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EVALUATING THE BUSINESS CASE FOR WATER FUNDS

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WRI'S NATURAL INFRASTRUCTURE INITIATIVE

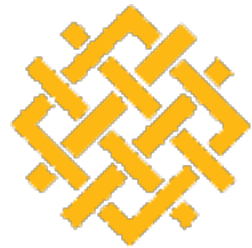


Cities4Forests



60 cities (and growing) = a pipeline of projects for investment

WATER FUNDS BUSINESS CASE PARTNERS



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The Nature
Conservancy
Protecting nature. Preserving life.

SMA



GOVERNO DO ESTADO
DE SÃO PAULO



FUNDAÇÃO GRUPO BOTICÁRIO
DE PROTEÇÃO À NATUREZA

IBiO

FUNDACIÓN
FEMSA

natural
capital
PROJECT



PRESENTATION STRUCTURE

- Why do a business case for Water Funds
- How to evaluate a business case: Green-Gray Assessment
- Examples of GGA results

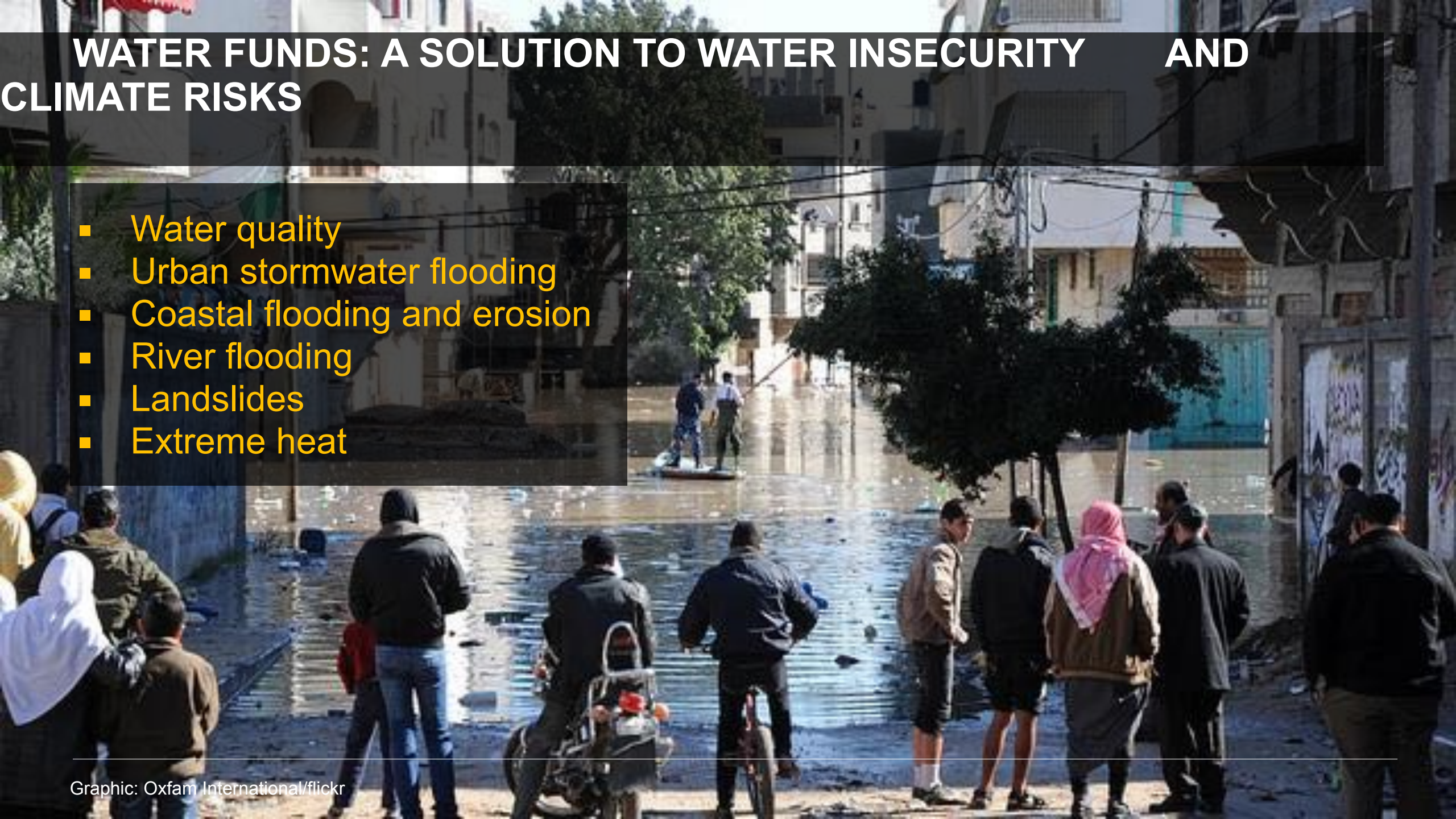
MANY TERMS FOR THE WORK OF WATER FUNDS



Source: Cohen-Shacham et al. 2016; UNEP et al. 2014; EC 2015; Lo 2016; WWF 2017; USACE n.d.; EcoShape 2018; WBCSD 2017

