provide organisations with passionate, inspired and active individuals, a lack of management support can lead to personal and career 'burnout'. Thus the role of a mentor, organisation support structures and peer networks become crucial to creating and balancing an effective environment for change agents.

### b. Access to knowledge, information and development opportunities

Internally, organisations need to create opportunities for experiential learning of technical skills through involvement in innovative on-ground projects and organised site visits. This learning has shown to be more valuable when it coincides with opportunities for new inter-organisational knowledge sharing and partnerships. There is also a clear need for organisations to provide opportunities for the development of skills in facilitation, negotiation, networking and organisational relationship building in order to foster effective change agents for sustainable urban water management.

The development of leaders is an ongoing process and not a one-off event. These findings support the work of Singh (2005) who suggests that organisations need to provide internal support to enable change agents to utilise and develop skills by creating an organisational culture that:

- values experimentation and innovation
- values and supports all forms of learning
- understands the attributes of individuals for the organisation to be successful
- supports individuals with relevant development opportunities
- involves leaders as role models.

## 7.3 EFFECTIVE CAPACITY BUILDING INTERVENTIONS AS CATALYSTS FOR CHANGE

Brown *et al* (2006) suggest that an effective capacity building program draws on a range of interventions including knowledge building, professional development and organisational strengthening. *Principles to Practice* has established a model that can inform the development of capacity building initiatives that support the development of change agents responsible for driving sustainable urban water management. This model involves:

### a. Knowledge building:

*Principles to Practice* provided individuals with a greater awareness and understanding of sustainable urban water management through access to demonstrations of technical and non-technical (inter-organisational relationships) information. The creation of an ongoing network provides continual learning, enabling individuals to remain at the forefront of change management and best practice water management.

An important aspect of knowledge building is translation of knowledge gain back into the organisation. The data provided by participants in the detailed interviews and questionnaire suggests that the existence of a process (interview) or framework (questionnaire) for recording and reflection can have greater impact on organisational learning than traditional reporting approaches.

### b. Professional development:

The findings indicate that *Principles to Practice* equipped individuals with the understanding, skill and access to information that enabled them to perform more effectively. This included the development of technical as well as non-technical (people) skills, providing direct experience in active listening, facilitation, leadership, relationship building, networking, written communication and team building. In moving from a group of individual change agents to an informal network, participants created their own environment for professional development - a multi-disciplinary forum for information sharing, knowledge exchange and capacity building.

### c. Organisational strengthening:

Interventions that support organisational strengthening include strong political commitment at the top of organisations through to information sharing within and between organisations.

A number of individuals were unable to gain commitment from their organisations when approached to be involved in *Principles to Practice*. Traditionally, professional development opportunities of this nature are provided to middle/senior management, and some individuals encountered difficulties 'selling' the value of a study tour for young leaders. By comparison, a small number of organisations demonstrated immediate support to study tour participants and support for the development of champions/leaders in sustainable urban water management.





*Principles to Practice* created opportunities for organisational strengthening by selecting a multi-disciplinary group of individuals to participate in the project. Participants consistently remarked on the value of shared learning - having access to differing professional and organisational perspectives. This created an environment for ongoing information sharing between individuals and ultimately the organisations involved.

It is hoped that the future success of the network will have a positive impact on inter-organisational relations between agencies involved in sustainable urban water management - improving cultural relations, which is often an impediment to improved implementation practice.

**“We know each other, we share history and culture and our motives are the same.”**

Quay, 2004

## 7.4 ARE INTERVENTIONS SUCH AS A STUDY TOUR WORTHWHILE?

Organisations are spending millions of dollars a year on leadership training - often an ‘event’ over one or two days and not necessarily targeted at helping leaders learn to manage their behaviours and emotions. Yet the advancement of more sustainable water management requires leaders who can increase engagement and ignite commitment across a diversity of professions and expertise. Development of these skills requires time, reinforcement and practice and commitment from organisations and individuals.

The cost to each organisation for involvement in the study tour was around \$8,000 per person. In terms of the current market rate for executive leadership courses this is a relatively cheap form of professional development - it lasts longer than a week, and has demonstrated its value and lasting effect on the knowledge, capacity and careers of the participants involved.

The study tour clearly demonstrated its value as a tool for individual and organisational learning by:

- bringing together a diversity of professional perspectives
- facilitating strengthening relationships between organisations within the Victorian water sector, and with Brisbane and New Zealand agencies.
- providing opportunities for collaboration among study tour participants, ownership of the itinerary and subsequent communications program.
- exploring factors of individual and organisational capacity along with technical demonstrations of best practice
- facilitating the application of study tour learning
- fostering an ongoing network of change agents.

## 8 CONCLUSIONS

The *Principles to Practice* project had three goals:

1. Research the common attributes of change agents.
2. Develop a model for capacity building.
3. Establish a network of change agents.

The common attributes identified provide a framework for the identification, recruitment and development of change agents by the water sector.

Outcomes from the project inform a model for capacity building, specifically aimed at improving the translation of best practice knowledge and expertise in sustainable urban water management to effective on-ground implementation. Potentially this model can be applied to broader sustainability issues, influencing capacity building initiatives for Victoria, nationally and globally.

The capacity building model provided participants with international experience, knowledge and strategies for sustainable urban water management, along with the opportunity to hear and understand a diversity of professional perspectives from peers. Participants have not only been able to see examples of effective implementation, but have also been able to speak with the people who undertook that implementation to explore the organisational and cultural aspects of implementation as well as the technical and formal side.

The success of translating the study tour experience into effective on-ground implementation is difficult to assess over a short period of time. Ongoing research will determine how the study tour experience translates into on-ground change.

In the short-term, *Principles to Practice* has provided a catalyst for change. It is widely recognised that change is a process that is emergent, and dependent on a range of strategic interventions. *Principles to Practice* is one such strategic intervention - a way of fast-tracking the development of an uncoordinated group of identified change agents to a formal, effective and coordinated network of potential leaders in sustainable urban water management.

Over the past 12 months these individuals have clearly demonstrated their potential as a network to be key influencers and future leaders for sustainable urban water management. *Principles to Practice* has provided participants with experience in effective inter-organisational partnerships that can be taken into the future, as they become the managers and leaders within their organisations. Outcomes have established a strong sense of achievement among participants, and commitment to the process.

As such, the project has been successful in its third goal - establishing a network of leaders capable of supporting effective communication and knowledge dissemination within and between organisations across Victoria, Australia and New Zealand.

## 9 RECOMMENDATIONS & OPPORTUNITIES

*“I see this as just the beginning, not the end.”*

*Project participant (2006)*

Advancing sustainable urban water management relies on strategic investment by the water industry in the development of change agents in order to fast-track and drive a culture of change.

This strategic investment needs to address the following three key recommendations.

### Recommendation 1:

**Formally establish a network of change agents - a community of practice for sustainable urban water management**

Develop a confident network of change agents capable of influencing institutional change within their organisation and supporting the challenge of sustainability for the Victorian water industry.

The project findings indicate the willingness of the *Principles to Practice* participants' to contribute and potentially lead this network.

This network needs to bring together identified and potential change agents in sustainable urban water management from a diversity of organisations and professions. The network needs to provide a regular forum for technical learning, knowledge sharing, mentoring, personal development and networking, establishing links with international experts, change agents and similar international environmental networks encountered on the study tour.

The network provides an opportunity for young, emerging leaders in the water sector to establish effective working relationships that have the potential to provide a catalyst for change in the water industry over the next five to ten years as these individuals move into middle and senior management roles.

The network can also provide the conduit for future capacity building initiatives and a forum for further research into the role of change agents in advancing sustainable urban water management.



## Recommendation 2:

### Application of the Principles to Practice model for capacity building to future development and learning opportunities.

Using the *Principles to Practice* model, establish a multi-professional and multi-organisational capacity building program, specifically targeting the development of change agents for sustainable urban water management.

Based on outcomes from *Principles to Practice*, capacity building initiatives need to focus on:

- technical skills and understanding of sustainable urban water management, exposure to demonstrations and experts
- inter-personal skills (leadership, influencing, negotiation, etc)
- necessary skills/support associated with each of the key attributes identified by the *Principles to Practice* research.

The following capacity building initiatives have the potential to be delivered as part of the existing Clearwater Leadership Program, or alternatively, be led and delivered via the network:

#### i. Mentoring:

Establish an inter-organisational mentoring program for the development of future change agents, supported by existing identified change agents involved in the network. In addition, involve the mentors identified by the *Principles to Practice* participants in sharing their experiences with the broader network.

#### ii. Knowledge and Information:

Improve individual awareness and understanding of sustainable urban water management through access to technical information (practices) and non-technical (inter-organisational relationships). Establish links with interstate and international expertise in both sustainable urban water management and organisational change. These initiatives can be led by the study tour participants using the international contacts established on the study tour and delivered via workshop, presentations, local tours, etc.

For example, as part of the study tour, participants visited the property of Steve Johnson (Portland, Oregon, USA) to hear about his research and on-ground projects demonstrating the effective engagement of the community in stream restoration for water quality protection. Steve will be visiting Australia in September to conduct a presentation and workshop with the *Principles to Practice* participants and present his most recent research. It is hoped that through the establishment of the network, a broader audience can be involved.

## Recommendation 3:

### Establishment of a development fund for young leaders in water management

Innovative ways to reward and recognise champions for sustainable urban water management are required to develop skills of change agents, and maintain focus, energy and enthusiasm.

An ongoing development fund would create a legacy of investment in knowledge transfer and capacity building for the water sector, rather than investment solely in technical expertise.

The general view from *Principles to Practice* participants was that the study tour was excellent and that similar such interventions should be undertaken. An effective low cost option could be achieved through local and interstate study tours or inter-organisational exchanges sharing knowledge and experiences in sustainable urban water management. However, the greatest impact could be achieved by establishing an ongoing tour or exchange with international individuals and organisations at the forefront of sustainable urban water management such as North Carolina State University, City of Portland and Fraser Basin Council.

