

## FAQs (Frequently Asked Questions)

### Q: What is One Water?

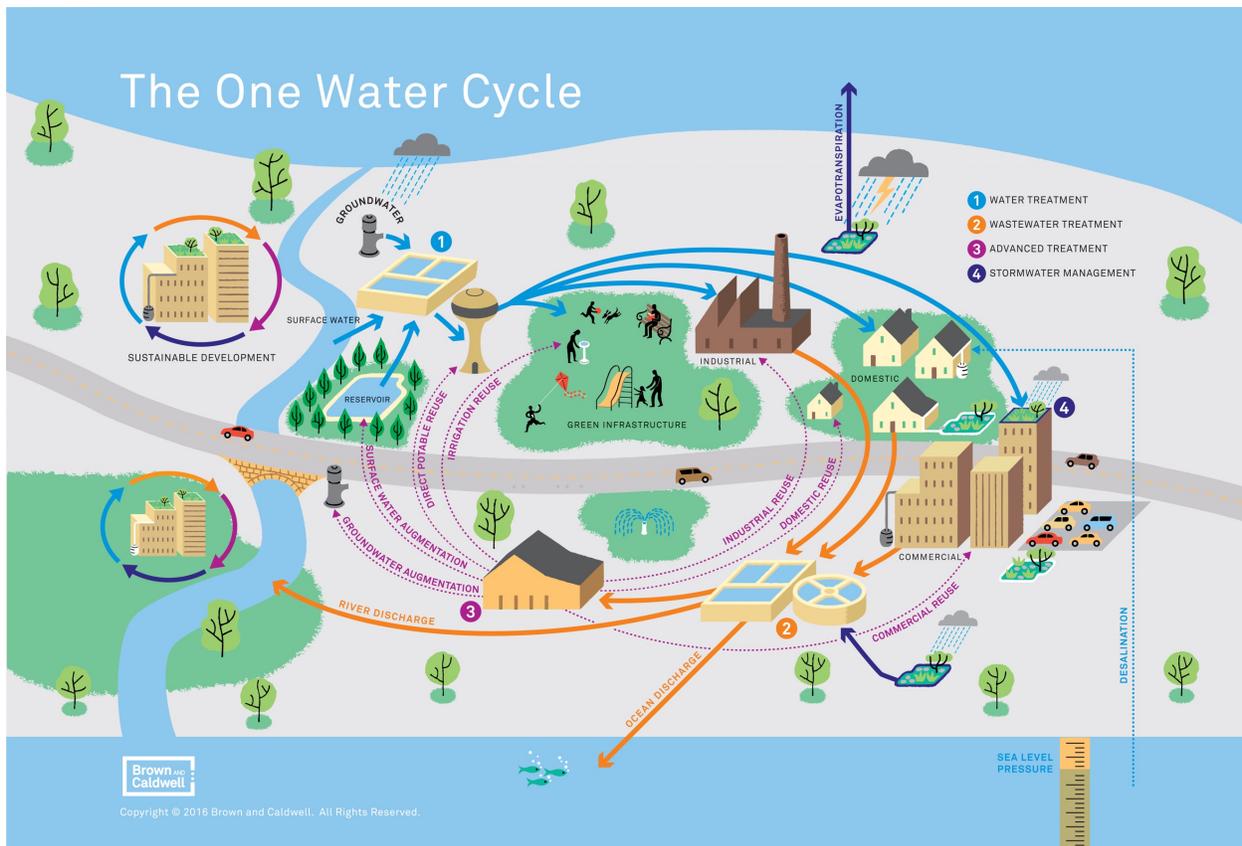
A: Integrated Water Management (IWM), Integrated Water Resource Management (IWRM), or 'One Water' views all water—drinking water, wastewater, stormwater, greywater and more—as resources that must be managed holistically and sustainably. Doing so builds strong economies, vibrant communities, and healthy environments.

### Q: Describe One Water?

A: One Water considers the urban water cycle as a single integrated system, in which all-urban water flows are recognized as potential resources. Integrated water management is practiced through the inclusive and jointly planned control of all water systems—where all waters are resources and are valued and put to use.

- Wastewater is recycled to become drinking water.
- Stormwater is allowed to soak into the ground, supporting healthy river flows that provide drinking water and assimilate waste.
- Drinking water supplies are optimized through efficiency and conservation leaving more water in the river.

