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Program Leader's Message



Seasons Greetings,

Once again, it has been a busy few months for the *National Urban Water Governance Program* since the last eNewsletter.

Our research team has recently completed a major phase of data analysis from information collected in Melbourne, Perth and Brisbane examining the current 'barriers' and 'drivers' experienced with advancing sustainable urban water management (SUWM). This research consisted of over 250 in-depth interviews with urban water professionals in each city, and survey data collection from an on-line questionnaire, in which 1041 urban water professionals chose to participate. The outcome of this research has so far led to the production of an industry summary report (now available online), and two major data reports, discussing urban stormwater quality management, and the barriers and drivers towards advancing the adoption of diverse water supplies in Australia. These reports are briefly discussed within this eNewsletter. We would like to thank all those who participated in the survey for their time, contributions, and valuable perspectives.

The research team has also been busy presenting the preliminary findings of this research. Rebekah Brown presented to the Novatech audience in France in July, and Nina Keath presented in Spain at the International Conference on Interdisciplinary Social Sciences. In August, the team presented in Sydney at the Rainwater and Urban Design Conference 2007. Abstracts of these refereed papers are provided within the body of this eNewsletter. These events were all attended by a large number of professionals, representing a range of disciplines within the urban water industry, and provide important opportunities for our Program to learn from and contribute to current thinking around SUWM in Australia and internationally.

Our latest Steering Committee meeting was held in Melbourne on August 31st, and was a great success. Final drafts of the reports were presented to the members for their comments and feedback, and discussion was held regarding the forthcoming Annual Meeting to be held in Perth in February 2008. A highlight of the meeting was a tour of the FAWB (Facility for Advancing Water Biofiltration) research facilities, greenhouses, and demonstration projects by Associate Professor Ana Deletic, further described within this eNewsletter alongside an update of FAWB research, which has had great advancements over the last few months.

Additionally, in response to the recent inquiry into reform of the Melbourne metropolitan retail water sector, the *National Urban Water Governance Program* spearheaded a submission to the State Government's Victorian Competition and Efficiency Commission, outlining the principles of a water sensitive city and encouraging the state government to take a triple bottom line approach to efficiency. More details can be found on page 4 (and a copy available online).

We hope you enjoy this edition of the eNewsletter. Have a very Happy Christmas, and all the best in the New Year.

Dr Rebekah Brown
Program Leader



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Survey Reports Released

In November 2006, the Program posted an on-line questionnaire survey that requested the anonymous participation of professionals in the urban water sector and other interested stakeholders. Questions were designed to understand the perceived 'drivers' and 'barriers' to advancing sustainable urban water management across metropolitan Brisbane, Melbourne, and Perth. Analysis of the 1041 responses has been completed and two detailed reports have been published. A summary report "Perceptions of Institutional Drivers and Barriers to Sustainable Urban Water Management in Australia" has also been published (pictured right) and is available on our website. The two data reports will also be available online in the New Year. A brief description of the three reports follows:



Report 1) Summary Report: Perceptions of Institutional Drivers and Barriers to Sustainable Urban Water Management in Australia, Survey Results of Urban Water Professionals Across Brisbane, Melbourne and Perth, Report No. 07/06.

This report synthesises the results of the two detailed reports and provides an overview of the recommendations. To download this report click [here](#).

Report 2) Advancing the Adoption of Diverse Water Supplies in Australia: A Survey of Stakeholder Perceptions of Institutional Drivers and Barriers Across Brisbane, Melbourne and Perth, Report No. 07/04.

This data report provides empirical evidence of professional perceptions on the current social and institutional drivers and barriers to advancing SUWM practices in Australia. Framed in the context of professional receptivity to diverse water supply options, the report presents the perceived social and institutional drivers and barriers in relation to how they may constrain and/or enable the application of a particular non-traditional water supply technology. Data presented includes professional receptivity to the application of a range of alternative water sources including rainwater, greywater, stormwater, sewage, seawater, water trading, and new dams, and professional receptivity to a range of uses for the non-traditional water supplies, following the fit-for-purpose concept. Similarly, professional receptivity to a range of non-traditional water supply technologies was also tested, including rainwater tanks, on-site greywater systems, third-pipe systems and in/direct potable reuse systems. Furthermore, the professional perceptions of how receptive the community, state politicians and organisations are to advancing a range of alternative water sources is presented. Finally, the professionals' perceptions of organisational commitment to advancing total water cycle management are presented, along with the projected timeframes for diverse water sources to become integral in conventional water supplies.

