

Progressive Planning for Financially Robust Water Systems: Financing Framework for the Shifting Paradigm

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Paradigm Shift in the Water Sector

- Big data
- Information Technology
- Modern platforms and decision making tools
- Innovative Financing Mechanisms

Population Growth, Aging Infrastructure, Climate Change, and Stricter Environmental Regulations

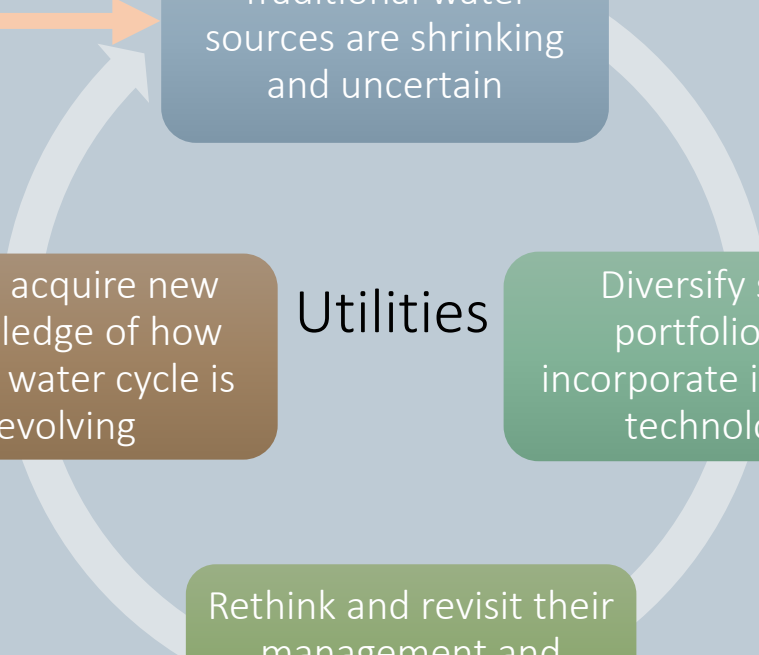
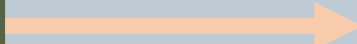
Traditional water sources are shrinking and uncertain

Must acquire new knowledge of how urban water cycle is evolving

Utilities

Diversify supply portfolios and incorporate innovative technologies

Rethink and revisit their management and governance tools



Paradigm Shift in the Water Sector

Centralized

Decentralized

Infrastructure

Traditional management strategies are no longer appropriate

Traditional top-down management strategies are no longer appropriate

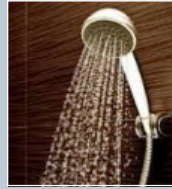
Customer behavior is changing, end-users are playing a more vital role

Role of utilities is shifting both within the water sector and with their customers



Rethinking Supply

- Source protection and watershed management
- Stormwater capture
- Graywater systems
- Treated wastewater
- Conjunctive use
- Desalination



Rethinking Demand

- Reduce waste and increase efficiency,
- Rethink economic priorities
- Education and outreach strategies



Rethinking Governance

- Water data monitoring and collection
- Cross-sector resource management
- Regional water management
- Financing

RISK

Financial

- Rate of return on investment
- Water rate structure and full cost recovery
- High Costs (implementation and long-term O&M)
- Project size

Governance

- Fragmentation
 - Geographical
 - Institutional (federal, state and local)
 - Financial
 - Sectoral
- Water rights laws and codes
- Institutional capacity
- Policies, regulatory timeline