This Brown and Caldwell figure from the Water Research Foundation report [Blueprint for One Water](#) provides a visual representation of One Water:



**Q: How is One Water different from traditional urban water management?**

**A:** A traditional approach to water management is dramatically different from a true One Water approach, though many cities currently function somewhere in between these two distinct methods.

The traditional urban water management approach we see results today from an almost 100-year evolution as service delivery functions in cities has expanded. The conventional method favors large-scale, centralized gray infrastructure that manages different water supplies separately, in silos – drinking water is operated independently from wastewater, both of which are controlled separately from stormwater, usually by various city departments or different institutions altogether.

A One Water approach seeks to break the linear and siloed pattern, and instead, consider the urban water cycle as a single integrated system, in which all-urban water flows are recognized as potential resources. Integrated water management is practiced through the inclusive and jointly planned management of all water systems– where all waters are resources and are valued and put to use.

This chart further outlines vital differences between a traditional and a One Water approach.

**Table 1 | Key differences between traditional and integrated urban water management**

ASPECT OF URBAN WATER MANAGEMENT	TRADITIONAL APPROACH	ONE WATER APPROACH
<b>Overall approach</b>	Integration is by accident. Water supply, wastewater and stormwater may be managed by the same agency as a matter of historical coincidence, but physically the three systems are separated.	Physical and institutional integration is by design. Linkages are made between water supply, wastewater, and stormwater as well as other areas of urban development through highly coordinated management.
<b>Collaboration with stakeholders</b>	Collaboration = public relations. Other agencies and the public are approached when approval of a preselected solution is required.	Collaboration = engagement. Other agencies and the public collaborate to identify effective solutions.
<b>Choice of infrastructure</b>	Infrastructure is made of concrete, metal, or plastic.	Infrastructure can also be green including soils, vegetation, and other natural systems.
<b>Management of stormwater</b>	Stormwater is a constant that is conveyed away from urban areas as rapidly as possible.	Stormwater is a resource that can be harvested as a water supply source and retained to support aquifers, waterways, and biodiversity.
<b>Management of human waste</b>	Human waste is collected, treated, and disposed of into the environment.	Human waste is a resource and can be used productively for energy generation and nutrient recycling.
<b>Management of water demand</b>	Increased water demand is met through investment in new supply sources and infrastructure.	Options to reduce demand, include harvesting rainwater and reclaiming wastewater and are given priority over other sources.
<b>Choice of technological solutions</b>	Complexity is neglected and standard engineering solutions are employed to deal with individual components of the water cycle.	Diverse solutions, both technological and ecological, and new management strategies are explored that encourage coordinated decisions between water management, urban design, and landscape architecture.

Source: Based on Pinkham (1999) – adapted by ICLEI (2011).

**Q: What is driving interest in One Water in Texas?**

**A:** When you consider critical factors affecting Texas:

- tremendous population growth (Texas’s population to increase by 70% between 2020-2070);
- growth that is concentrated in our urban centers (currently 85% of Texans live in urban areas);
- projected water demand that exceeds supply (with shortages beginning as early as 2020, a statewide shortage of close to 9 million acre-feet expected by 2070);
- a variable and changing climate; and
- insufficient funding for water infrastructure (state funding SWIFT/SWIRFT funding expected to contribute just 17% of projected water funding needs);

Intense pressure is on our cities to provide the water that communities need now and in the future. While the traditional approach, favoring centralized infrastructure, may be politically preferred, this method is cost prohibitive, time and resource intensive, and lacks the crosscutting benefits that Texas communities expect and deserve. A One Water approach makes way for more flexible, cost-effective alternatives to ensure enough clean water for communities and the environment and deliver additional triple-bottom line benefits to communities.

**Q: How can community leaders and advocates help advance a One Water approach in their area?**

**A:** Community leaders and advocates will play a critical role in advancing a One Water approach in Texas communities. First, we urge you to learn more; more about how your community currently manages water and learn more about One Water. Second, begin a community conversation and find One Water allies to develop a plan with. Third, get plugged into the broader One Water conversation for inspiration, helpful resources and strong learning networks.

Below, we’ve included some additional recommendations and links to great resources and organizations advancing One Water nationally.

**Q: How does One Water benefit communities and people?**

**A:** By transitioning to a One Water approach, communities can see dramatic “triple-bottom-line” benefits ([City Upstream and Down](#), American Rivers, 2016). In addition to helping provide clean, assessable and appropriately priced water, benefits include increased human health and wellbeing, air quality improvements, reduction in heat stress mortality, reduced costs associated with utility services and energy services, reduced disruption from construction and maintenance, increased recreational opportunities and improved property values.

