Australia's Tools to support adaptive Multi-Purpose River Basin Water Management and Water Sensitive Urban Design

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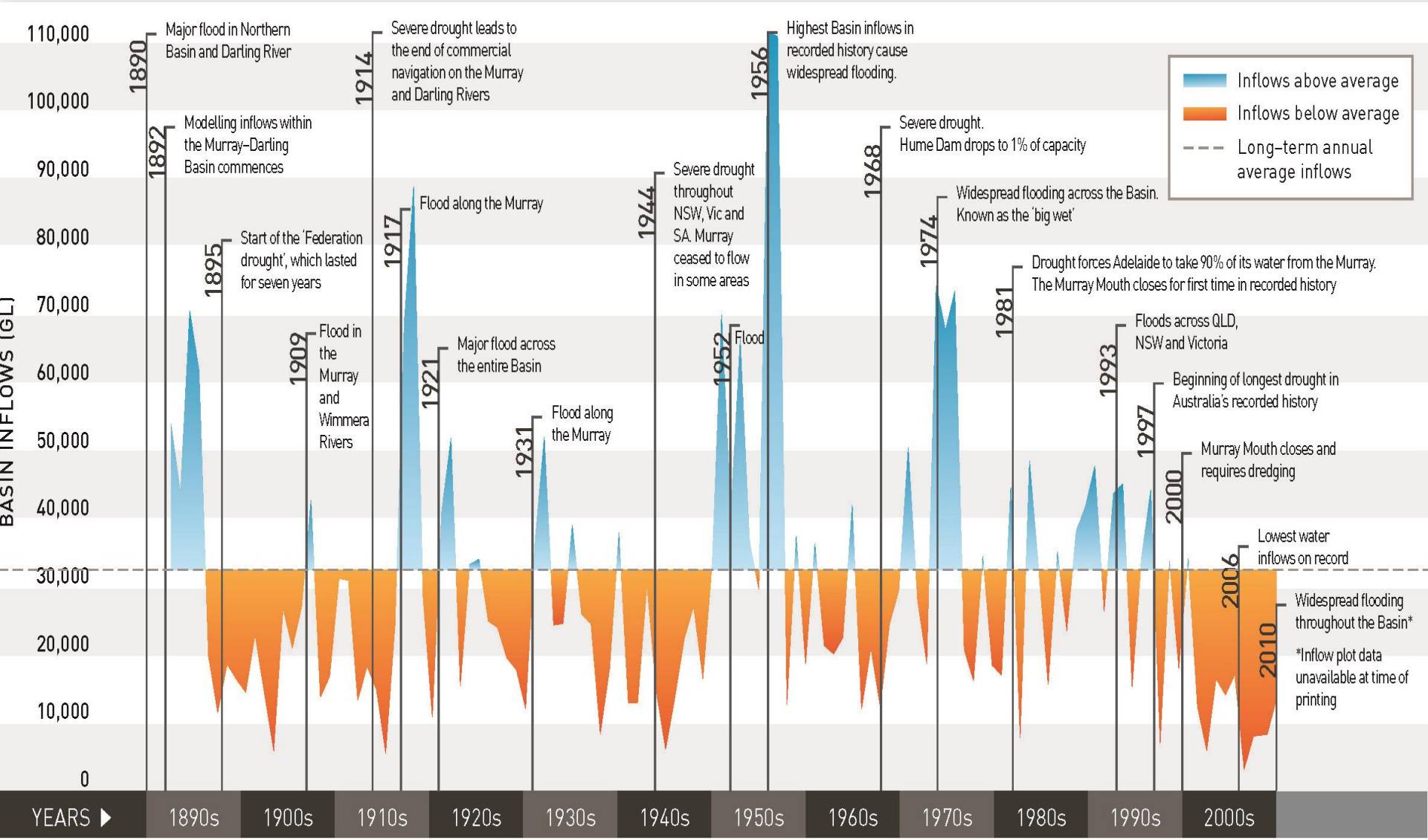
Coping with Annual Variability embeds resilience



eWater
Not-for-profit Australian Government-owned company

MURRAY–DARLING BASIN AUTHORITY

State Government Victoria
Department of Environment and Primary Industries

Government of South Australia
Department of Environment, Water and Natural Resources

NSW GOVERNMENT
Department of Primary Industries
Office of Water

Queensland Government
Natural Resources and Mines

eWS provides software development, capacity building and adoption services

Source MODELLING COMMUNITY

eWater Solutions

Models and Data to support decisions

- Driving Philosophy:
  You **can't manage** what you can't **describe** and **measure**
- Must move from **perceptions to fact**
- **Sufficient certainty** enables the hard questions and tradeoffs to be tackled.
- It is better to be **approximately right** than definitely wrong

