

# **APPENDIX A**

## **Advancing the Adoption of Diverse Water Supplies in Australia: A Survey of Stakeholder Perceptions of Institutional Drivers and Barriers**

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### **Online Questionnaire Survey**

### **Alternative Water Sources**

# Online Questionnaire Survey

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## INTRODUCTION

Dear Colleague,

Thank you in advance for participating in this on-line questionnaire as part of Monash University's National Urban Water Governance Program. This questionnaire contains 31 questions focused on capturing the views of professionals working in the urban water management area across Metropolitan Melbourne. We are seeking your perspective on current 'barriers' and 'drivers' to advancing the uptake of sustainable urban water management practices across Melbourne. There are two parts to this questionnaire:

- 1) Diverse Water Sources
- 2) Stormwater Quality Management

While these areas are interlinked as part of the total water cycle, we ask you about them separately to minimise any potential confusion with respect to some of the different technologies and management practices asked about in this questionnaire.

Even if you feel that you are not intimately involved with these areas, please give your best answer as we are interested in YOUR views. This questionnaire is anonymous and has been approved by Monash University's research ethics committee (for detailed information on how your confidentiality will be maintained, please read the Explanatory Statement attached in the question below). This questionnaire should take around 30 minutes to complete. If you get interrupted, you can close this questionnaire and complete it later. When you re-open it, you will be able to pick up from where you left off.

## WIN ONE OF THREE PRIZES!

At the end of this questionnaire, you will have the option to enter our competition\* where you could win one of the following prizes:

- a) APPLE iPod Nano 2GB MP3 Player (RRP \$299)
- b) OLYMPUS Mju 600 Digital Camera (RRP \$399)
- c) Professional home "Spring Clean" to the value of \$300.

\*Please note: The competition closes on 10<sup>th</sup> November 2006.

Once again, thank you for your time.

Yours Sincerely,

Dr Rebekah Brown and Jodi Clarke

Before commencing this questionnaire, it is a Monash University requirement that you read the 'Explanatory Statement' for this research project. Please click [here](#) to read this statement and then answer the question below.

Yes, I have read and agree to the information in the Explanatory Statement for this research.

## EXPLANATORY STATEMENT

Dear Colleague,

My name is Dr Rebekah Brown, a senior lecturer in the School of Geography and Environmental Science at Monash University and the Chief Investigator of the National Urban Water Governance Program involving the case study regions of Melbourne, Perth and Brisbane.

This research aims to address current knowledge gaps in progressing sustainable urban water management, including identifying current institutional 'drivers' and 'barriers' for advancing the uptake of future water source options and water quality management practices. The intention of this research is to contribute to current urban water reform strategies across Australia. More details on the research program can be viewed at our website ([www.urbanwatergovernance.com](http://www.urbanwatergovernance.com)).

We are requesting your participation in a voluntary and anonymous online questionnaire, which is expected to take about 30 minutes to complete. At the end of the questionnaire, you can enter our competition where you could win one of three prizes. To ensure that your anonymity is maintained at all times, your contact details will be stored in a separate database and the prize winner will be randomly electronically selected.

Monash University's Ethics Committee has approved this research project (Project No. 2006/109LIR). All results will be securely stored by the researchers and available to no other persons, unless the researchers give permission. In accordance with Monash University policy, the questionnaire data will be destroyed in 5 years. The data may also be used to contribute to the findings reported in journal article, conference presentation or used in future research projects. Should you have any complaints concerning the manner in which this research is conducted, please do not hesitate to contact Monash University's Ethics Committee at the following:

The Secretary  
The Standing Committee on Ethics in Research Involving Humans (SCERH)  
Building 3d, Research Grants and Ethics Branch  
Monash University Victoria 3800  
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Email: [scerh@adm.monash.edu.au](mailto:scerh@adm.monash.edu.au)

If you require more information about the project or should you request a summary of the results of this research project, you can contact the researchers (contact details below).

