



Investment Framework for Economics of Water Sensitive Cities (INFFEWS)

Is my water sensitive
project worthwhile?

What are the benefits
and costs of my water
sensitive project?

What non-market
benefits will it generate?

The INFFEWS package features:

- **BCA Tool**—an Excel-based benefit cost analysis tool
- **Value Tool**—a comprehensive Excel-based database of 2000+ non-market values of water sensitive systems and practices
- **supporting resources** to conduct an economic evaluation for business case development.

The INFFEWS tools can be used together or separately.



CRC for
Water Sensitive Cities



Business
Cooperative Research
Centres Programme

- ✓ Tools tailored to water sensitive cities (WSC) and water sensitive urban design (WSUD) projects
- ✓ Standardised economic evaluation framework to improve decision making

- ✓ Developed for industry, with industry
- ✓ Based on sound economics
- ✓ Fully consistent with Australian state and national government guidelines

Benefit cost analysis compares the benefits of a project or policy with its costs, to assess whether it is worthwhile. It can make the decision making process a structured and systematic one, leading project stakeholders through key steps to define the project, identify project options, identify information requirements and gaps.

Use the INFFEWS BCA Tool to:

- ✓ Develop a holistic business case for delivering water sensitive investments
- ✓ Assess investments for water sensitive cities
- ✓ Understand the distribution of costs and benefits between stakeholders

Use the Value Tool to:

- ✓ Understand monetary-equivalent values of non-financial benefits generated
- ✓ Access reference data for the possible monetary values for common benefits of water sensitive projects

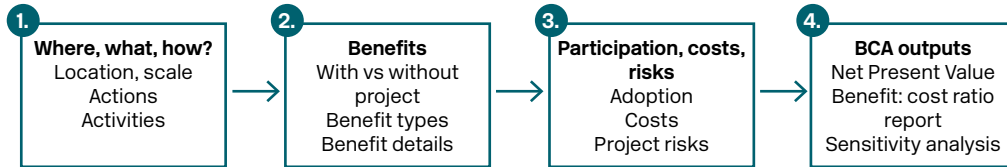
Use the supporting resources to:

- ✓ Understand BCA basics, and using economic information in strategic decision making – *Benefit cost analysis and strategic decision making (PDF)*
- ✓ Complete a rough BCA – *Rough BCA Tool guidelines (Word) and spreadsheet (Excel)*
- ✓ Understand the structure and elements of the BCA Tool – *BCA Tool guidelines (PDF)*
- ✓ Step through the process of entering the required information into the BCA Tool – *BCA Tool user guide (PDF)*
- ✓ Compare the results from BCAs for multiple projects or different versions of the same project – *BCA comparison tool (Excel)*
- ✓ Learn more about BCA – *BCA Tool training videos* on the basic economics of a BCA and how to use the tools



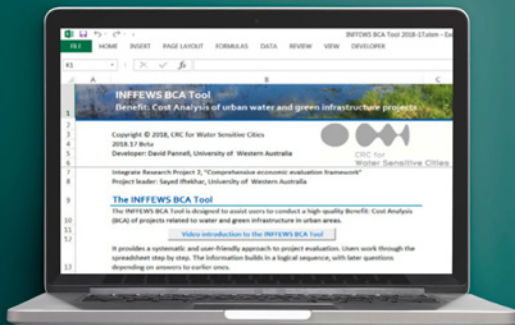
The BCA Tool is flexible and easy to use

The **BCA Tool** uses three main sources of information in an economic assessment:



Key features

- Comprehensive cost assessment, including capital, operational and maintenance costs
- Uses market values and non-market values
- Capacity to select up to four stakeholder organisations (beneficiaries and/or contributors)
- Automatically generates a range of sensitivity analysis results
- User can quantify project risks
- Includes 'with project' versus 'without project' scenarios
- Allows for multiple benefit types
- Built-in logical consistency checks
- Embedded help videos and user guide of examples
- Dropdown and pre-populated menu options
- User can record sources for each data item to ensure transparency
- Generates a summary report of the BCA results



The Value Tool offers a comprehensive range of values

The **Value Tool** has over 20 different benefit types, including ecological improvement and biodiversity, reduced recurring costs, improved security of water supply, reduced morbidity/ improved health from extreme heat, and improved aesthetics.