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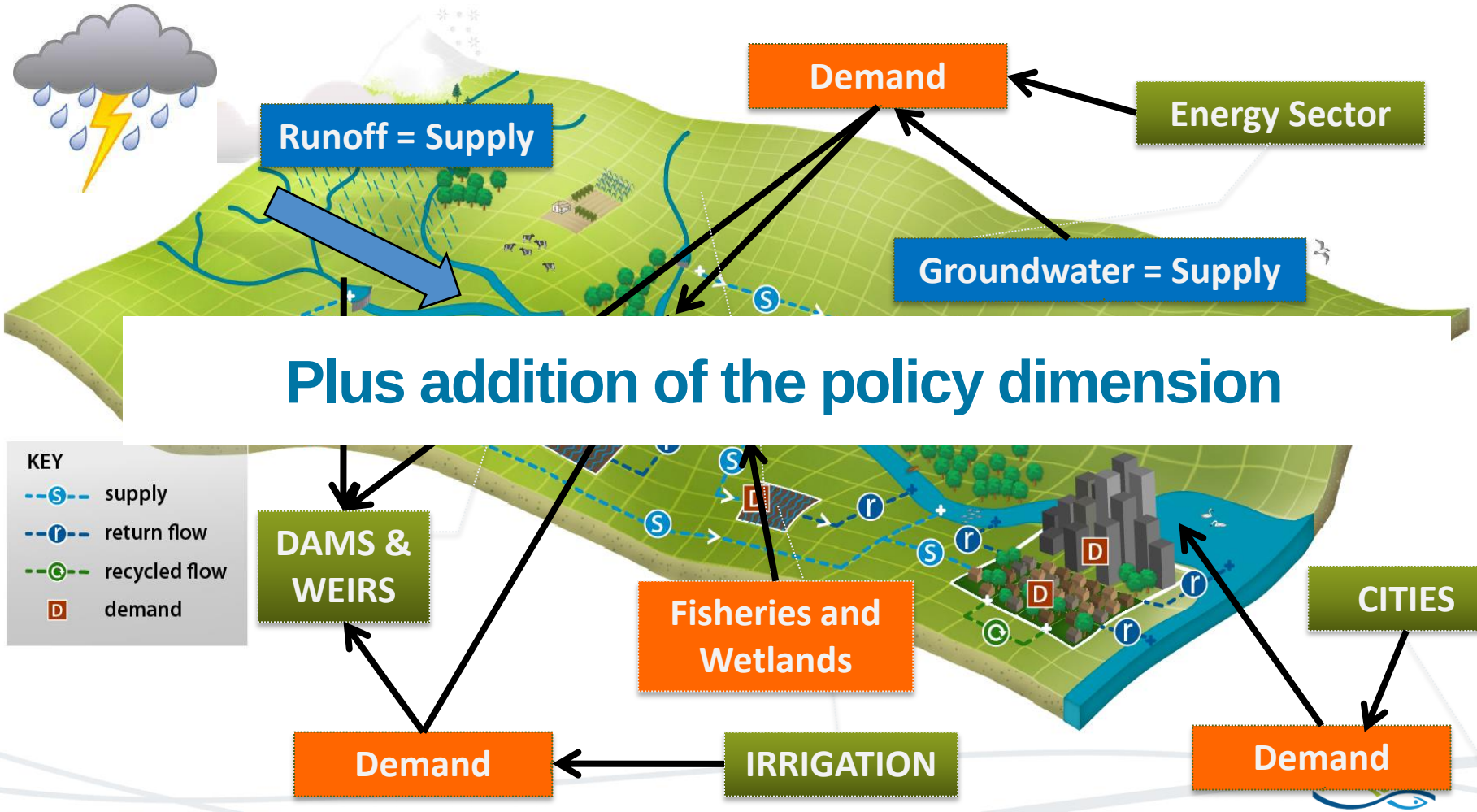
Entitlements and Allocations – Water as an Asset

- A Water entitlement is a right to a share of the water available in the river system each year as a maximum volume of water that can be taken.
- Water has different levels of reliability depending on whether it is held in dams or dependent on local rainfall etc. These are generally divided into High Reliability (>90%) and Low Reliability (<90%)
- Users have different water 'products' that they can access depending on the type of needs (irrigators, cities etc).
- Each year, depending on the seasonal conditions, an annual allocation is made to each license holder as a percentage of the entitlement
- Some Allocations and Entitlements may be traded subject to regulations and approvals
- Allocation System & Contestability extended to Urban Systems

eWater Source – IWRM supply and demand of water quantity and quality - local to basin scale