A development fund needs to support multi-disciplinary groups rather than individuals, and involve a diversity of organisations across the water sector, from State government and local government through to water authorities, land development consultants and non-government organisations. The fund needs to avoid being dominated by the 'high performing' organisations traditionally involved in this sort of activity.

***"It would be inspirational to know there was this sort of incentive for young leaders to aim for."***

*Project participant (2006)*



## 9.1 FURTHER RECOMMENDATIONS

Responses provided by participants in the post-tour questionnaire have informed the development of additional recommendations. According to participants, ongoing communication, engagement, information transfer and networking opportunities were seen as critical. An overview of the key recommendations by participants is provided in Appendix 6.



### 9.1.1 The impact of change agents on sustainable urban water management implementation

Conduct further research with *Principles to Practice* participants to assess the longer-term impact of the study tour, network and capacity building interventions on their perceptions and attributes as an identified change agents. This research could be extended to include other recognised change agents or network participants.

In addition, evaluate the longer-term impact of these initiatives on influencing on-ground implementation of sustainable urban water management at the human resource, inter-organisational and intra-organisational levels.

### 9.1.2 Validating the key attributes of change agents in sustainable urban water management

#### a. What are the attributes of the mentors identified by participants?

Involve the *Principles to Practice* participants in interviews with their mentors and others who have had an identifiable influence on them as change agents, to assess the synergies and differences in identified key attributes. The same methodology used in Stage 1 of *Principles to Practice* could be applied so that the results can be compared.

#### b. What are the visible characteristics currently used by organisations to identify change agents?

Interview the direct managers and/or executive management of each of the participants involved in *Principles to Practice* to understand the characteristics they used to identify their nominee as a change agent for sustainable urban water management. This would build on existing data generated by participants in the detailed interviews. It could also provide different perspectives on ways to develop change agents within organisations, or how to speed up or improve the effectiveness of this development. In addition, interview those organisations that were invited to participate but declined to understand how future initiatives can involve a broader cross section of water industry organisations.





### 9.1.3 Dissemination and communication of Principles to Practice outcomes

To date over 20 initiatives have taken place to disseminate outcomes from the *Principles to Practice* and learning from the study tour, across Australia and New Zealand.

- As a network of change agents, develop and deliver a communications plan for 2006/2007 to effectively disseminate the knowledge and experience gained from the *Principles to Practice* research findings and study tour to the broader water sector. Communications need to target the diversity of water industry stakeholders in the form of presentations, articles, websites, conference papers, etc. In addition, promote the applicability of the research findings to broader sustainability issues to specific organisations and through relevant publications.
- Development of web content detailing the various sustainable urban water management case studies visited across North America and Canada as part of the study tour. Case studies will be added to Clearwater InfoExchange website and Water Sensitive Urban Design websites in Victoria, Sydney, Brisbane and New Zealand.

### 9.1.4 Evaluating the long-term influence of Principles to Practice

Assessing the longer-term impact of the study tour and subsequent network and capacity building initiatives would provide valuable information on:

- the development of change agents
- their commitment and/or involvement in a peer network
- their subsequent influence on translating knowledge into on-ground practice.

This could be achieved using the *Principles to Practice* model and repeating the detailed interview and questionnaire process with participants in 12 months time.





## 10 REFLECTIONS

*Principles to Practice* provided a valuable and memorable experience for eight identified change agents in sustainable urban water management. In particular, it offered unique learning experiences through technical site visits and opportunity for discussion with a diversity of individuals from various organisations and perspectives.

Participants also commented on the value of travelling with peers who provided perspectives on sustainable urban water management that they may otherwise have not considered. Also, the working relationships formed within the group resulted in an ongoing network and resource base to encourage and continue the implementation of learning back in Australia.

The following provides a snapshot of the reflections provided by participants. A full summary is provided in Appendix 7.

*"The formation of inter-organisational networks is imperative in achieving sustainability in any field, and I believe the tour has galvanised a group that holds great potential to effect positive change within the Victorian water industry."*

*"The experience of participating in a study tour was a very rich learning experience... I was able to spend time to get to know the group of people I was travelling with, including the role of their organisations and their areas of expertise, have the time to discuss opportunities to work together in future and share knowledge, experiences and provide support, gain a more holistic approach of different elements of sustainable urban water management."*

*"I came home feeling enlightened... I was inspired by the people that I met doing a similar role and from similar backgrounds as myself. I found that gave me confidence."*

*"The aims of the study tour were to re-assess our work in sustainable urban water management, to test some of our current thinking and to develop a vision of what we could do in the future. I believe it succeeded in achieving all this - and more."*

*"The tour revealed that, whilst there were differences between the Australian and US experience, there were also many commonalities in what drives change, our shared goals and aspirations and also the obstacles to success that are encountered along the way. This understanding has given me greater confidence to take up the challenges of effecting change within my own organisation, whilst better valuing and incorporating stakeholder concerns."*

*"The tour provided new inspiration and examples of how to deliver sustainable urban water management projects 'on the ground'... and enabled me to gain new perspectives and approaches to implementing change."*

*"The most lasting impressions were those examples that have been able to bring together the 'arts' of engineering, architecture and landscape to deliver integration with the built form. This is the type of culture change and capacity building that needs to be harnessed in Australia."*

## 11 ACKNOWLEDGEMENTS

I would like to acknowledge the support and encouragement of the board and judges of the Brian Robinson Foundation. It will always be an honour, both personally and professionally, to have been the inaugural Brian Robinson Fellowship recipient.

The *Principles to Practice* Fellowship has enabled me to contribute to the growing body of research in capacity building, developing 'champions' and organisational change for sustainable urban water management. In addition, *Principles to Practice* provided a valuable opportunity to travel overseas, and to establish a new network of colleagues in Victoria, across Australia and internationally.

*Principles to Practice* also enabled eight young leaders across the water sector to develop their knowledge, skills and ability to influence a sustainable water future locally, nationally and internationally. I would like to thank the eight study tour participants for their commitment and dedication throughout *Principles to Practice*, and I look forward to continuing working with you all into the future:

Jane Bateson (Melbourne Water), Fiona Chandler (Healthy Waterways, Brisbane), Phil Edwards (Melbourne Water), Matt Francey (Melbourne Water), Jonathan McLean (Coomes Consulting), Dan O'Halloran (Yarra Valley Water), Jane Pudephatt (Auckland Regional Council, New Zealand) and Kate Smolenska (MWH Global).

In addition, a huge thank-you to the following people that have supported me enormously over the past twelve months in developing the *Principles to Practice* proposal and tour itinerary, providing advice and direction on the research methodology and framework, data analysis and development of the report:

Steve Bright (Catalyst Communications), Dr. Rebekah Brown (Monash University), Chris Chesterfield (Melbourne Water), Nina Keath (Monash University) and Frank Cahill (Intégro Learning).

*Principles to Practice* project manager **Jacquie White**





## 12 REFERENCES

- Batagol, C 2006, 'The pursuit of water sustainability in Melbourne; an integrated approach' keynote address to the International Water Sensitive Urban Design conference, Melbourne, 3-7 April 2006.
- Bright, S 2006, Sustainable Urban Water Management: Transforming Principles to Practice. Report: Analysis Stage 1, report by Catalyst Communications to Principles to Practice Fellowship by, Melbourne (unpublished).
- Bright, S 2006, Sustainable Urban Water Management: Transforming Principles to Practice. Report: Analysis Stage 2, report by Catalyst Communications to Principles to Practice Fellowship by, Melbourne (unpublished).
- Brown, R 2003, Institutionalisation of Integrated Urban Stormwater Management: Multiple-Case Analysis of Local Management Reforms Across Metropolitan Sydney. PhD thesis, University of New South Wales, Sydney, New South Wales.
- Brown, R 2005, 'Water and Sustainable Development: Tools for Change', conference synopsis prepared by Ark Partners for Melbourne Water, July 2005, Melbourne, Australia (unpublished).
- Brown, R, Mouritz, M and Taylor, A 2006, Chapter 5: Institutional Capacity In Engineers Australia (2006), Australian Runoff Quality: A Guide to water Sensitive Urban Design, Engineers Australia, Canberra.
- Brown, R and Taylor, A 2005, 'Facilitating Institutional Development and Organisational Change for Advancing Sustainable Water Futures', presentation to Brisbane City Council, Brisbane, Australia.
- Catalyst Communication 2005, Consultant's Report: Evaluation of Clearwater Events 2005, report by Catalyst Communications to Clearwater Program, Melbourne, Victoria.
- Chesterfield, C 2005, 'Secrets of Success in Water Management - Melbourne Water and Local Government' presentation at 2005 MAV Annual Conference, Melbourne, Victoria, May 2006.
- Chesterfield, C 2006, 'Why being a manager of waterways and stormwater has helped Melbourne Water to become a leader in sustainability', presentation at Water 06 industry leaders' water forum, 1-3 March 2006, Brisbane, Australia.
- Context 2004, Evaluation Results and Findings MAV Clearwater Program, report by Context Pty Ltd to the Municipal Association of Victoria, Melbourne, Victoria.
- Dahlenberg, J 2006, The Sustainable Water Challenge: Building Capacity, Sharing Innovations and Supporting Information Networks. Specialist Forum: Understanding Institutional Capacity and Organisational Change. Paper and presented at the 4th International Conference on Water Sensitive Urban Design: Cities as Catchments, May 2006, Melbourne, Australia.
- Dunphy, D, Griffiths, A and Benn, S 2003, Organizational Change for Corporate Sustainability, Routledge, London
- Ecological Engineering 2005, State Environment Protection Policy (Waters of Victoria) Implementation Project, Final Report. Report by Ecological Engineering and Ark Partners to the Municipal Association of Victoria. Ecological Engineering, Sydney.
- Edwards, P, Holt, P, and Francey, M 2006, WSUD in local government - implementing guidelines, institutional change and creating an enabling environment for WSUD adoption. Specialist Forum: Understanding Institutional Capacity and Organisational Change. Paper and presented at the 4th International Conference on Water Sensitive Urban Design: Cities as Catchments, May 2006, Melbourne, Australia.
- Keath, N and White, J 2006, Building the capacity of local government and industry professionals in sustainable urban water management. Specialist Forum: Understanding Institutional Capacity and Organisational Change. Paper and presented at the 4th International Conference on Water Sensitive Urban Design: Cities as Catchments, May 2006, Melbourne, Australia.
- Lipton, T 2005, address to Principles to Practice study tour participants by City of Portland Environmental Specialist, Tom Lipton, October 2005, Portland Oregon, USA.
- Lloyd, S 2004, 'Water sensitive urban design - the challenges and opportunities for local government and industry professionals in Victoria', report by Sara Lloyd to the Clearwater Program, Victoria.
- Newton, D, McGarry, D and Bunker, L 2006, Overcoming Obstacles to Integrated Water Management in Local Government; Experience in a High-Growth Regional Shire. Specialist Forum: Understanding Institutional Capacity and Organisational Change. Paper and presented at the 4th International Conference on Water Sensitive Urban Design: Cities as Catchments, May 2006, Melbourne, Australia.
- Quay Connection 2004, Report on the review of Melbourne Water's relationship with major stakeholders, prepared by Quay Connection for the Melbourne Water Board, Melbourne, Victoria.
- Singh, D 2003, 'Developing capability as a strategic asset', Australian Chief Executive, pp. 44-49
- Skinner, R 2006, 'Meeting the challenge of sustainable urban water management in Victoria', address to Clearwater Gala Dinner, 29 March 2006, Melbourne, Australia.
- Wong, T (2006). Chapter 1: Introduction. In Engineers Australia (2006), Australian Runoff Quality: A Guide to water Sensitive Urban Design, Engineers Australia, Canberra. 1(1-8).