Report 3) Advancing the Adoption of Urban Stormwater Quality Management in Australia: A Survey of Stakeholder Perceptions of Institutional Drivers and Barriers Across Brisbane, Melbourne and Perth, Report No. 07/05.

This data report investigates the level of professional receptivity to improved urban stormwater quality management practices, and offers critical insights into professional opinions regarding the institutional drivers and barriers to advancing more sustainable urban stormwater quality management across Australia. The report, framed in the context of professional receptivity, tested 12 factors perceived to enable or constrain the uptake of stormwater quality treatment technologies at local, precinct and regional scales. Perceptions of the current effectiveness of institutional arrangements are presented, along with perceived commitment of organisations in the urban water sector to pursuing water sensitive urban design. Projected timeframes for the implementation of specific stormwater quality treatment technologies is also presented.



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Institutional Reform in Brisbane, Melbourne and Perth

Since research within the National Urban Water Governance Program began, each of our case study cities (Brisbane, Melbourne and Perth) have been subject to drought and water scarcity, prompting institutional review and in some cases reform. This has provided us with a unique opportunity to study cities as they respond to extreme events and to use our research insights to help encourage sustainable outcomes. We have asked our Industry Liaison Officers to provide us with a short summary of some of the changes underway within their respective cities.

Brisbane – Current as of 23 September, 2007

The Queensland Government has recently announced further details of the proposed changes to South East Queensland's water industry. Currently all water and wastewater treatment, distribution and retail aspects are wholly owned and managed by local government in Brisbane City Council's case, Brisbane Water.

The new structure will see the Queensland Government taking on responsibility for bulk water assets and South East Queensland (SEQ) local governments retaining responsibility for the distribution and sale of water to consumers.

The key elements of the proposed changes to the institutional reform model are outlined below:



Fiona Chandler

- **Bulk water source and treatment** - Ownership of dams/weirs are to be rationalised to a single bulk supply entity owned by the Queensland Government effective by 1 July 2008. Further consideration is to be given to the future ownership of wastewater treatment plants.
- **Manufactured water** - The Gold Coast Desalination Plant and the Western Corridor Water Recycling Scheme, upon completion, will be located within a separate State-owned entity.
- **Bulk transport** - Major transport infrastructure, including that presently owned by local governments and those assets currently being built by the Queensland Government as part of the SEQ water grid will be moved to a single bulk transport entity, owned by the Queensland Government, effective by 1 July 2008.
- **Water grid management** - A Water Grid Manager will be established by the Queensland Government to manage contracts between the bulk supply entities and the retailers, and to manage the flow of water around the SEQ water grid. This arrangement will be effective from 1 July 2008.
- **Distribution** - Retail activities will be split from distribution, effective from 1 July 2010, or earlier by agreement. All water reticulation pipes and sewerage pipes will be moved into a single regional entity, wholly owned by the SEQ local governments, with retail activities to subsequently move from local governments to new entities no later than 1 July 2010.
- **Retail** - SEQ local governments have been asked to advise the Queensland Government by 30 November 2007 of the preferred number of retail entities they wish to establish and the timeframe over which the retail function could be separated from Council accounts. The outer timeframe being 30 June 2010. Councils may resolve to retain their own retail function.

The Queensland Government will also be developing a customer service guarantee as part of the changes proposed to the distribution and retail functions. It is also intended that there will be further consideration in regard to the appropriate corporate form of each of the proposed new State-owned and local government-owned water entities. The State-owned bodies will be statutory authorities, but the Queensland Government will need some more time to decide, in consultation with SEQ councils, what corporate form is the most appropriate for the distribution and retail bodies that will be owned by the 10 SEQ councils after the local government reforms have been implemented.



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Melbourne – Current as of 10 October, 2007

Victorian Premier John Brumby recently announced a review into the structure of Melbourne's retail water sector by the Victorian Competition and Efficiency Commission (VCEC).