Thank you for your time. Your input into this research is very much appreciated.

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## INFORMATION ABOUT YOU

This brief introductory section asks you 7 questions that will help us understand the range of people participating in this questionnaire. Please remember that this information is not for the purpose of trying to identify any individual and remains anonymous.

1. Which stakeholder group do you represent?

- City West Water
- South East Water
- Yarra Valley Water
- Melbourne Water
- Environment Protection Authority
- Department of Sustainability and Environment
- Sustainability Victoria
- Department of Human Services
- Essential Services Commission
- Southern Rural Water
- Local Government
- Land Developers
- Consultants
- Politicians
- Community / Environment Groups
- Researchers
- Other (Please specify, e.g. specific trades, other government departments)

2. At what level are you positioned within your organisation's hierarchy?

- Junior
- Middle
- Senior
- Executive

3. Broadly, what is the main type of work that you do?

- Strategy / Policy
- Design / Technical / Operations
- Regulation / Auditing
- Research / Science
- Education / Marketing
- Other (please specify)

4. Which area of water management do you primarily work in?  
(You can tick more than one if needed)

- Stormwater / Waterways
- Sewage
- Water Supply
- Land Development Broadly
- Total Water Cycle Management
- Other (please specify)

5. What is your primary professional background and training?  
(You can tick more than one if needed)

- Planning
- Engineering
- Science
- Education
- Law
- Business / Economics
- Marketing
- Humanities / Social Science
- Urban Design / Landscape Architecture
- Other (please specify)

6. How long have you been working in your current position?

- 0-1 year
- 2-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 20+ years

7. How many years experience do you have working in the area of urban water management?

- year
- 2-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 20+ years

### **Part 1: Future Water Sources**

This first part of the questionnaire asks you 16 questions about Future Water Sources across Melbourne. We estimate that it will take you about 20 minutes, as it is the larger section of the survey.

Part 1 is divided into five sections:

1. Supplementing Conventional Water Supply
2. Timeframes for Future Water Sources
3. Technologies for the Future
4. Factors Influencing Water Recycling & Reuse
5. Stakeholder Commitment

We have provided 'comment boxes' throughout the questionnaire. Please note: it is entirely optional to add your comments, and it may add to the overall time that we estimated it would take you to complete the questionnaire.

## 1. Supplementing Conventional Water Supply

In this section we ask for YOUR views on the importance of advancing a range of future water source options across Melbourne for 'fit for purpose' water use, in order to supplement conventional water supply. 'Fit for purpose' water use relates to the use of alternative sources of water for activities that best match the quality of the water needed. For example, lower quality water should be used for activities that do not require high quality water (i.e. not using potable water for flushing toilets).

1. From a 'fit for purpose' water use perspective, how important do YOU think it is to pursue the following options to supplement future water supplies for Melbourne?

	Very Low	Low	Average	High	Very High
a) Greywater					
b) Rainwater					
c) Seawater					
d) Sewage					
e) Stormwater					
f) New Dams					
g) Groundwater					
h) Water Trading					

2. From a 'fit for purpose' water use perspective, how important do YOU think it is to YOUR ORGANISATION to pursue the following options to supplement future water supplies for Melbourne?

Please note: if your organisation does not have a formal role in water supply, we are still interested in YOUR perception of your organisation's position on these water source options.

	Very Low	Low	Average	High	Very High	I don't know
a) Greywater						
b) Rainwater						
c) Seawater						
d) Sewage						
e) Stormwater						
f) New Dams						
g) Groundwater						
h) Water Trading						

3. From a 'fit for purpose' water use perspective, how important do YOU think it is to the COMMUNITY to pursue the following options to supplement future water supplies for Melbourne?

