Total Catchment Management
Is this the future?
An international perspective

Graham Knott, Regional Director, AECOM
Many of us look at the world though a keyhole
More people through more keyholes
Some may even look through a letter box
Total Catchment Management is like looking through a picture window
Total catchment management

“the coordinated and **sustainable use** and management of land, water, vegetation and other natural resources, on a water catchment basis, to balance resource use and conservation” *(Catchment Management Act of 1989, New South Wales, Australia)*
Catchment based approach  
Watershed assessments and studies  
Integrated catchment management  
Integrated water resource management

Total Catchment Management

Natural flood risk management  
Stormwater master planning  
Payment for ecosystem services  
Water cycle studies  
Triple bottom line
First Question: What is a catchment in this context?
Total catchment experience
United States
## Total Catchment Management – a North American perspective

<table>
<thead>
<tr>
<th>Historical approach</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Single objective</td>
<td>✓ Multi-objective</td>
</tr>
<tr>
<td>✓ Single discipline approach</td>
<td>✓ Multi-disciplinary</td>
</tr>
<tr>
<td>✓ Technical emphasis</td>
<td>✓ Systems-approach</td>
</tr>
<tr>
<td>✓ Stakeholder limited</td>
<td>✓ Stakeholder-centered</td>
</tr>
<tr>
<td>✓ Incidental focus on social / economic considerations</td>
<td>✓ Integrated approach</td>
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<tr>
<td>✓ Seldom applied</td>
<td>✓ Increasingly embraced</td>
</tr>
</tbody>
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Changing course competition: toward a resilient lower Mississippi Delta
Objective: Design ecologically/economically resilient and sustainable future for the Lower Mississippi River Delta in light of climate change impacts
Changing course competition – “Working Delta” concept
Total catchment experience
Australia
Integrated Catchment Management: Australian Water Association

Catchment management, and in particular Integrated Catchment Management (ICM), has the objective of improving and integrating the management of land, water and related biological resources in order to achieve the sustainable and balanced use of these resources.

ICM is the involvement of agencies, stakeholders and general public in policy making, planning, and management to promote sustainable use of natural resources and protect and improve the quality and quantity of water and the environment the water originates from.

Reflects the values of the community

Long term planning

Resource efficiency

All water resources and sources collectively, in cycle, and the other aspects of the catchment as well

Triple Bottom Line
Places: natural and built environment.
People: cultural and social.
Processes: institutional and economic.
CASE STUDY:
The Murray-Darling Basin Plan
“Very large catchment” TCM
What is the Murray-Darling Basin and why does it need a plan?

- 1 million square kilometres
- 2 million people
- 23 major river systems
- Australia’s ‘food bowl’
- Water rights in the basin were over-allocated over decades
- The millennial drought highlighted severe water shortages stress the whole system
- The Water Act 2007 mandated that a whole-of-basin plan be developed
The plan’s aims

- Deliver good quality water to people, businesses and the environment
- Efficient use of environmental water
- Communities always have access to drinking water
- Water trade is efficient and fair
- Implementation is monitored and re-evaluated.
- State governments are committed to the Plan
Sustainable diversion limits

Before the Basin Plan: 13,623 GL

was the average amount of water extracted from the Basin’s rivers annually.

Basin Plan target: 10,873 GL

Total reduction: 2,750 GL

Baseline 13,623 GL

Target 10,873 GL
Developing the plan was not easy

- Water would need to be bought back from irrigators
- With less water many producers felt their livelihoods were threatened
- Community consultations were emotive and widely reported in media
- A Commonwealth Environment Water Holder was created to buy water allocations specifically for environmental purposes
- Price difficult to set
Key messages
Thanks to my co-authors

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