

# Ecosystems as Infrastructure

Sustainable Economic Stimulus Requires Decentralized Water Treatment Systems

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## We Are Here

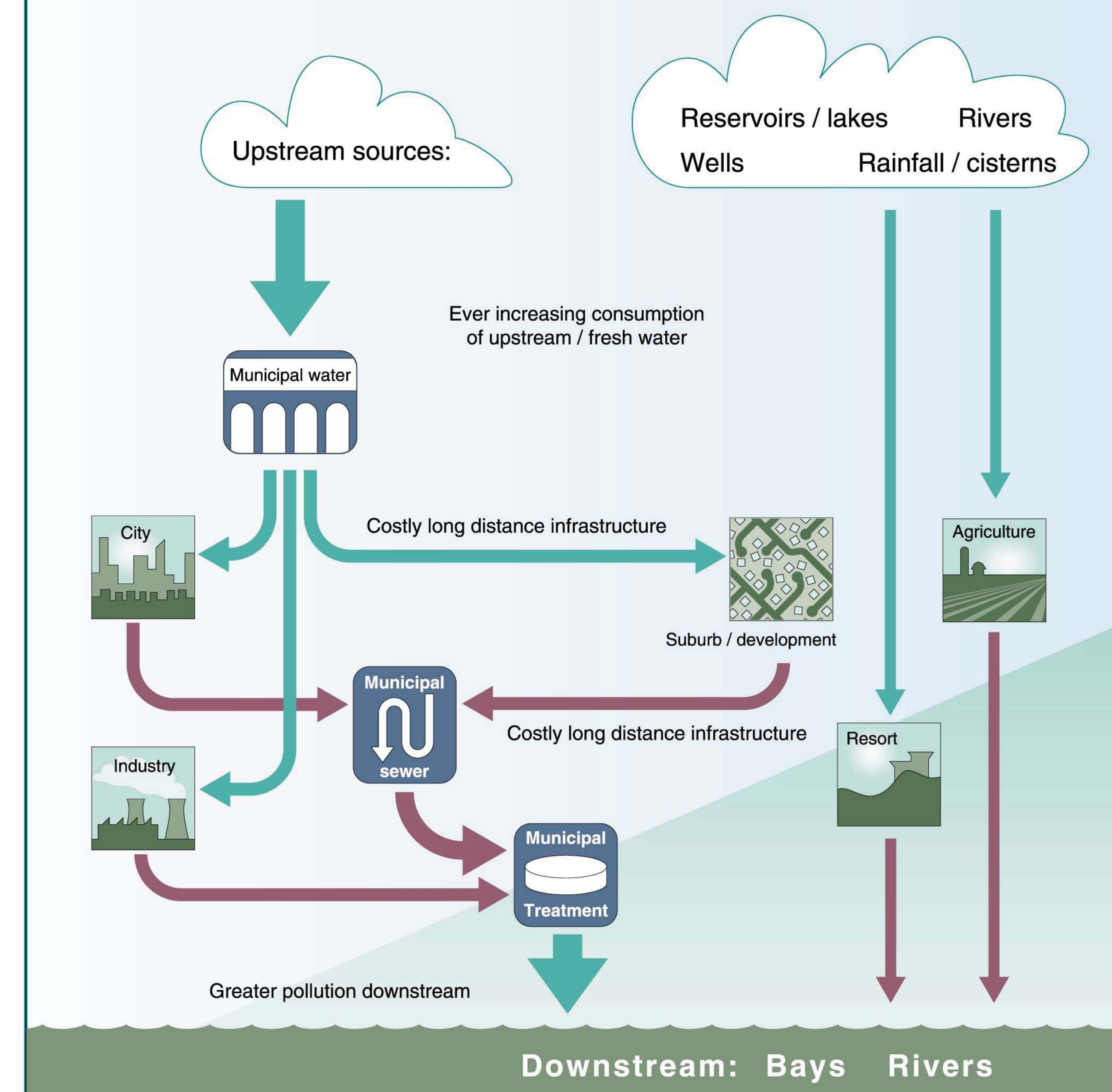
- Centralized
- Once through
- Technology based
- Energy intensive
- Complex infrastructure
- Extensive GHG emissions
- High maintenance
- Inefficient water use
- Drains water resources
- Pollutes downstream
- Drains the economy

## We Could Be Here

- Decentralized
- Extensive water reuse
- Ecologically based
- Low energy
- Simple infrastructure
- Minimized GHG emissions
- Low maintenance
- Efficient water use
- Restores resources
- Protects downstream
- Sustains the economy

Roman Era to present era (what we have now):