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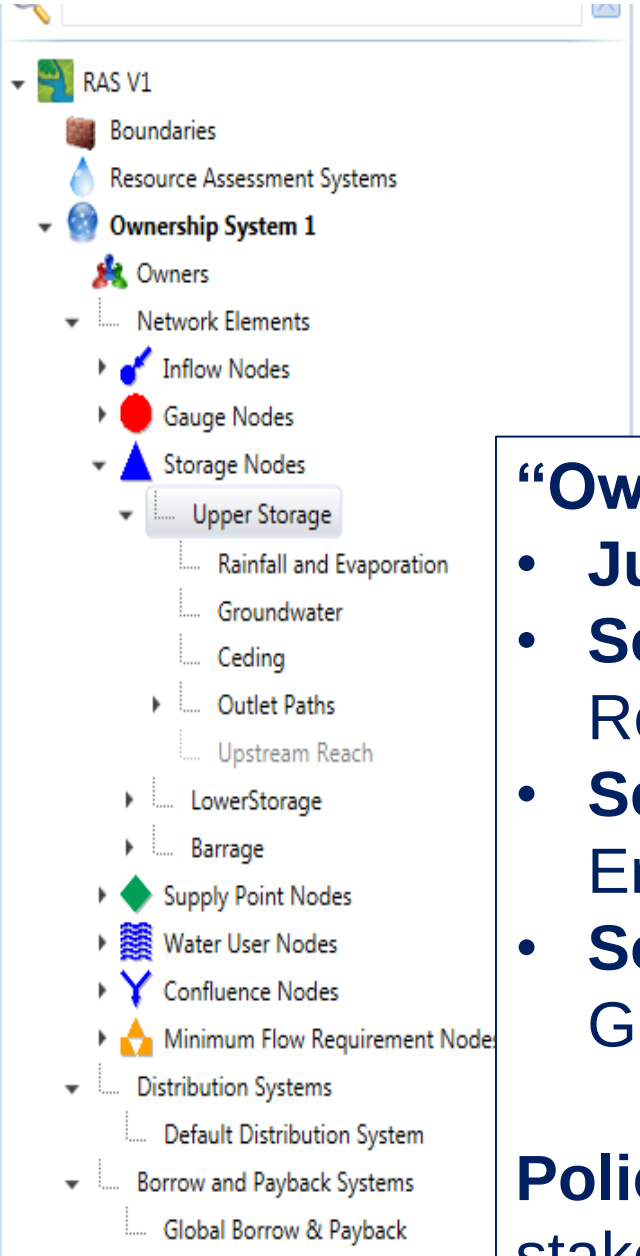
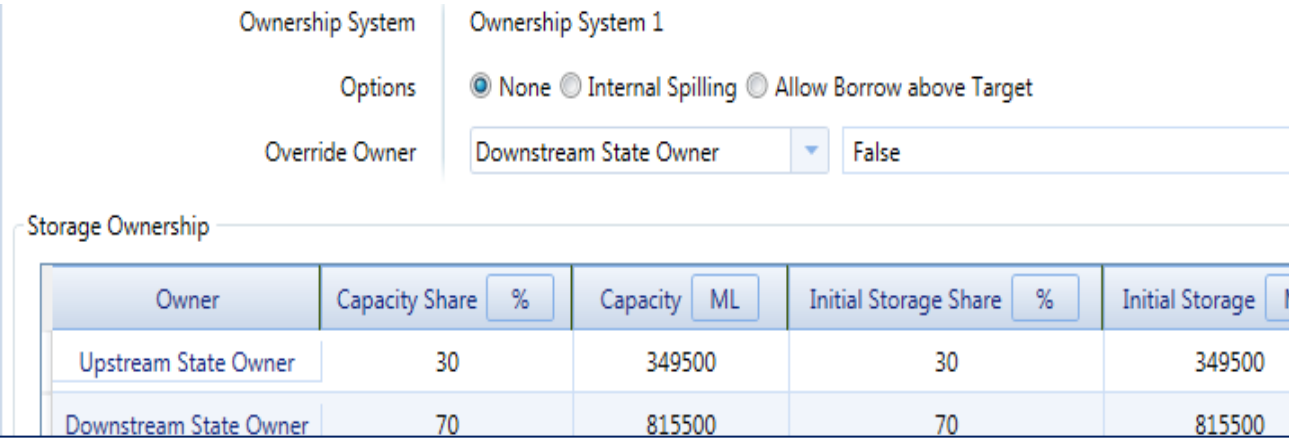
Define Sectors/Jurisdictions According to Policy Group





