



# SUSTAINABLE WATER FUTURES



## ABOUT US

The Institute for Sustainable Futures (ISF) is a research and consulting organisation at the University of Technology, Sydney. We work with industry, government and the community to help create sustainable futures through research, consultancy and training.

Our established reputation across Australia and internationally is for innovative, solution-focused interdisciplinary consultancy projects. The key to our approach is integration and alignment across strategic, tactical and operational activities.

We work in a number of different research areas. This capability statement outlines our expertise in the field of sustainable water futures. Capability statements for other areas we work in are available from our web site.

## OUR SUSTAINABLE WATER WORK

Management of our urban water resources requires innovative thinking – to move us toward a vision of a more sustainable system that is resilient to the challenges of an uncertain future.

To progress this vision we work collaboratively with government, utilities, industry, developers, non-government organisations and the community to re-define the frontiers of best practice.

Our research spans all phases of the project life cycle from visioning and strategic policy, to on-the-ground development of options and pilot programs, to project monitoring and evaluation.

The Institute is at the forefront of thinking in water and sanitation futures where resources are used efficiently, valued fully and managed responsibly.

## WHAT WE OFFER

The Institute offers clients its extensive experience to provide solutions that are cost-effective, flexible and advance sustainability.

### *Areas of work:*

#### *Integrated Resources Planning and water policy development*

- > supply-demand planning
- > options development and greenhouse profiling
- > water-saving targets
- > end-use and demand forecasting modelling
- > economic analysis, pricing, innovative tariff scenarios
- > sustainability assessments
- > water-energy analysis
- > real options analysis
- > asset management
- > externality analysis and sustainability accounting
- > deliberative processes
- > training & interactive learning

#### *Water Sensitive Urban Design (WSUD) including best practice technologies*

- > integrated planning
- > green development
- > life cycle management
- > distributed systems
- > smart metering
- > spatial analysis

#### *Water and Sanitation Futures*

- > visioning
- > policy development
- > development of appropriate sanitation solutions
- > implementation and communication strategies
- > microbial risk assessment
- > monitoring & evaluation

## RECENT SUCCESSES

The Institute has undertaken research projects for utilities, regulators and other stakeholders across Australia and internationally. Some of our recent project highlights are listed here. Details of other projects can be found on our web site.

### **Integrated Resource Planning for Urban Water – National Water Commission (NWC)**

This project builds on the ISF work for the Water Services Association of Australia (WSAA) including a framework and guide to aid water planners assess the water supply-demand balance for their region and determine how best to fill the gap. The resources developed include new resource papers, a model, training materials and case studies. For further information visit <http://urbanwaterirp.net.au/>.

### **Costing for Sustainable Outcomes in Urban Water Systems: A Guidebook – CRC for Water Quality and Treatment**

ISF developed a guidebook to assist decision-makers to use the best principles and tools to assess the most cost-effective means to achieve sustainable urban water outcomes.

### **Showerhead Exchange Program Evaluation – South East Water**

This project involved statistical evaluation of the water savings arising from the showerhead exchange demand management program run by the three Melbourne water retailers. It involved using ISF's specialised pair matching analysis as well as development and testing of a regression technique that could be used by the broader water industry to establish savings of similar programs.

### **Frasers Broadway Water Cycle Strategy – Frasers Property**

Prepared conceptual designs and modelled integrated water cycle options for the 6ha Frasers Broadway mixed use precinct development in Sydney, using detailed end use supply-demand modelling. Water savings, cost effectiveness and impacts of options for demand management and source substitution were examined.

### **Water-Energy Nexus – CSIRO**

Collaborative research with CSIRO examining the energy implications of emerging water infrastructure. This involved smart metering a number of households around Sydney to investigate the actual water and energy usage of various rainwater system configurations. The findings will inform future water and energy policy.

### **Cost-effectiveness analysis of WELS – Department of Environment, Water, Heritage and Arts (DEWHA)**

The project compared the Water Efficiency Labelling Scheme to other urban water management options by modelling and valuing impacts including water savings, energy and greenhouse impacts, administration costs and compliance costs.

### **Lochiel Park, Adelaide – Land Management Corporation**

Analysed the whole-of-society, monetised and non-monetised costs and benefits of selected water and sustainability initiatives planned as part of the Lochiel Park green village development.

### **Water resources planning, Salalah, – Sultanate of Oman**

Collaborated with a locally based company to analyse the water supply-demand balance in this water scarce region, and recommended future strategies to improve efficiency and the sustainability of groundwater resources.

### **Decentralized Wastewater System Reliability Analysis Handbook – US EPA**

Collaborated with Stone Environmental Inc. and the Rocky Mountains Institute in the USA to develop a handbook for managers of decentralised wastewater systems. This was the first attempt to develop the tools needed to manage decentralised systems as viable long term alternatives to centralised systems.

### **Review of Metropolitan Water Plan Sydney – NSW Government**

Collaborated with ACIL Tasman to review the existing Metropolitan Water Plan and develop a future planning strategy that provided water security during extreme drought and reduced cost in the longer term by using risk-based costs and adaptive management.