Location	Organisation	Contacts	Description
San Francisco	San Francisco Estuary Institute	Lester McKee, Watersheds Science Program Information Manager Dr Michael O'Connor, Executive Director Joshua Collins, Environmental Scientist Rainer Hoenicke, Environmental Scientist Daniel Oros, Environmental Scientist Bruce Thompson, Senior Scientist	Not-for-profit organisation fostering scientific understanding to protect and enhance the San Francisco Estuary
	Santa Clara Valley Water District	Jim Fiedler David Chesterman	Projects included fish ladder and mercury removal program, stream restoration and flood management and stream protection. Magician hired as a communicator to schoolkids four days a week
	Sustainable Conservation	Connie Liao, Project Manager Sarah Connick, Associate Director	Not-for-profit organisation facilitating collaborative approach to resolving environmental issues, including an investigation on brake pads as a source of copper contamination of San Francisco Bay
	Monterey Water Control Pollution Agency	Keith Israel	Large scale waste water recycling facility for agricultural irrigation
	City of San Jose	Eric Rosenblum	Local government
Portland	City of Portland	Tom Lipton, Environmental Specialist Sustainable Stormwater Program (Landscape Architect)	Local government promoting sustainable urban water management, in particular green roofs and biofiltration systems
	GeoSync Consultants	Erik Strecker Bruce Williamson	Private consultants
	Johnson Creek catchment	Steve Johnson	Community perspective of water management and stream restoration
Seattle	City of Bellevue, Environment Division	Rick Watson, Operations Manager Joy Ramshur, Development Review Manager Phyllis Varner, Surface Water Quality Supervisor Patricia Burgess Susan Fife	Local government
	City of Seattle	Steve Moddemeyer, Senior Strategic Planner Jim Johnson, RainCatcher Project Manager Nancy Lee, Social Marketing Services Joy Ramshur Jim Johnson Susan Harper, Public Relations Specialist	Local government

Location	Organisation	Contacts	Description
Seattle	King County, Washington Water & Land Resource Division	Susan Clarke, Senior Engineer, Stormwater Services Steve Foley	Regional government
Vancouver (CANADA)	Fraser Basin Council	David Marshall, Executive Director	Non-government organisation with governing council of 35 community representatives focussed on consensus decision making for sustainable catchment management
Chicago	Environment Canada – Georgia Basin	Mary-Beth Berube, Manager Georgia Basin Coordination Office	National government
	MWH Global	Rick Bolliger, Environmental Specialist	Engineering Consultants
	City of Chicago	Peter Mulvaney, Green Liaison Officer, Department of Water Management	Local government
North Carolina	North Carolina State University (NCSU)	Prof Bill Hunt, Assistant Professor & Extension Specialist Mitch Woodward, Area Specialist, Greg Jennings, NCSU Stream Restoration Dr Richard McLaughlin, Associate Professor Soil Science	Applied research organisation and extension program
North Carolina	North Carolina State University (NCSU)	Prof Bill Hunt, Assistant Professor & Extension Specialist Mitch Woodward, Area Specialist, Greg Jennings, NCSU Stream Restoration Dr Richard McLaughlin, Associate Professor Soil Science	Applied research organisation and extension program
	North Carolina Department of Environmental & Natural Resources	Kim Nimmer, NC Section 319 projects	Regional government
	Cities of Wilmington & Raleigh	Mark Senior, Project Engineer David Hayes	Local government
Maryland	Department of the Environment	Ken Pensyl, Sediment, Stormwater and Dam Safety Program Merril Plait, Anne Arundel County	Regional government
Washington DC	US Environment Protection Authority Headquarters	Bob Bastian, Senior Environmental Scientist Steve Albee Robert Goo, Federal Lands and Activities	National government

BRIAN ROBINSON FOUNDATION  
FELLOWSHIP 2005



The inaugural Brian Robinson Foundation Fellowship, first presented to the late Dr Robinson's 7-year-old daughter Lara, at Victoria's Environment Industry Dinner (June 23, 2004) will recognize supporters of CIGM and will be remembered by members in most Branches.

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Dr Brian Robinson AM

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

# MWH TAKES PART IN INTERNATIONAL STUDY TOUR



Late last year a group of young Water Resource Managers from Australia and New Zealand set off to tour the United States and Canada in search of innovative examples of sustainable water management. The Group, consisting of representatives from Australian and New Zealand local government, water resource management agencies and two engineering consultancies, had two main goals to achieve:

Both recipients have made solid commitments to the Foundation to share their experience with those in the respective field, consequently advancing Victoria's quest for greater sustainability.



Melinda Kay (second from left) and Chicago staff to exchange ideas.



**CLEAN AIR SOCIETY OF AUSTRALIA**  
Incorporated in New South Wales, Australia  
Clean Air Society, 2000/2001 Melbourne (03) 9421 02

**The Inaugural Brian Robinson**

Cooperations to Jacquie White (Clearwater program for Municipal Authorities Assoc of Victoria) and Dr Sarah Bekessy (Teacher and early career scientist and sustainability at RMIT), those who at VICTA web site.

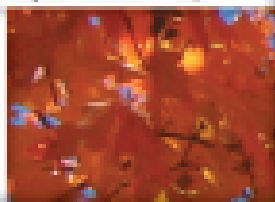
## Robinson win a boost for water industry



774 ABC Melbourne

Tagging leadership Robinson fellowship winner

Victoria, Jacquie White's project will start a process, in which young engineers will learn new found knowledge and expertise on urban water management with far more experience of current scientific thinking. This will be achieved when she leads a study tour for 10 local government and industry professionals to North America. For a further five months, she will work with the group to build their knowledge, hone their leadership and education skills, to meet their knowledge to others.



ABC Melbourne | [Blog Index](#) | Conversation Hour August 16: Ian Coles, Jacquie White and Sarah Bekessy

Conversation Hour August 16: Ian Coles, Jacquie White and Sarah Bekessy

Wednesday, 16 August 2006

Presenter: Jon Faine and Rob Gell

Details of the hosts and guests appearing on the Conversation Hour.

Young environmental leaders. The man who left such a great legacy.

Foundation. Ian's been involved and he now runs his own business.

# MAV BULLETIN

## Fellowship Win

MEMORIAL ASSOCIATION OF WOMEN • TOPICAL ISSUES, INITIATIVES AND EVENTS FOR THE SECTOR

MAV employee, Jacquie White was this week presented with the inaugural Brian Robinson Foundation fellowship at the Environment Industry Dinner. Jacquie has led the development of the Clearwater program at the MAV since its inception in 2002. The program has successfully facilitated cultural change in the adoption of sustainable environmental management practices for urban stormwater by local government and industry professionals across Victoria. This award is due recognition of her excellent achievements in building capacity within local government and industry for the sustainable management of urban stormwater. Jacquie will remain at the MAV as the Project Manager for Clearwater while she completes her fellowship, which will see her lead a study tour for 10 local government and industry professionals to North America. For a further five months, she will work with the group to build their knowledge, hone their leadership and education skills to impart their knowledge to others involved in water management across Victoria. The State Government established the Brian Robinson Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA Victoria.

Jacquie White and Dr Sarah Bekessy are the inaugural winners of the Brian Robinson fellowship projects, and now we can all benefit from the findings. Jacquie White's project looked how we deal with our water supply, including stormwater pollution. Sarah Bekessy is a senior lecturer in environmental studies at RMIT University. Her project looked how we deal with our water supply, including stormwater pollution at urban fringes. With all the housing growth in the outer suburbs (coastal and regional) we need an overall plan to make sure we're not killing off native species.

Songs played today: Eggplant by Michael Franks (from The Art of Tee, 1976)

### Related Links:

Some of these links may be to sites outside the ABC and as such the ABC has no editorial control over them.

