Creating water sensitive ‘river’ cities
International RiverSymposium 2018, Sydney
What is the CRC for Water Sensitive Cities?

The CRCWSC is an Australian research centre that brings together many disciplines, world-renowned subject matter experts, and industry thought leaders who want to revolutionise urban water management in Australia and overseas.
Urban water transition phases

Cumulative Socio-Political Drivers

- Water supply access and security
- Public health Protection
- Flood protection
- Social amenity, environmental protection
- Limits on natural resources
- Intergenerational equity, resilience to climate change

Water Supply City
- Supply hydraulics

Sewered City
- Separate sewerage schemes

Drained City
- Drainage channelisation

Waterways City
- Point & diffuse source pollution management

Water Cycle City
- Diverse, fit-for-purpose sources & end-use efficiency, waterway health restoration

Water Sensitive City
- Adaptive, multi-functional infrastructure & urban design reinforcing water sensitive values & behaviours

Service Delivery Functions

Exclusive large-scale centralised infrastructure and institutions

Flexible, integrated, complex infrastructure and institutions

Cumulative Socio-Political Drivers

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Sewered City
- Social amenity, environmental protection
- Polysubstrate solutions

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Water Sensitive City
- Social amenity, environmental protection
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Adaptability, Flexibility, Resilience & Reflexivity

Service Delivery Function
Water sensitive outcomes

- Liveable
- Resilient
- Sustainable
- Productive
Urban water transitions

Enabling Structures
- Vision & narrative
- Evaluation frameworks
- Policy & strategy
- Legislation & regulation
- Incentives
- Revenue, funding & investment

On-ground Practices
- Water systems planning
- Urban and landscape design
- Water systems design
- Operation & maintenance
- Monitoring & evaluation
- Citizen engagement
- Cost-benefit analyses

Socio-Political Capital
- Leadership
- Science influence
- Networks
- Capacity
- Community connection
- Learning culture

CURRENT SYSTEMS

WATER SENSITIVE CITIES
Improve ecological health
Achieve equity of essential services
Ensure quality open space
Ensure good water sensitive governance
Increase community capital
Promote adaptive infrastructure
Improve productivity & resource efficiency
Improve ecological health
The Water Sensitive Cities Index: 7 Goals, 34 indicators

1. Ensure good water sensitive governance
   - 1.1 Knowledge, skills and organisational capacity
   - 1.2 Water is key element in city planning and design
   - 1.3 Cross-sector institutional arrangements and processes
   - 1.4 Public engagement, participation and transparency
   - 1.5 Leadership, long-term vision and commitment
   - 1.6 Water resourcing and funding to deliver broad societal value
   - 1.7 Equitable representation of perspectives

2. Increase community capital
   - 2.1 Water literacy
   - 2.2 Connection with water
   - 2.3 Shared ownership, management and responsibility of water assets
   - 2.4 Community preparedness and response to extreme events
   - 2.5 Indigenous involvement in water planning

3. Achieve equity of essential services
   - 3.1 Equitable access to safe and secure water supply
   - 3.2 Equitable access to safe and reliable sanitation
   - 3.3 Equitable access to flood protection
   - 3.4 Equitable and affordable access to amenity values of water-related assets

4. Improve productivity and resource efficiency
   - 4.1 Benefits across other sectors because of water-related services
   - 4.2 Low GHG emissions in water sector
   - 4.3 Low end-user potable water demand
   - 4.4 Water-related commercial and economic opportunities
   - 4.5 Maximised resource recovery

5. Improve ecological health
   - 5.1 Healthy and biodiverse habitat
   - 5.2 Surface water quality and flows
   - 5.3 Groundwater quality and replenishment
   - 5.4 Protect existing areas of high ecological value

6. Ensure quality urban space
   - 6.1 Activating connected urban green and blue space
   - 6.2 Urban elements functioning as part of the urban water system
   - 6.3 Vegetation coverage

7. Promote Adaptive infrastructure
   - 7.1 Diverse fit-for-purpose water supply system
   - 7.2 Multi-functional water system infrastructure
   - 7.3 Integration and intelligent control
   - 7.4 Robust infrastructure
   - 7.5 Infrastructure and ownership at multiple scales
   - 7.6 Adequate maintenance
The Water Sensitive Cities Index can help you to:

• Benchmark current water sensitive performance of a place

• Articulate a shared set of water sensitive aspirations with all city stakeholders

By...

Providing diagnostic insight to inform action for transitioning

Helping to set targets, prioritise actions and track progress

Fostering collaboration and dialogue
The WSC Index: Benchmarking process is highly interactive, engaging and respects individual and divergent views
Water Sensitive Cities Index

- Equity of essential services
- Ecological health
- Adaptive infrastructure
- Community capital
- Quality urban space
- Water sensitive governance
- Productivity and resource efficiency
## City State

<table>
<thead>
<tr>
<th>City Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Sensitive City</td>
<td>27%</td>
</tr>
<tr>
<td>Water Cycle City</td>
<td>84%</td>
</tr>
<tr>
<td>Waterway City</td>
<td>100%</td>
</tr>
<tr>
<td>Drained City</td>
<td>93%</td>
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<tr>
<td>Sewered City</td>
<td>67%</td>
</tr>
<tr>
<td>Water Supply City</td>
<td>100%</td>
</tr>
</tbody>
</table>

## City Index

1. **Ensure good water sensitive governance**  
   - Knowledge, skills and organisational capacity: 5.0  
   - Water is key element in city planning and design: 3.1  
   - Cross-sector institutional arrangements and processes: 3.1  
   - Public engagement, participation and transparency: 2.6  
   - Leadership, long-term vision and commitment: 3.9  
   - Water resourcing and funding to deliver broad societal value: 4.2  
   - Equitable representation of perspectives: 4.5

2. **Increase community capital**  
   - Score: 3.4

3. **Achieve equity of essential services**  
   - Score: 3.8

4. **Improve productivity and resource efficiency**  
   - Score: 3.4

### Outcomes

- Resilience: 3.8
- Liveability: 3.7
- Sustainability: 3.8
- Productivity: 3.6

### Practices

- Water Sensitive Cities as Catchment Friendly: 3.6
- Ecological Services: 3.8
- Water Use Efficiency and Recycling: 3.7
We are passionate about the protection and restoration of waterways, catchments and water resources. We strive to make a positive difference to the world we live in.