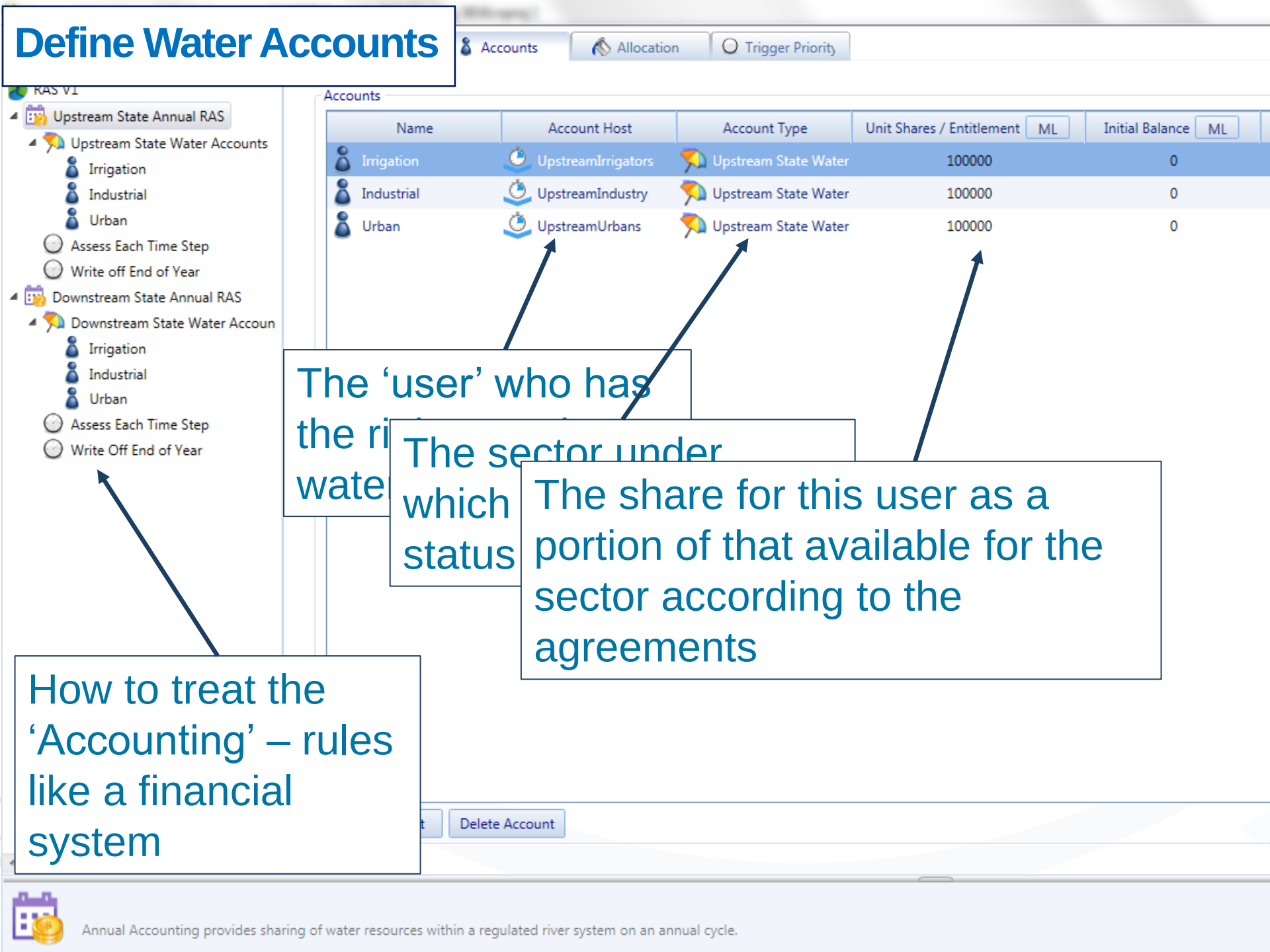
Owner	Capacity Share %	Capacity ML	Initial Storage Share %	Initial Storage
Upstream State Owner	30	349500	30	349500
Downstream State Owner	70	815500	70	815500

"**Owners**" might include:

- **Jurisdictions**: States, Provinces etc.
- **Sources**: Surface, Groundwater, Desal, Recycled etc.
- **Sectors**: Hydropower, Irrigation, Urban, Environment etc.
- **Social/Political**: Social groupings, Economic Groupings

Policy is reflected in agreements between stakeholder groups which defines **Equity**

Define Water Accounts



The ‘user’ who has the ri… wate…

The sector under which … status

The share for this user as a portion of that available for the sector according to the agreements

How to treat the ‘Accounting’ – rules like a financial system

Water Accounting

A general purpose water accounting report provides information useful to users of that report for making and evaluating decisions about the allocation of resources.

Decisions about the allocation of resources may include:

- decisions about the management or trade of water and water rights or obligations over time
- the provision of water-related services
- whether there is a need to build additional infrastructure to store the water of a water report entity.