WATER FUNDS: A SOLUTION TO WATER INSECURITY AND CLIMATE RISKS

- Water quality
- Urban stormwater flooding
- Coastal flooding and erosion
- River flooding
- Landslides
- Extreme heat



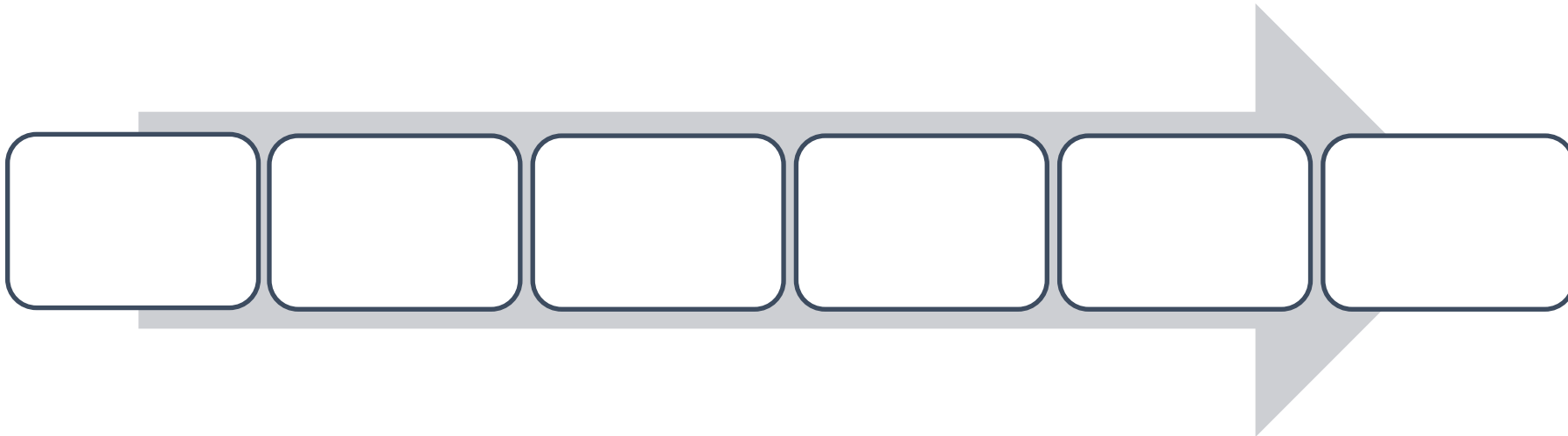
MAKE THE CASE FOR GREEN INFRASTRUCTURE'S ADVANTAGES

- Can be more **cost-effective**
- Can be designed as **resilient, flexible, and reversible**
- Attracts “green” **investors**
- Provides **co-benefits**
 - Sustaining livelihoods
 - Improving food security
 - Carbon sequestration
 - Improving air quality
 - Protecting biodiversity & habitat

WHAT'S IN IT FOR THE WATER FUNDS

- Understand the project's value with data
- Engage multiple stakeholders and align diverse perspectives
- Prepare projects for appraisal and investment
- Structure financing options
- Manage the project to maximize ROI
- Identify “blind spots”

HOW TO EVALUATE THE BUSINESS CASE: GREEN-GRAY ASSESSMENT



4 Studies:	Water Management Objective			
	Sediment pollution	Water quantity	Aquifer recharge	Flood control
Sao Paulo, Brazil (Cantareira)	X	X		
Rio de Janeiro, Brazil (Guandu)	X			
Vitoria, Brazil (Jucu Basin)	X			
Monterrey, Mexico (San Juan Basin)			X	X

COSTING OUT THE CONSERVATION PLAN

Investments (30%)

- fence, planting, workforce, etc.