[Brian Robinson Foundation](http://www.brianrobinsonfoundation.org.au/)

<http://www.brianrobinsonfoundation.org.au/>



# WEN e-news

Newsletter of the Water Education Network



Issue

## Globe trotter returns



### Lessons from overseas

Water Sensitive Urban Design project manager Jacquie White has just returned from a two week study trip to the USA and Canada. She was selected to be part of a city center group of young 'water champions' from Queensland, Victoria and New Zealand looking at sustainable water management in the US and Canada. The group toured WSPUD demonstration sites and met with officials in Washington DC, San Francisco, Portland, Seattle, Chicago, Raleigh and Baltimore in the United States and Vancouver in Canada. The tour was part of the Brian Robinson Fellowship awarded to Jacquie

White, Manager of the Cleanwater Program in Victoria. Jacquie will work with government and industry partners to incorporate her new knowledge and ideas into the Strategy for WSPUD in 2010 due out in 2009.

### Water Conservation Pledge

People were impressed by the community engagement activities of the Santa Clara Valley Water District, which is based in Jose, Northern California. The SCVWD distributed legal pledges in the shape of water droplets and asks members of the public to take a 'Water Conservation Pledge' in return. The pledge on the card comes in the shape of a water droplet and the slogan is 'I pledge to conserve water'.

### News from the Network

#### Fellowship Award Presented to Aspiring Young Scientists

Urban water management and the protection of biodiversity on our city fringes are at the centre of two fellowship awards presented to aspiring young social scientists.

The inaugural Brian Robinson Foundation fellowship was presented by the late Dr Robinson's 7 year-old daughter Lara, at the Environment Industry Dinner on June 2.

The State Government established the Foundation last year with support from EPA and EcoRecycle Victoria, in the memory of the former Chair of EPA, Victoria.

On advice from the judges and in response to additional donations the Foundation extended the value of the fellowship from \$30,000 to \$48,000 to recognise two winners.

of knowledge and the implementation of sustainable management practices, application across broad influencing capacity by nationally and globally.

The project will draw up and international experts on-ground implementation and environmental best practice urban water management sustainable water future in Victoria.

Project outcomes will shape of Victoria, with application locally, nationally and globally.

your gateway to 774 ABC Local Radio

ah Bakessy

Bakessy

They're the first winners of the Brian Robinson Foundation Fellowship for their work in environmental projects in this state.

in environmental projects for more than 30 years, including at work as a consultant on sustainability.

Robinson Foundation Fellowship. She is the community liaison manager for the foundation, and why it's so hard to get a job. She studied Melbourne's biodiversity (and why it's so hard to get a job) it's alarming to

and Blackbird by The Beatles (fr

control over such sites.

### ENVIRONMENT

## Clear vision for stormwater management

BY IANE GARCIA

A Municipal Association of Victoria (MAV) employer's dedication to building local government's capacity to sustainably manage urban stormwater has been recognised with the inaugural State Government Brian Robinson Foundation Fellowship.

Jacquie White is project manager and a key developer of the Cleanwater program – a joint initiative between the MAV and Stormwater Industry Association of Victoria, with funding from EPA and EcoRecycle Victoria, which acts as a knowledge exchange about urban stormwater management and hosts online discussion forums for local government and industry professionals.

### What is WSPUD?

Water Sensitive Urban Design (WSPUD) – embraces the natural water cycle and seeks to reduce the impact of urban water cycle. WSPUD is a key element of the water cycle. WSPUD is a key element of the water cycle.

- 1. protect the water cycle
- 2. integrate the water cycle

APPENDIX 3 | PRINCIPLES OF PRACTICE METHODOLOGY

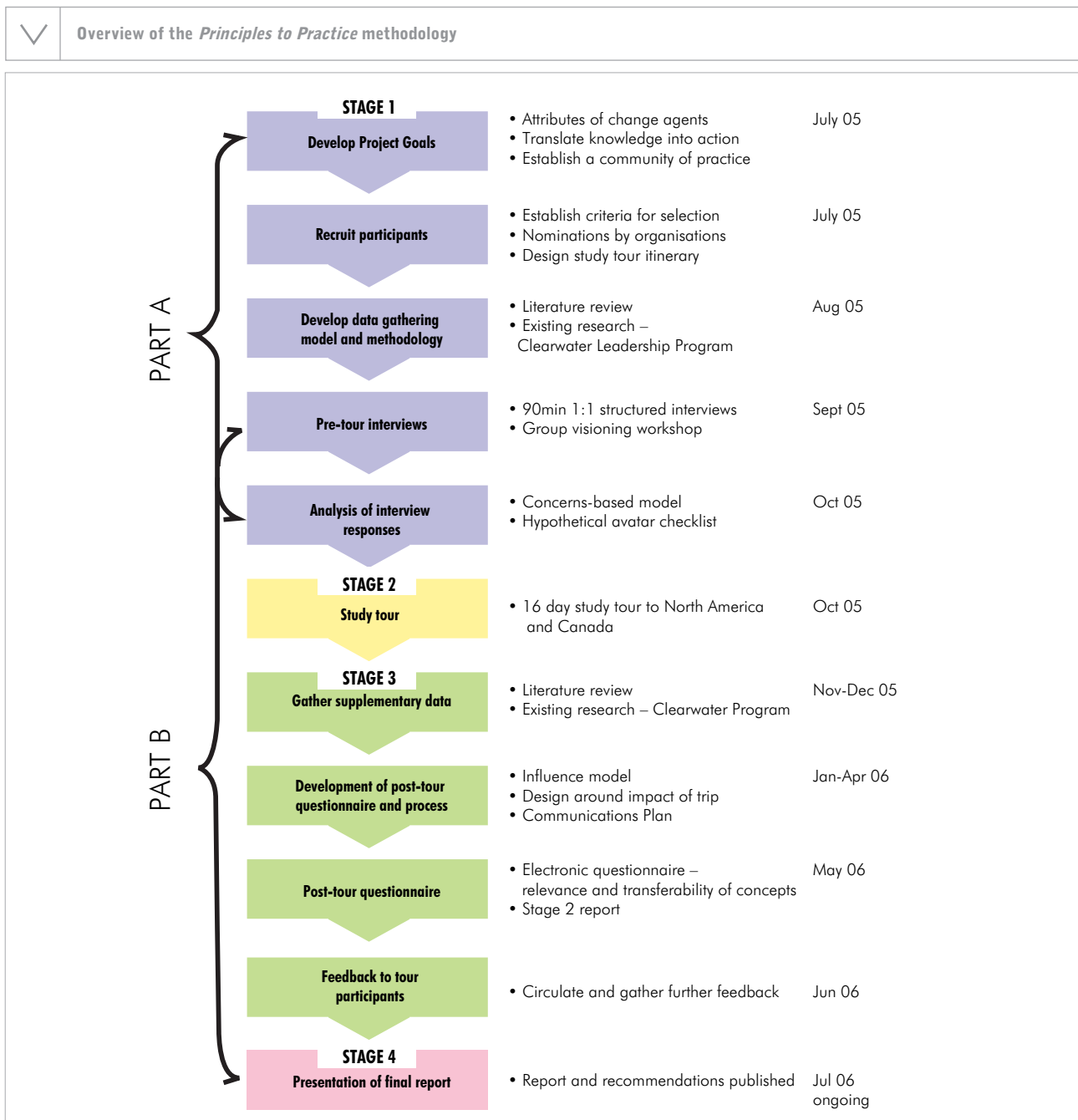
The various research techniques used or developed for the Principles to Practice methodology comprised a combination of social research and assessment techniques, providing a two-part inter-related framework.

Part A identified the common attributes of change agents for sustainable urban water management:

- Stage 1 – recruitment of change agents and analysis of common attributes.

Part B developed, implemented and evaluated a pilot model for capacity building:

- Stage 2 – international study tour (capacity building)
- Stage 3 – evaluation of study tour impacts
- Stage 4 – dissemination of outcomes (final report).





## 1. PART A: IDENTIFYING COMMON ATTRIBUTES

### 1.1. Recruitment of change agents for Principles to Practice

In July 2005, organisations across the Victorian water industry (state government, local government, water authorities, developers, engineering consultants and research institutions) were approached and invited to participate in Principles to Practice. Organisations were asked to nominate an individual identified as either a recognised or potential change agent for sustainable urban water management – a future leader for the industry. This involved funding their nominee's participation in the study tour and supporting their involvement in pre-tour workshops and post-tour capacity building initiatives.

Selection criteria were developed to guide organisations in identifying and nominating a participant. While potential nominees were easy to find, it proved difficult to convince organisations of the benefits and value of the investment. Due to this difficulty, individuals in Brisbane, Sydney and New Zealand were also approached and asked to request their organisation's nomination.

The following criteria were provided as a guide for organisations nominating individuals to participate in the Principles to Practice project and study tour:

- demonstrated contribution to the practice of sustainable urban water management
- ability to make a significant contribution to the study tour and on return to employer organisation
- demonstrated leadership potential
- consistency with career and personal development goals.

Eight change agents were nominated, representing local government, regional government, non-government organisations, industry consultants and water authorities from across Victoria, Brisbane and New Zealand.

### 1.2. Identifying common attributes of change agents

Principles to Practice identified the common attributes of change agents involved in sustainable urban water management through detailed interviews. These interviews were conducted with each participant prior to the study tour and involved a structured 60-90 minute discussion.

The framework for the detailed interviews as was adapted from the key factors in change agent competency described by Dunphy *et al* (2003).

A series of questions were developed around each of the key factors:

- goal clarity (personal motivation)
- role clarity (influence)
- relevant knowledge (accessing information)
- inter and intra organisational understanding
- empowerment.

The interviews sought to define each participant's understanding of the role of a change agent, whether they saw themselves as a change agent (or champion) and what skills they had developed or used to influence their organisation's ability to deliver sustainable urban water management.

### 1.3. Group visioning workshop

A group workshop was held one month prior to the study tour, designed using ideas generated by participants during the detailed interviews process.

The workshop provided the first formal opportunity for participants to meet and share current knowledge and experiences in sustainable urban water management, and establish new or strengthened relationships within the group.

