



ACHIEVING A SUSTAINABLE WATER SUPPLY FOR ADELAIDE THROUGH INNOVATIVE URBAN WATER PLANNING

OPTIMAL WATER RESOURCES MIX FOR METROPOLITAN ADELAIDE

Project Fact Sheet: U.2.2/2012

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Project Duration: October 2012 – March 2014

Project Partners:



BACKGROUND

Metropolitan Adelaide has many sources of water for supplying the city's needs, including surface water, groundwater, desalinated water, stormwater, roof or rain water, recycled water and the River Murray. Determining the optimal mix of these sources is critical to underpin an efficient and sustainable solution for Adelaide. In order to achieve this, consideration must be given to the balance between a range of important objectives – from supply security, economic costs, social preferences and environmental impacts.

ABOUT THE PROJECT

The project will provide a solid information base to support the development of policy and planning for urban water management in metropolitan Adelaide. The project team will develop methods for determining trade-offs between the many objectives associated with an optimal water mix while aligning with social values.

Methodologies for identifying an optimal water resources mix at a city-wide scale will be developed and applied for the first time. To achieve this, a multi-disciplinary research team will:

- Engage with stakeholders to provide an effective communication pathway and an agreed basis for evaluating alternative water supply mixes;
- Establish a model that simulates the Adelaide water supply system;
- Develop a multi-objective optimisation methodology to assess trade-offs;
- Monitor household water use to better predict demand;
- Undertake legal and governance analysis in delivering water solutions;

- Conduct economic analysis of the direct and indirect costs associated with supplying water from multiple sources; and
- Improve understanding of social values and preferences regarding water solutions.

WHAT WILL IT DELIVER?

- > Data collated during this project will inform the development of an integrated water management plan for Adelaide;
- > The relationship between water sources, water distribution systems and water discharges at a whole-of-city scale will be described and modelled;
- > Household water use patterns will be measured and applied to understand water demands at a city-wide scale;
- > An improved understanding of the social preferences and values regarding water supply options will be identified;
- > The economic costs and benefits from different supply options will be estimated, including capital, operating, energy usage and externalities;
- > An assessment of the institutional arrangements (nationally and internationally) that support management of diversified water supplies will be undertaken; and
- > The development of methodologies to determine the trade-offs between the multiple objectives of alternative water supply options, including water security, economic efficiency, environmental benefit and social values.

WHAT IT MEANS FOR THE FUTURE

The knowledge gained from this project will inform policy development and progression of a total urban water management plan for Adelaide. The approach will also be of use to other cities and urban regions for the development of their water management plans.

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The Goyder Institute for Water Research is a partnership between the South Australian Government through the Department of Environment, Water and Natural Resources, CSIRO, Flinders University, University of Adelaide and the University of South Australia.

