## Integrating nature-based solutions for urban water quality benefits in the developing world

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- Overarching Goal: examine the unique challenges of integrating NbS with urban water infrastructure to address water quality issues in the developing world
- Defining the context
- Understanding major challenges and opportunities to overcome

Ecological and Technical Barrriers

Multi-purpose planning and narrative building

Governance and Policy

Attitudes and Perceptions

Limited baseline data for ecological systems and physical processes

Reliance on established institutions and municipal services

Centralized vs decentralized approaches to water planning

Community participation in planning, design, operation & maintenance

Availability of NBS designs (and methods for tailoring to regional needs)

How to effectively integrate multiple knowledge sources (a challenge globally in any context!)

Incentive structures for use of NBS

culturally-

Regulatory policies

Financing

mechanisms

design and funding could

Table 1: A general comparison of the fundamental assumptions contextualizing the

Rising slowly, static, or falling

Typically functional for decades

Refinement and retrofit of the

Somewhat protected from

additional development, but significant losses due to prior

Citizens typical interact with

the water bodies themselves

infrastructure systems rather than

and potentially coping with aging

implementation of NbS for urban water quality management Developed

infrastructure

existing system

Often restrictive

development

Understanding

thresholds in

biodiversity

loss (before

they occur)

Prioritization of

project outcomes

relative to current

risk levels

Population supported by

infrastructure system

infrastructure planning

regulatory constraints

Status of biodiversity

Degree of direct

community uses of

Typical form of

Environmental

infrastructure Existing condition of

> Public commons vs. private land ownership

Case Study / Box Example

Developing

Rapid growth

Typically underdeveloped

Development of new systems

relative to demand

Typically minimal

Often relatively high but

tilting toward large-scale

Communities often directly

use local water bodies for

several purposes

Case Study / Box Example

Case Study / Box Example

Case Study / Box Example

Synergies with relevant aspects or critical needs of communities