Building Back Blue

Financing and Funding Nature Based Solutions for Integrated Urban Flood Management

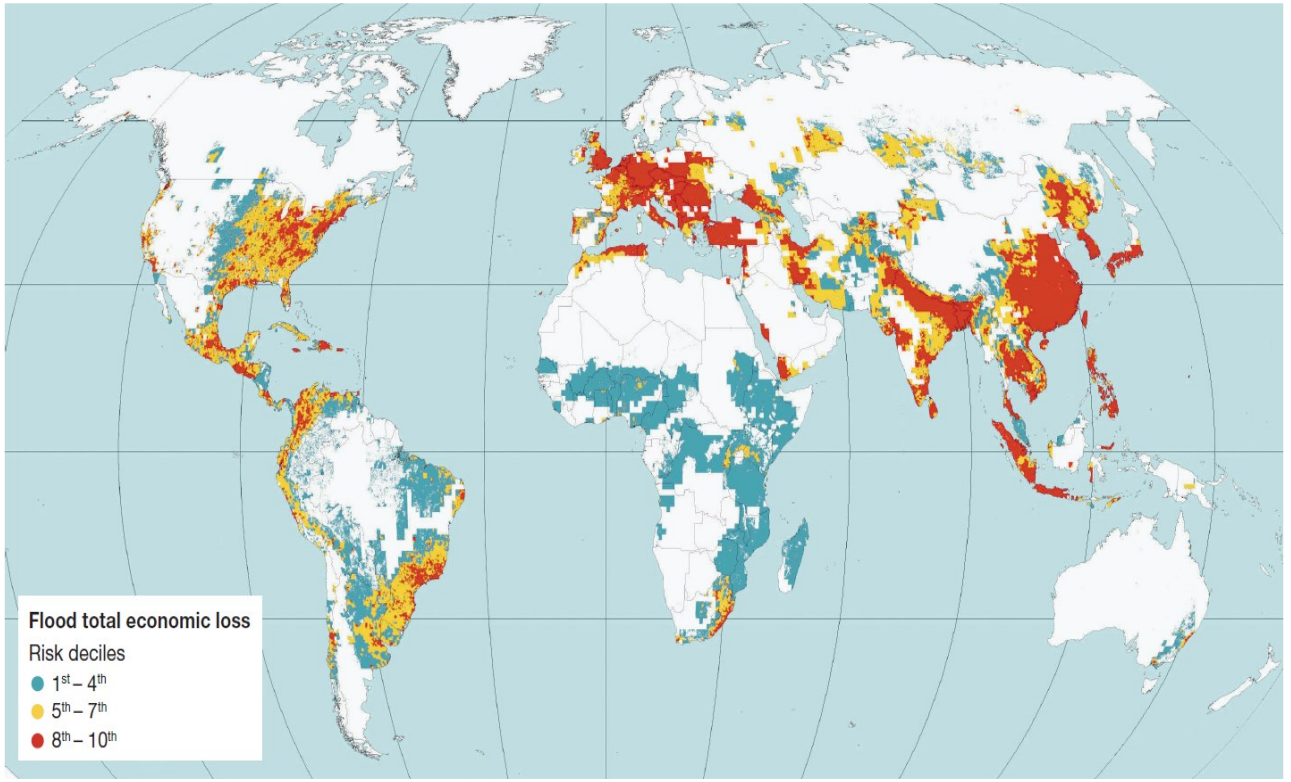
GWSP GLOBAL WATER SECURITY & SANITATION PARTNERSHIP

CRC for Water Sensitive Cities

世界银行集团 WORLD BANK GROUP

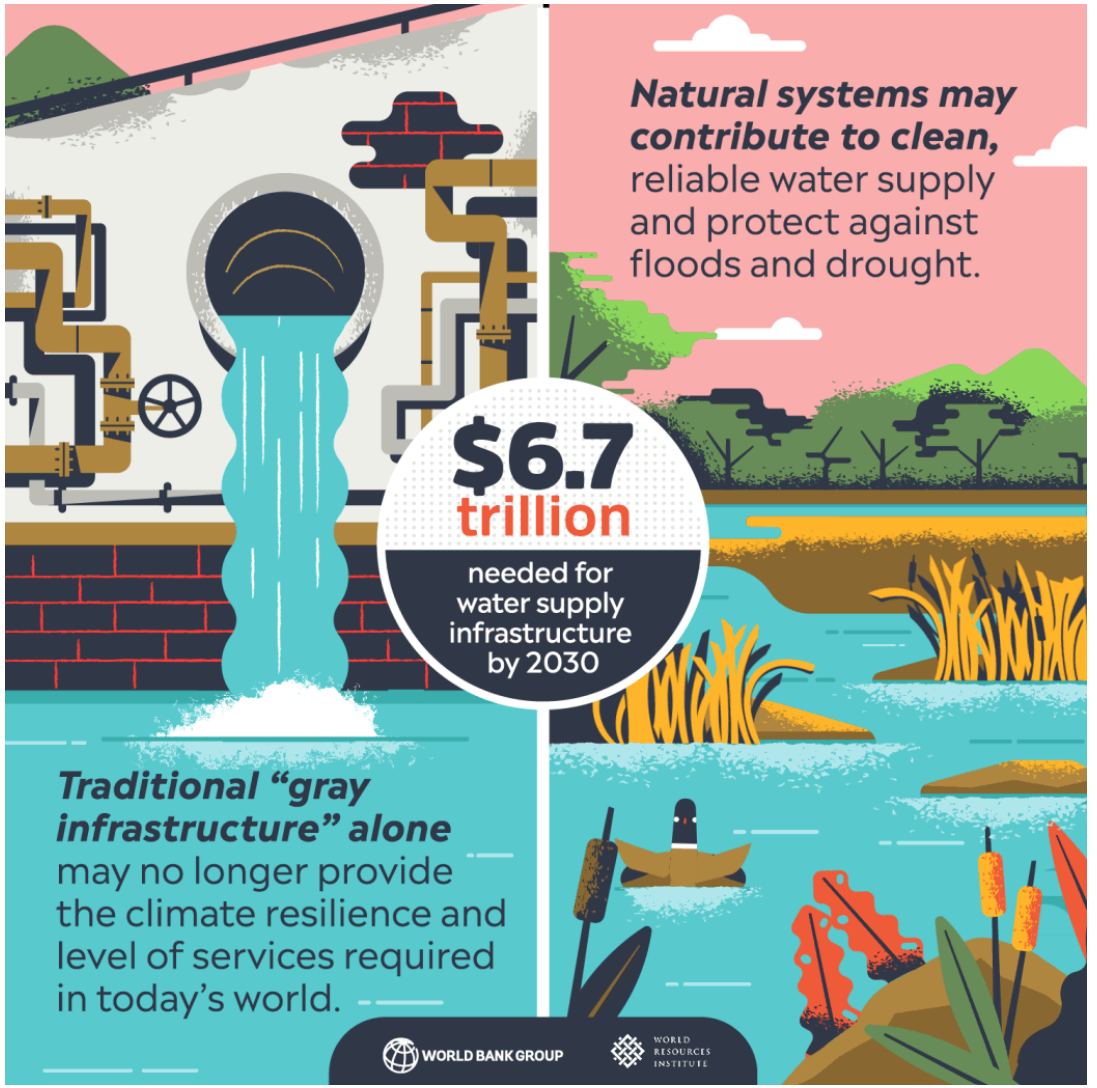
GFDRR Global Facility for Disaster Reduction and Recovery