According to a recent survey by the Water Research Foundation, as referenced in the report [Blueprint for One Water](#), many utilities are already realizing a number of benefits by implementing a One Water approach. They conducted a survey and series of interviews, and these are the top reasons communities are applying a One Water approach (in order of importance):

1. Greater resilience and reliabilities
2. Opportunities to optimize regional infrastructure
3. Sustainable community development
4. New regulatory flexibility or opportunity
5. Economic growth opportunity
6. Increased coordination among agencies/departments

**Q. Are there examples of cities in Texas or the U.S. transitioning to a One Water approach?**

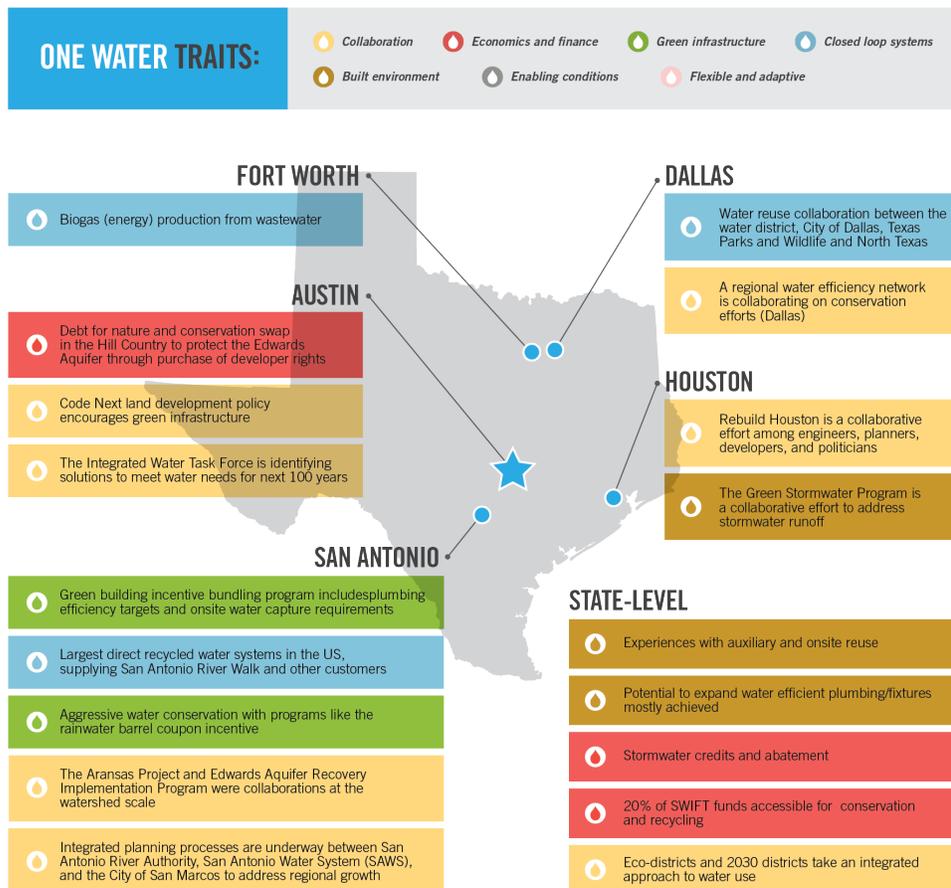
**A.** Cities around the world are strategically planning and implementing a One Water approach.

Similarly, cities from coast to coast in the United States are implementing One Water approaches, based on their own unique set of drivers, with momentum increasing as initiatives are shared, and benefits understood. The report provides two global examples and three examples in the U.S.: Philadelphia, San Francisco, and Los Angeles. For example, Los Angeles has embraced the concept of One Water as the foundation of its collaborative planning across government agencies. The [One Water LA](#) plan provides a framework, vision and implementing a strategy to meet the region’s near- and long-term water supply. It also offers an approach to meet the mayor’s directive to reduce imported water by 50 percent by 2024.

Additional examples of One Water in the U.S. are available in the WRF report "[Blueprint for One Water.](#)"

While by no means an exhaustive list, the authors of One Water in Texas mapped a variety of One Water-aligned activity currently occurring in Texas, as seen in the figure below.