Operation & maintenance (20%)

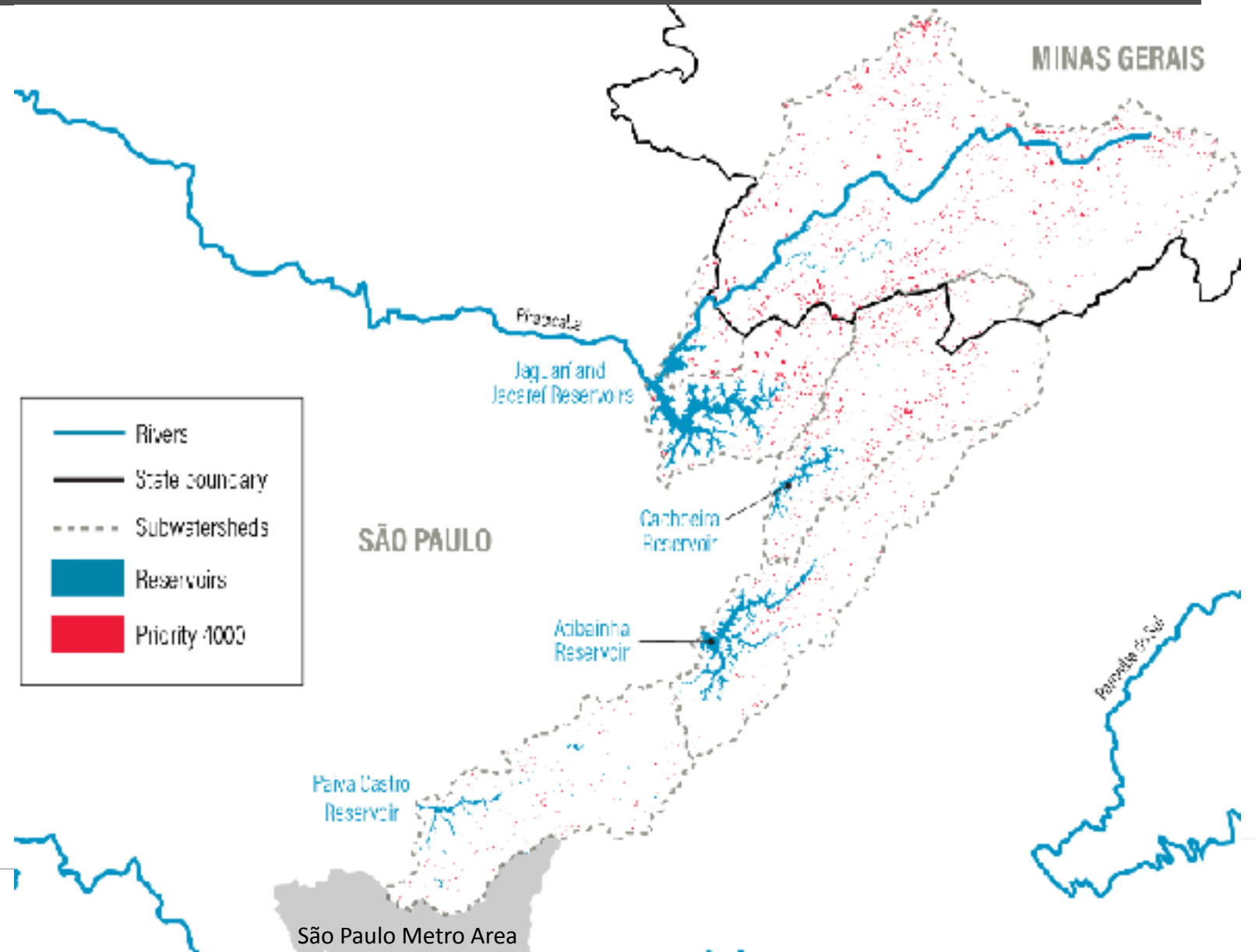
- Ant control, replanting, etc.

Opportunity costs (35%)

- PES value

Transaction costs (15%)

- contracting, administration, monitoring, etc.