Context : Increasing Exposure to Flood Risks

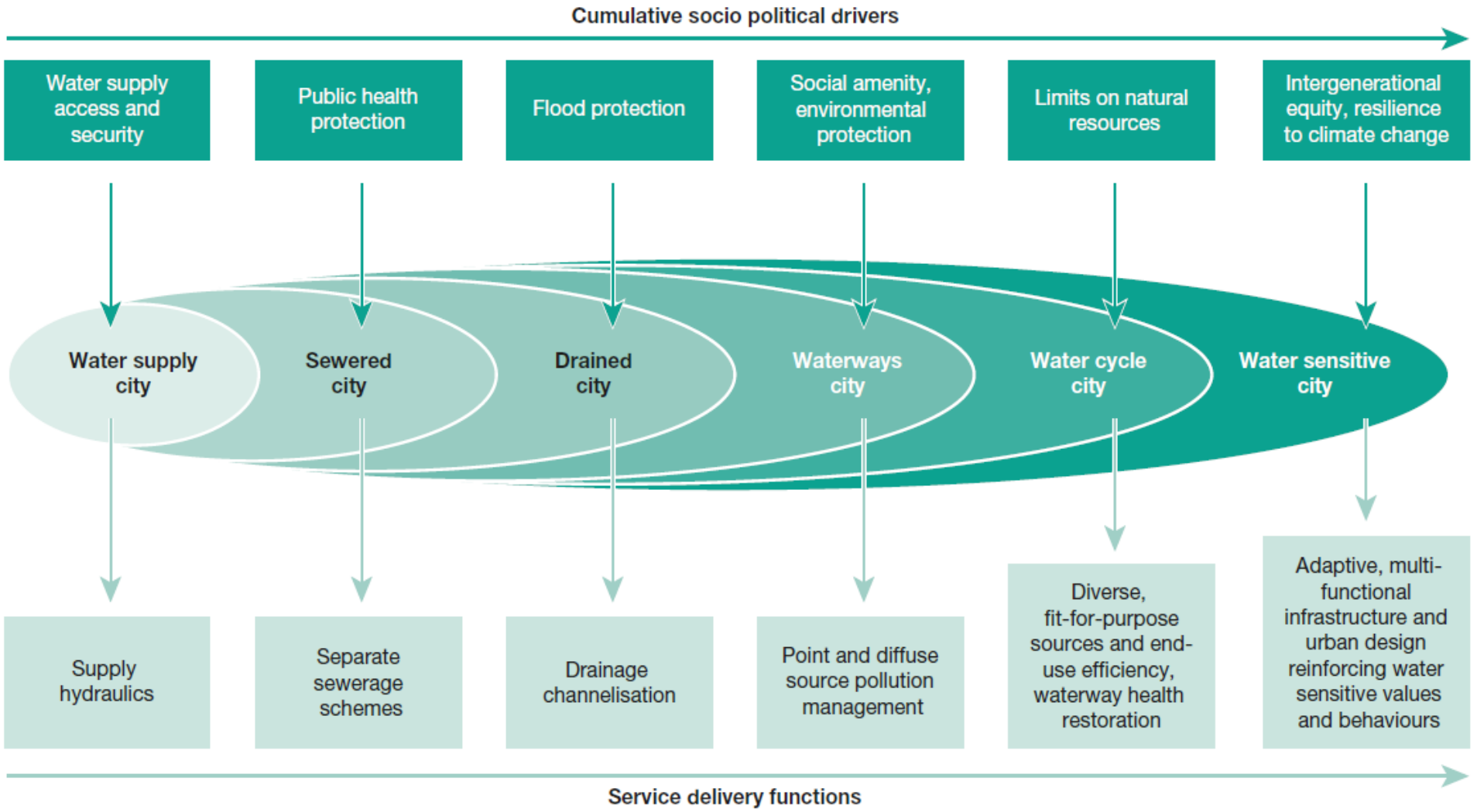


Context : Valuing the Benefits of Nature

Built	Hybrid	Natural
Hard, gray, engineered structures built to address dvpt. objectives	Combination of ecosystem elements & hard engineering interventions for addressing development objectives	Creation, protection or restoration of only ecosystem elements for addressing development objectives



Urban flooding investments better reflect the value offered by nature based solutions and hybrid approaches



Source: Brown, Keath, and Wong 2009.