**Figure 5 | Examples of Texas One Water aligned activities**



Source: Authors' analysis

**Q. How does One Water benefit the environment?**

**A.** The way in which communities manage or mismanage water resources has a significant impact on Texas' iconic rivers, aquifers, and lands. In particular, Texas rivers and the ecosystems they support depend on adequate flows, good water quality, and connectivity. Many traditional water supply projects can have a dramatic impact on the amount of water flowing through a system. Additionally, once discharged, improperly treated wastewater can degrade the quality of water and poorly managed stormwater can devastating flood impacts and cause serious water quality challenges.

A One Water approach enhances the natural water cycle within a community and the benefits that come with it. It presents opportunities for environmental benefits to be compared and achieved alongside social and economic benefits.

With this approach, drinking water supplies are optimized through efficiency and conservation leaving more water in rivers and aquifers. By optimizing auxiliary waters – greywater, wastewater, rainwater, and stormwater – drinking water supplies can be further stretched. By using auxiliary waters in a more targeted, decentralized fashion, stormwater, greywater, and rainwater can be better managed for more steady flow resulting in healthier creeks and green spaces to support ecosystems year-round.

**Q: How does One Water benefit the economy?**

**A:** The American Water Works Association report, "*Buried No Longer - Confronting America's Water Infrastructure Challenge*," found that the U.S. must invest approximately \$1 trillion over the next 20 years to properly upgrade deteriorating water systems. And the U.S. Water Alliance's 2017 report [The Value of Water](#) found that the U.S. needs to invest an additional \$82 billion per year in water infrastructure—both natural and traditional—to meet projected needs.

Not unlike our national funding challenges, Texas is struggling with a significant shortfall in funding to develop new infrastructure to meet future demand with SWIFT/SWIRFT funding expected to contribute just 17 percent of projected water funding needed over the next 50 years, let alone maintain current water infrastructure.

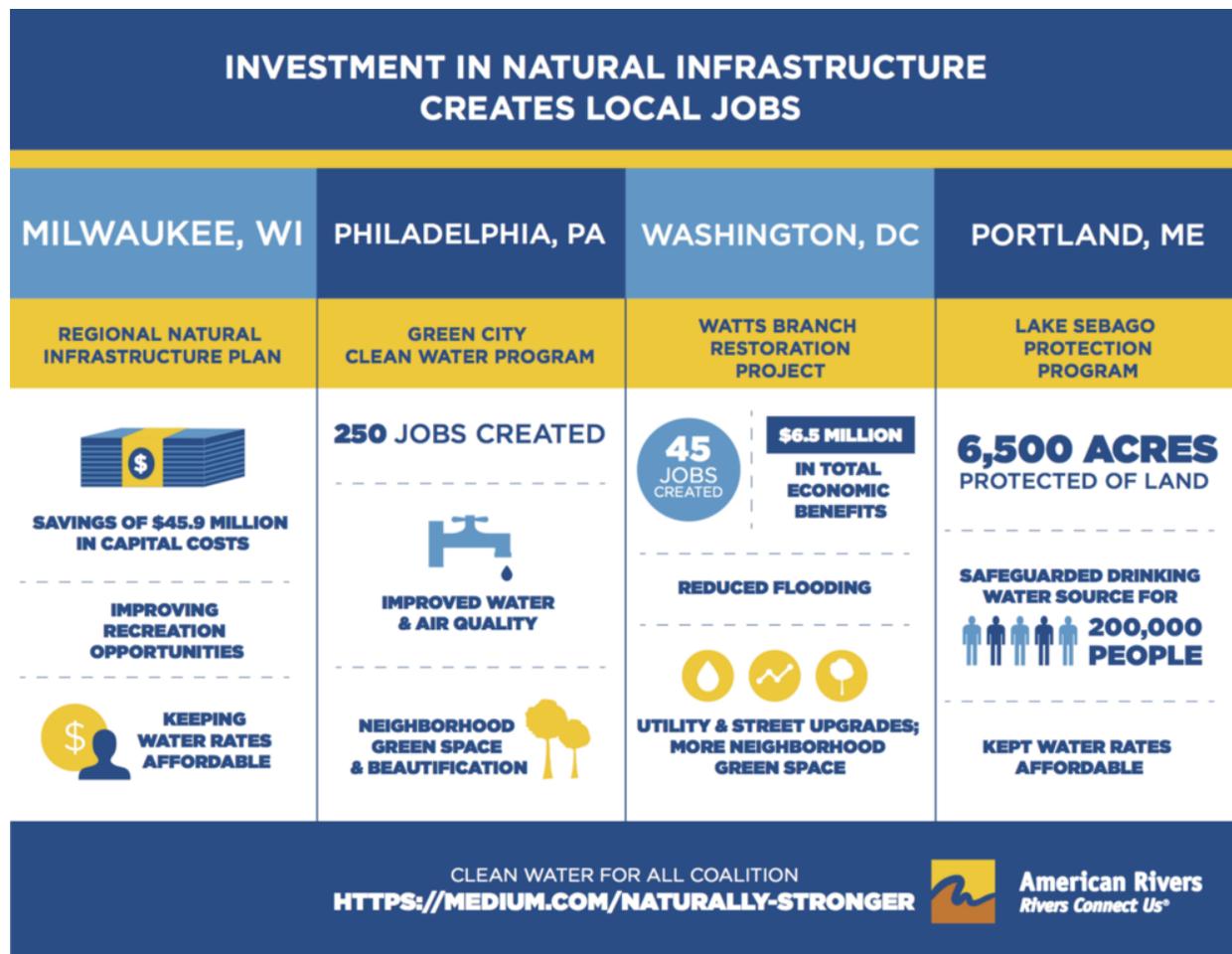
In their 2017 report [Naturally Stronger](#), American Rivers asserts that if this investment gap is closed, over \$220 billion in total annual economic activity will be added to the U.S. economy every year and would sustain approximately 1.3 million jobs over the next 10 years.