Technical and Technological

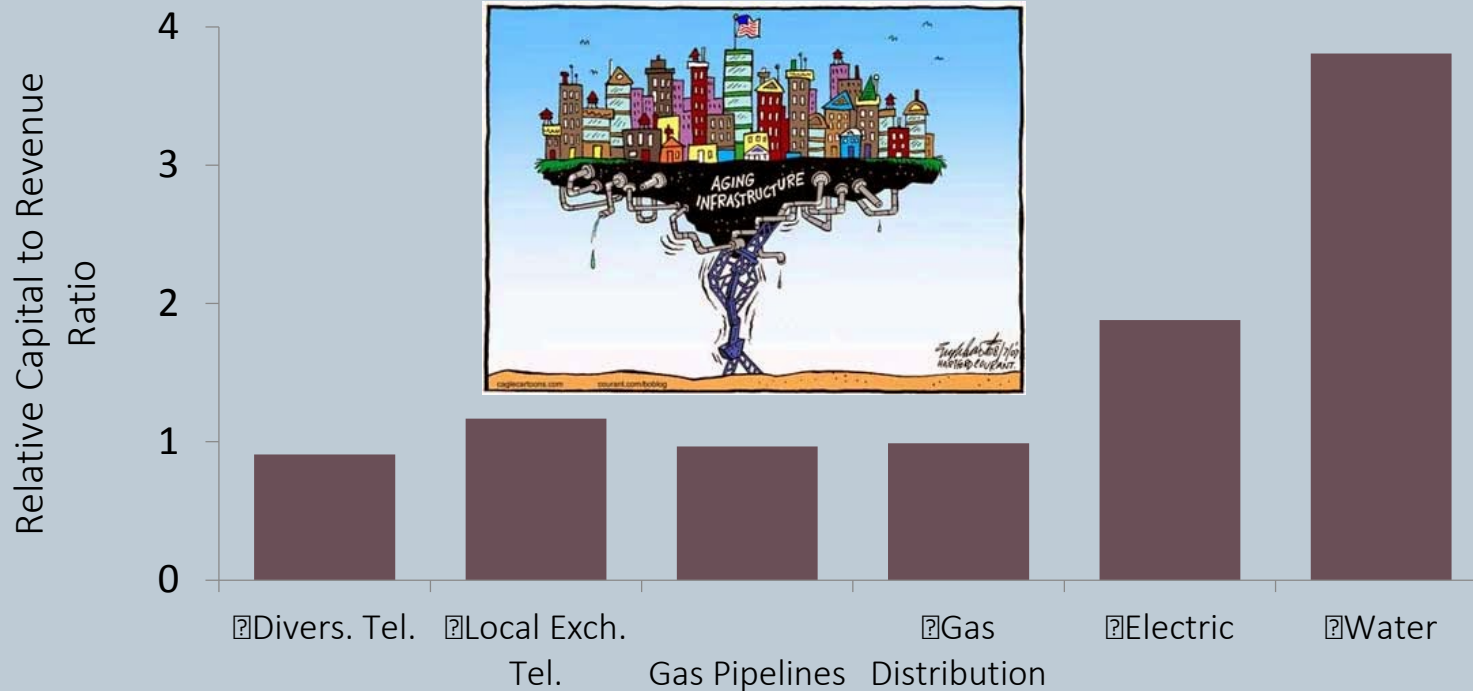
- Performance/track record
- Reliability
- Public safety and health
- Market penetration
- Technological Capacity
- Drop in water demand and In accurate demand forecasting

Exogenous

- Climate Change
- Political turmoil and instability
- Financial market
- Community resistance
- Change in demand levels