Outcomes of the workshop provided a snapshot of the group's:

- vision for sustainable urban water management
- insight into their perception of what leadership in sustainable urban water management looks like
- perception of current barriers to implementing sustainable urban water management
- common goals for the study tour.

## 2. PART B: DEVELOPING, PILOTING AND EVALUATING A MODEL FOR CAPACITY BUILDING

A model for capacity building was developed using a series of interventions. Each intervention was evaluated in terms of its ability to:

- build the capacity (knowledge and skills) of change agents
- foster a network
- influence the transfer of technical knowledge (principles) into on-ground implementation (practice)
- act as a catalyst for change.

The specific interventions developed and piloted included collaborative development of a study tour itinerary, group visioning workshop, international study tour, collaborative development and delivery of an extensive communications plan, and debrief and evaluation questionnaire.

### 2.1. International study tour

North America was selected as the study tour destination due to its similar natural environment and climate to Australia and its reputation as a leader in sustainable urban water management.

The 16-day tour comprised technical demonstrations, opportunities to explore and understand international examples of institutional and cultural barriers to sustainable urban water management, and investigation of ways to overcome these barriers.

Participants met with key individuals from organisations and research institutions to examine international examples of effective knowledge transfer and capacity building used to support the implementation of sustainable water management practices.

### 2.2. Collaborative dissemination of outcomes

Following the tour, participants developed a communications plan outlining how the group would collaboratively disseminate outcomes from the study tour to their respective peers, networks and organisations.

In addition, the group planned how to gain audiences with current leaders in the water industry and key stakeholders in water management across Australia and New Zealand to share their insights into achieving sustainable urban water management and a culture of change.

Over 20 presentations have been delivered across Australia and New Zealand along with local media coverage, industry journals and ABC radio.

### 2.3. Evaluating the impact of the study tour

In June 2005 (seven months after the study tour) all participants completed an electronic questionnaire. The questionnaire assessed the impact of the study tour as a development tool for change agents, and as a catalyst for achieving change in the water industry, with regard to on-ground implementation of sustainable urban water management.

Participants were asked to rate the organisations visited in terms of relevance and ease of transferring knowledge and experience to their respective Victorian, Brisbane or New Zealand situations.

It is important to note that the questionnaire did not seek to have participants rate the best performing organisations, but rather to indicate which ones provided most opportunity to transfer learning; that is, enabling them to act as effective change agents on return.

Participants recorded in their own words why they had assessed these organisations highly, and details of specific observations to support their assessment.

### 2.4. Verification of responses

While the principles of reliable interviewing and evaluation were followed, the project did not allow for either qualitative or quantitative verification of the responses to interviews or the questionnaire. All interviewees were asked the same set of interview and evaluation questions in the same order, allowing for rigorous analysis and improved interpretation reliability.

### 2.5. Reporting and dissemination

Outcomes continue to be disseminated to water industry stakeholders and organisations across Australia and New Zealand well beyond the 12-month span of the project. There has been particular interest from organisations in Victoria in applying the project and outcomes to broader sustainability issues.

This report has been disseminated to key water industry individuals and organisations across Australia and New Zealand, and has also been distributed to the individuals and organisations visited in North America and Canada.

## 3. PROJECT LIMITATIONS

It is important to note that this research is based on the perspectives of eight identified change agents for sustainable urban water management. Given the relatively small sample size this project needs to be considered as a micro-project of the broader research required into change agents and their influence on sustainable urban water management in Victoria. However the extent of commonality in participant responses provides assurance of the project findings and contribution to the emerging body of research and literature in this field.

The study tour visited a range of sites that demonstrated sustainable urban water management. Each visit provided valuable lessons and possibilities that could be translated back to Australia and New Zealand. The following presents the key findings.

## 1. ICON SPECIES AS DRIVES FOR BEHAVIOUR CHANGE

### Learnings

In a number of locations, aquatic species have been a significant driver for improving stormwater management practices because they are culturally significant and highly valued by the local community and in many cases, protected under legislation.

Icon species play a significant role in educating the community about the impacts of stormwater discharges on aquatic ecosystems, and provide a tangible vision for implementing and improving stormwater management practices.

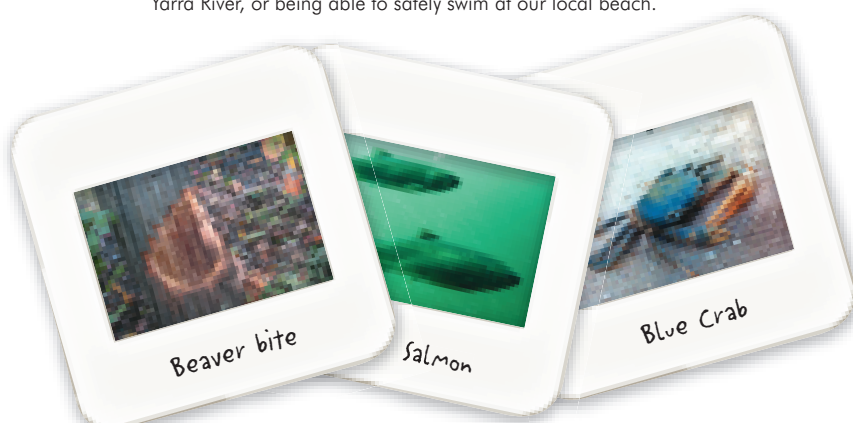
### Examples

The catchments of Seattle and the Fraser Basin discharge into Puget Sound and preservation of salmon populations and habitat is a significant driver of stormwater initiatives. Salmon are an important icon in these regions for food, fishing, as a tourist attraction, and are a key part of the local and indigenous culture. Salmon were used as drivers for activities ranging from revegetating streams in highly developed suburbs, to school education programs and community information campaigns.

Similar to efforts to protect and improve platypus populations in Australian waterways, agencies in the States were trying to return salmon to local streams where they had once occurred but had been lost due to pollution and urban development issues. A number of stormwater treatment structures were built in roads, streetscapes, front lawns, and markets to improve run-off water quality and reduce the flow of pollutants into the local rivers – protecting the water and habitat of the salmon.

In Maryland, blue swimmer crabs are a local delicacy, with ‘blue crabs and beer’ a traditional summer pastime and tourist attraction, similar to Australian’s ‘shrimp on the barbie’ pitch to the US tourist market. Blue swimmer crabs are part of the local culture and preservation of their populations in the Chesapeake Bay area is an important driver of stormwater initiatives. The Maryland Department of the Environment and North Caroline State University has linked its environmental programs to the blue crab – communicating a language and message that the community understand and value.

In Australia we often use ‘water quality’ and ‘stormwater’ to convey messages about river health. However, they are not terms that everyone understands. The challenge ahead is to be more creative with our stormwater messages using icons like the platypus, the Yarra River, or being able to safely swim at our local beach.



## 2. COLLABORATION AND ENGAGEMENT

### 2.1. Involvement of targeted science in decision-making

#### Learnings

- North Carolina State University extension officer program – staff from the university research program were involved in implementation of various water management projects on behalf of local government.
- Science programs that involved stakeholders as partners had a greater impact on policy and implementation.
- Many of the most successful water sensitive urban design programs had seemingly unsophisticated scientific tools and policies.

#### Examples

Many successful collaborative arrangements with scientists seen during the study tour were similar to those used in Australia in the Cooperative Research Centre model.

The best results occurred when stakeholders built significant trust and ownership in the scientific results. In the 10-year review of the San Francisco Estuary Institute’s science program by industry partners, one of the consistent comments was: “now we trust the data”.

The best example of this during the tour was the North Carolina State University’s extension program. In this case local and state governments work with university researchers to promote the science, and implement tools such as rain gardens to mitigate flooding issues. All users of the science had direct access to the researchers: landowners on whose property the rain gardens were installed, the regulator (local government) and the policy maker (state government). Researchers received real information about the applicability of their work.

Interestingly some of the agencies that were achieving the most extensive on-ground works in the stormwater field, such as Portland and Maryland, were using simple rules-of-thumb rather than modern computer-based assessment methods. None of the agencies or organisations visited was using continuous models such as sustainable urban water management or MUSIC.

#### Recommendations

- Continue to focus on cooperative arrangements with Cooperative Research Centres and universities.
- Ensure that Melbourne Water evaluates relationships, funds targeted research, actively engages researchers, and involves the latest science in decision making.

## 2.2. Collaborative decision-making and effective partnerships

### Learnings

- Sustainable urban water management requires continued collaboration with business, government and not-for-profit organisations to develop and implement solutions.
- Fraser Basin Council leads the way in collaborative decision-making.

### Examples

Meetings with selected agencies that share boundaries, operate in close proximity and have similar roles such as Bellevue and Seattle City Councils and King County in Seattle indicated that these organisations operate relatively independently, without much integration. However, most of the agencies visited had strong community interest and were addressing issues where multiple stakeholders were involved in developing and implementing sustainable solutions.

Many non-government organisations acted as facilitators for environmental management and protection, developing solutions for environmental problems where traditional approaches were lacking. The Fraser Basin Council stood out as an excellent example of collaborative decision-making, and Sustainable Conservation in San Francisco is an excellent example of a partnership that evolved through the risk of litigation and the inability for regulation alone to solve a problem.

The Fraser Basin Council is a locally initiated, non-government river basin organisation. The council is a multi-organisational, multi-interest planning body composed of 36 representatives drawn from diverse geographical and sectoral communities as well as from all four levels of Canadian Government – federal, provincial, local/regional and First Nations (aboriginal people).

The council oversees and implements a “Charter for Sustainability”. This charter is a good faith agreement among Fraser Basin residents and organisations to work towards the social, economic and environmental sustainability of the Fraser Basin. In implementing the charter, the Fraser Basin Council adopts a collaborative governance model and acts as an impartial trusted facilitator. Under the model, all parties leave their egos and interest at the door and equal weight is afforded to all parties. Traditional hierarchies are left behind. Using collaborative decision-making the council has never had to hold a vote.