	Very Low	Low	Average	High	Very High	I don't know
a) Greywater						
b) Rainwater						
c) Seawater						
d) Sewage						
e) Stormwater						
f) New Dams						
g) Groundwater						
h) Water Trading						

4. From a 'fit for purpose' water use perspective, how important do YOU think it is to current STATE POLITICIANS to pursue the following options to supplement future water supplies for Melbourne?

	Very Low	Low	Average	High	Very High	I don't know
a) Greywater						
b) Rainwater						
c) Seawater						
d) Sewage						
e) Stormwater						
f) New Dams						
g) Groundwater						
h) Water Trading						

If you would like to comment on any of the four questions above, please write in the box below.

5. What activities do YOU think the following sources of water should be used for?

	Nothing	Drinking	Indoor Household	Outdoor Household	Public Open Spaces	Environmental Flows	Industry	All Uses Listed
Greywater								
Rainwater								
Seawater								
Sewage								
Stormwater								
Groundwater								

If you would like to comment on the question above, please write in the box below.

## 2. Timeframes for Future Water Sources

In this section we ask for YOUR views on the envisaged timeframes that additional water source options could be implemented across Metropolitan Melbourne to supplement conventional water supply.

6. When (if ever) do you envisage that the following additional water source options are likely to become INTEGRAL to Melbourne's water supply?

	Already integral	Next 5 yrs	6-15 yrs	16-30 yrs	Over 30 yrs	I don't know	Not Applicable
a) Greywater							
b) Rainwater							
c) Seawater							
d) Sewage							
e) Stormwater							
f) New Dams							
g) Groundwater							
h) Water Trading							

If you would like to comment on the question above, please write in the box below.

## 3. Technologies for the Future

This section asks you to comment on the suitability of a range of technologies for addressing future water source needs in Melbourne.

In the following questions, we refer to:

**Indirect Potable Reuse:** highly treated sewage that is discharged upstream of the existing water supply source (i.e. to a river or groundwater system), often allowing for additional water quality treatment as it flows towards the existing supply augmentation point.

**Direct Potable Reuse:** highly treated sewage that is directly discharged into the existing water supply augmentation point (i.e. supply catchment reservoir).

7. In YOUR opinion, how important is it to pursue the following technology types for addressing future water supply needs in GREENFIELD developments (i.e. new growth areas) across Melbourne?

	Very Low	Low	Average	High	Very High	I don't know
Rainwater Tanks						
On-site Greywater Systems						
Third Pipe Systems - Stormwater						
Third Pipe Systems - Sewage						
Indirect Potable Reuse						
Direct Potable Reuse						

8. In YOUR opinion, how important is it to pursue the following technology types for addressing future water supply needs in EXISTING areas across Melbourne?

	Very Low	Low	Average	High	Very High	I don't know
Rainwater Tanks						
On-site Greywater Systems						
Third Pipe Systems - Stormwater						
Third Pipe Systems - Sewage						
Indirect Potable Reuse						
Direct Potable Reuse						

If you would like to comment on the two questions above, please write in the box below.

#### 4. Factors Influencing Water Recycling & Reuse

Here, we ask six questions that seek YOUR views on the current 'drivers' and 'barriers' to a small number of different technologies. While there are a vast range of potential 'drivers' and 'barriers' (as well as technologies) for water recycling and reuse practices, the following questions are limited to the most significant "institutional" related factors that have been identified in previous research.

9. In YOUR assessment, what type of influence do the following factors currently have on the uptake of RAINWATER TANKS across Melbourne?

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Govt Policy						
Mgt Arrangements & Responsibilities						
Regulation & Approval						
Property Access Rights						
Environmental Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below.



10. In YOUR assessment, what type of influence do the following factors currently have on the uptake of ON-SITE GREYWATER SYSTEMS across Melbourne?

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Govt Policy						
Mgt Arrangements & Responsibilities						
Regulation & Approval						
Property Access Rights						
Environmental Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below.

11. In YOUR assessment, what type of influence do the following factors currently have on the uptake of THIRD PIPE SYSTEMS (supplying non-drinking water) in GREENFIELD areas across Melbourne?