BENEFITS (COST SAVINGS)

Costs related to sediment pollution:

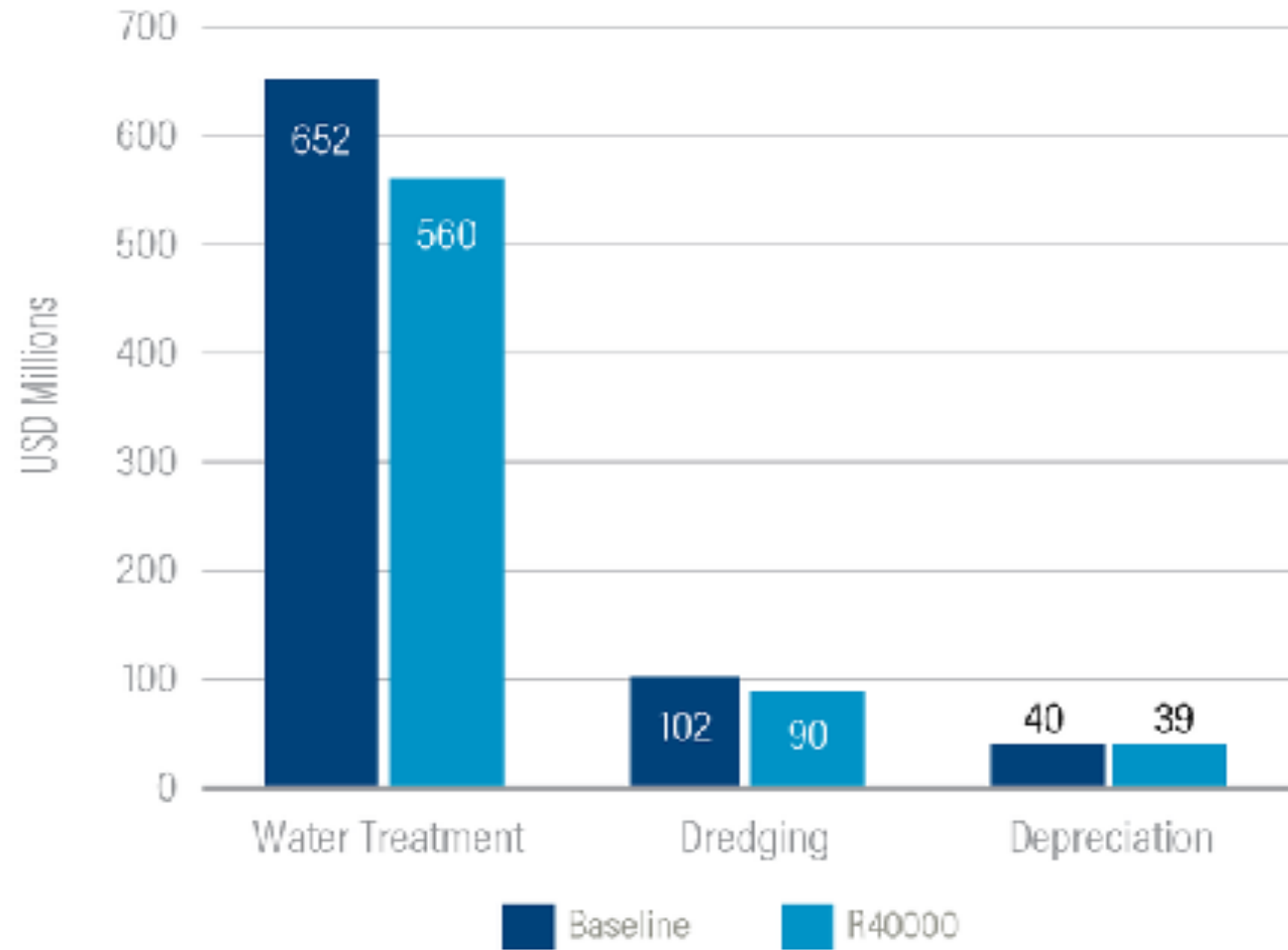
Turbidity treatment

- Workforce
- Energy
- Chemical products
- Sludge removal
- Anthracite replacement
- Sand replacement