The council has provided a good forum for information sharing and generation because there is less concern over who “owns” the information. This allows the council to focus on developing workable solutions to many difficult challenges, and in some cases resolve entrenched conflicts that began up to 50 years ago. Examples include an action plan to improve aboriginal/non-aboriginal relations, climate change programs, sustainable fish and fisheries strategy.

Sustainable Conservation is a not-for-profit organisation that helps develop solutions to environmental problems by bringing together a range of stakeholders to understand their issues and ensure that all needs are met. This provides an opportunity to find shared solutions that could not be identified or implemented by one stakeholder group alone. Sustainable Conservation is not a lobby group and becomes involved when standards tools including litigation, legislation and land acquisition do not adequately address the private sector’s impact on the environment.

Sustainable Conservation’s Brake Pad partnership brings together for the first time government regulators, brake pad manufacturers, stormwater management agencies, and environmentalists. The partnership was established in response to research that identified copper as a contaminant of concern in San Francisco Bay and brake pads as a potential source. The partnership is evaluating the potential effects of brake wear debris and copper on water quality in San Francisco Bay. The partnership is a collaborative approach and all stakeholders are committed to a range of conditions in the process. Environmental groups have agreed not to sue industry for the duration of the process regardless of the findings, and industry has voluntarily agreed to introduce new products within five years if after rigorous testing, brake pad wear is found to impair water quality.

The model of the Fraser Basin Council and Sustainable Conservation has evolved in response to a need for organisations that could act as facilitators for complex, challenging and confrontational issues. The model has its weaknesses and is not necessarily the best for all occasions. For example, the Fraser Basin Council is generally unable to implement the plans and programs it agrees upon, and must hand them off to others – usually government – for implementation, while the consensus decision-making approach can be inefficient.

Victoria has solid institutional and governance arrangements for sustainable urban water management, and active community groups and non-government organisations (NGOs). The major difference between NGOs such as Fraser Basin Council and Sustainable Conservation and many Victorian NGOs is that they do not have a pre-conceived solution or policy position on the issues of concern; rather they have a charter for operating and agreed sustainability goals. Sustainability goals are achieved by facilitating an outcome that is acceptable to all parties.

Perhaps the most important lessons for Melbourne Water and Victoria are the collaborative processes and approaches adopted by the Fraser Basin Council and Sustainable Conservation, and opportunities to encourage input from NGOs to help facilitate solutions to complex issues.

## Recommendations

- Continue to focus on collaboration and cooperation, and encourage the adoption of a collaborative governance model where appropriate.
- Support and encourage the involvement and development of NGOs and community groups in sustainable urban water management.
- Support continuing research into sources and transport of persistent chemicals such as heavy metals and endocrine disruptors, and communicate with manufacturers on their impacts.
- Further explore potential partnership with building manufacturers to understand impact of building materials on river health.

## 2.3. Community Engagement & Social Marketing

### Learnings

- If targeted effectively, the community is willing to participate.
- Social research (referred to in the US as social marketing) is a key component of any water sensitive urban design program.
- Community engagement is important to ensure acceptance and ownership of systems such as unofficially managed nature strips.
- Agencies in the US make it easy for people to get involved.

### Examples

Environmental Services at the City of Portland has developed a walking tour of water sensitive urban design (WSUD) sites in the Hosford-Abernethy neighbourhood. The sites include a series of green roofs, vegetated swales, rain gardens and planters, and disconnecting downspouts, which redirect stormwater to lawns and garden beds.

All these projects are integrated into the community including the shopping precinct and residential neighbourhood. The WSUD champion at the City of Portland was landscape architect Tom Lipton, who worked across various precincts integrating WSUD into the built environment. His role involved projects that work towards clean rivers, healthy catchments and sustainable community.

The City of Seattle has invested heavily in social research to tackle combined system overflows. The Fremont Ballard neighbourhood was chosen for a pilot project as part of a larger vision. This pilot, the Seattle Rain Catcher, involved building awareness of water quality in peak flow storm events and the resulting sewer overflows.

Residents were surveyed and selected for their interest in the pilot, which involved installation of 300 to 1000 gallon (1350 - 4550 litre) cisterns and rain gardens on their

properties. Surveying and engagement continued through to customer behaviour once the systems were installed. Nancy Lee, who ran a social marketing organisation, managed the process.

This level of community engagement showed how sophisticated the City of Seattle was prepared to be. The project's success was realised in its popularity among the community. This has led to bigger programs being developed in other neighbourhoods such as the South Henderson Street Rain-catchers project (Seattle), which has US \$1.25 million in funding.

In Raleigh, North Carolina, a similar community engagement program run by an extension officer from North Carolina State University (NCU) led to rain gardens and green roofs being installed in private lots. The technical barriers that are often perceived as insurmountable by homeowners were overcome by using simple language. The extension officer from NCU played an integral role in project management, community engagement and interpretation of the technical aspects of stormwater management. The network of organisations involved in the extension program bypassed the bureaucratic complexities (see Collaboration and Engagement).

### Recommendations

- View social research as an important element of all projects, and move towards developing stakeholder capacity to involve social researchers.
- Build capacity of our local community groups to become involved in strategic activities, such as promoting WSUD.
- Build capacity of the community to participate in on-ground programs such as streetscapes and rain gardens.

## 3. BENCHMARKING

### 3.1. Targets for sustainability

#### Learnings

Vancouver had the best example of a sustainability program, goals and indicators.

#### Examples

The Fraser Basin Council oversees and implements A Charter for Sustainability and produces a Sustainability Snapshot every two years as part of the council's reporting framework.

The most striking aspect of the Charter and Sustainability Snapshot is the breadth they give to the concept of basin sustainability and inter-relationships between social, economic and environmental issues. The Charter and Sustainability Snapshot contain goals and targets related to the sustainability of the basin's natural resources such as native fish and water quality like many natural resource management policies in Australia.

Community engagement is considered a central part of a well-functioning democratic society and is measured as part of the Sustainability Snapshot. The Charter and Sustainability Snapshot also contain goals and indicators to measure social well-being and the economy that are not directly linked to natural resource outcomes or management.

The Victorian River Health Program is now regarded as the most successful river management and restoration program in Australia. This program has set river health targets and actions focused on river health and actions for agencies. Social well-being and community engagement and involvement in decision-making are central to the program. At present targets and actions are focused largely on environmental outcomes and an opportunity exists to integrate measures for community engagement and social well-being into the river health reporting framework.

#### Recommendations

Expand thinking around river health targets and indicators to include measures for community engagement, involvement in decision making and well-being.

### 3.2. Local government benchmarking for performance

#### Learnings

- Uniform application of stormwater targets and urban river restoration generally face the similar barriers in North America as in Australia.
- Maryland showed the greatest application of works at the local government scale, including targets for retrofitting existing urban impervious areas.
- Presence of a local driver, for example salmon in the Pacific Northwest or blue crabs in Chesapeake Bay, resulted in the greatest implementation.

#### Examples

The study tour visited several local governments in four states. The issues they faced were remarkably similar to those in Australia. Local government commitment to environmental outcomes, internal capacity and funding were all raised as issues that prevent progress towards sustainability.

The interaction between organisations in the United States means that local governments are implementing their state's interpretation of the federal Clean Water or Endangered Species Act. This process, understandably, creates a variety of approaches and commitments to targets. At one end of the scale, diffuse pollution from a local government area was managed with a licence, with a cap placed on the discharge for certain pollutants. In these cases there seemed to be little effort put into reducing loads from diffuse sources. Maryland had instituted a system of targets for development with additional targets for retrofitting existing urban areas.

These targets reinforced a direct link between the local government's control of roads, and land use with the health of the local streams. The targets were assessed using an annual report that broke the municipality into sub-catchments and looked at what had been done in each. No strict performance objectives were applied to the retrofits; for instance, stream restoration would be counted alongside a rain garden. However the strategy certainly resulted in significant on-ground works.

#### Recommendations

- Investigate methods for more closely linking works to local social or environmental outcomes – clearly focus on drivers for projects.
- Investigate a new range of evaluation methods and targets that:
  - closely link social and environmental outcomes and reporting, for example expansion of index of river condition to capture social aspects
  - provide better links between social and environmental outcomes.



## 4. INNOVATIVE URBAN DESIGN

### Learnings

- Water sensitive urban design requires input from various fields of expertise to develop synergies between hydraulic requirements and landscape functionality.
- Regulated engineering practice sometimes prevents innovation due to lack of flexibility in standards.

### Examples

Examples in Portland, Oregon of innovative urban design identified close relationships between design, environment and engineering professionals. The need for collaboration between these complementary fields was identified a vital component of successful water quality projects.

Portland has been able to break down the barriers between design, environment and engineering professionals largely through the drive of a champion who is passionate about urban design. Maintenance concerns have been addressed by the environmental team (which drives much of the innovation) taking on the financial costs of ongoing maintenance. In addition, integration of water sensitive urban design into general architecture and landscaping creates functional aesthetic systems and increases its appeal.

In Seattle, the community is driving many water quality issues and as a result the projects implemented are distinctly community oriented. The “Cistern Steps” in downtown Seattle combines treatment with a community garden in a new high-density residential area. The focus on participation has resulted in a much wider input into design, and acceptance of the final product.

The multi-disciplinary approach also helps to address concerns over rigid engineering standards affecting the flexibility available for urban designers. This was evident in several states where urban stream restoration had moved beyond being engineering driven (with a primarily hydraulic focus) and had become far more ecologically or socially driven.

As in Australia, water sensitive urban design has struggled to gain the attention of retrofit development and renewal works evident in built-up areas in North America.

The study tour has had immediate effect on the implementation of the Lower Yarra Stormwater Quality Program by building a focus on inter-disciplinary teams around each individual project and council awareness of the need for interdisciplinary engagement.