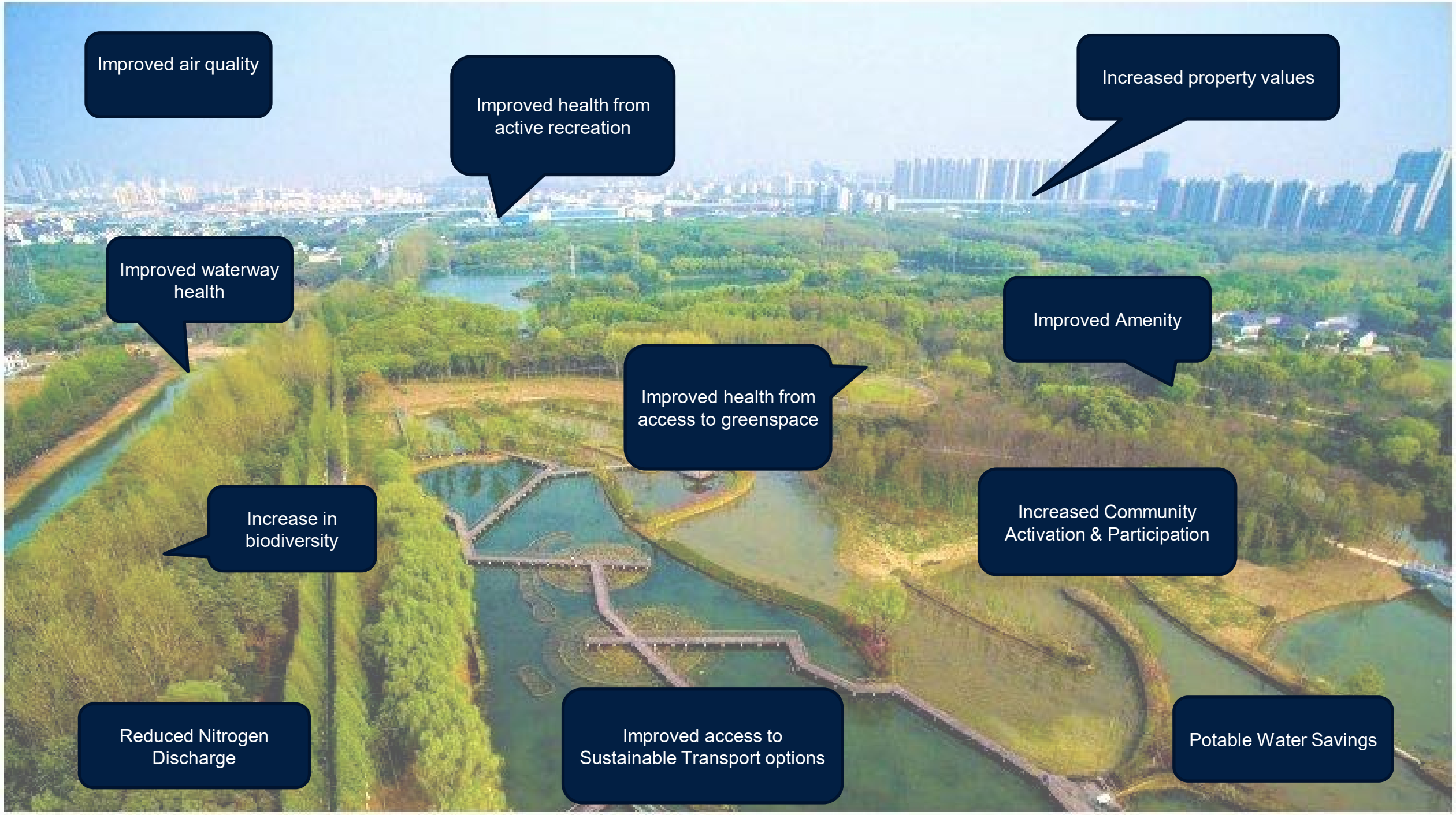
Moving from a focus on reducing cost of flooding to …

…to maximising range of benefits and overall value to community and ..

…integrating water cycle considerations with other city shaping investments

Moving from a road project ...