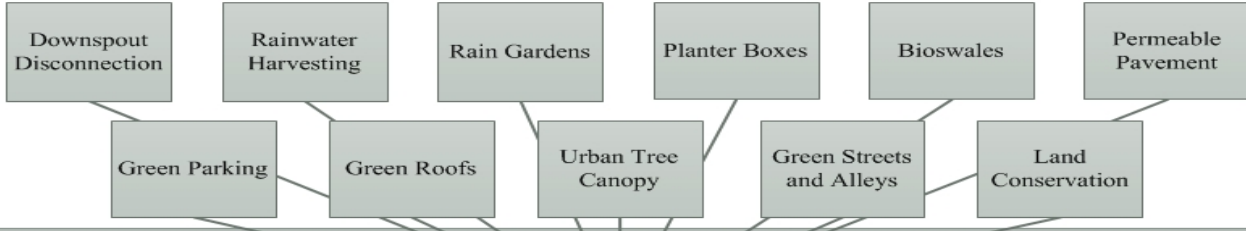
A Hidden System

Relative capital investment to revenue for several utility services in the US

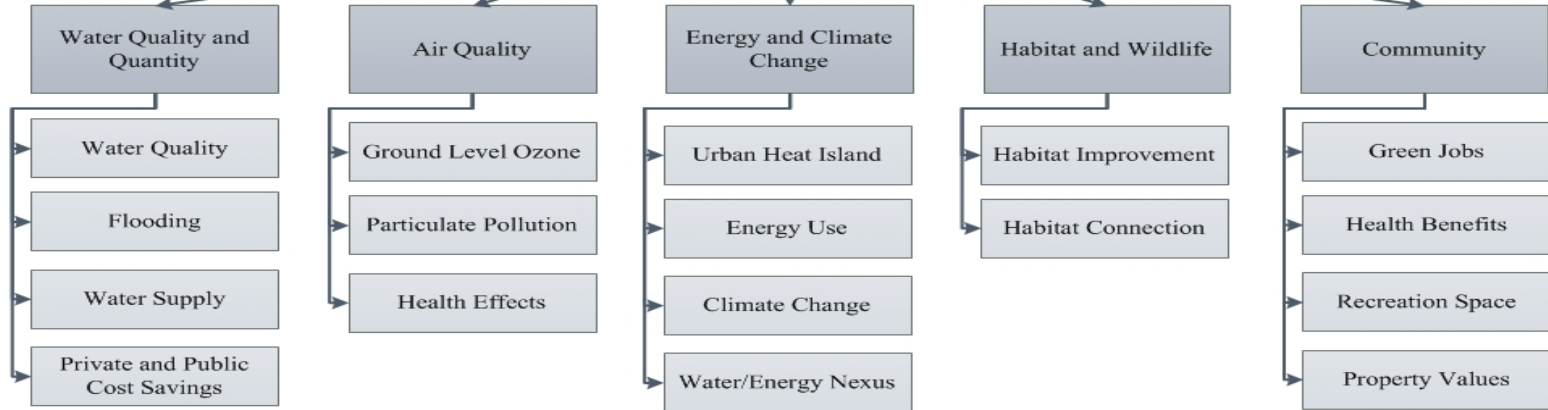


Source: Global Water Intelligence, 2010

Green Infrastructure



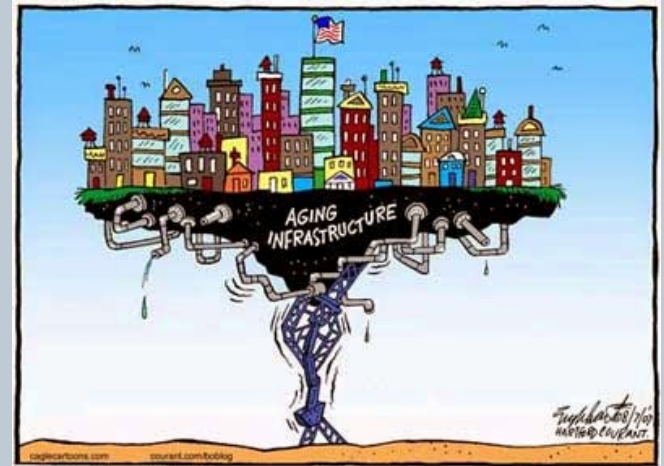
Low Impact Development (LID)




Benefits

Financing Water – How?

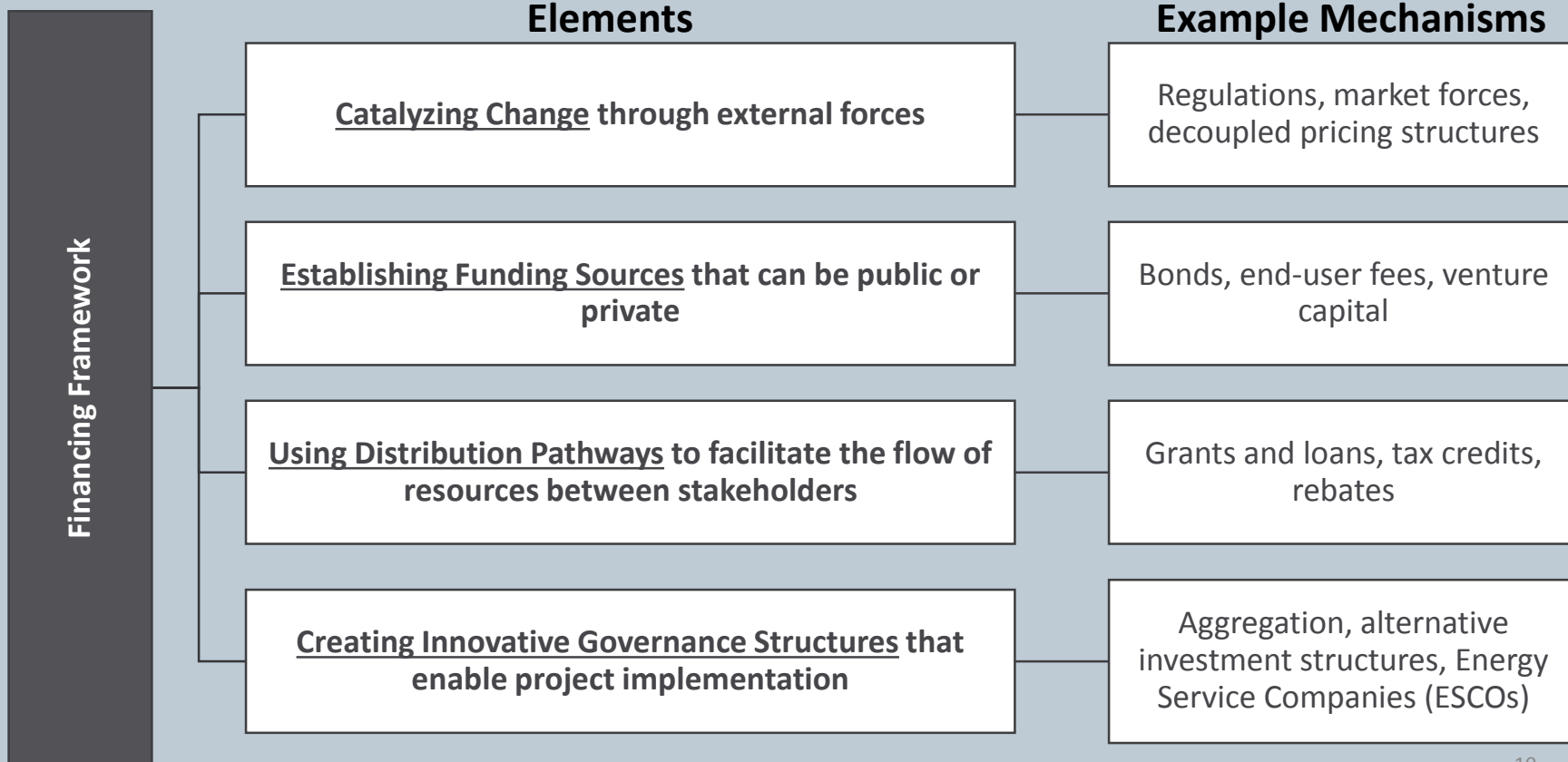
- ❑ Limited federal and state funding: grants, subsidies, and tax exemptions for municipal bonds
- ❑ Increasing pressures require renewed investment and innovative ways to fund new solutions to aging infrastructure