### Recommendations

- Urban river restoration works should be integrated with stormwater and social projects.
- Stormwater programs at Melbourne Water should focus on bringing together interdisciplinary teams.
- Water sensitive urban design projects being constructed in Victoria should be reviewed to identify gaps and possible improvements.

### 4.1. Financial incentives for urban development

#### Learnings

- Several agencies ran similar programs to Melbourne Water’s offsets scheme for development. In most cases it was perceived as “pave and pay”, and the price signal was not high enough to change behaviour.
- Aspects of the schemes contained important lessons for Australia. Some schemes used the schemes to integrate different targets (for example, flooding, stream health and stormwater were all contained in the Baltimore system).
- Some agencies used financial methods to link the impervious area of the development with environmental outcomes.
- Areas with combined systems used actual costs of treatment at treatment plants to pay/reimburse onsite treatments.

#### Examples

Of the sites visited, Portland, San Jose, Maryland and North Carolina had working systems that provided financial incentives for the implementation of environmental initiatives at the development stage.

Maryland used a volume-based system for their targets and the offsets scheme. Objectives for development contained prescribed volumes for flood control, stream health and stormwater quality. Importantly, the system integrated the various drainage aspects of the site. Maryland was also part of a pilot scheme based on point source pollution aimed at nutrient loads into Chesapeake Bay although the tour did not visit the agencies responsible for the scheme.

Many of the schemes discussed were at the infancy stage, having been operational for only a short number of years. There were many parallels with Melbourne Water’s offsets, however none of the schemes was tied as directly to works as Melbourne Water’s.

Perhaps the most important lesson for Australia is the way some schemes link impervious area to costs. It was unclear how income from these schemes was spent.

#### Recommendations

- For the next water plan period, look at adjusting Melbourne Water’s offsets scheme to encourage more onsite treatment.
- Expand thinking around financial mechanisms to encompass flooding, river health and rural land management.

## APPENDIX 5 | INTERNATIONAL CASE STUDIES

The following provides an overview of four organisations in North America and Canada viewed by participants as demonstrating success in sustainable urban water management.

## 1. NORTH CAROLINA STATE UNIVERSITY

### Description:

Applied research organisation and extension program – example of a very strong collaboration between State Agencies, Research Organisations and Local Agencies. Program has varied scope – urban stormwater, river restoration, sediment control and ecosystem services with very strong scientific backing. Extension officers work directly with homeowners and councils to deliver river health, stormwater quality, sediment control and septic management outcomes. Strong relationship between all parties demonstrated.

### Website:

[www.ncsu.edu](http://www.ncsu.edu)

### Participant comments:

- A great example how research can be translated into practice and how local agencies (research organisations, national, state and local government, the community) can work together to achieve environmental outcomes.
- Evidence of a culture of change within the institutions and an empowered community.
- Significant works on the ground.
- Very strong collaboration between State Agencies/Research Organisations /Local Agencies.



## 2. CITY OF PORTLAND

### Description:

Local government delivering an extensive water sensitive urban design program and actively piloting innovative approaches to sustainable urban water management, in particular green roofs and bio-filtration systems. The oldest system in Portland was built in 1992. City also has a 'stormwater walk' featuring various examples of water sensitive urban design.

Drivers are stormwater quality and reduced flows into the combined stormwater/sewer system as it costs 0.3 cents/gallon to treat at the sewerage plant. The Environmental Bureau (a department within the council) takes on maintenance responsibility for stormwater quality works. Tom Lipton seen as the "champion", uncertain if the process in place would continue if Tom left. Tom saw pilot projects as integral to success and acceptance within the council.

### Website:

[www.portlandonline.com](http://www.portlandonline.com)

### Participant comments:

- Well-established stormwater management culture in Council – demonstrated support to evolve water sensitive urban design from basic beginning to more sophisticated approaches.
- Excellent examples of works on-ground and programs in place – innovative approach to delivering attractive and commercially viable water sensitive urban design solutions.
- Evidence of truly integrated community programs – understanding the knowledge base, conscious social marketing carried out by the City.
- Strong willingness to overcome perceived barriers.
- Self-motivated champion driving the process and leading using demonstration projects on the ground for people to learn from. Part of his success has been to 'de-engineer' technical terms to describe systems in more-user friendly terms to break down barriers.
- Open and transparent relationship with the development industry in order to make the most of new and redevelopment opportunities.



### 3. FRASER BASIN COUNCIL, VANCOUVER, CANADA

#### Description:

Non-government organisation with governing council of 35 community representatives from federal, provincial, local governments, first nations, industry and interest groups. Focused on consensus decision-making for sustainable catchment management ensuring social, environmental and economic stakeholder concerns are addressed.

The Council has developed a model for catchment management now being applied internationally – a ‘Charter for Sustainability’ signed by all Council representatives.

“Co-operation takes time.” - David Marshall, Executive Director

#### Website:

[www.fraserbasin.bc.ca](http://www.fraserbasin.bc.ca)

#### Participant comments:

- A true partnership approach, a willingness to involve all key stakeholders and influencers.
- Identified the key drivers to achieving healthy, productive and sustainable ecosystems and communities – strong sense of understanding the problem before jumping in and making decisions.
- Positive response from community groups.
- Work has advanced beyond catchment management and environmental concerns to encompass social and economic aspects. In this sense they were one of the few organisations we visited whose goal was sustainability as per the generally accepted definition of the term.
- Shared learning and understanding seemed to indicate greater ownership of the solution (e.g. by politicians, key community figures).

### 4. MARYLAND DEPARTMENT OF THE ENVIRONMENT

#### Description:

Regional government – established ‘Stormwater Park’ a demonstration park for stormwater management that incorporated an extensive monitoring program running since the 1980’s.

#### Website:

[www.mde.state.md.us](http://www.mde.state.md.us)

#### Participant comments:

- Organisation had a clear sustainability mission.
- A practical demonstration site.
- Established record (since the 1980s), especially with respect to stormwater management and river restoration. Implementing stormwater practices nearly ten years before stormwater requirements appeared in national legislation.
- Link between community values and well-being, and the health of Chesapeake Bay.

### 5. SAN FRANCISCO ESTUARY INSTITUTE

#### Description:

Not-for-profit organisation with a US\$6 million annual science and reporting program – an example of integrated bay, estuary and catchment management that has been running for 10 years. “Now we trust the data” was the feedback from stakeholders following the science program’s ten-year review.

The institute fosters scientific understanding among stakeholders and the integration of science into decision-making for the protection and management of the San Francisco Estuary and catchment. Driver is to restore riparian health and ultimately health for fish and recreational fishers. Planning to prepare a regionally integrated water management plan – a blueprint for caring for the bay and catchment. Currently producing sediment quality guidelines.

“Go out there and set something bold and then set something that is pragmatic,” - Dr Josh Collins

#### Website:

[www.sfei.org](http://www.sfei.org)

#### Participant comments:

- Science leading to change.
- Science integrated into practical decision-making for regulatory agencies, private industry and the community – lots of institutional issues!
- Successful collaboration arrangement with scientists and managers.
- Breadth, relevance and practicality of research projects.
- Stakeholders building trust and ownership in the results.
- Programs to communicate their outcomes to the public at large via a billboard advertising campaign.



## APPENDIX 6 | KEY RECOMMENDATIONS BY PARTICIPANTS

As part of the post study tour questionnaire participant shared the recommendations they would like to see initiated in the next 12 months.

### KNOWLEDGE TRANSFER

- Knowledge transfer will be critical to encouraging more people to be involved – however, we should seek opportunities in areas that are not seen as being traditionally involved in sustainable urban water management, yet have an impact on the end result.
- Over the next 12 months I'd like to see some large organisations having high-level discussions with change agents to see how they're approaching change towards sustainable urban water management. I'd like to see some change to the pretending – i.e. 'we support this...on paper...but we have budgetary constraints....blah, blah, blah'.
- Building and communicating links between catchment activities, river health and icon species.
- Our group was very diverse in terms of background and expertise and we all got on so well. I'd really like to see this network fostered... to have some sort of formal framework to maintain our interaction and development.
- I'd like the group to have opportunity to get together and discuss the advantages and disadvantages of Victoria's current approach – and to identify opportunities in our organisations to better manage urban water. The strength of the group is that we're not too senior to have to carry political opinions or 'managerial statements.'

### CAPACITY BUILDING

- Continue to focus programs on the social solutions to issues that we experienced.
- Continue to focus on arrangements with Co-operative Research Centres and universities, and continuously evaluate relationships with them.
- I would like the tour group itself to keep sharing ideas and experiences. This has happened with a water sensitive urban design conference held in Melbourne in April but hopefully will continue.
- Meaningful interaction between the network of individuals who undertook the tour to communicate changes that have been undertaken within specific organisations, and if change has been difficult, what have been the barriers.
- I would like to see further tours of the same locations for new leaders in sustainable urban water management.
- I would like to see more local and interstate sharing of knowledge through similar tours.
- I would like to see more work on social research and marketing to better understand how our stakeholder community clicks and how we can further participate in change directly with that community.
- Investing in programs that will help our stakeholders understand where and how they can be involved.
- Continued training in the use of sustainability principles and indicators in the decision making process, and subsequent promotion of these achievements.
- Greater focus on skill and professional development in fields of communication and knowledge transfer, and problem solving.
- Continued opportunities for the tour group participants to get together to develop state / national strategies based on personal experiences but also I found new ideas were generated simply by just talking and sharing crazy thoughts.