The elements of a general purpose water accounting report are:

- water assets;
- water liabilities;
- net water assets;
- changes in water assets; and
- changes in water liabilities

link to example

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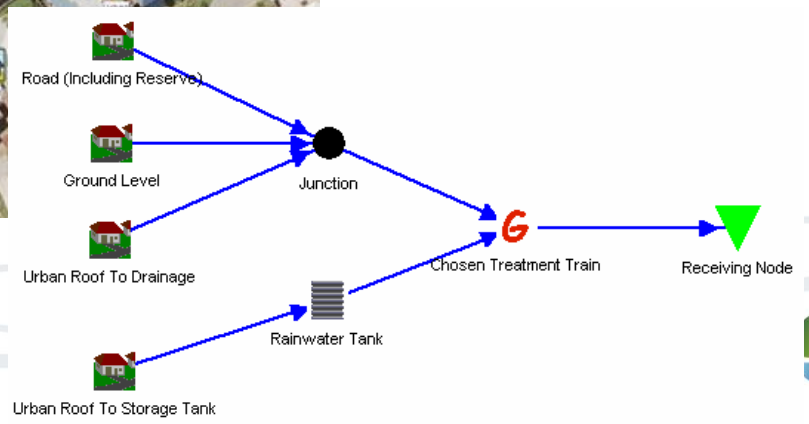
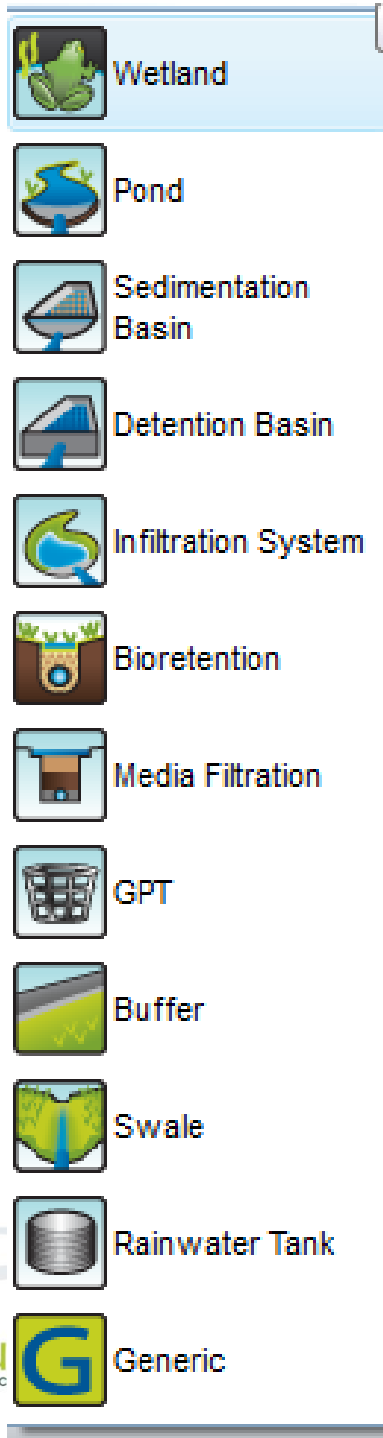
MUSIC

(Model for Urban Stormwater Improvement Conceptualisation)

Key features:

- Rainfall-Runoff modelling
- Pollutant modelling
- Water balance modelling
- Stormwater harvesting/reuse
- Life cycle costing