The *Next Stage of the Government's Water Plan* announced major supply projects to diversify and boost water supplies for Melbourne. These projects include reconnecting Tarago reservoir (15GL), the Sugarloaf Interconnector (75GL) and Australia's largest desalination plant (150GL).

The Government's Plan indicated that as a result of these projects, along with continued investments to maintain and improve water services, the average Melbourne Water bill was expected to double (in real terms) by 2012.

To achieve these goals the Government has instructed the VCEC to conduct a review and provide guidance on the most appropriate structure for Melbourne's retail water sector to successfully implement the Government's supply augmentation strategy and meet the challenges of population growth and climate change.



Chris Lee

In addition to structural reform, the review will also examine issues such as pricing, customer service and governance. The VCEC will provide a report to Government by the end of February 2008, with an interim report in December 2007.

Melbourne's retail water businesses are committed to working closely with the VCEC during the review period to ensure that the industry can continue to provide secure and reliable water services at least cost to the community over the longer term.

Monash University submission to the review

In response to the Victorian government's inquiry into reform of the Melbourne metropolitan retail water sector, the *National Urban Water Governance Program* led the development of a submission by Monash University researchers. The submission was prepared and signed by 19 Monash researchers involved in leading edge water, climate and sustainability research. The submission strongly urged the Government to consider a triple bottom line approach to efficiency, and to commit to nine key principles of a Water Sensitive City:

1. Intergenerational equity
2. Triple bottom line approach
3. Integrated
4. Diverse water sources
5. City as a catchment
6. Ecosystem services
7. Resilience to climate change and variability
8. Social Capital
9. Business case

In response to the submission, VCEC commissioners will visit Monash University in November to learn more about best practice urban water governance.

The Monash University submission is available on the *National Urban Water Governance Program's* website for interested parties www.urbanwatergovernance.com.

Once again, we would like to thank our Monash colleagues for their valuable contributions, enthusiasm, interest and support.



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Perth – Current as of 10 October, 2007

Institutional change has been a feature of the Perth water management landscape for at least the last five years. There is now a focus on 'policy' and 'planning' reform as opposed to structural reform. In February of this year, the State Government released their 'Blue Print for Water Reform in Western Australia'; this highlighted the Government's commitment to:

- The development and implementation of statutory water management plans
- An enhanced water metering program
- Introduction of water resource management charges
- Water trading;
- Water use efficiency; and
- Integration of land and water planning.

Alongside this package the Government has released:

- A State Water Plan – outlining the State's priority areas of activity over the next couple of years including the implementation of , a water policy framework, a water planning framework and enhanced water conservation and water recycling targets
- A State Wide Water Efficiency Measures – which has introduced permanent water efficiency measures across the State, including Local Councils and metropolitan bore owners;



Alison Luobikis

The Government is also currently working with key stakeholders to develop

- a State Water Recycling Strategy (for consideration by Cabinet later this year); and
- modernised water management legislation (introduction early to mid 2008).

In addition , the Economic Regulation Authority is conducting an inquiry on competition in the water and wastewater services sector. Key areas of focus for the inquiry will include:

- introducing greater efficiency in developing and delivering new water sources and other services requiring significant capital investment. This will include looking at issues associated with current market structures and mechanisms to increase competition, diversity and innovation;
- opportunities for enhanced competition including through the introduction of third party access to existing water and wastewater related infrastructure; and
- other reforms to the water and wastewater market which may enhance competition, including issues associated with establishing water trading mechanisms, and arrangements for community service obligations paid by the State Government to service providers.



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"Transition to Water Sensitive Urban Design – The Story of Melbourne"

On 23 July 2007 Mr Tony Lupton MP, Victorian Parliamentary Secretary for Industry and Innovation (at right) launched a major report entitled "Transition to Water Sensitive Urban Design - The Story of Melbourne". Published by the Facility for Advancing Water Biofiltration (FAWB), the report highlights how Melbourne has advanced the complex practice of urban stormwater quality management, which is an important concept for Melbourne's transition to a 'Water Sensitive City'.



In conjunction with the launch, a seminar on the report was presented by the principal author, Dr Rebekah Brown. Dr Brown has since been invited to present her findings to the Dutch Ministry for Public Works and Water as part of its new National Water Management Policy for 2009. Additionally, Singapore is working in conjunction with FAWB, utilizing the research in re-designing the city-state as a water sensitive city, commencing with the NEWater project. A copy of the report can be found on our website, www.urbanwatergovernance.com

A Message From FAWB Research Manager, Associate Professor Ana Deletic...

