What is “One Water”


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Water Environment Research Research Foundation
“One Water” Management Continuum

Cumulative Socio-Political Drivers

- Water supply access & 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
  - Diverse, fit-for-purpose sources & conservation, promoting waterway protection

Water Cycle City

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

Service Delivery Functions

Urban Water Transitional City States (Brown, Keath, & Wong, 2008)
Discussion leading towards “Urban Water Charter”:

**Water Wise Communities**
- The “5 Is” principles:
  - Involve citizens
  - Identify co-benefits
  - Invest in trans-disciplinary teams
  - Instate enabling policies
  - Install sound governance to coordinate work at 4 scales and across disciplines

**Water Sensitive Urban Design**
- The “PReMium” principles:
  - Plan water sensitive urban spaces
  - Reduce flood and drought risks
  - Enhance the value of the presence of water in the city: Liveability & Ecosystem Services

**Regenerative Water Services**
- The “5 Rs” principles:
  - Reduce consumption
  - Reuse water
  - Recover energy
  - Re-cycle nutrients
  - Replenish surrounding environment

**Sustainable Urban Water**

*Figure 1: The Urban Water Charter Framework: three main principles and 5 building blocks for action*

Source: International Water Association, Urban Water Charter, Draft Executive Summary
By collaboration on innovation, the water sector will help create urban environments only imagined in the past – turning possibilities into realities.”
- Eileen J. O’Neill, Ph.D., Executive Director, Water Environment Federation

“The emergence of the One Water approach to urban water management will shift America away from mere avoidance of pollution to a broader focus on the enhancement, beautification and livability of our cities and urban landscapes.”
- G. Tracy Mehan, III, Interim President, U.S. Water Alliance
Optimize:
Green Infrastructure implementation through analysis of co-benefits, maintenance needs, and gathering performance data.

Transition:
Alternative Water Sources and Integrated Planning into practice through developing Tools, Permitting Guides, and Technical Requirements for new technologies.

Transform:
Watershed Management through engagement of partners including Urban Planners, Agricultural Operations, and Forestry Programs & other stakeholders.

Need for Innovative Institutions
### Snapshot Case Studies

<table>
<thead>
<tr>
<th>Planning and Partnerships</th>
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<tr>
<td>Victoria (Aus) - State Government Coordination</td>
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<tr>
<td>Pittsburgh - Sewershed Regionalization</td>
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<tr>
<td>Pinellas County - Reclaimed Water</td>
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<td>Los Angeles - Integrated Water Resource Plan</td>
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<tr>
<td>Cincinnati - Green Infrastructure</td>
</tr>
<tr>
<td>Warrnambool (Aus) - Roof Water Harvesting</td>
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<tr>
<td>Seattle - Thorton Creek Restoration</td>
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<td>San Francisco Non Potable</td>
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New Opportunities Include:
- New type of regenerative infrastructure – there is no waste;
- Portfolio of systems from centralized to decentralized;
- A mix of grey and green infrastructure;
- Increased recycling of water, nutrients and resource recovery;
- Implemented at a variety of levels from building to city scale;
- Offer economic opportunities for both the public and private sectors;
- Increased social and environmental value for the community.

Recognizes that water is more than just a service provision – it is a key component of livable cities.
## Traits of a One Water Approach

<table>
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<tr>
<th>COLLABORATION</th>
<th>with a wide variety of stakeholders, and engagement with the community</th>
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<tr>
<td>INTEGRATION</td>
<td>of the entire urban water cycle with urban planning and other services</td>
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<tr>
<td>ECONOMICS AND FINANCES</td>
<td>that recognize the true cost of water and price it accordingly</td>
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<tr>
<td>GREEN INFRASTRUCTURE</td>
<td>that works with and mimics nature</td>
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<tr>
<td>CLOSED LOOP SYSTEMS</td>
<td>that enhance nutrients and energy recovery</td>
</tr>
<tr>
<td>BUILT ENVIRONMENT</td>
<td>that supplements the function of the natural environment</td>
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<tr>
<td>ENABLING CONDITIONS</td>
<td>that foster innovative institutional and management arrangements</td>
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<tr>
<td>FLEXIBLE AND ADAPTIVE</td>
<td>to allow for innovation and change</td>
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Six key elements:

- **Strong leadership** and vision from senior positions at both political and executive levels;
- **Partnerships** between departments and collaborating organizations;
- **Organizational culture that embraces** the One Water approach;
- **Transparent engagement** with the community and stakeholders;
- A conducive economic **environment** for **private investment**;
- A conducive **regulatory and legislative environment** for **encourage** public and private **participation**.
Bold Leadership

Changing our approach: Political leadership is needed to develop and inclusive vision of an urban water environment.