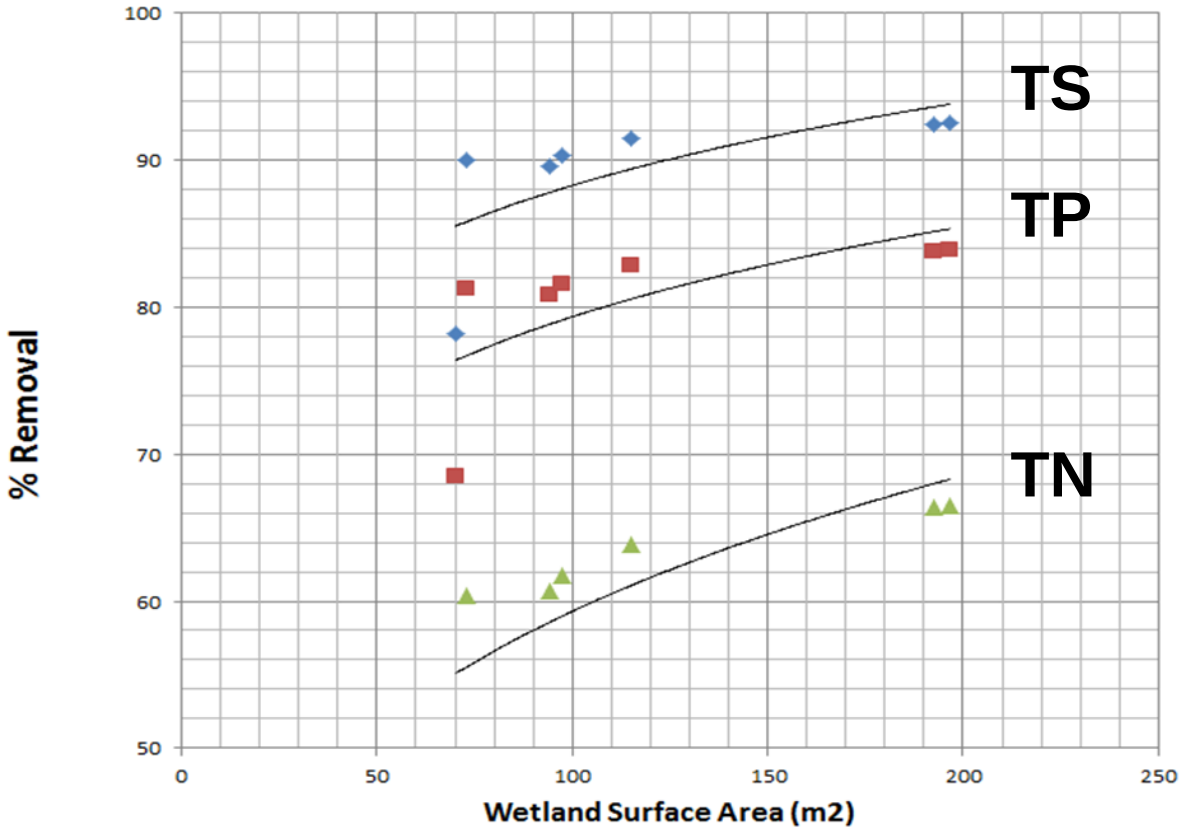
WSUD System Optimisation

Objective

To size a Wetland (i.e. calculate the required surface area & permanent pool volume) to meet pre-defined constituent reductions.

Target Reduction

TSS: 90%; TP: 80% and TN: 60%



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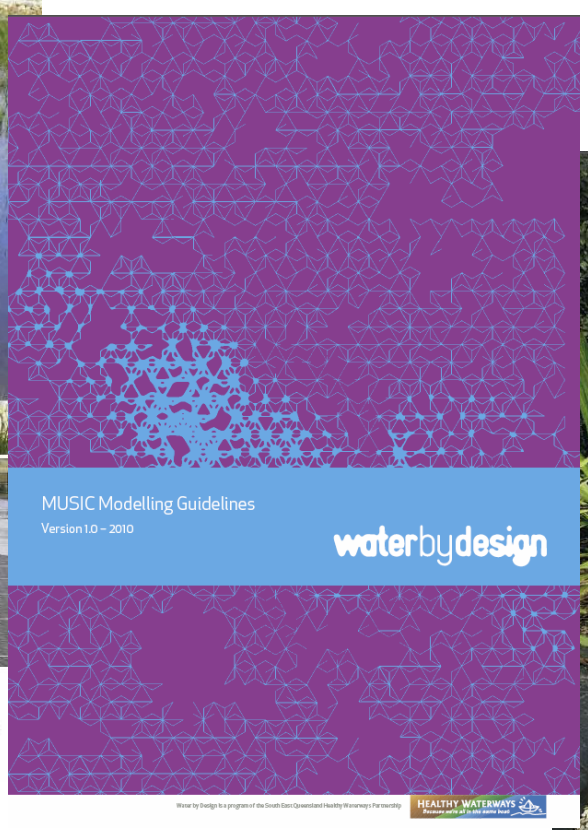
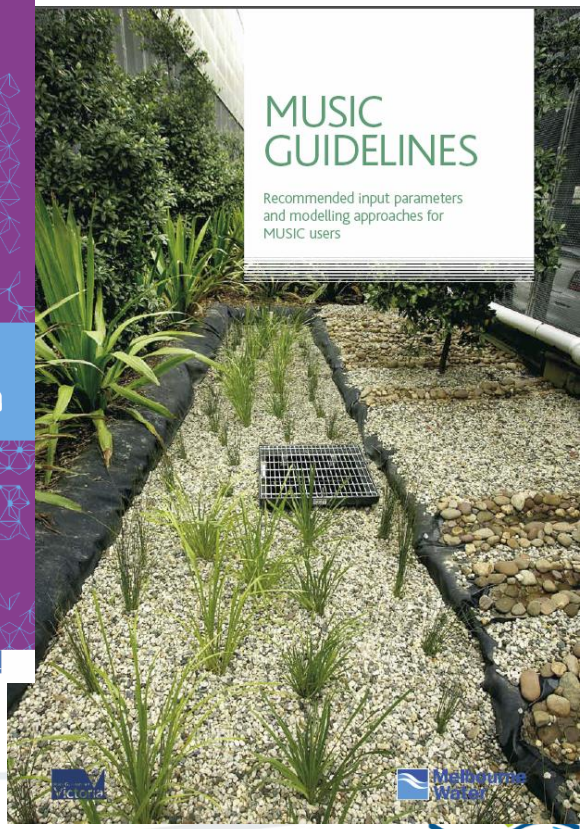
MUSIC Modeling Guidelines