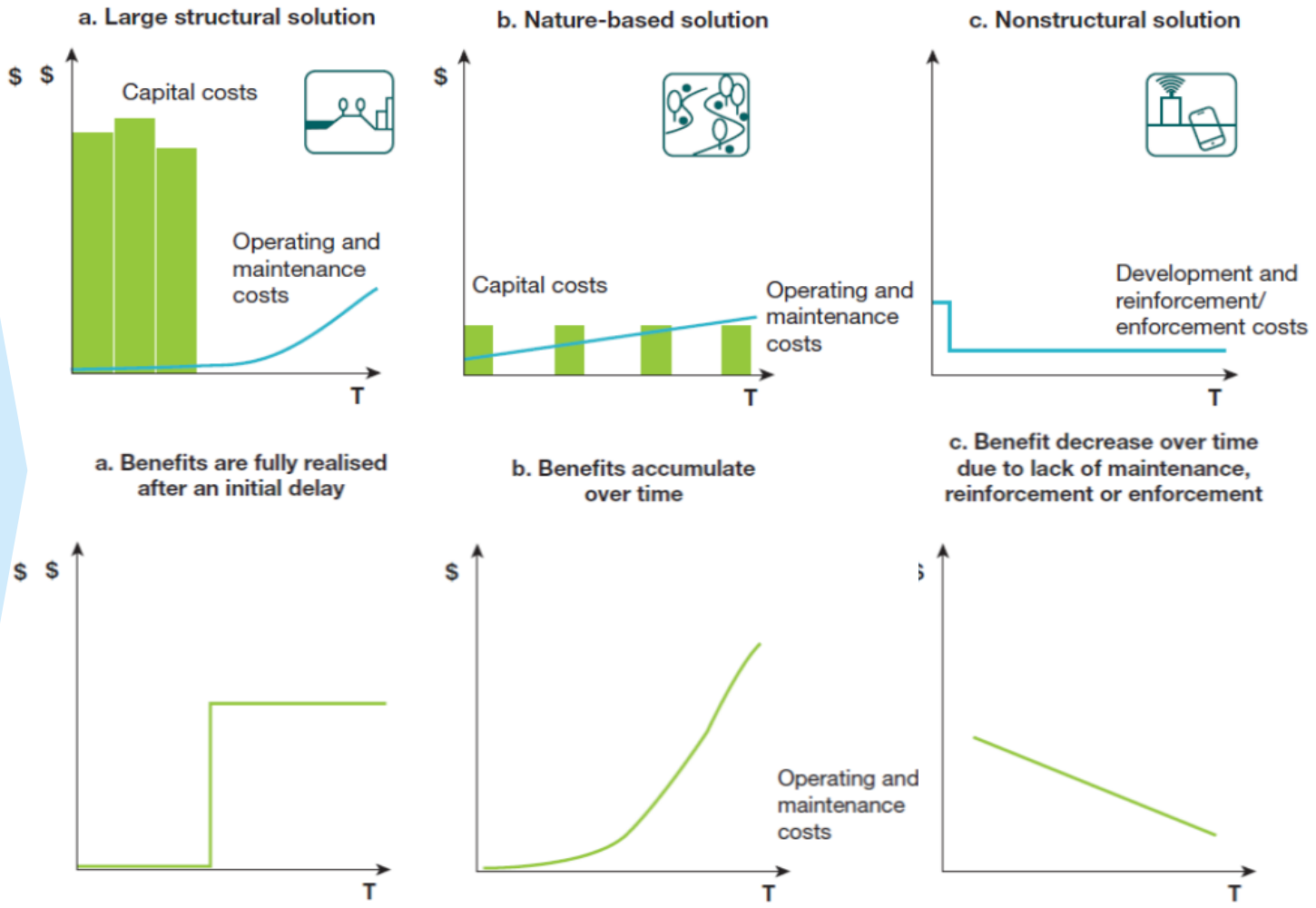
…to a multifunctional corridor


Improved air quality
Improved health from active recreation
Increased property values
Improved waterway health
Improved Amenity
Improved health from access to greenspace
Increase in biodiversity
Increased Community Activation & Participation
Reduced Nitrogen Discharge
Improved access to Sustainable Transport options
Potable Water Savings

Going to Scale : Financing and Funding Options

Costs

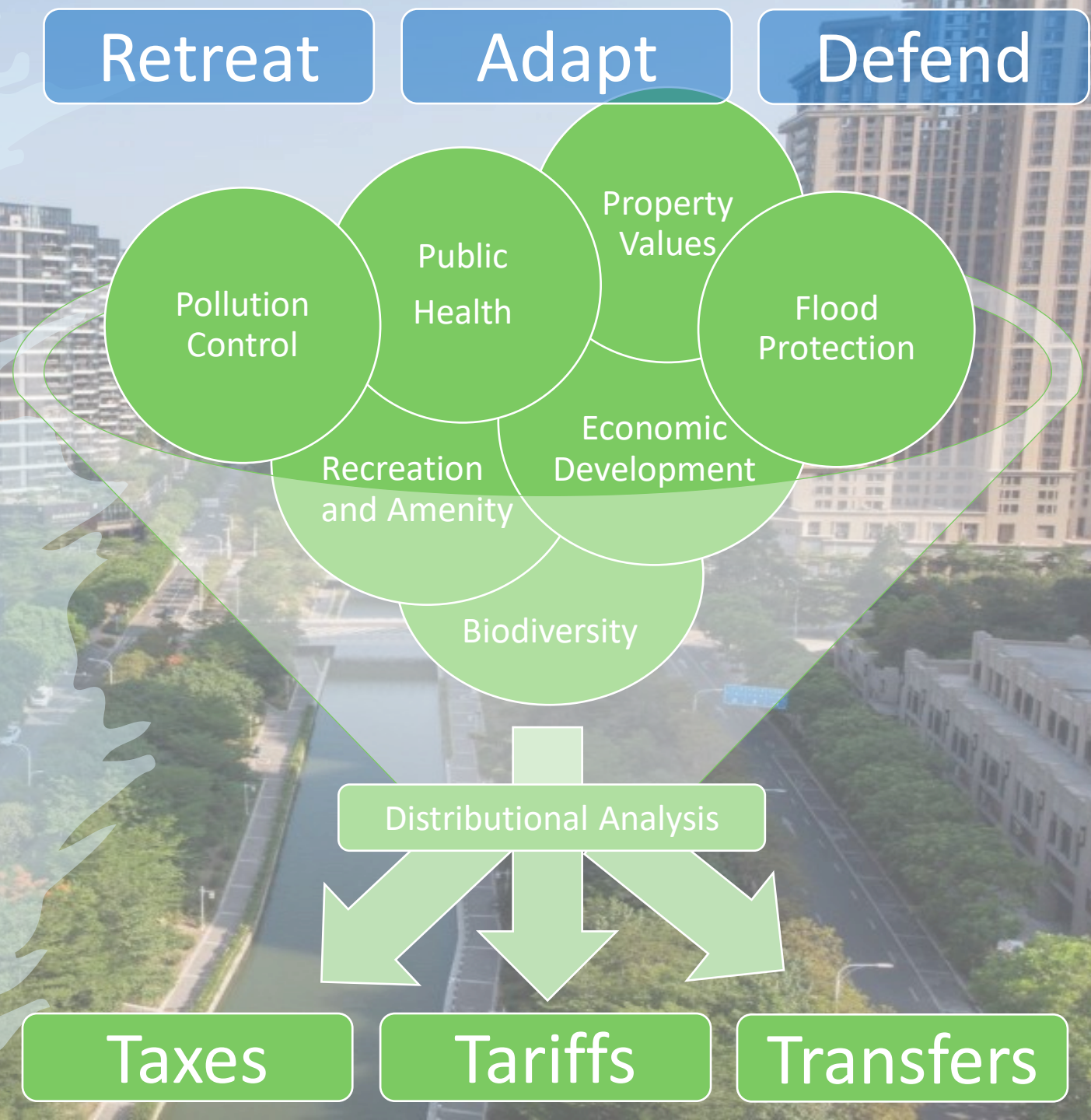
- Capital Maintenance
- Financial Cost
- Operation and Maintenance
- Investment Costs