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Govt Policy						
Mgt arrangements & responsibilities						
Regulation & Approval						
Property Access Rights						
Envt Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below.

12. In YOUR assessment, what type of influence do the following factors currently have on the uptake of THIRD PIPE SYSTEMS (supplying non-drinking water) in EXISTING areas across Melbourne?

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Govt Policy						
Mgt Arrangements & Responsibilities						
Regulation & Approval						
Property Access Rights						
Environmental Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below.

13. In YOUR assessment, what type of influence do the following factors currently have on the uptake of an INDIRECT POTABLE REUSE SCHEME for Melbourne?

Indirect Potable Reuse is when highly treated sewage is discharged upstream of the existing water supply source (i.e. to a river or groundwater system), often allowing for additional water quality treatment as it flows towards the existing supply augmentation point.

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Govt Policy						
Mgt Arrangements & Responsibilities						
Regulation & Approval						
Property Rights						
Environmental Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below

14. In YOUR assessment, what type of influence do the following factors currently have on the uptake of a DIRECT POTABLE REUSE SCHEME for Melbourne?

Direct Potable Reuse is when highly treated sewage is directly discharged into the existing water supply augmentation point (i.e. supply catchment reservoir).

	Strongly Prevents	Slightly Prevents	Neither Prevents or Encourages	Slightly Encourages	Strongly Encourages	I don't know
Community Perception						
Capital Cost						
Maintenance Cost						
Tech Feasibility & Performance						
Prof Knowledge & Expertise						
Government Policy						
Mgt Arrangements & Responsibilities						
Regulation & Approval						
Property Access Rights						
Environmental Outcomes						
Public Health Outcomes						

If you would like to comment on the question above, please write in the box below.

## 5. Stakeholder Commitment

This is the final section of Part 1: Future Water Sources! As Part 2 is much smaller, you are now two-thirds of the way through the questionnaire.

Here we ask about YOUR VIEWS on the current level of 'commitment' of different stakeholder organisations across Melbourne to advancing Total Water Cycle Management.

Total Water Cycle Management recognises that our water services – including water supply, sewerage and stormwater management – are interrelated and linked to the well-being of our catchments and receiving waterway environments (including surface and sub-surface). It involves making the most appropriate use of water from all stages of the water cycle that best delivers social, ecological and economic sustainability.

15. In YOUR OPINION, how 'committed' are the following stakeholders to advancing Total Water Cycle Management across Melbourne?

(Please rate the level of 'stakeholder commitment' using the scale below)

1=No commitment

2=Some individuals committed

3=Increasing organisational / sector awareness and senior support

4=Major organisational departments and internal champions committed

5=Organisation / sector fully committed

	1	2	3	4	5	I don't know	Not Applicable
City West Water							
South East Water							
Yarra Valley Water							
Melbourne Water							
Environment Protection Authority							
Department of Sustainability and Environment							
Sustainability Victoria							
Department of Human Services							
Essential Services Commission							
Southern Rural Water							
Local Government							
Land Developers							
Consultants							

16. In YOUR opinion, how EFFECTIVE are the existing institutional arrangements across Melbourne for enabling the practice of Total Water Cycle Management?

Very Poor	Poor	Neutral	Good	Very Good	I don't know

## Thank you!

Thank you very much for your time!

When you submit this questionnaire, you will have the option of entering our Competition Prize Draw. This questionnaire forms part of a larger project, and it will also be administered to urban water professionals across Metropolitan Perth and Metropolitan Brisbane. The questionnaire closes on 10 November 2006 and the final results will be available in early 2007, at [www.urbanwatergovernance.com](http://www.urbanwatergovernance.com).

We will be progressively disseminating the findings through industry workshops in each city from March 2007 and we will advertise these as widely as we can.

Once again, thank you for your time.

If you would like to find out more information about this research, please contact:

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