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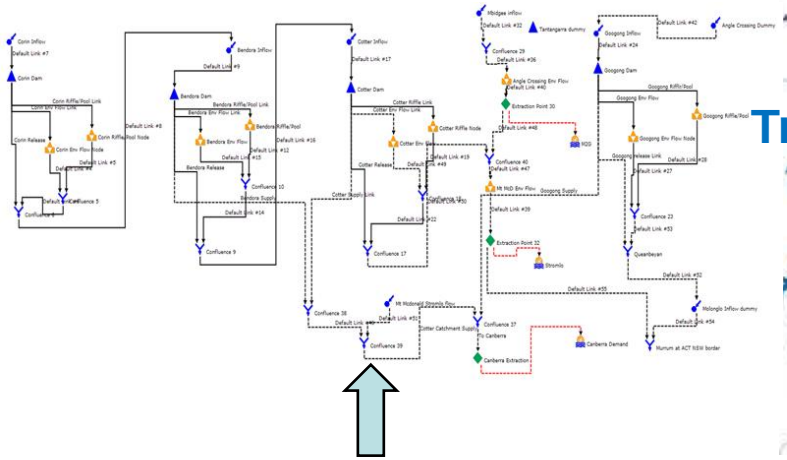
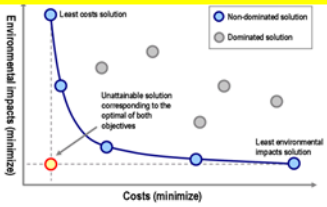
Urban Policy Framework Structure

Broad Policy Direction

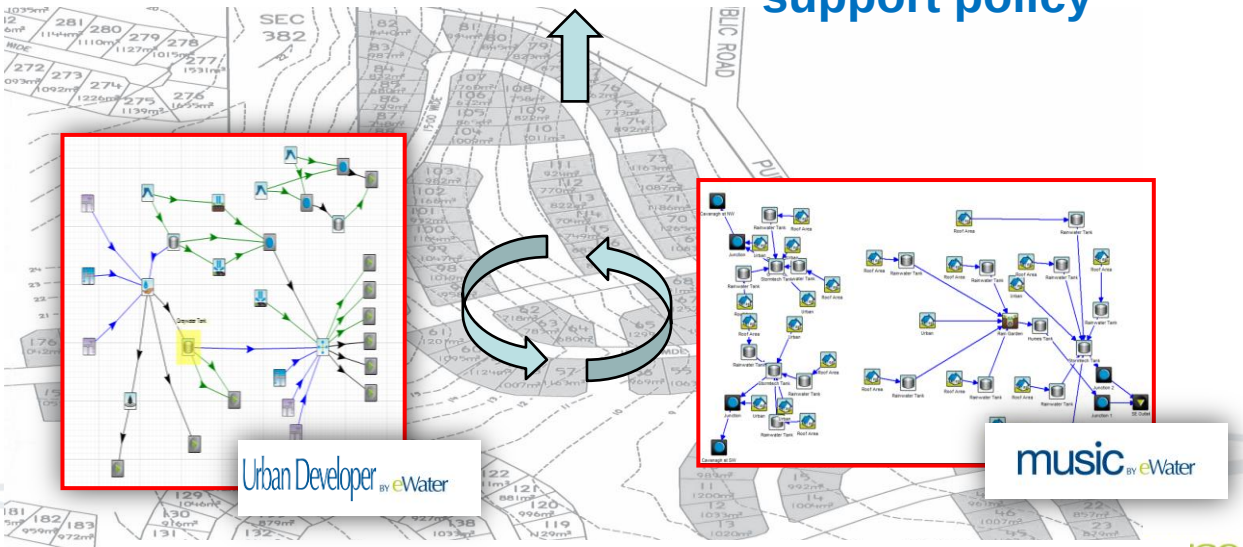


Trunk System



Feasibility and Objectives to support policy

Local Context with Compliance



Small Scale Integrated IWCM/WSUD Analysis

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Katherine River
Lake Argyle
Ord River
Flinders River
Gilbert River
Herbert River
Cape York
The Great Barrier Reef
Wet Tropics
Burdekin
Mackay/Whitsundays
Pioneer River
GREAT BARRIER REEF (GBR) CATCHMENTS
Fitzroy
Mary Burnett
SE Queensland
BRISBANE
Lake Eyre
Paroo
Macintyre Brook
Nerang
Nth Gnangara
Avon River Basin
Gingin
Condamine-Balonne
Barwon-Darling
Namoi
Warrego
Moonie
Gwydir
PERTH
45+ Models in SW Western Australia
Lower Darling
MURRAY-DARLING BASIN
Macquarie-Castlereagh
NSW Murray
SYDNEY
RIVER MURRAY
ADELAIDE
CANBERRA
SA Murray
Murrumbidgee
VIC Murray
VIC Murray
Goulburn-Loddon-Campaspe
Goulburn-Broken
MELBOURNE
Pipers Brook
HOBART
Southern-connected Murray–Darling Basin
GBR Catchment Loads Monitoring Program
Other Source applications