The mission of the Facility for Advancing Water Biofiltration (FAWB) ***is to provide proof of concept by developing and field-testing a range of biofilter systems that can be applied to specific market-based needs.*** This includes the needs of catchment managers, environmental regulators, public utilities, local governments, land developers, and design engineers.

Water biofiltration is the process of improving water (stormwater and wastewater) quality through the processes of filtration through biologically influenced media. Stormwater biofiltration systems include bioretention systems, constructed surface flow wetlands and constructed sub-surface flow wetlands; however, the focus of this document is on bioretention systems.

FAWB has already made some important scientific findings, and is very close to achieving its mission. On the technology side, FAWB developed novel biofilter designs that are able to remove over 95% of solids, 80% of phosphorous and 60% of nitrogen, and well as over 95% of metals. They are also very efficient in pathogen removal.

For more information about FAWB, please go to www.monash.edu.au/fawb/





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'Sustainable Urban Water Management: The Champion Phenomenon'

André Taylor

This project has three main phases, each taking approximately one year to complete. The first phase (2006-7) involved the international literature review and development of fieldwork methodology. This phase is complete. The second phase (2007-8) involves fieldwork in six case study water agencies to investigate the nature of emergent leadership in the context of promoting more sustainable forms of urban water management, like water sensitive urban design. I have completed fieldwork in Brisbane City Council (Qld), Maroochy Shire Council (Qld), Melbourne Water (Vic), and the City of Mandurah (WA). In the next few months, I will conduct similar fieldwork in the City of Melbourne (Vic) and Parramatta City Council (NSW). The final phase (2008-9) will involve the development and evaluation of a tailored leadership development program, using the knowledge gained from the literature review and multiple case study. For additional information, please contact André at andretaylor@iprimus.com.au.



'Developing an Institutional Capacity Assessment Framework to Advance Sustainable Urban Water Management'

Susan van de Meene

Susan has recently undertaken interviews in Sydney for her PhD project. The objective of her project is to develop a practical tool that can be used to evaluate capacity across the water sector against an objective of improved urban water management. Individuals in water management organisations, state and local government, consultants, developers, environmental non-government and research organisations and professional associations are being interviewed. The interview questions ask participants to identify the attributes and qualities that individuals, organisations and the broader administrative framework should have in a future, improved urban water management system. Susan will conduct similar interviews in Melbourne in 2008.

For additional information, please contact Susan at susan.vandemeene@arts.monash.edu.au.



'Managing Urban Stormwater: Program Design and Evaluation'

Peter Morison

Peter Morison is nearing the end of his first phase of the research. Assisted by Ben Iaquinto, Peter has been visiting officers and mayors of the 38 local councils in metropolitan Melbourne to discuss the challenges and opportunities for urban stormwater management. With over 120 interviews, 80 council documents and results from an online survey, Peter will trawl through the data and piece together the puzzle of organisational capacity for the 38 councils. The case study results will be reported at the 11th International Conference on Urban Drainage in Edinburgh next year. For additional information, please contact Peter at Peter.Morison@arts.monash.edu.au.





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Refereed Conference Papers

The *National Urban Water Governance Team* recently presented at the *Rainwater and Urban Design 2007* Conference in Sydney, NSW. Six Program papers were presented at the conference, including preliminary findings from the recent fieldwork conducted by the Program, and recent student research. Below are the abstracts from the papers published from the conference.

Brown, R. and Keath N. (2007) Turning the Supertanker: Drawing on Social Theory to Enable the Transition to Sustainable Urban Water Management, *Proceedings of the 13th International Rainwater Catchment Systems Conference and the 5th International Water Sensitive Urban Design Conference*, 21-23 August 2007, Sydney, Australia.

Worldwide, urban water managers and strategists are grappling with the challenge of managing water resources in new ways to ensure healthy environments and communities in the future. Numerous commentators have highlighted significant social and technological barriers to the uptake of new approaches and some are calling for a major socio-technical transition in urban water management. Social research and theory is an increasingly important factor in understanding and responding to the challenges associated with evolving a more sustainable society. This paper draws upon key social theories around change to propose a framework for transition policy that can be applied by urban water strategists when designing reform initiatives to progress sustainable urban water management.



