



## Valuing the benefits of local stormwater management

**Industry Note**  
Program A: Society  
Project A1.1

**How much is the community willing to pay for additional improvements of local stormwater management? Which benefits are valued the most? Are these preferences reflected in current public policy? A recent study has found that the community places a very high value on projects that improve the health of local waterways and decrease water restrictions, but not necessarily on those that reduce flash flooding. These findings provide valuable guidance for future policy design and development.**

### Can you put a price on these benefits?

Around the world, cities faced with growing populations, changing weather conditions and ageing water infrastructure are under increasing pressure to expand and strengthen their water supplies in low cost, sustainable ways. One approach receiving growing support is the adoption of local stormwater management projects, which offer the opportunity to improve the health of local waterways while providing secondary benefits to communities such as increasing water security and reducing peak summer temperatures.

To quantify the value of the environmental benefits associated with local stormwater management, the CRC for Water Sensitive Cities (CRCWSC) conducted a discrete choice experiment involving 981 homeowners in Melbourne and Sydney in 2013. The respondents selected their preferred local stormwater management project from three options in each of ten choice sets. The first option in each choice set was the status quo (at no additional cost), while the second and third options offered improvements in at least one of five environmental benefits at a cost of up to A\$30 per year. The respondents' willingness to pay for each benefit was determined based on their choices. The five benefits are set out in Table 1.

*Table 1. The five benefits of local stormwater management projects valued in the study of Brent et al. (2016), and their corresponding benefit levels*

Benefit	Benefit level	
<b>A. Reductions in water restrictions</b>	1	Status quo (no change)
	2	Reduced exposure to water restrictions.
	3	Exemption from the most austere restrictions
<b>B. Reductions in flash flooding</b>	1	Status quo (no change)
	2	50% reduction in the frequency of flash floods
	3	Near 100% reduction in the frequency of flash floods
<b>C. Improvements in stream health</b>	1	Status quo (no change)
	2	Reduced erosion, no litter and improved species diversity
	3	The return to a diverse stream community with few nuisance species
<b>D. Improvements in recreational and amenity benefits</b>	1	Status quo (no change)
	2	Greener sports grounds and parks during extended dry periods and watering of street line vegetation
	3	Local waterways fit for swimming and an increase in street line vegetation
<b>E. Cooler summer temperatures</b>	1	Status quo (no change)
	2	Hot summer days being 2°C cooler on average

## How much is the community willing to pay?

Table 2 summarises the key findings of the study. It reveals that, overall, respondents were willing to pay for the benefits associated with stormwater management projects. In addition, while there was substantial variation in individual respondents' valuations (as reflected in the very wide confidence intervals), in aggregate Melburnians and Sydneysiders expressed similar priorities.



Respondents placed a very high value on maximally improving stream health, with respondents from Melbourne willing to pay A\$278 per household per year for this benefit, and those in Sydney willing to pay A\$104 per household per year. Eliminating water restrictions was also highly valued (A\$218 per household per year in Melbourne and A\$118 per household per year in Sydney) and there was

significant support for reducing peak summer temperatures (A\$81 per household per year in Melbourne and A\$47 per household per year in Sydney). Interestingly, little value was placed on additional reductions in the frequency of flash flooding or improving recreational and amenity benefits.

## What does this mean for policymakers?

The study's findings offer insight into the value the community places on a range of water cycle benefits, and provide useful guidance for the development of local stormwater management policies and projects. Most significantly they suggest that rather than focussing on programs to increase flood protection or the greening of parks and sports grounds, the community would most value projects that improve the health of local waterways and minimise water restrictions.

Table 2. The key results of the study of Brent et al. (2016). All values are expressed in A\$ per household per year. The confidence intervals (CI) show the lower and upper willingness to pay values. A negative value means the respondents were not willing to pay for the benefit.

Key willingness to pay values	 Melbourne		 Sydney	
	Average	95% CI	Average	95% CI
Exemption from water restrictions (A3)	\$218	(\$44; \$842)	\$118	(\$43; \$309)
Diverse stream community; few nuisance species (C2)	\$278	(\$64; \$1053)	\$104	(\$34; \$263)
Hot days are 2°C cooler (E2)	\$81	(\$-24; \$345)	\$47	(\$5; \$142)

### Further reading

Brent, D., Gangadharan, L., Lassiter, A., Leroux, A., & Raschky, P. (2016). Valuing the Multiple Benefits of Local Stormwater Management. Mimeo. Monash University, Department of Economics.

### About the research

This research was conducted as part of the CRCWSC project Cities as Water Supply Catchments: Economic Valuation (Project A1.1). The project's main objectives are to identify the willingness to pay for stormwater harvesting, to quantify the contribution of urban water amenities to property values and to determine the optimal portfolio of urban water supply sources.

### Further information



**Dr Daniel Brent**  
Department of Economics,  
Louisiana State University  
dbrent@lsu.edu

**Professor Lata Gangadharan**  
Department of Economics,  
Monash University  
lata.gangadharan@monash.edu

**Dr Allison Lassiter**  
Department of Economics  
Monash University  
allison.lassiter@monash.edu

**Associate Professor Paul Raschky**  
Department of Economics  
Monash University  
paul.raschky@monash.edu

**Dr Anke Leroux**  
Department of Economics  
Monash University  
anke.leroux@monash.edu



Level 1, 8 Scenic Blvd  
Monash University, Clayton  
Victoria 3800, Australia



info@crcwsc.org.au



<https://www.watersensitivecities.org.au/content/project-a1-1/>



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