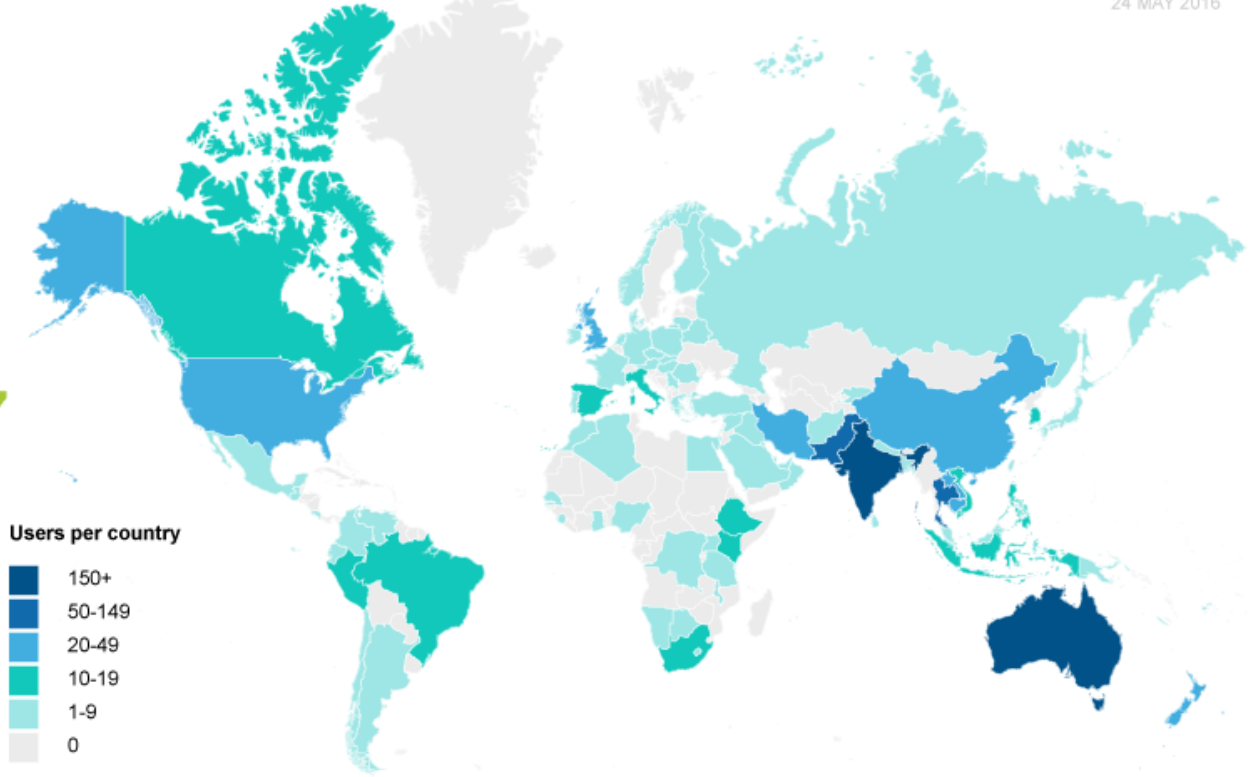
eWater Source

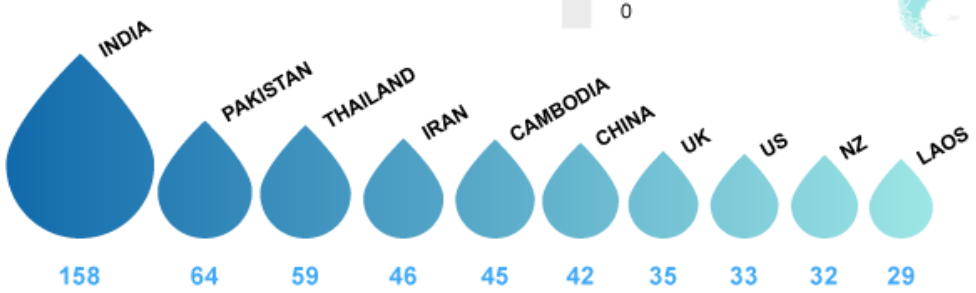
24 MAY 2016

SOURCE USERS WORLDWIDE

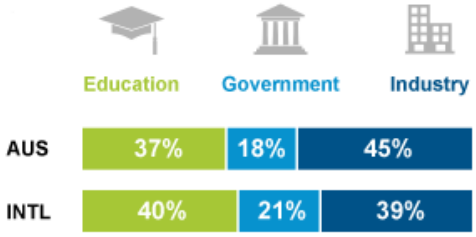
AUSTRALIA
1377

INTERNATIONAL
902





BY COUNTRY (TOP 10 INTERNATIONAL)



BY SECTOR

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Thank You!

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