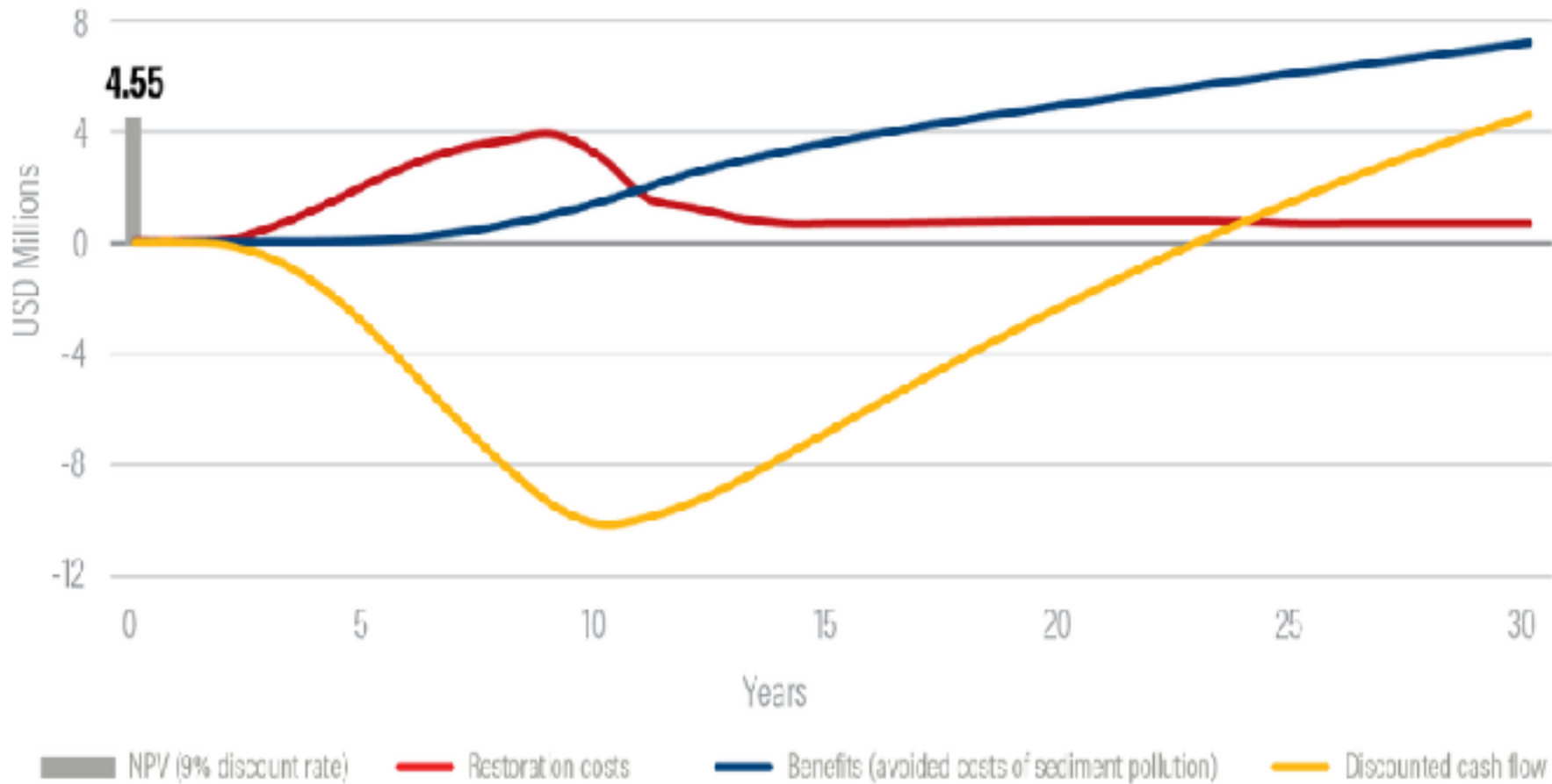
Dredging

- Machinery
- Disposal
- Workforce

Wear and tear / depreciation



SÃO PAULO GREEN GRAY ASSESSMENT SHOWS COMPETITIVE ROI FOR NATURAL INFRASTRUCTURE