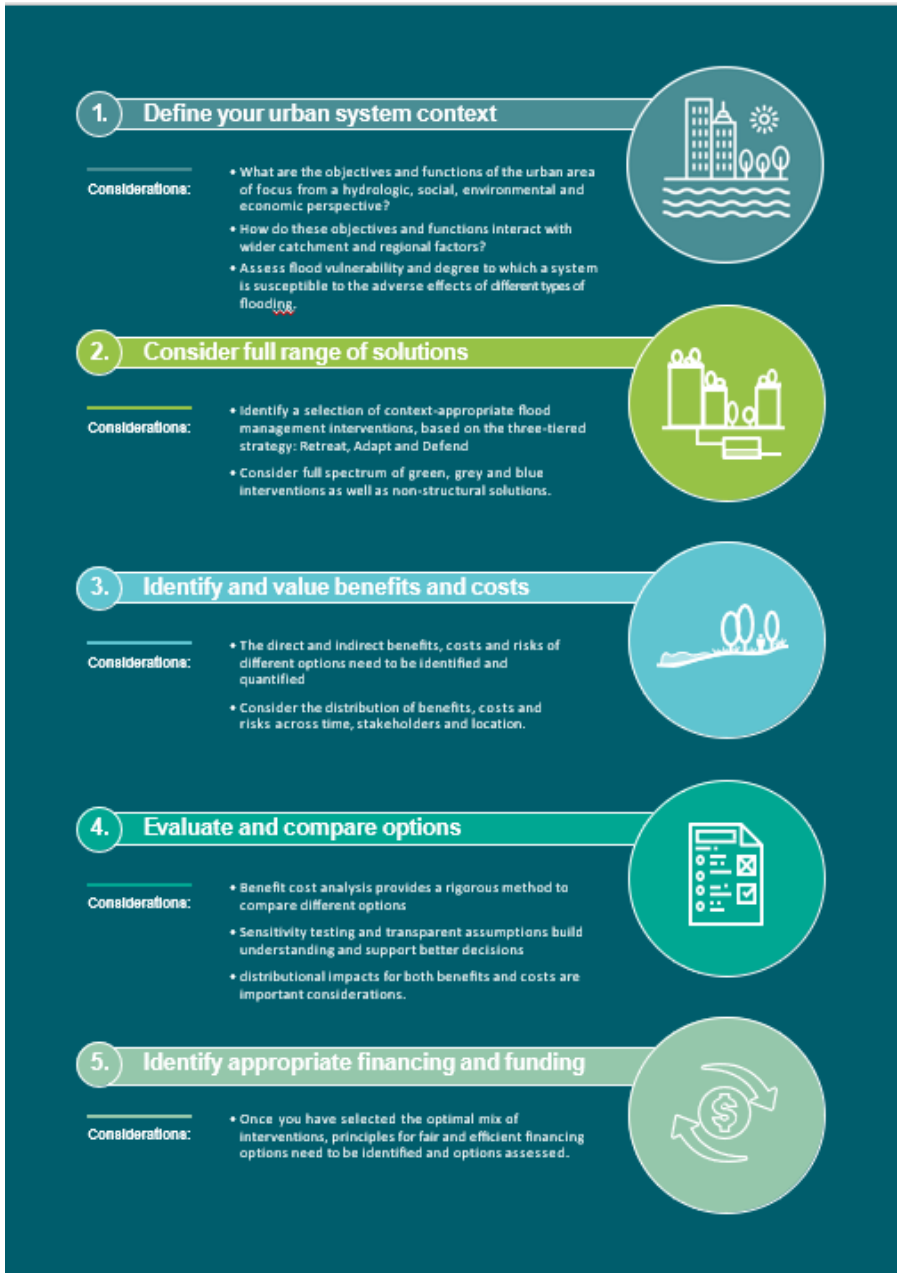
Funding

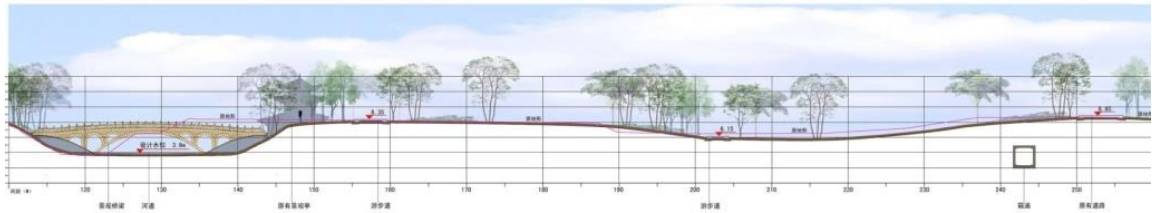
- Financing gap
- Transfers
- Taxes
- Tariffs / Service Charges