Looking to the Electricity Sector: How to Finance Decentralize Systems

Innovative Financing Framework

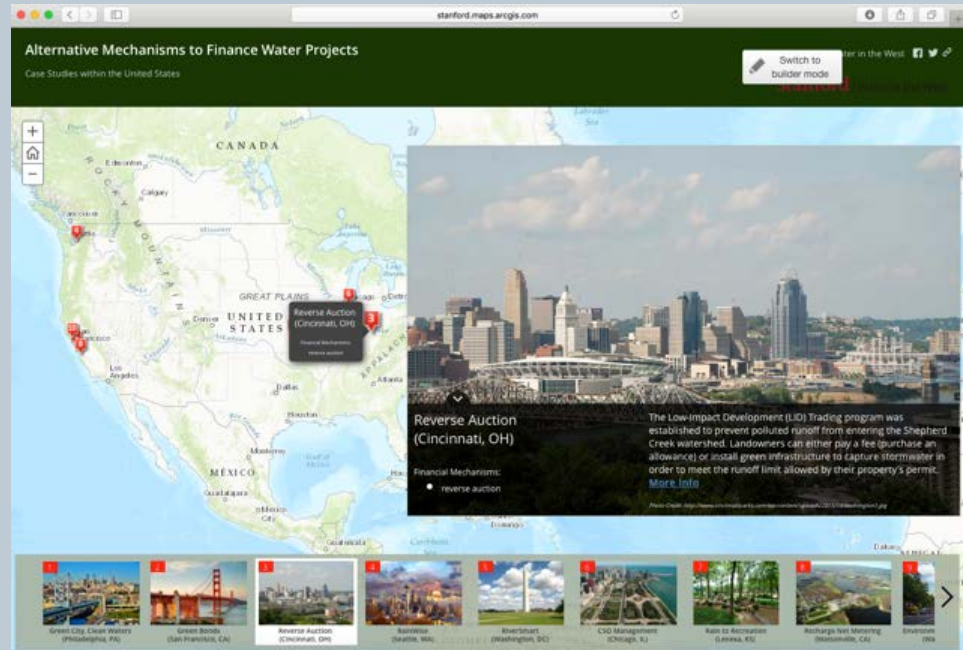


Case Studies in the Water Sector

Financing Water Projects- Living Map

Mechanisms Highlighted:

- Stormwater Fees
- Reverse Auction
- Performance-Based Rebates
- Stormwater Credit Trading Program
- Grant Programs
- Environmental Impact Bond
- Project Aggregation
- Community Based P3



Thank you

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Resources: <https://goo.gl/WIM3jA>

Living Map: <http://arcg.is/2onr2Do>

