

## Expression of Interest Funding Round 2 September 2010

### Goal 3: Reclaimed water is viewed as an acceptable 'alternative water' for augmenting drinking water supplies

#### Objective

Historical efforts to supplement drinking water supplies with potable quality reclaimed water as part of mainstream water service delivery have not been successful within Australia. The objective of this project is to work with industry to develop a **National Demonstration and Engagement Program** that supports successful public engagement and addresses stakeholder concerns through the provision of contemporary scientific information on potable reuse. The project will involve leading edge modes of communication that overcome known social barriers to acceptance and adoption.

#### Project Sponsor

This project is sponsored by the Australian Water Recycling Centre of Excellence (the Centre) under Goal 3 of its Strategic Research Plan (SRP).

#### Introduction

An important goal for the Centre is to work with industry, government and the community to progress informed public debate on reusing water from various sources to supplement drinking water supplies.

In many Australian cities and towns recycling water for potable use is increasingly seen as a potentially reliable, climate-independent and cost effective source of water. In some inland towns potable reuse may be the only viable alternative water source to meet future demand. Recent examples within Australia and internationally clearly demonstrate that the implementation of potable reuse schemes can be weakened due to wavering public acceptance, driven by highly charged public, media and political debate about the safety of using reclaimed water to intentionally augment drinking water supplies, or reluctance to implement following the easing of emergency drought supply conditions. This is a significant issue world-wide, but is likely to be affected by local cultural issues and attitudes as well as broader matters.

Building on the broad industry support for Goal 3 in its Strategic Research Plan, and acknowledging the recent WSAA report on *Implications of Population Growth in Australia on Urban Water Resources*<sup>1</sup>, the Centre is proposing to support a National initiative that includes technical, institutional, financial and social components. The following discussion on project scope presents some preliminary ideas, however, they should be viewed as indicative only, and project proponents must augment, expand or contest this approach as they form their teams and develop their own work scopes.

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<sup>1</sup>WSAA, Occasional Paper No. 25, July 2010

## Scope

It is generally well accepted by water industry professionals that appropriately designed and managed water recycling systems using current treatment technologies can reliably produce water of potable quality sourced from wastewater or stormwater. The challenge with many previous proposals has been to build sufficient community confidence in these processes to support scheme implementation as a permanent mainstream water source.

There is a significant body of social research on community attitudes to non-potable and potable reuse, including analysis of the underlying factors that influence public acceptance and the willingness to use reclaimed water. These include perceptions about the underlying science and potential health risks, system function, maintenance and reliability, trust in the authorities providing the recycled water, and issues of equity, justice, fairness and transparency in decision making and its role as an emergency versus a mainstream source of supply. In addition, and perhaps one of the most difficult to address in the case of potable reuse, is that of the 'emotional barrier' which often cannot be overcome by presentation of scientific facts but possibly, more by exposure to peer discussion and debate.

It is not intended that this project conduct further social surveys to any great extent, but rather draw on this body of research in addition to the learning from previous Australian and international experiences in public engagement for both successful and unsuccessful potable reuse proposals. The challenge, it appears, is to move from a public information or consultation model to one that encourages public engagement and participation in debates, with 'public' taken to cover schools, tertiary education centres, water industry participants, medical practitioners, media, political leaders and the general public at large.

This project could therefore show-case the merits, reliability and robustness of the AWTP processes, the quality of water produced and build this into a National Demonstration and Engagement Programme<sup>2</sup> that will afford future generations access to more information than has to-date been provided to the public, the decision makers and the water industry at large. It is envisaged that digital and mobile media (including the social media systems) would be used to facilitate this access.

It is currently envisaged that the project could comprise three streams; the first addressing technology and operational issues, the second addressing community engagement and the third the implementation framework for the Programme.

Project proposals should also consider a component that addresses the method of communicating technical and scientific topics developed in Stream 1 to the community at large (science communication), and how this could provide particular input into the second and third streams.

An outline of the three Streams, their objectives, and some potentially relevant issues is provided below:

### Stream 1 – Demonstration of water production performance and operational reliability

**Objective:** *The systematic and transparent demonstration of the ability of modern advanced water treatment processes to reliably manufacture water of potable quality to supplement drinking water supplies and compare the findings with those for other water sources and supplies around Australia.*

Issues that could be addressed in **Stream 1** include:

- The development of a monitoring program in line with the requirements of the *Australian Guidelines for Water Recycling* (AGWR) that could be implemented in AWTPs around Australia which would be effective in showing that the quality of reclaimed water is suitable for augmenting drinking water supplies, without necessarily being reliant on a specific treatment train or process.

<sup>2</sup>The Centre notes that Australia now has Advanced Water Treatment Plants (AWTP's) operating in many of its major cities and regional areas. Many of these plants are associated with Visitor or Education Centres. Project proponents may wish to consider the role that these existing AWTPs and Visitor/Education Centres may play in creating the platform for a National Demonstration and Engagement program for water recycling in Australia.

- The assessment of available data from existing AWTPs against this suggested monitoring program and identification of any gaps. Identification of datasets that could be reasonably reported against the suggested monitoring program.
- A comparison of the quality of reclaimed water produced from the AWTPs with that reported for other water sources and supplies from around Australia, including the more remote areas. Included in this comparison could be the waters from 'unplanned' potable reuse schemes.
- The role of catchment management and source (or trade waste) control in protecting water quality, including how can source control be shown to be effective.
- An assessment of, and report on, carbon and energy footprints of the AWTPs and a ranking with other water supply options.

