

MONASH University

Transitioning to a Water Sensitive City

Water for urban and local communities—what are the challenges?

Rebekah Brown, June 2009 School of Geography and Environmental Science Monash University

Climatic Extremes and Denser Urban Environments



Evolving Urban Water Hydro-Social Contract

Cumulative Socio-Political Drivers



Service Delivery Functions

Brown, Keath and Wong (2009).

Professional Perceptions of Political Views

 High levels of association to the need for good quality waterway health.



Evolving Urban Water Hydro-Social Contract



Service Delivery Functions

Brown, Keath and Wong (2009).

Water Cycle City: Diverse Water Supply Approach

"Like a share portfolio, flexible and cost effective access to the diverse water sources will be underpinned by a diversity of centralised and decentralised water infrastructure"

Prime Minister's Science Engineering and Innovation Council Working Group on Water for Cities (2007) Water for Our Cities: building resilience in a climate of uncertainty, available at <u>www.dest.gov.au</u>



Prime Minister Science Engineering and Innovation Council Working Group on Water for Cities (2007)

Socio-Institutional Barriers

- 1. lack of a common vision
- 2. institutional fragmentation
- 3. undefined organisational responsibilities
- 4. limited political incentives and disincentives
- 5. poor organisational commitment
- 6. technological path dependency
- 7. poor community capacity to meaningfully participate, and
- 8. lack of experience with facilitating integrated management processes

Is Urban Water a Wicked Problem?



A Public Policy Perspective



Australian Public Services Commission (2007)

Key Characteristics:

- 1. Difficult to clearly define problem
- 2. Many interdependencies and multi-causal
- 3. Attempts to address problem often leads to unforseen consequences
- 4. Problem is not stable
- 5. There is no clear solution
- 6. Problem is socially complex
- 7. Rarely the responsibility of any one organisation
- 8. Solution involves changing behaviour
- 9. Characterised by chronic policy failure

Important to pursue a range of water supply options

0-19%	20-39	20-39%		40-59%		60-79%	80-100%	
New Dams	Seawat Groundw	Seawater Groundwater		Water Trading		ormwater Sewage	Rainwater	
	VERY LOW n = 0-19%	l n =	L OW 20-39%	AVERAGE n = 40-59%		HIGH n = 60-79%	VERY HIGH n = 80-100%	
DRINKING	Greywater Stormwater	Se Sec	wage awater	Rainwater Groundwater				
INDOOR HOUSEHOLD USE		Gre Stor Se Sec Grou	eywater mwater wage awater ndwater			Rainwater		
OUTDOOR HOUSEHOLD USE		Sec	awater	Sewag Groundw Stormwa	ge vater ater	Rainwater Greywater		
PUBLIC OPEN SPACE		Sec	awater	Rainwo Greywo Groundw	iter ater vater	Stormwater Sewage		

Brown, Farrelly and Keath (2007).

Professional Receptivity: Diverse Water Sources

Influence of factors	BRISBANE			MELBOURNE			PERTH		
at various scales	Rain	3PG	IPR	Rain	3PG	IPR	Rain	3PG	IPR
Community Perceptions	D		B	D	D	B	D		B
Environmental Outcomes	D	D	D	D	D	D	D	D	
Public Health Outcomes		B	B		B	B	B	B	B

N = 1041 Urban Water Professionals

Brown, Farrelly and Keath (2007).

Contestation within the Urban Water Sector: Alternative Water Supplies



"Only big projects will save us such as the grid, desalination and the western recycling scheme." (State Government)

"If we had implemented localised solutions, there's a big question as to whether desalination would be needed" (Developer).

"We're quite stuck in the public health paradigm of barriers, risk and engineering processes. We have spent 150 years developing a bunch of rules around these values." (Regulator)

"I'm concerned about the public health impacts from decentralised options. We haven't done enough science. I'm worried about policing and who pays for replacing systems." (Local Government)



Non-potable Reuse

Professional Perceptions



Community Survey Data

 Professionals perceived community acceptance to non-potable reuse be on
Overgeo 28 percent

underrestinitationegfdata cipdicateditlyateceptivity to acceptance to non-potable reuse is on average 94 percent



Farrelly and Brown (2009, forthcoming)

www.urbanwatergovernance.com

Perception of Institutional Structure on advancing TWCM

Figure 2.2: Perceived Effectiveness of Institutional Arrange Management and Water Sensitive Urban Desi





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



Rebekah Brown, Megan Farrelly and Nina Keath Report No. 07/06 – December 2007

器 MONASH University



(Brown, Farrelly and Keath, 2007)

Evolving Urban Water Hydro-Social Contract

Cumulative Socio-Political Drivers



Service Delivery Functions

Brown et al (2009), and Wong and Brown (2009)

Water Sensitive Cities



1. Building Flexibility & Adaptability in its water sources

"Cities as Water Supply Catchments"

2. Green Infrastructure

"Cities providing Ecosystem Services"

Building social and institutional capital
"Sophisticated and Water Smart Cities"

Wong and Brown (2009)



How can we transition to the Water Sensitive City?



Enabling Factors for transitioning from the Drained to the Waterways City

- 1. Socio-Politi Community, Me
- 2. Champions Vision Multi-sectoral I
- 3. Accountabil Coordination F Water Cycle Land-use Plan
- 4. Reliable & T Academic Leac Technology De
- 5. Market Rece Business Case



rganisations ence – Policy **pacity Building** gets **/stem Target** y and Development **unding Points** ernal funds tion Projects on. evelopment titutional learning

(Brown & Clarke, 2007)

Technological-diffusion: Pathways of Change



City transition stages



City Actions

Outcomes from the National Workshop Series February 2009: 500+ urban water practitioners

Concluding Observations & Recommendations

- Actions required are not focused on reshuffling and restructuring organisations (institutional complexity) – they are about systemic governance reform: *effecting culture, vision, understanding and incentives*
- Need for a co-developed national vision for WSC that is facilitative and prioritises policies and incentives that are designed to be locally adaptable:
 - Australian cities are unique and with different histories, have locally specific bio-physical and socio-political contexts
 - Leadership on WSCs varies across cities State Government, Local Government, Water Utilities, Regional Coordinating Groups,
- Urgently develop and support the facilitation of a national forum on Water Sensitive Cities:
 - enabling interdisciplinary and multi-sectoral coordination and learning
 - Investment in R&D to support the ongoing learning cycle both social and physical dimensions

Thank you www.urbanwatergovernance.com

