

Pushing the governance boundaries: The role of water utilities in managing the ecological and amenity values of urban waterways

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Outline

- The problem:
 - IWRM and holistic approaches versus transparency in costs and benefits
- The governance setting
- Delphi and the results
- From Delphi to measurement
- What will it mean?
- Concluding remarks

The problem

- NWI commits jurisdictions to:
 - cost recovery,
 - transparent spending on water-related infrastructure and
 - integrated resource management (at least in context of water-sensitive cities and environmental watering).
- Is this practical?
- Integrated decisions that are clear and avoid goldplating and rent seeking?

Governance setting



Melbourne's Waterways



• 8400 kilometres of waterways across 12,800 square kilometres of catchments

The governance setting

- Some important benefits not always easily measurable
- But they are real
 - Ecological benefits (values?)
 - Non-ecological benefits (values?)
- Lack of precision raises prospect of over (under) expenditure (government failure)







The challenge

- How to meaningfully measure amenity and ecological values across multiple waterways?
- Measures that are:
 - Useful at different scales
 - Can be transposed to different sites
 - Are meaningful to managers and planners trying to balance benefits and costs of actions

Delphi Methodology

- Using 'experts' to define:
 - Ecological Value
 - Amenity (Non-ecological) Value

Delphi

	Ecological	Amenity
Round 1	n= 27	n= 22
Round 2	n= 18	n= 20
Round 3	n= 36	n= 21

• Panel or experts:

- Urban planning, local government, waterways management, liveability, tourism, research in amenity, recreational activities
- Ecological experts on waterways

Delphi – Ecological value

DRIVERS	COMPONENTS	OUTCOME		
Water QualityHydrological Regime	PlantsAnimalsPhysical Structure	Ecological Wellbeing		

Delphi – Amenity value

DRIVERS

- Water-related **Animals**
- Water-related Plants
- Water-related Infrastructure (e.g. seats, paths, board walks)
- Cleanliness of the waterways (e.g. odour, litter, colour, turbidity, erosion)
- Cleanliness of the surrounding landscape (e.g. odour, litter, colour, turbidity, erosion)
- Access (i.e. both visual and physical access) to a waterway and its surrounding vegetation
- Water-related **Naturalness** (e.g. natural components of the landscape, the geology, natural light, water level)

COMPONENTS

- Connection to Nature that Melbourne waterways provide for people
- Indirect Values
- Escape
- Water-related Aesthetic Appeal
- Water-related Cultural Significance
- Social Interaction
- Social Benefits
- Ability to engage in active recreation in or on the waterway
- Ability to engage in active recreation in proximity to the waterway
- Ability to engage in passive recreation in proximity to the waterway

OUTCOME

Personal Wellbeing (e.g. recharge, relaxation, tranquil place, health benefits, exercise)

COMPONENTS				DRIVE	RS			
	Water-related Animals	Water-related Plants	Water-related Infrastructure	Cleanliness of the waterways	Cleanliness of the surrounding landscape	Access to a waterway and surrounding vegetation	Water-related Naturalness	Total Average Drivers
Connection to Nature that Melbourne waterways provide for people	8.33 (1.91)	9.19 (0.74)	6.86 (2.85)	8.52 (1.16)	8.71 (1.27)	8.43 (1.28)	8.76 (1.17)	8.40
Indirect Values (e.g. the retention and protection of vegetation, knowing it is there to be enjoyed)	7.19 (2.25)	8.71 (1.45)	4.81 (3.07)	7.14 (2.71)	6.76 (3.06)	6.19 (2.44)	8.33 (1.98)	7.02
Escape (e.g. experience of isolation, escape, feeling of refuge)	6.05 (1.93)	8.62 (1.46)	5.52 (2.42)	7.90 (1.70)	8.28 (1.42)	7.57 (1.59)	8.28 (1.67)	7.46
Water-related Aesthetic Appeal (e.g. views, scent, bird noises, sound of the water, the relative impact of noise pollution, regulation of temperature)	7.57 (2.06)	8.67 (1.19)	5.71 (2.68)	8.76 (1.04)	8.52 (1.28)	7.57 (1.66)	8.52 (1.24)	7.90
Water-related Cultural Significance (e.g. meaning for people, heritage place, memories)	6.67 (2.52)	7.14 (1.85)	5.33 (2.26)	6.76 (1.86)	6.57 (1.83)	6.09 (2.44)	7.00 (2.75)	6.51
Social Interaction (e.g. communing with another, socialising)	5.00 (2.14)	6.90 (1.81)	8.33 (1.49)	7.38 (1.43)	8.00 (1.09)	8.19 (1.28)	5.90 (1.89)	7.10
Social Benefits (e.g. education, tourism, economy)	7.24 (1.61)	7.10 (1.92)	8.38 (1.49)	7.66 (1.62)	7.76 (1.78)	7.95 (1.53)	6.90 (1.48)	7.57
Ability to engage in active recreation in or on the waterway (e.g. swimming, boating)	4.14 (2.88)	5.14 (2.66)	8.29 (1.90)	9.09 (1.14)	7.14 (2.3)	8.85 (1.59)	6.04 (2.26)	6.95
Ability to engage in active recreation in proximity to the waterway (e.g. walk, cycle, run)	3.95 (2.45)	5.81 (2.71)	9.14 (1.11)	6.85 (1.98)	7.66 (1.85)	9.04 (0.97)	5.9 (2.41)	6.91
Ability to engage in passive recreation in proximity to the waterway (e.g. sit, picnic, reflect)	5.29 (2.88)	6.95 (2.80)	8.71 (1.42)	7.57 (1.83)	8.38 (1.63)	9.19 (0.87)	6.85 (2.08)	7.56
Total Average Components	6.142857143	7.42381	7.109524	7.766667	7.780952	7.909524	7.257143	

COMPONENTS	DRIVERS			
	Water Quality	Hydrological Regime	Total Average Drivers	
Water-related Plants	7.50 (1.99)	8.63 (1.55)	8.06	
Water-related Animals	9.22 (0.89)	8.88 (1.32)	9.05	
Physical Structure	3.75 (2.78)	8.97 (1.00)	6.36	
Total Average Components	6.82	8.83		

Delphi to Measurement

- Standards
- Meaningful actions = Map Delphi to measurable and meaningful interventions (e.g. meet standard X or not)

Operationalising Delphi and tradeoffs

Low High amenity amenity value value

High ecological value

Low ecological value

What does it mean for governance?

- Results on measurement currently emerging
- Amenity values do not equal ecological values
- Site specificity may or may not be significant and not all classes of waterway generate similar benefits
- Is a water utility best placed to improve access for the public?
- If amenity is location specific should subsidiarity be applied (and thus increase role for local authorities)?
- If ecological gains require coordination (e.g. improved water flows) is this better managed centrally?

Concluding remarks

- Gaps and challenges around managing waterways for amenity and ecological gains
- Highlights higher-order problem of marrying IWRM and need for specific winners and losers from a regulatory standpoint
- Delphi can (and maybe should) be used to shape the conversation about value, i.e. how values are counted and who should pay.
- Can also be used to inform other measurement approaches like CM
- Preliminary results already raising important questions about governance arrangements



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