Nina Keath

Brown, R. and Farrelly, M. (2007) Institutional Impediments to Advancing Sustainable Urban Water Management: A Typology, *Proceedings of the 13th International Rainwater Catchment Systems Conference and the 5th International Water Sensitive Urban Design Conference*, 21-23 August 2007, Sydney, Australia.

Sustainable urban water management (SUWM) requires an integrated, adaptive, coordinated and participatory approach. Current urban water policies are beginning to reflect this understanding yet the rhetoric is often not translated to implementation. Despite the 'new' philosophy, urban water management remains a complex and fragmented area relying on traditional, technical, linear management approaches. Despite widespread acknowledgement of the barriers to change, there has been little systematic review of what constitutes the scope of such barriers and how these should be addressed to advance SUWM. To better understand why implementation fails to occur beyond ad hoc project interventions, a meta-analysis of observed and studied barriers was conducted. Drawing on local, national and international literature from the field of integrated urban water management and other similar fields, 53 studies were assessed, resulting in a typology of 12 barrier types. The analysis revealed the barriers are largely socio-institutional rather than technical, reflecting issues related to community, resources, responsibility, knowledge, vision, commitment and coordination. Furthermore, the meta-analysis demonstrated a paucity of targeted strategies for overcoming the stated institutional barriers. Evaluation of the typology in relation to capacity building, suggests that these systemic issues require a sophisticated program of change, that focus on fostering social capital, inter-sectoral professional development, and inter-organisational coordination.



Dr. Megan Farrelly



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Morison, P. and Brown, R. (2007) Cooperate or coerce? Intergovernmental Approaches to Mainstreaming Water Sensitive Urban Design, *Proceedings of the 5th International Water Sensitive Urban Design Conference and the 8th International Conference on Urban Drainage Modelling*, 21-23 August 2007, Sydney, Australia.



Peter Morison

Water Sensitive Urban Design (WSUD) is still largely in its infancy, and many governments, organizations, and communities are still reinforcing the traditional urban water management approach of highly engineered, mutually exclusive water supply, wastewater, and drainage systems. Many agree that institutionalizing WSUD to establish widespread practice can only be achieved through a cooperative partnership approach that includes state and local governments. However, there is no consolidated assessment of the necessary ingredients and key factors that produce successful intergovernmental arrangements for WSUD.

This paper contributes to this important knowledge gap by reporting on: a critical analysis of intergovernmental urban water policy and program design; and a comparative analysis of two case studies (Urban Stormwater Program and Flood Prone Land Policy) in New South Wales that apply 'coercive' and 'cooperative' intergovernmental policy mandates to institutionalize improved water management practices. Important conclusions drawn from the analyses are: blanket coercive or cooperative policy mandates do not influence the policy commitment of local governments; and that pre-existing local government commitment to urban water policy goals are a better determinant of intergovernmental program success. Consequently, program designers need to consider a blend of policy instruments that address the variable capacity and commitment of local governments.

Roberts, R., and Brown R. (2007) Alternative Water Sources: The Keys to Unlocking the Inhibitors of Innovation and Diffusion in Metropolitan Melbourne, *Proceedings of the 13th International Rainwater Catchment Systems Conference and the 5th International Water Sensitive Urban Design Conference*, 21-23 August 2007, Sydney, Australia.

This social research project investigated drivers and inhibitors of the diffusion of alternative water sources (AWSs) in metropolitan Melbourne, resulting from the increasing pressure to secure a reliable water supply due to drought and predicted population increase. This was done using a qualitative case study approach, drawing on multiple sources of evidence. including a historical review, policy and regulatory review, case study reviews at the development/implementation level, and semi-structured interviews with stakeholders at the implementation level. Technology diffusion and transition theories were adapted as analytical tools for understanding the role of drivers and inhibitors across the *Multi-Level Perspective* (MLP). It was revealed that due to the significant drought driver at the *macro* level, and the consequential innovators/entrepreneurs at the development/implementation level trying to alleviate this stress, there is a disconnection between the *micro* and *meso* levels. In this case, these levels relate to the implementation and the policy and regulatory development. Solutions to re-connect these levels and achieve a secure more reliable water supply are to use adaptive management processes, improving the connectivity between these levels. For this to occur, greater communication is necessary at both levels, to generate proactive and effective diffusion (and transitions to the implementation) of these technologies in order to alleviate water supply stress.