## Stream 2 – Evaluation of social, economic and governance challenges

**Objective:** *To systematically analyse and make recommendations about how public engagement and decision making processes, and governance, institutional and economic arrangements support the successful implementation and development of potable reuse in Australia, in the context of other supply alternatives and broader urban sustainability objectives.*

Issues that could be considered in **Stream 2** should draw insights from previous social, economic and institutional research, where relevant, and experiences from previous potable reuse projects, including:

### Community attitudes and understanding

- Assessing the baseline level of knowledge and understanding about potable reuse within key community sectors.
- Exploring how the different states of water supply security and shortages can influence community perceptions of risk and corresponding willingness to accept recycling alternatives.
- Assess knowledge and perceptions within the water industry itself about potable reuse.

### Governance and incentives for uptake

- How the transparency and accountability of institutional processes across planners, regulators, implementers and operators has influenced the level of public trust and confidence in proposed potable recycling schemes.
- The appropriateness of current economic and pricing structures to support the uptake of potable reuse, in context of other supply alternatives and broader urban sustainability objectives.

### Public participation and engagement in decision making

- Assess the relationships between the opportunity for public participation in decision making and the level of public confidence in proposed potable reuse schemes.

### Communication

- How the community looks for, and receives, information about water recycling and how the source (who from) and the form of this information influences their trust in the proposed recycling scheme.
- Exploring the role that language, terminology, images and definitions related to water recycling play in shaping community understanding, perceptions and acceptance responses.
- Are there lessons the water industry could learn from other industries in overcoming community concerns over their products?
- Enhance industry understanding about how the media sources and reports information about the development of alternative water sources and how media representation in previous potable recycling proposals has assisted or hindered informed public debate.

- Testing approaches for effective communication about the relative risks of potable reuse, the technologies and science applied in producing and delivering the water, and the system operating safeguards designed to manage any residual risk.
- Defining specific target audiences for engagement and exploring innovative communication techniques and channels to engage different sectors of the community.
- Recommending how to effectively frame potable reuse engagement and communication in context of other key issues such as the role of potable reuse in a broader water management context, communicating complex concepts about water quality risks and maintaining community trust in the safety of existing drinking water supplies.

### Stream 3 – Design and Implementation of a National Demonstration and Engagement Program

**Objective:** *Drawing on the outputs from the above demonstrations and analysis, previous social research and community experiences, develop and implement an innovative **National Demonstration and Engagement Program** that objectively engages the broader Australian community about the science of potable reuse and its role in the development of more sustainable Australian cities.*

Issues that could be addressed in **Stream 3** include:

- Information and messaging on ‘water’, the water cycle, water supply options and the role that water recycling plays.
- Information and visual information on demonstration and full scale recycled water projects in Australia and worldwide.
- Online information on the performance of operational plants including water quality or critical control point information displayed in real time from such projects.
- Contemporary information about water quality risks and how they are managed and how they compare to the same risks that may be present in other areas of normal life.
- Details of energy usage, carbon footprint and green house gas production
- Information from independent audits and assessments of process efficiency or water quality information.
- Information portals via new media.

### Methodology

The Centre is calling for Expressions of Interests (EOI) for developing the workplan and carrying out the various work programs involved.

The Scope of the project, as outlined in this Call for EOIs, is *indicative only* and proponents must outline the scope of work they propose to deliver for this project, as well as a provisional budget for doing so.

While a proponent may nominate to undertake the entire project, the Centre acknowledges that the overall project objective may be delivered by separate project teams addressing one or more of the Streams. The relevant interests of each proponent will therefore need to be clearly identified in the EOIs.

It is the intention of the Centre to shortlist consortia or teams from the EOI submissions. Those shortlisted will be invited to attend workshops to further develop the scope(s) outlined in their EOIs, to agree on a work program and an indicative budget relevant to their scope(s). Upon completion of the workshop(s), the Centre will invite one or more of the shortlisted consortia/teams to submit fully a detailed and fully costed proposal.

## Project Partners

It is envisaged that the Project will be delivered by multidisciplinary research teams that could include representatives from the following organisations.

- Research organisations (including social scientists, journalism and media scientists)
- Regulatory authorities
- Water utilities
- Consultants
- Other relevant entities (e.g. AMA, Cancer Council, etc)

## Schedule

The workshops will be held within three weeks of review and short listing of EO's. An overall project schedule will be developed during the workshops and confirmed during final proposal preparation.

## Budget

The Centre considers that this will be a very significant undertaking and is prepared to invest accordingly. As a guide to applicants, and subject to confirmation once the workplan and budgets have been addressed in the workshops, the Centre has provisionally allocated up to \$3 million for the overall project.

Final project scope and funding approval will be subject to a recommendation by the Centre's Research Advisory Committee and approval by its Board.

Applicants must comply with the Centre funding principles, including cash and in-kind leverage and justification for expenditures.

## Project Advisory Committee

A Project Advisory Committee (PAC) will be provide guidance, review all reports and generally monitor performance on behalf of the Centre and the stakeholders. It is possible that a PAC will be formed for each Stream if deemed appropriate.