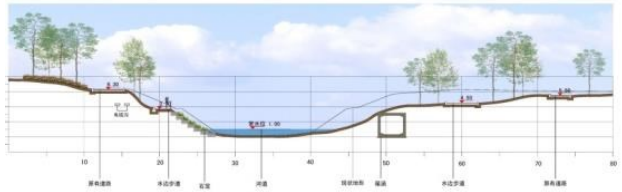
An Integrated Urban Flood Management Framework

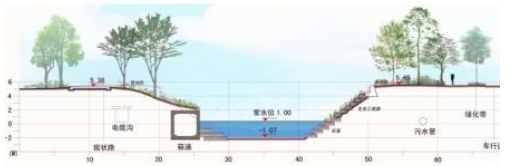


Going to Scale : Evaluating the Benefits (and Costs)









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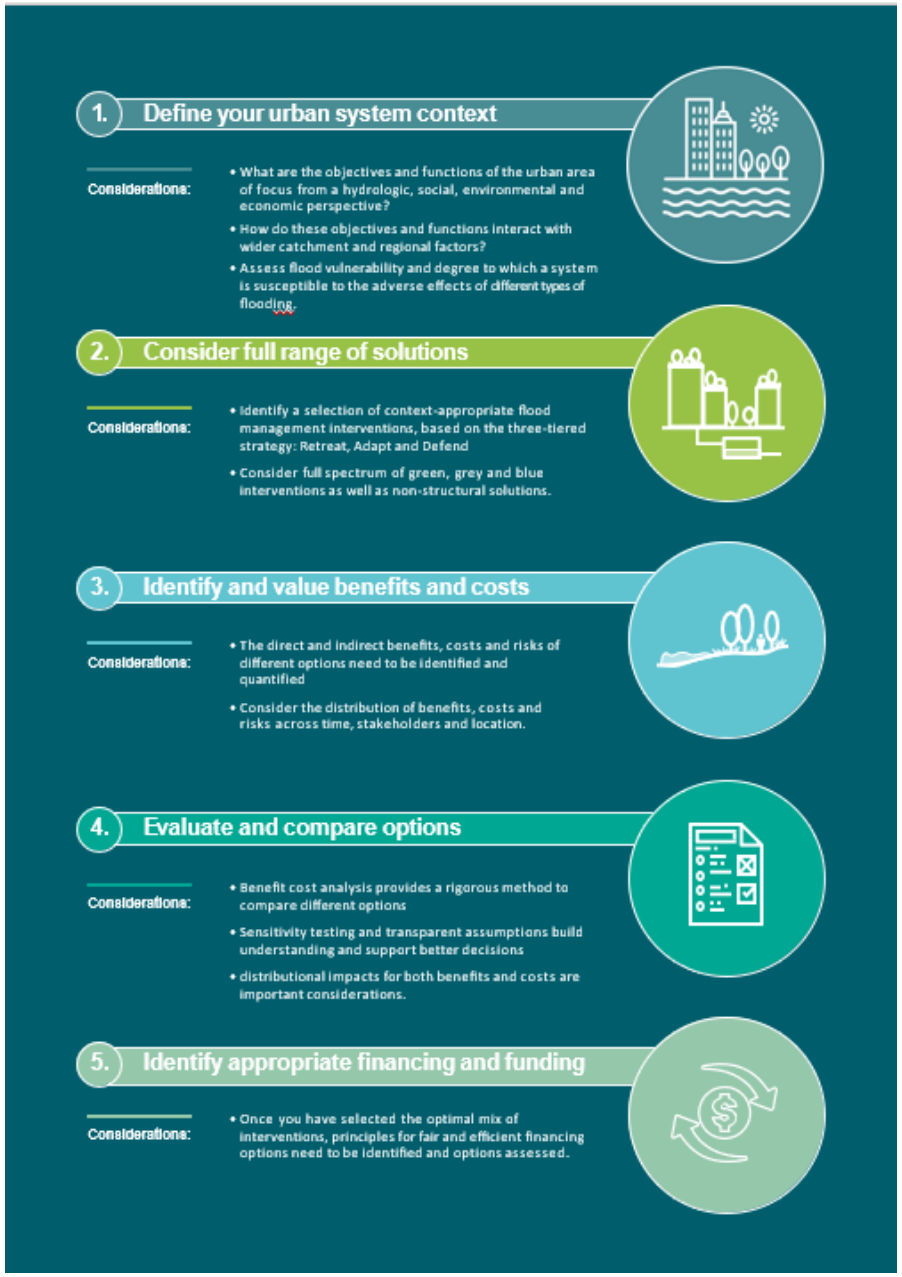
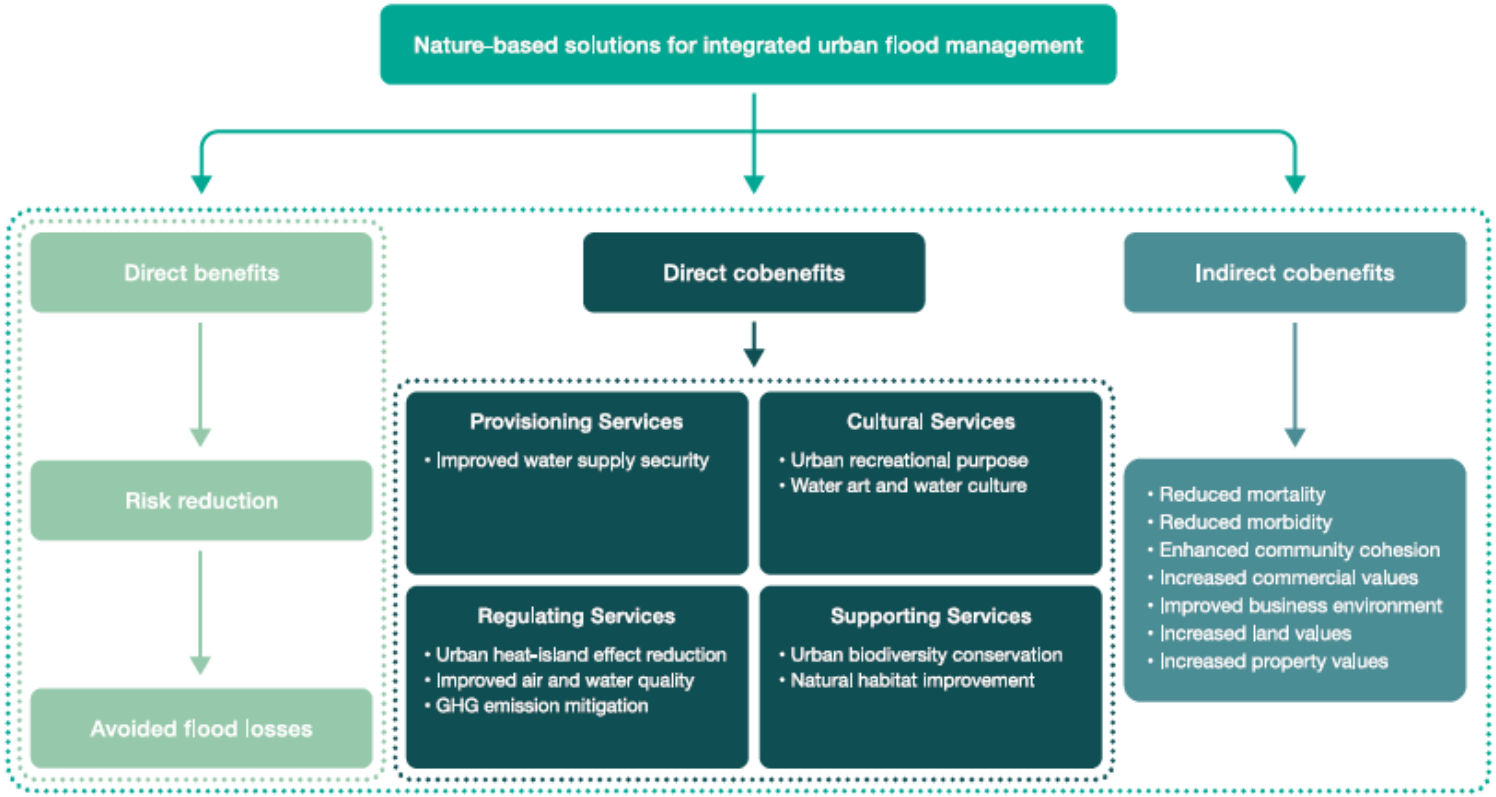