Richard Roberts



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Taylor, A. (2007) Sustainable Urban Water Management Champions: What Do We Know About Them?, *Proceedings of the 13th International Rainwater Catchment Systems Conference and the 5th International Water Sensitive Urban Design Conference*, 21-23 August 2007, Sydney, Australia.



André Taylor

This paper describes what is currently known about emergent leaders ('champions') who act as change agents to promote the philosophy of sustainable urban water management. First, I suggest that the current context of urban water management in Australia increases the need for, and value of, leadership, including emergent forms like championship. I then draw on the findings of an international literature review, to highlight the significant role that champions play in processes of change, like the transition from traditional to more sustainable forms of urban water management in Australia. Finally, I present a preliminary conceptual model of sustainable urban water management championship based on the findings of the literature review. This model is being used as a theoretical platform to conduct in-depth, context-sensitive research on these champions within Australian water agencies and to develop practical strategies to promote the emergence and effectiveness of these leaders.

van de Meene, S and Brown, R. (2007) Towards an Institutional Capacity Assessment for Sustainable Urban Water Management, *Proceedings of the 5th International Water Sensitive Urban Design Conference and the 7th International Conference on Urban Drainage Modelling*, 21-23 August 2007, Sydney, Australia.

The need to change urban water management to become more sustainable is widely recognised. Recently there has been considerable financial investment in urban water reform; however these reforms have not been as successful as anticipated, most likely because there is a lack of critical analysis of existing capacity and/or capacity deficits. Understanding and assessing institutional capacity is crucial to addressing existing institutional impediments. Institutional capacity includes the human resources, intra-organisational, inter-organisational and/or external rules and incentives capacity spheres. Institutional capacity assessment is essential to form coherent and demand driven capacity development strategies. This paper proposes a tentative institutional capacity assessment framework derived from a meta-analysis of empirical research, across five different disciplinary areas, into capacity attributes most likely to advance sustainable urban water management. Forty-two publications were reviewed and the most frequently determined capacity attributes identified. The proposed schema of enabling capacities for sustainable urban water management could be used by policy makers and practitioners for city-wide strategic planning of future investment in capacity building. This would improve the opportunity for critically informing and improving the design of current and future water reform practices.



Susan van de Meene



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Additionally, Rebekah Brown was invited to present a paper on the recent FAWB research at the NOVATECH conference in Lyon, France this past June. The NOVATECH conference deals with sustainable and alternative solutions for management of wet-weather flows (stormwater and combined sewer overflows) in urban and suburban areas, and at this sixth conference, approximately 600 delegates from around the world were present to speak and learn about water sensitive urban design.

Brown, R., and Clarke, J. (2007) The Transition Towards Water Sensitive Urban Design: A Socio-technical Analysis of Melbourne, Australia. *Proceedings of the 7th International Conference NOVATECH 2007*, 25-27 June, Lyon, France, ISBN 2-9509337-7-7-7-7, V(1):349-356.



Dr. Rebekah Brown

This research is focused on determining the social-technical transition qualities that need to be enabled to mainstream 'water sensitive urban design' (WSUD) across urban regions. Reported in this paper are the outcomes of qualitative social research that attempts to map the institutionalisation of WSUD, so far, across Metropolitan Melbourne, Australia. The results reveal that fostering the development of social capital for waterway protection, as well as a coordinated group of local champions across the science, policy and private domains are essential for enabling 'Niche' transition processes. The 'Niche' needs to be supported by mechanisms including the establishment of bridging organisations, scientifically informed policy targets, strategic funding opportunities, and the demonstration of a business case for WSUD.

Message to eNewsletter subscribers

We hope you have enjoyed reading this eNewsletter edition. We would like to thank you all for your ongoing support. We welcome your contributions to future eNewsletter editions. If you would like to add your thoughts, any insights from your organisation or sector, or include information about upcoming events relating to urban water governance in Australia, please feel free to contact us (contact details below).

We look forward to hearing from you!

www.urbanwatergovernance.com

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