The report outlines that in addition to adding to economic growth, investments in natural infrastructure provide future savings, as it is vastly cheaper to protect clean water than to clean up dirty water later. One EPA study, for example, looked across six communities in the U.S. and found that on average every one dollar spent on source water protection saved \$27 in future contamination cleanup costs.

According to a [Brookings Institute report](#), natural infrastructure job growth outpaced traditional job growth at a rate of nearly 2-to-1 in the nation's 100 largest metropolitan centers from 2008 to 2010, providing diverse, career-starting opportunities in growth industries for communities in greatest need.

In contrast to jobs available for gray infrastructure projects, which typically rely on large companies with trained labor pools from outside of the community, these jobs are often local since natural solutions utilize local workers for installation and long-term maintenance.

The following [Clean Water for All Coalition](#) infographic provides a few specific examples of One Water benefits to city economies:



**Q. What are the challenges to and pitfalls of One Water?**

**A.** There are numerous challenges to advancing a One Water approach, primarily because the traditional and still most widely used water management approach is entirely out of sync with this more holistic approach. The inertia that comes with any systemic change challenges One Water advancement. The report looks at barriers to One Water advancement through four institutional lenses: 1) Professional culture & societal values; 2) Policy and planning; 3) Economics and finance; 4) Legal and regulatory. By thoroughly understanding the current limiting factors, the [Mitchell Foundation](#) and One Water advocates can work to remove these barriers and unlock the potential of One Water.

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***Q: Are there additional recommendations and links to resources advancing One Water?***

**A:** The report *Advancing One Water in Texas* provides three broad areas for action and suggests potential activities to continue One Water momentum in Texas, those areas are: 1) advance One Water through state, regional, and city policy; 2) build across silos (or break them down); and 3) mainstream pilots and demonstrations.

Tangible and relevant “first steps” for communities and community leaders can be found in the Water Research Foundation report [Blueprint for One Water](#). This document affords a straightforward framework with five key phases: 1. Setting the foundation, 2. Establishing direction, 3. Developing the framework, 4. Implementation and; 5) Engaging stakeholders. This clear, easy-to-understand report outlines these five phases, identifies essential actions to advance each step forward, and provides vital outcomes, potential challenges, and lessons learned from other water utilities across the United States.

Many nongovernmental organizations across our nation are hard at work building a One Water movement. In Texas, the Texas Living Waters Project is a strong advocate for conservation and efficiency. In spring of 2018, they will host a webinar series focused on One Water in Texas.

American Rivers’ online [Integrated Water Management Resource Center](#) provides a straightforward outline of next steps and a wealth of resources to support advocates in their efforts.

In addition to convening the [One Water Summit](#) annually, the [US Water Alliance](#) maintains a network of communities and leaders advancing One Water, provides a wealth of resources on their website such as [An Equitable Water Future: A National Briefing Paper](#).

The [WaterNow Alliance](#) maintains a forum for local leaders (executive managers and appointed or elected decision makers, including utility governing board members, city council members, mayors, and commissioners) to connect, learn, engage and act to advance sustainable water strategies, solutions and opportunities.