Investment in Reforestation:
US\$38M

Area restored:
4,000 ha

Reduction in erosion:
36%

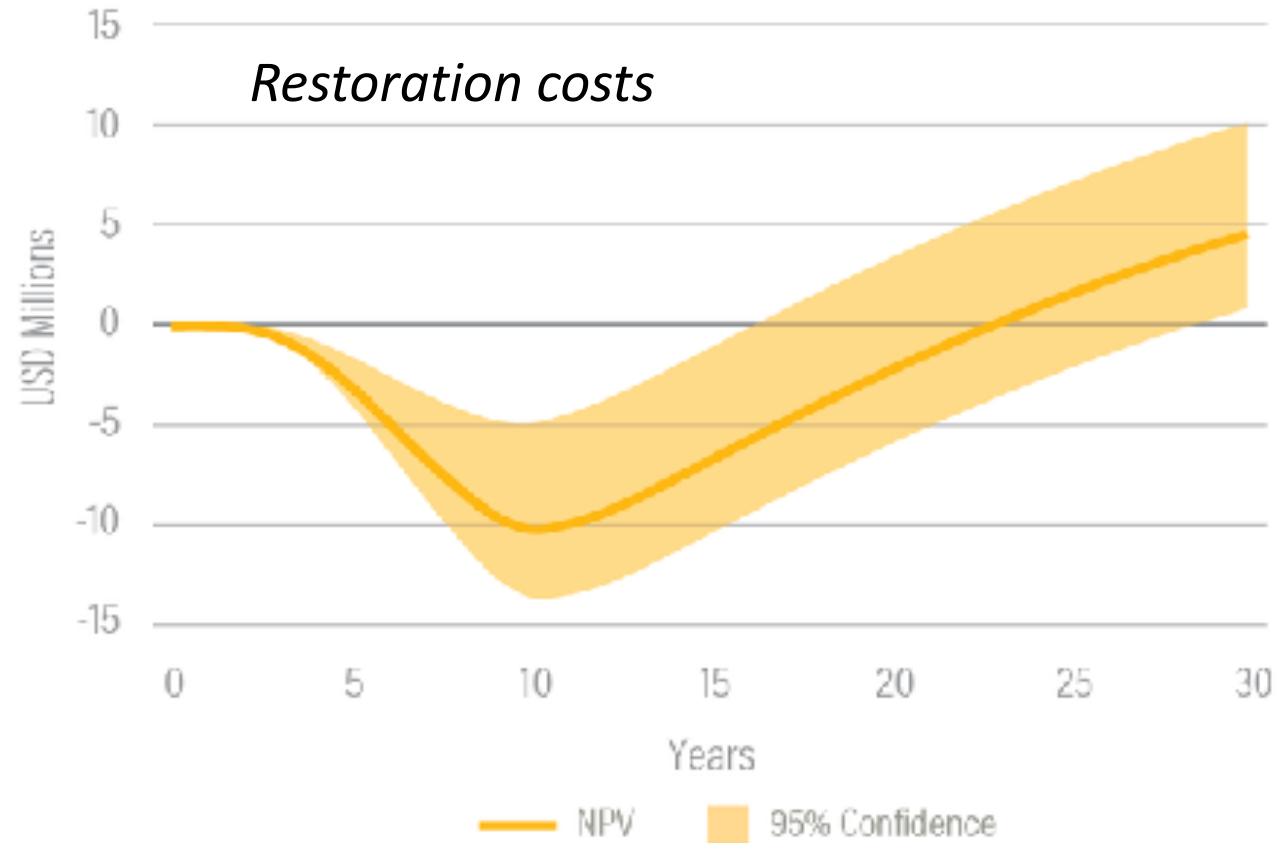
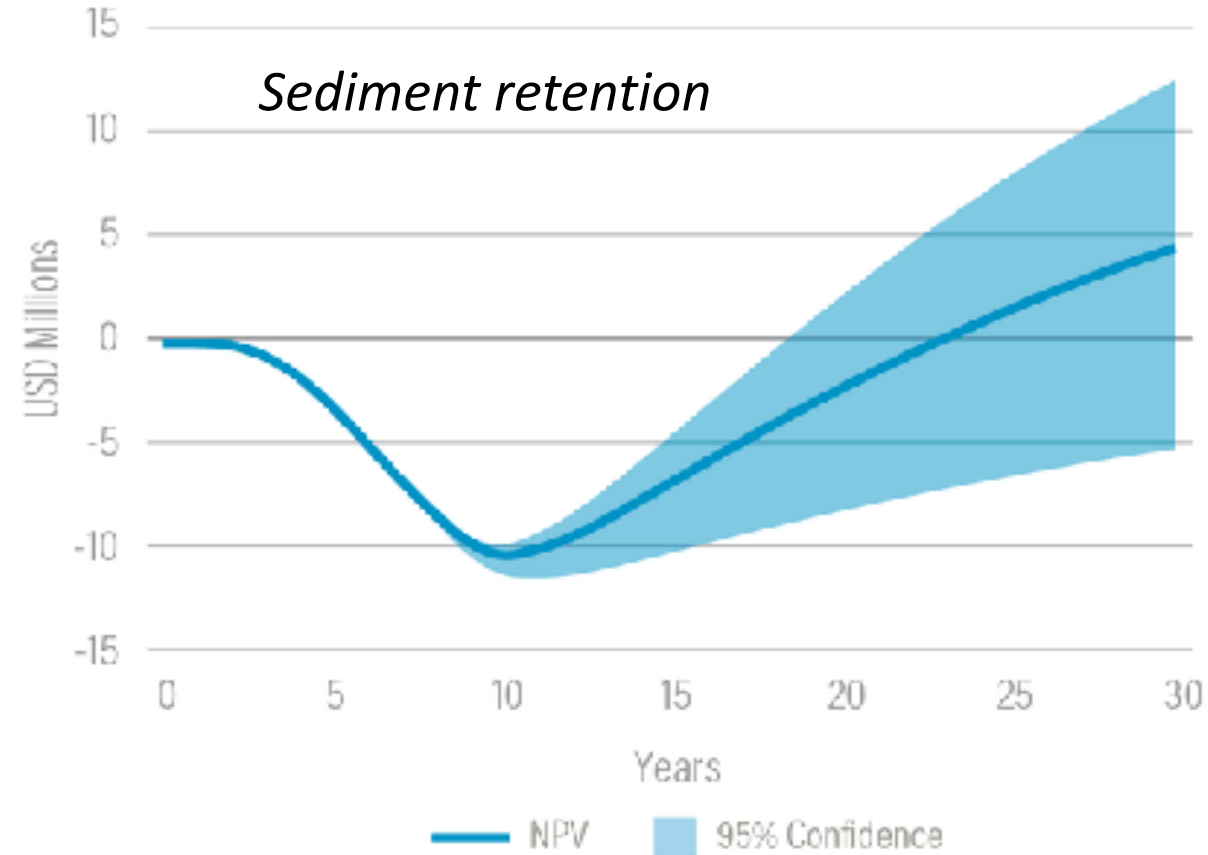
Avoided costs of sediment management:
US\$106M