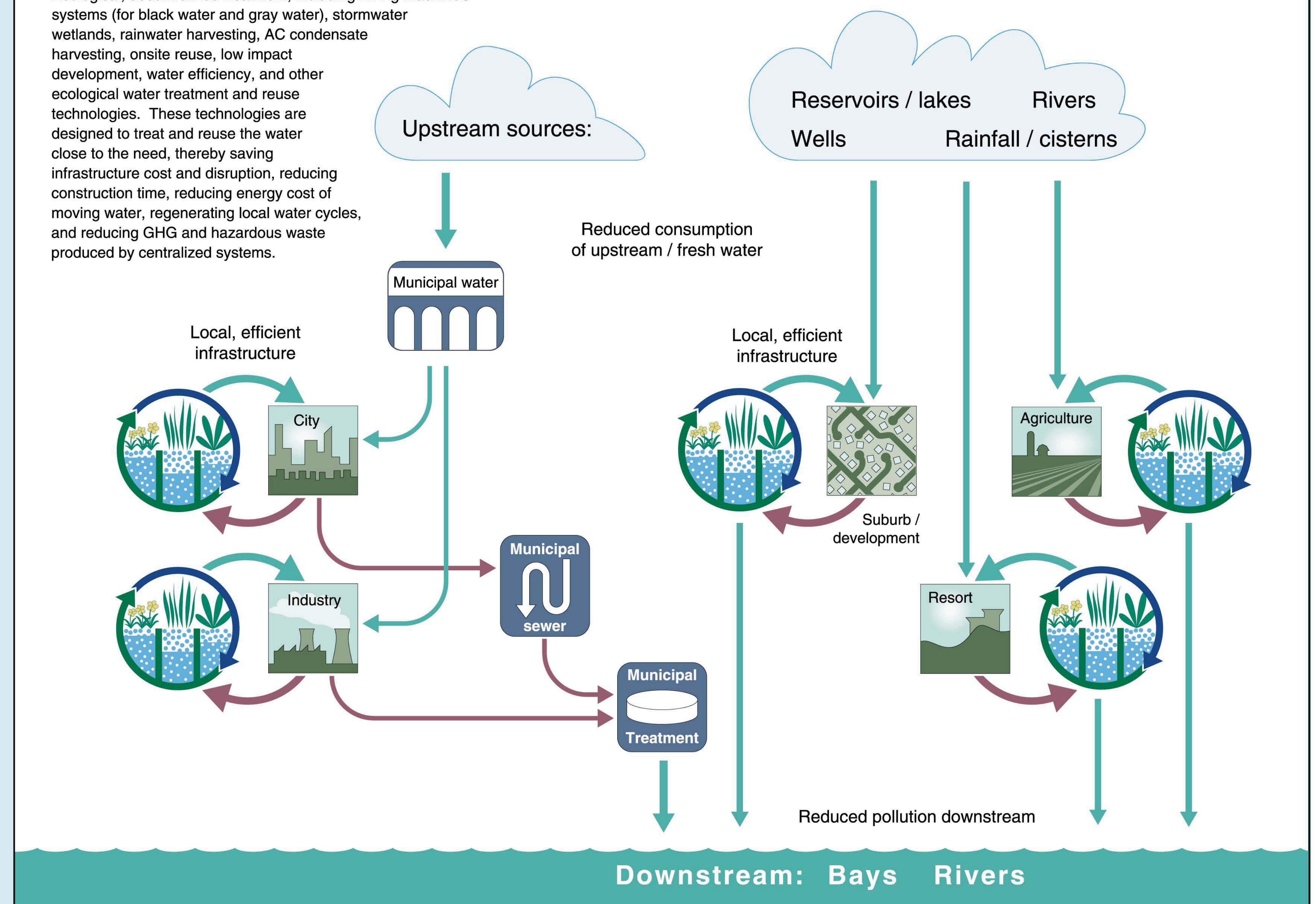
## Centralized, "once through" system



21<sup>st</sup> Century (what we need now):

## De-centralized, ecological, on-site recycling system

Ecological, decentralized treatment, including Living Machine® systems (for black water and gray water), stormwater wetlands, rainwater harvesting, AC condensate harvesting, onsite reuse, low impact development, water efficiency, and other ecological water treatment and reuse technologies. These technologies are designed to treat and reuse the water close to the need, thereby saving infrastructure cost and disruption, reducing construction time, reducing energy cost of moving water, regenerating local water cycles, and reducing GHG and hazardous waste produced by centralized systems.



## TRANSITION

- Rehabilitate and extend life of critical infrastructure
  - Decentralize new construction:
  - Create/enhance local water cycles
  - Apply ecological systems approach to:
  - Increase efficiency of energy and water use and REUSE
  - Integrate with other economic activity:
- Fund diverse, localized solutions
  - Set performance standards
  - Build modular systems
  - Treatment technology
  - Regional water systems
  - Create business opportunities
  - Create jobs

➡ Polluted water  
➡ Clean water

Legend:



Living Machine® or other ecological treatment



www.livingmachines.com



www.worrellwater.com