## CULTURE OF CHANGE

- *Develop future leaders and a culture of ideas and learning.*
- *I would like to see further support for the building and development of a network of young leaders and a culture of ideas and learning and business processes.*
- *I would like to see close ties to those who had identifiable influence on the participants and potentially further exchange of experience and knowledge.*
- *I would like my organisation to continue to be seen as a leader in the field of sustainability and an agent for change in terms of achieving sustainable outcomes and cultural improvement within the organisation.*
- *Greater flexibility and encouragement for innovation in the delivery of our services.*
- *Innovative ways to reward and recognise internal champions (look for ways to maintain their energy and enthusiasm).*
- *The value in such a mix of backgrounds is the exposure and understanding you gain from the various perspectives and angles that otherwise you would not have considered.*
- *The experiences and learnings from colleagues was something that I valued just as much as from external hosts.*
- *In the next 12 months and beyond I would really like to see the internal network relationships fostered and cultivated so as to build upon the experiences we learnt as part of the tour group. I believe the circle of people have the potential to deliver and shape the sustainable path in building capacity within the water industry.*

## ADDITIONAL COMMENTS

- *The study tour was like ‘attending your own tailored conference’ and having the luxury of meeting very influential people in great organisations, in a very small group and having the opportunity to talk openly in a discussion forum with them.*
- *The study tour group was great in terms of dynamics, but also in terms of the mix of disciplines, which ensured that our discussions covered a variety of issues, highlighting the importance of integrated management.*
- *This type of engagement provides better and more appropriate perspectives for on the ground change than conferences and research literature can provide. It is a process of active management that will help develop strong leaders in this exciting area of change.*
- *One possible downfall of champions is that they are not the total solution – and unless this person / people can transfer their knowledge and capacity across organisations – the benefits may be short lived.*
- *Australia (Victoria) is doing a pretty good job overall. We have a got a great base and framework to move forward with confidence and conviction. Whilst no place we visited was a fully integrated water management organisation, the opportunities were available to pick “the eyes out” of the best. Also many lessons can be learned from the “not so good”.*



## APPENDIX 7 | PARTICIPANTS REFLECTIONS

Principles to Practice participants have provided the following reflections of their experiences and learnings.

### JANE PUDEPHATT, AUCKLAND REGIONAL COUNCIL, NEW ZEALAND



The experience of participating in a study tour was a very rich learning experience. A fellow participant summed the experience up by describing the study tour “like attending your own tailored conference, having plenty of focussed discussion time with the speakers and having an absolute brain overload”. This was clearly evident from the lively discussion, happy faces and energetic people over the duration of the tour.

The study tour group was comprised of a fantastic mix of enthusiastic people from a diverse range of complementary disciplines, all passionate about progressing sustainable urban water management through their work, very keen to listen and learn from others’ experience and make the most of the networking opportunities provided to them on the tour, and to have fun while they were doing it. All meetings and site visits were targeted to address the interests of participants on the tour.

Due to the diversity of participants’ backgrounds, this meant that some visits were more relevant to certain people than others. However, host organisations really tried to address this by inviting a range of people from their organisation to speak to the group and discussion sessions were very interesting as they brought in diverse perspectives on specific topics. For example, a visit to the San Francisco Estuary Institute covered aspects of water quality research, catchment management planning, the development of sediment quality standards, collaborative approaches to the management of a natural resource, engineering design, biological and social impacts of land use.

In contrasting the study tour experience to conferences I have attended in the past, I feel like I have gained a significantly greater insight into the implementation of sustainable urban water management practices that I could ever have gained through attending a conference. While I feel that attending conferences also provides great opportunities to learn from others’ experiences, meeting experts and developing a network of contacts, I felt that the study tour provided a far greater opportunity. This is due to the fact that I was able to spend time to get to know the group of people I was travelling with, including the role of their organisations and their areas of expertise, and gain inspiration from the fact that there are a lot of great examples of low impact development in the world and lots of passionate people working to progress this incredible area of work.

#### Inspiring others...

Having shared her experience of the study tour New Zealand participant Jane Puddephatt has inspired the Stormwater Team at North Shore City Council, (Auckland, New Zealand) to re-design their proposed study tour to the USA in 2006 based on the Principles to Practice model. The study group will include a politician along with staff from different departments in Council including traffic and roads, education, stormwater management and asset management.

### PHIL EDWARDS, CITY OF MELBOURNE (NOW MELBOURNE WATER)



My involvement in tour was partly due to my interest in the topic and partly as an introduction to a new role at Melbourne Water.

I had expectations of gathering information and experiences of failures and issues with implementation and potential fixes for these. I discovered that similar issues exist in North America as here. The study tour provided insights into how acceptance of the issues and integration of multi-discipline skills around sustainable water management projects are the keys to success.

I came home feeling enlightened by this discovery. I was inspired by the people that I met doing a similar role and from similar backgrounds as myself. I found that gave me confidence in mapping a direction for my new role. I was encouraged by the energy of my travelling companions, and their strong resolve to refuse the easy ‘business as usual’ options. I believe that the network of young professional leaders that travelled on this occasion is a valuable resource to assist me in my role at Melbourne Water.

The projects visited were not the best or award winning with regards to design, however they have all had specific place for mention in the daily work that I am trying to deliver. I found the creativity of some of the designers to be of exceptional quality, which has inspired me to push for similar results in each and every endeavour of my program.

### MATT FRANCEY, MELBOURNE WATER



For me, the aims of the study tour were to reassess our work in sustainable water management, to test some of our current thinking and to develop a vision of what we could do in the future.

I believe it succeeded in achieving all this – and more.

When planning the tour we allowed time at each visit to present and discuss the specific situation and how that transferred to our home practices. This made it more than just a series of site visits, and enabled us as a tour group to delve into some of the drivers, problems and ideas of the people we met.

Most organisations we visited faced similar issues to us here in Australia. A few had achieved more in some areas and many had achieved less, however all were tackling problems in slightly different ways. Being able to identify these lessons, both with organisations we visited and within our group, provided ideas and inspiration for our work back at Melbourne Water. In the months since we have returned, I believe these ideas are being put into action, particularly through the stormwater, river health and community engagement programs.





## JANE BATESON, MELBOURNE WATER

*For me, the aims of the tour were to learn more about approaches to managing urban stormwater, to gain ideas for the preparation of water quality strategies and reassess our approach to the integration of river health and stormwater programs.*

*The hospitality of the people and organisation visited was very generous, particularly their willingness to spend significant effort and time with study tour participants. Their honesty and that of the participants meant that we could explore problems and issues as well as the 'good news' stories, which was invaluable.*

*Many of the organisations we visited were dealing with similar issues to Australia. We saw a range of approaches – from leading edge to quite limited. I gained reassurance that Melbourne Water is on the right track, is leading in many areas and that while we face many challenges, Melbourne Water is in a great position to lead in the area of sustainable urban water management.*

*I had the pleasure of meeting many inspiring individuals and seeing leading edge projects that have generated ideas and a renewed passion for my work in Melbourne. A key outcome for me is also the network of young professionals with whom I have formed a strong working relationship. As a tour participant it is important that I share my experience and contribute to the development of other young leaders.*

## DAN O'HALLORAN, YARRA VALLEY WATER

*Attending the study tour provided an excellent opportunity to interact with and learn from peers whilst gaining a unique perspective on our path to sustainable urban water management.*



*The tour revealed that, whilst there were differences between the Australian and US experience, there were also many commonalities in what drives change, our shared goals and aspirations and also the obstacles to success that are encountered along the way. This understanding has given me greater confidence to take up the challenges of effecting change within my own organisation, whilst better valuing and incorporating stakeholder concerns.*

*Of particular interest to me were those organisations effectively linking scientific research, governance issues and community interest as they searched for truly sustainable solutions (e.g. the North Carolina University and the Fraser Basin Council). The formation of inter-organisational networks is imperative in achieving sustainability in any field, and I believe the tour has galvanised a group that holds great potential to effect positive change within the Victorian water industry.*

## JONATHAN MCLEAN, COOMES CONSULTING GROUP



*The tour provided new inspiration and examples of how to deliver sustainable urban water projects "on the ground". However the real value was that the site visits were coupled with "in-depth" and "focussed" discussions with the various organisations and stakeholders involved in the projects. On reflection this dialogue highlighted that these organisations were often dealing with similar issues and barriers to Australia and enabled me to gain new perspectives and approaches to implementing change.*

*For me the most lasting impressions were those examples that have been able to bring together the "arts" of engineering, architecture and landscape to deliver integration with the built form. This is the type of culture change and capacity building that needs to be harnessed in Australia. Coomes has each of these professional disciplines and since my return I have actively taken the role to foster and enhance the opportunities for a multi-discipline approach to delivering sustainable water systems.*

*The study tour group consisted of people from diverse disciplines and backgrounds. Whilst different, each person was equally passionate in the quest for "leading the way" with respect to sustainable urban water management. The value in such a mix of backgrounds is the exposure and understanding you gain from the various perspectives that otherwise you would not have considered. The working relationship formed within the group provides a fantastic network and resource to encourage and continue the learnings in Australia.*

**Disclaimer**

This report presents the key outcomes, findings and recommendations from the 2005 Brian Robinson Foundation inaugural Fellowship: Principles To Practice.

The views in this report are solely those of the author and do not necessarily reflect the views of the Brian Robinson Foundation or any of the organisations involved in the project.

**For more information contact:**

Jacquie White  
Melbourne Water  
Ph. 03 9235 1445 or  
jacquie.white@melbournewater.com.au

*Project  
Participants >>*



MWH Global  
« Kate Smolenska »  
Senior Environmental Engineer



Yarra Valley Water  
« Dan O'Halloran »  
Engineer — Water Planning Division



Melbourne Water  
« Matt Francey »  
Team Leader Catchment & Waterways



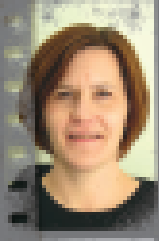
Healthy Waterways, Brisbane  
« Fiona Chandler »  
Project Officer



Melbourne Water  
« Phil Edwards »  
Sustainable Water Projects Officer



Clearwater  
« Jacquie White »  
Manager



Melbourne Water  
Jane Bateson »  
Team Leader River Health



Auckland Regional Councils, New Zealand  
Jane Puddephatt »  
Stormwater Scientist — Source Control River Health



Coomes Consulting  
Jonathan McLean »  
Principal Consultant Water Resources