NPV: US\$ 4.6M

ROI: 28%

SENSITIVITY ANALYSIS

Possible NPV of R4000, Considering Ranges of Uncertainty for...



MONTERREY, MEXICO



TECHNICAL NOTE

NATURAL INFRASTRUCTURE FOR AQUIFER RECHARGE FINANCIAL CALCULATOR: METHOD, DATA, AND ASSUMPTIONS

ANA GABRIELA MORALES, SUZANNE OZMENT, AND ERIN GRAY

EXECUTIVE SUMMARY

This document provides information on the methods, data, and assumptions used to create the Natural Infrastructure for Aquifer Recharge Financial Calculator, a flexible financial model that estimates the private costs and benefits, including the return on investment (ROI), of natural infrastructure interventions designed to enhance aquifer recharge.

This calculator was designed to help water sector decision-makers of Nuevo León and the Monterrey Metropolitan Water Fund (Fondo de Aguas Metropolitanas de Monterrey) better understand the role that natural infrastructure (also called green infrastructure) can play in water security. Its flexible design also has the potential to produce similar assessments for other territories in the future.

The calculator can perform several functions:

- Communicate to policymakers and water sector decision-makers the benefits that natural infrastructure can have for aquifer recharge, which is a key element of water security. The calculator translates aquifer recharge impacts into easy-to-understand financial terms to evaluate its related ROI.
- Improve natural infrastructure program design. It provides an analytical framework to determine the ideal type and scale of intervention and to estimate the necessary amount of funding to implement different natural infrastructure strategies.

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Technical note documents the research or analytical methodology underpinning a publication, interactive application, or tool.

Suggested Citation: Morales, A. G., S. Ozment, and E. Gray. 2019. "Natural Infrastructure for Aquifer Recharge Financial Calculator: Method, Data, and Assumptions." Technical Note. Washington, DC: World Resources Institute. Technical note and Excel-based tool available online at: www.wri.org/publications/2019-0000-0000-0000.

- Good approach for data-scarce situations
- Excel-based calculator can accommodate new information
- Run scenarios with different assumptions
- Found that only 2.5% increase in aquifer recharge is needed for a positive financial impact!

NEW RESOURCES ON GREEN INFRASTRUCTURE APPRAISAL



WRI-World Bank Report: guidance on NBS project appraisal

Overview Booklet for Disaster Risk Managers

PPTs:

- NBS for coastal flooding & erosion
- NBS for urban stormwater flooding management
- NBS for river flood risk reduction

Available at: <https://www.wri.org/publication/integrating-green-gray>



Green Gray Assessment how-to guide (in August!)

Case studies:

- Sao Paulo
- Rio de Janeiro
- Vitoria, Brasil

Natural infrastructure calculator:

- Monterrey, Mexico



Thank you!