Lessons learned:
- Establish mutually beneficial goals and actions;
- Create a regional leadership committee;
- Encourage community participation and support;
- Reach a common understanding with all stakeholders.
# Six Leadership Roles

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<tr>
<th>Leadership Roles</th>
<th>Role Description</th>
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<tr>
<td>The Champion Leader</td>
<td>Involves <em>initiating</em> process of influence (change) in the water sector.</td>
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<tr>
<td>The Enabling Leader</td>
<td>Involves <em>enabling</em> (rather than directing) others to collectively learn by doing to find solutions to complex water challenges.</td>
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<tr>
<td>The Cross-Boundary Team Leader</td>
<td>Involves being the assigned leaders for a team that <em>crosses boundaries</em> relating to geography, professions, etc.</td>
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<tr>
<td>The Thought Leader</td>
<td>Involves using high levels of <em>credibility and expertise</em> to exert influence.</td>
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<tr>
<td>The Strategic Leader</td>
<td>Involves working with stakeholders to build a <em>shared vision of</em> the future direction and a <em>strategy</em> to achieve vision.</td>
</tr>
<tr>
<td>The Trusted Advisor</td>
<td>Involves working as a credible, independent agent to <em>influence the political system</em>.</td>
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Planning and Collaboration

Innovative Solutions do not happen in a vacuum.

Changing our Approach: Tackle silos, politics, short-term thinking inflexible processes, unclear roles & responsibilities, and access and sharing of data.

Lessons Learned:
• Collaborate on data collection & assessment;
• Standardize approaches across regions;
• Establish working agreements across different levels of government;
• Facilitate an open communication platform.
Culture, Knowledge & Capacity

Changing our approach: Requires changing mindsets at all levels and tacking issues of technical capacity, staff motivation, organizational receptivity and learning mechanisms, as well as freeing up staff time to collaborate across boundaries.

Lessons Learned:
• Rebranding can help staff understand important organizational value issues;
• Focus on opportunities for continuous improvement;
• Social analysis can be a valuable internal tool;
• Identify what “success” looks like and work backwards to target capacity building programs.
Citizen and Stakeholder Engagement
Engagement vs Education
Initiatives will move at the “speed of trust”

Changing our approach: Getting community support requires trust, a long-term commitment and a willingness to be open minded. Must use meaningful processes at the right scale, better use of social media, and learning to speak in ways that resonate with the public.

Lessons Learned:
• Look outside your organization for expertise,
• Use interactive design workshops to understand diverse perspectives;
• Be open and adaptable to public feedback;
• Create positive experiences;
• Empower the community & developers to take action.
Economics & Finance

Changing our approach: Need to go beyond traditional cost-benefit analysis to more holistic evaluations and how to provide “value” to community.

Lessons Learned:
• Triple bottom line accounting combined with innovative modeling can result in better project prioritization;
• Include water quality in plans to gain support;
• Establish strong public-private partnerships;
• Look beyond your own industry for synergies and opportunities;
• Create “value-added” programs to community to develop dedicated and consistent funding.
Regulation and Legislation

Changing our approach: Current systems designed for centralized water systems. Need to tackle inconsistent and overlapping regulations, a lack of regulatory frameworks, prescriptive vs performance-based regulations, and the assessment of risk.

Lessons Learned:
• Establish working relationships across jurisdictions;
• Coordinate groups with inter-local agreements;
• Recognize opportunity costs;
• Streamline permitting processes for innovative process.
PATHWAYS TO ONE WATER

A GUIDE FOR INSTITUTIONAL INNOVATION
Questions?

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