Key features

- ✓ Offers comprehensive list of up-to-date values related to water sensitive cities in Australia
- ✓ Easy to use filters and search functions to identify relevant values
- ✓ Classifies benefit values in a range of ways to help identify relevant benefit types
- ✓ Has supporting information about value source and the method used
- ✓ Gives direct weblinks and full citation of all original studies
- ✓ Indicates the level of robustness of the original study based on the review process
- ✓ Offers 10 value functions and look-up tables to help with benefit transfer
- ✓ Has a decision tree that provides a quick summary on how to use the tool
- ✓ Includes comprehensive guidelines on how to navigate the tool and benefit transfer applications
- ✓ Offers worked examples that demonstrate how to use the database
- ✓ Compatible with Windows and Mac operating systems



Practitioners are rapidly adopting the INFFEWS tools across Australia

More than 120 organisations have already applied the INFFEWS tools. Some examples are:

TARALLA CREEK NATURALISATION AND WETLAND CREATION (VIC)

Yarra Valley Water, Melbourne Water and Marrondah City Council are investigating converting a section of the Taralla Creek, which is currently a combination of concrete lined and grassed channels, into a naturalised waterway. The Taralla Creek Project will utilise constructed wetlands to treat stormwater and to harvest stormwater for irrigation of adjacent open space, while also enhancing adjacent natural habitat and open space.

Identified benefits

- Improved ecology and stream health
- Improved public health
- Improved aesthetics
- Reduced nutrient discharge to Port Philip Bay
- Potable water savings

STATUS: Planning stage, not funded yet

CAPITAL COST: \$15,265,000

OPERATING COST: \$101,000 per year

BENEFIT COST RATIO: 1.30

PASSIVELY IRRIGATED STREET TREES (VIC)

This City of Ballarat project involves the planned introduction of passively irrigated trees in new urban areas, by lowering grass verges around trees and allowing stormwater from the kerb and channel system to enter the tree growing area via a gap in the kerb. The passive irrigation can increase the health of the tree and increase canopy cover while also managing stormwater. The proposal involves 45,500 street trees.

Identified benefits

- Improved street amenity
- Reduced pollution to local waterways
- Avoided tree replacement costs
- Potable water savings
- Heat mitigation

STATUS: Planning stage, not funded yet

CAPITAL COST: \$39,157,000

OPERATING COST: \$34,000 per year

BENEFIT COST RATIO: 4.21

OAKLANDS WETLAND AND STORMWATER HARVESTING (SA)

This project is a collaboration between the City of Marion and the Adelaide and Mount Lofty Ranges Natural Resources Management Board. The project has transformed a disused former driver education centre site into a highly valued recreation destination and biodiversity habitat. The site features a 12-hectare wetland, which is part of an integrated water recycling system. A small portion of the water flowing in the adjacent Sturt River is diverted into the wetland where natural processes clean it. After three days of moving through the wetland, the water can be injected into aquifers. This is done in winter. Water is subsequently abstracted in summer for irrigating 31 reserves and other open public spaces. The wetland can capture, clean and store up to 400 ML of stormwater each year.

Identified benefits

- Potable water savings
- Protection of natural groundwater reserves
- Improved aesthetics
- Improved public health
- Improved ecology health
- Improved recreation opportunities through irrigation of green open space

STATUS: Completed in 2013 with co-funding from the Australian Government's 'Water for the Future' program

CAPITAL COST: \$9,600,000

OPERATING COST: \$140,000 per year

BENEFIT COST RATIO: 2.23

Others who have applied the tools include:

- Aither
- Allwater
- ARUP
- ASPECT Studios
- Australian National University
- BMT
- Baron Water
- Blacktown City Council
- Bligh Tanner
- Brisbane City Council
- Building Queensland
- CSIRO
- Central Queensland University
- Charles Stuart University
- City of Brimbank
- City of Canning
- City of Canterbury Bankstown
- City of Gold Coast
- City of Gosnells
- City of Greater Dandenong
- City of Joondalup
- City of Mandurah
- City of Melbourne
- City of Melville
- City of Nedlands
- City of Perth
- City of Port Philip
- City of Salisbury
- City of Sydney
- City of West Torrens
- City West Water
- Coliban Water
- Cooks River Alliance
- Coolth Inc.
- Curtin University
- DBCA (WA)
- DELWP (VIC)
- DEWNR (SA)
- DNRME (QLD)
- DPIE (NSW)
- DWER (WA)
- Department of Communities (WA)
- Department for Energy and Mining (SA)
- Department of Defence (VIC)
- Department of Environment and Science (QLD)
- Department of Industry and Skills (SA)
- Department of Premier and Cabinet (NSW)
- Department of Transport (NSW)
- DesignFlow
- Development WA
- E2Designlab
- EMRC
- Economic Development Queensland
- Encader Consulting
- Fairfield City Council
- GHD
- Greater Sydney Commission
- Griffith University

We can help you to apply the INFFEWS package

We have webinars, training, user manuals, videos and other support resources to help you to apply the INFFEWS tools to your projects.

If you'd like to discuss access to the INFFEWS tools or your application of the tools, please contact our INFFEWS team at inffews@crowsc.com.au

You'll also find more information here: <https://watersensitivecities.org.au/content/project-irp2/>

Cooperative Research Centre for Water Sensitive Cities



PO BOX 8000 Monash
University LPO, Clayton
VIC 3800, Australia



info@crowsc.org.au



www.watersensitivecities.org.au