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More resources at: www.wri.org/natural-infrastructure

FINANCING SOURCES AND SEQUENCING FOR GREEN AND GRAY INFRASTRUCTURE

PHILANTHROPY

- Grants for pilot development and due diligence
- Corporate Social Responsibility

CONCESSIONARY CAPITAL

- Program Related Investments (PRIs)
- Repayable Grants

PRIVATE CAPITAL AND INFRASTRUCTURE INVESTMENTS

- Green Bonds
- Beneficiary Pays
- Forest Resilience Bonds
- Insurance Risk Reduction
- Pay-for-Success

INSTITUTIONAL INVESTMENT

- All about achieving scale (moving from “*impact investing*” to “*investing*”)

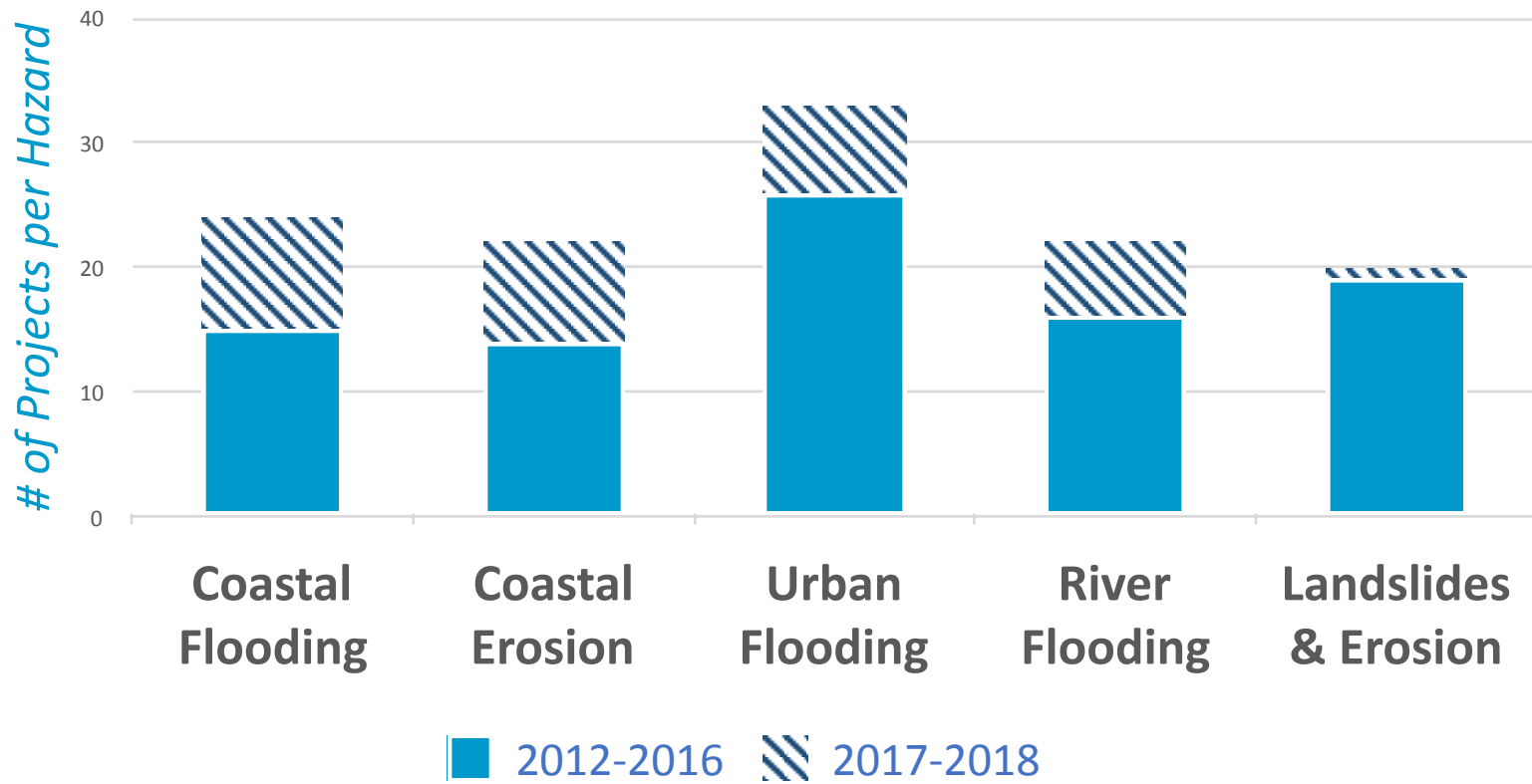
INVESTORS WANT TO SUPPORT NBS-- BUT THEY CAN'T ALWAYS FIND SUITABLE PROJECTS

Over 1/3rd of private capital for conservation remains
undeployed



WORLD BANK PROJECTS WITH NBS COMPONENTS

Hazards Targeted by Projects Containing Nature-based Solutions



76 DRM projects with NBS components have been approved for implementation since 2012

Coastal hazards (flooding and erosion) comprise the most # of projects