Going to Scale : Assessment Tools

1. Define your urban system context

Considerations:

- What are the objectives and functions of the urban area of focus from a hydrologic, social, environmental and economic perspective?
- How do these objectives and functions interact with wider catchment and regional factors?
- Assess flood vulnerability and degree to which a system is susceptible to the adverse effects of different types of flooding.

2. Consider full range of solutions

Considerations:

- Identify a selection of context-appropriate flood management interventions, based on the three-tiered strategy: Retreat, Adapt and Defend
- Consider full spectrum of green, grey and blue interventions as well as non-structural solutions.

3. Identify and value benefits and costs

Considerations:

- The direct and indirect benefits, costs and risks of different options need to be identified and quantified
- Consider the distribution of benefits, costs and risks across time, stakeholders and location.

4. Evaluate and compare options

Considerations:

- Benefit cost analysis provides a rigorous method to compare different options
- Sensitivity testing and transparent assumptions build understanding and support better decisions
- distributional impacts for both benefits and costs are important considerations.

5. Identify appropriate financing and funding

Considerations:

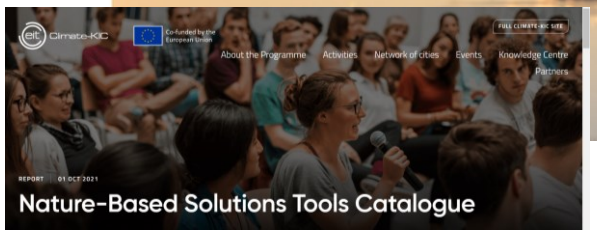
- Once you have selected the optimal mix of interventions, principles for fair and efficient financing options need to be identified and options assessed.

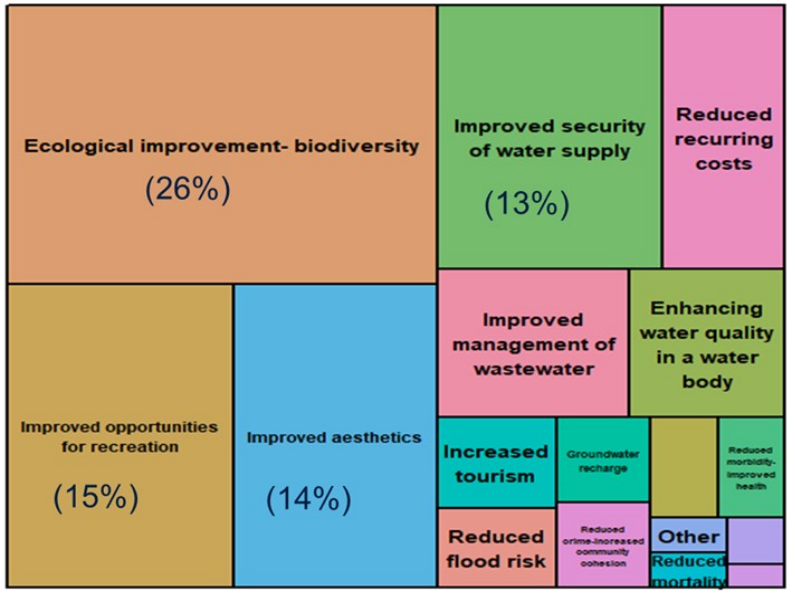
InVEST User Guide

URBAN NATURE NAVIGATOR

Check out this tool to assess the potential contributions of different types of nature-based solutions