## OUR WATER RESEARCH TEAM

### **Stuart White**

As Director of the Institute, Professor Stuart White is an internationally recognised expert in urban water policy, demand management and integrated resource planning (IRP), having worked with water utilities and agencies both nationally and internationally. His recent work includes review of water resource options for South East Queensland and conducting training for the EU SWITCH in Egypt.

### **Cynthia Mitchell**

As Director of the Institute's water sensitive urban design team, Professor Cynthia Mitchell embraces a systems perspective on total water cycle management linking innovative design to water supply, use and re-use across scales. Her recent work includes sustainability accounting for Yarra Valley Water in Victoria and water sensitive urban design advice for development companies.

### **Andrea Turner**

Andrea Turner is a Research Director contributing extensive expertise in the development of demand management programs and all aspects of the IRP process. She has worked with many water service providers across the country. Recent projects include a review of a smart metering project for DEWHA and development of IRP and demand management guides/training for WSAA, the NWC, International Water Association and EU SWITCH.

### **Simon Fane**

Dr Simon Fane is a Research Director with expertise in the economic analysis of sustainable water and wastewater systems as part of total water cycle management. Simon has recently contributed to Costing for Sustainable Outcomes in Urban Water Systems and led an investigation into the feasibility of re-use in Leichhardt Council including stormwater, wastewater, sewer mining, water sensitive urban design and rain tanks.



### **Juliet Willetts**

Dr Juliet Willetts is a Research Principal with a background spanning several fields, including social, economic and technical aspects of human development. Her areas of focus are international development, learning and sustainable water and wastewater management. Her recent project work includes a Water and Sanitation Review in the Asia Pacific for World Vision Australia.

### **Joanne Chong**

Joanne Chong is an economist with an environmental engineering background. She has significant experience in applying economic analysis to a wide range of sustainability and policy issues. Recent cost-effectiveness analysis projects in the urban water sector, include a review of Australian water restrictions policies for the NWC and WELS for DEWHA.

### **Julian Fyfe**

Julian has been a key analyst and project manager on a range of water related projects encompassing urban water demand forecasting and planning, cost-benefit assessment of water efficiency regulation, statistical evaluation of water efficiency programs and sustainability assessment of distributed wastewater infrastructure options. Whilst engaged in industry research at ISF Julian is concurrently working on his PhD on water and waste management in the dairy industry.



### **Monique Retamal**

Monique is an Environmental Engineer with a masters degree in water resources. Monique has modelled integrated water cycle options for three major urban renewal sites in Sydney and has prepared water cycle strategies for these sites at various stages in the development process. She was the key researcher and project manager for ISF's study into the water energy nexus and has interests in water/energy efficiency, distributed water systems and sustainability assessment.

### **Naomi Blackburn**

Naomi Blackburn is a Research Consultant with degrees in Environmental Engineering and Arts. Naomi has skills in sustainability assessment and supply-demand modelling and professional experience in urban water management for local government. Naomi also has experience in policy analysis and facilitating participatory decision-making.

### **Additional Advisors**

**Dr Roel Plant** – Research Director specialising in ecological economics and the resilience of urban water systems.

**Dr Damien Giurco** – Research Director specialising in urban and industrial ecology frameworks and modelling.

**Naomi Carrard** – Senior Research Consultant with expertise in water policy, international development and spatial analysis.

**John Glassmire** – Research Consultant with extensive experience in system modeling and pumped systems.



## BENEFITS OF WORKING WITH ISF

### **Track record:**

We have been conducting project based research for Australian and international clients for a decade and have an excellent reputation for innovative, solution-focused work.

### **Applying current thinking and practice:**

Our researchers are not only up to date with best practice and current thinking - they contribute to it. Their research is published regularly in academic journals as well as industry and scientific publications and the popular media.

### **Practical and diverse experience:**

Our researchers come from varied backgrounds, including: engineering architecture, management, economics, science, social sciences, international studies and political studies. Most have worked in both government and commercial environments, so know how to deliver independent and feasible solutions to suit the needs of a diverse range of clients. We are small enough to offer our clients personalised service and large enough to offer a diversity of research skills.

### **Collaborative approach:**

We seek to create change towards a sustainable future by building capacity in organisations and individuals, and in the broader community. This means that we actively aim to pass on our knowledge and skills to our clients through close collaboration.

## WAYS WE CAN HELP

### **Consulting and research services:**

We can provide the research you need to move towards sustainable futures. We provide consulting services under both negotiated and tendered contracts.

### **Professional advice:**

You may need assistance with preliminary work before embarking on a larger project or an external review of an existing program. Our professional advice is available either for an hourly rate or on a package basis.

### **Partnerships:**

We have many ongoing partnerships across a range of technical fields and can coordinate a specialist team to meet your requirements. Our researchers are also available to join new or existing partnerships as needed.

### **Guest speakers:**

We are experienced in communicating complex issues in an accessible and engaging way. Our researchers are often invited to speak at conferences, forums, workshops and seminars. We are also frequently called upon by print, radio and television journalists for expert opinion.

## PUBLICATIONS

We are committed to sharing the results of our work in the interests of a more sustainable future for all. Many of our reports, discussion papers, journal articles and conference papers can be downloaded from our website.

## CONTACT US

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