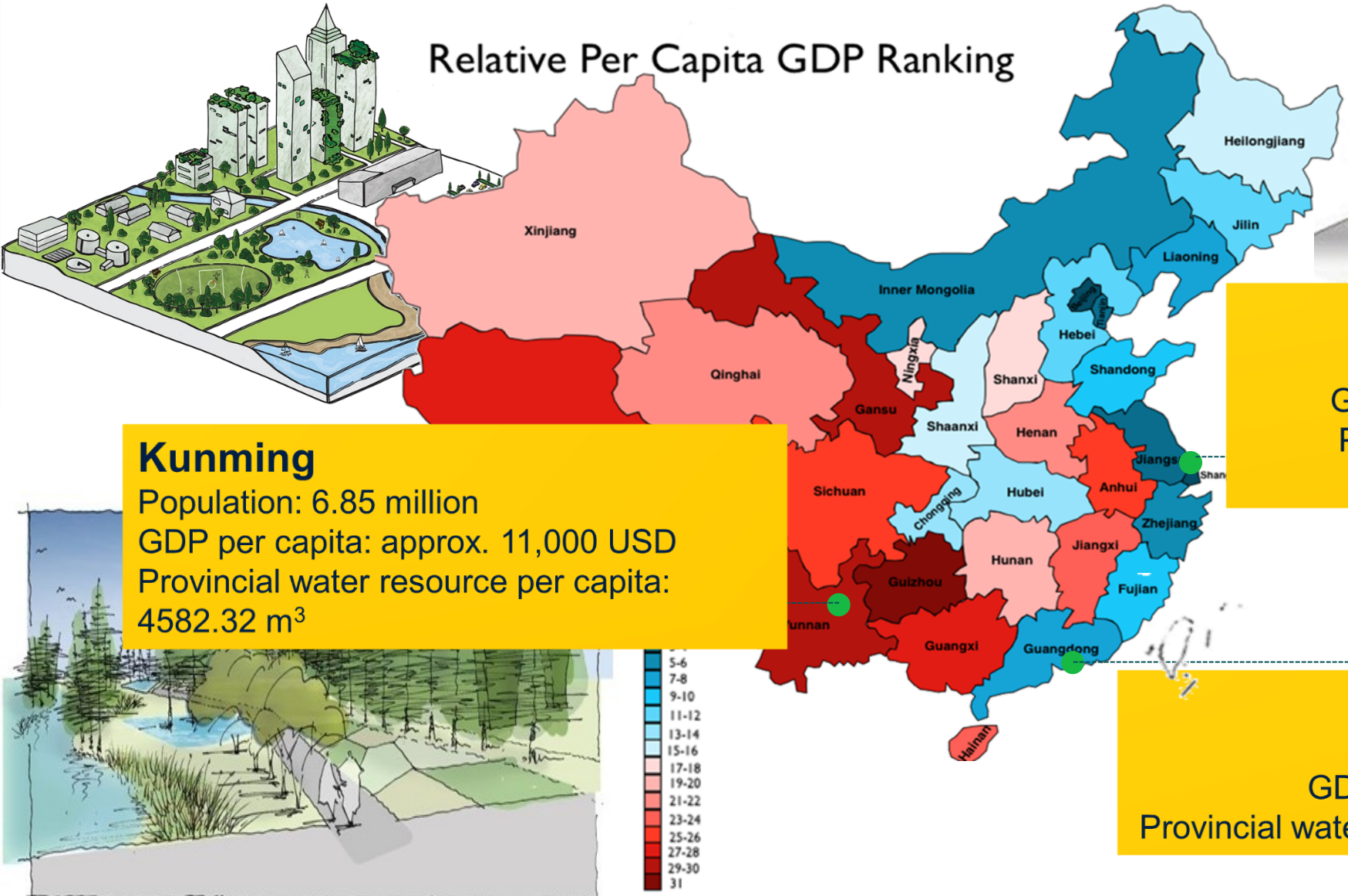
Stanford | Department of Biology · Stanford Woods Institute for the Environment · The Nature Conservancy · Institute on the Environment, University of Minnesota, Driven to Discover · WWF





Fit for Purpose : Allocation of Benefits and Costs Informed by Economic Development Status & Water Endowment

Relative Per Capita GDP Ranking



Kunming
Population: 6.85 million
GDP per capita: approx. 11,000 USD
Provincial water resource per capita: 4582.32 m^3

Kunshan
Population: 0.98 million
GDP per capita: approx. 34,000 USD
Provincial water resource per capita: 470.64 m^3

Shenzhen
Population: 13.44 million
GDP per capita: approx. 28,600 USD
Provincial water resource per capita: 1683.41 m^3

Recommendations Tailored along a Socio-Economic Continuum

Improve targeting of public resources through better valuation techniques

Leverage community and private resources to complement public investments

Create incentives to attract private sector participation, through regulation, bonds, trading mechanisms

Fiscal Capacity

- Improve recognition and valuation of benefits (and costs)
- Develop a consolidated database of economic values
- Create enabling institutional and policy environment
- Transition from post-flood recovery to pre-flood prevention
- Incorporate NbS for IUFM into urban planning processes
- Pilot property taxes to generate reliable revenue streams

Thank You

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