Water funds WORKSHOP

Alejandro Calvache
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TNC-Nov 2014

LATIN AMERICAN WATER FUNDS PARTNERSHIP

The Nature Conservancy
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IDB Water and Sanitation

gef

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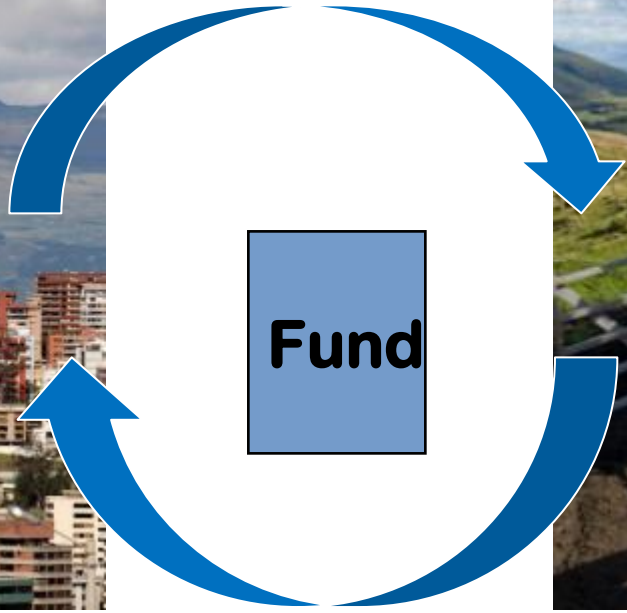
The water fund concept

Users

Providers-PA



CLEAN WATER

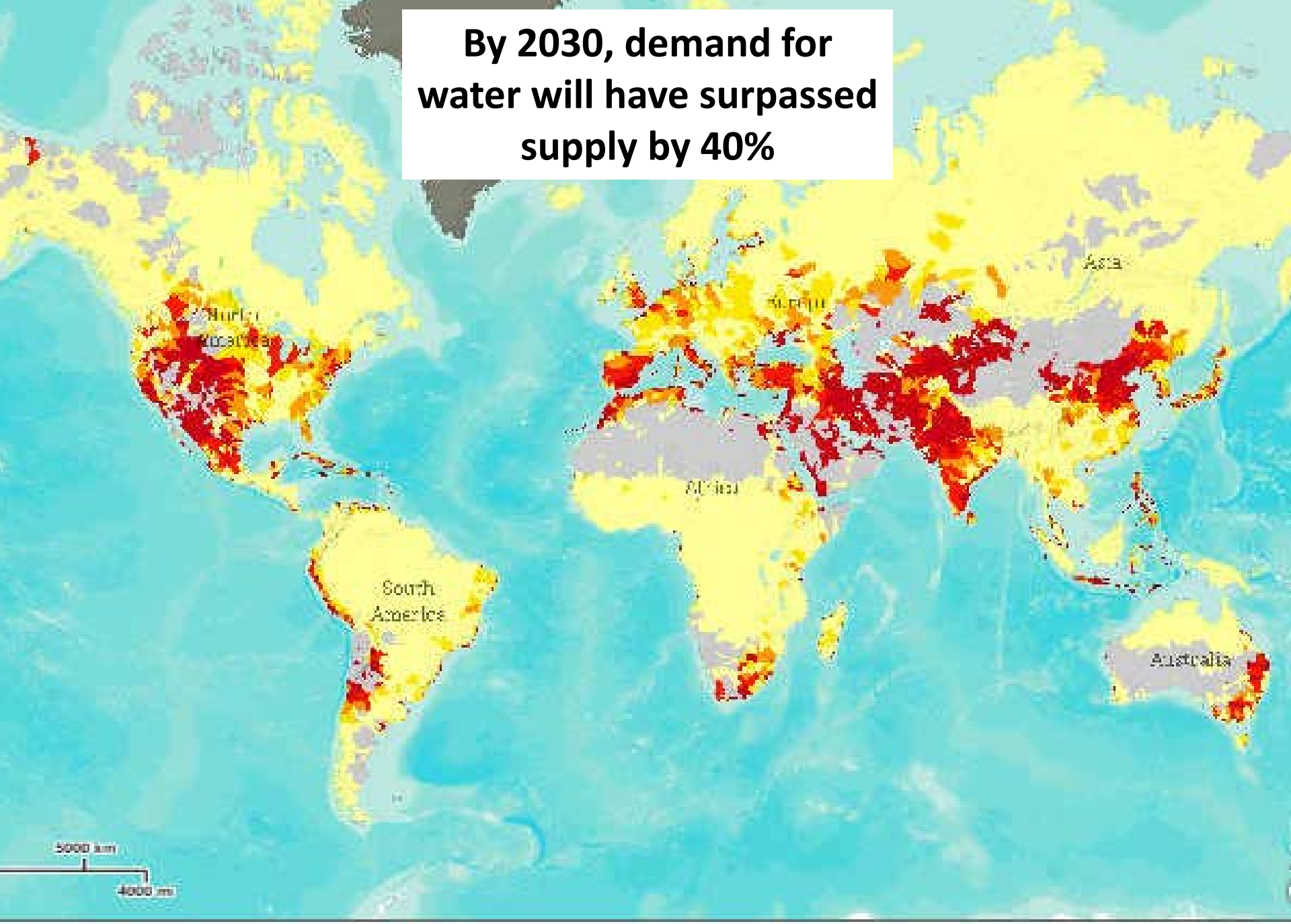
LATIN AMERICAN WATER FUNDS PARTNERSHIP

Contents:

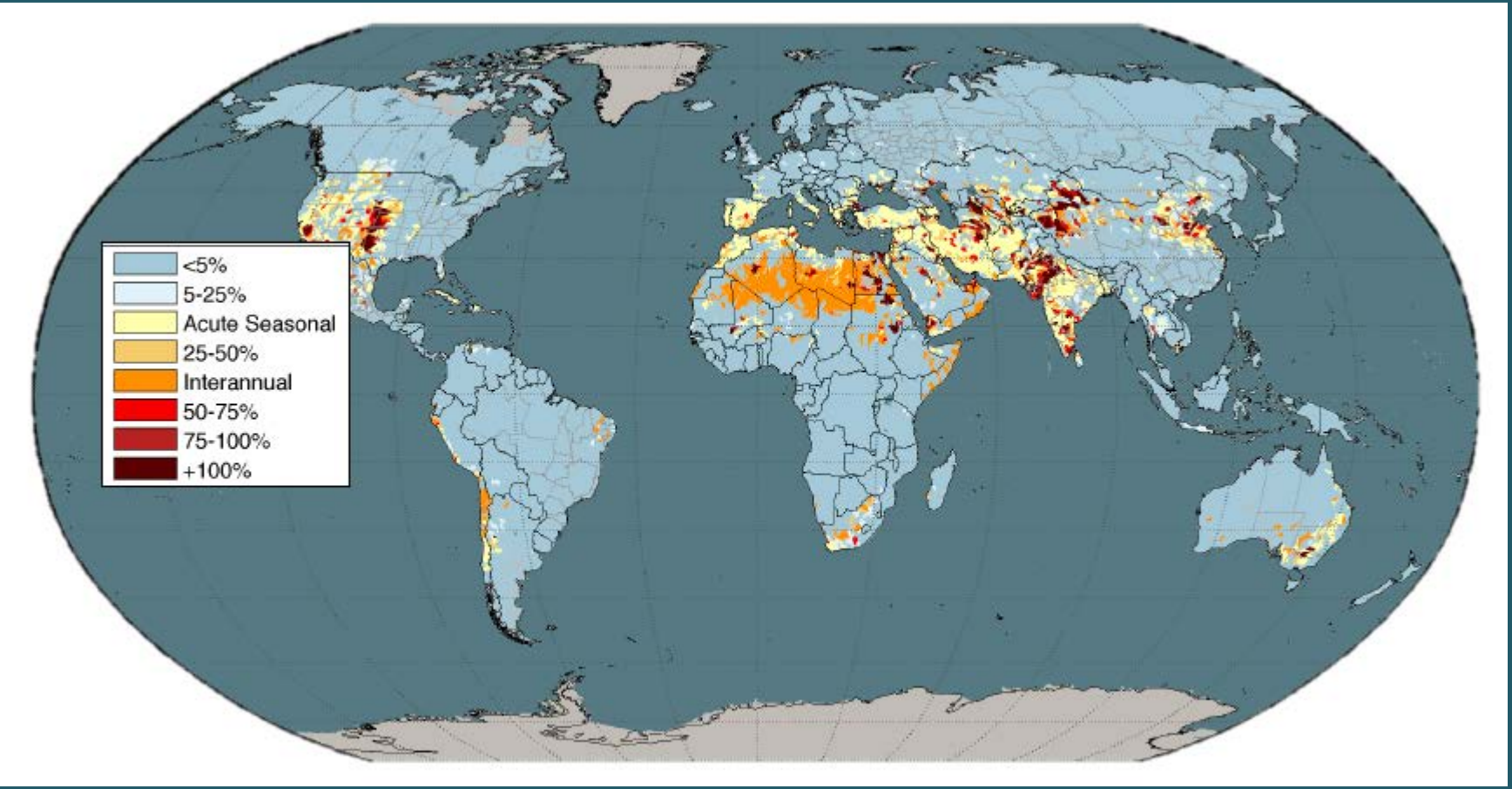
LATIN AMERICAN WATER FUNDS PARTNERSHIP

1.Why a water fund?

We depend on water, we compete for water


By 2030, demand for water will have surpassed supply by 40%
Asia
South America
Australia
5000 km
4000 mi
WORLD RESOURCES INSTITUTE

Water Scarcity

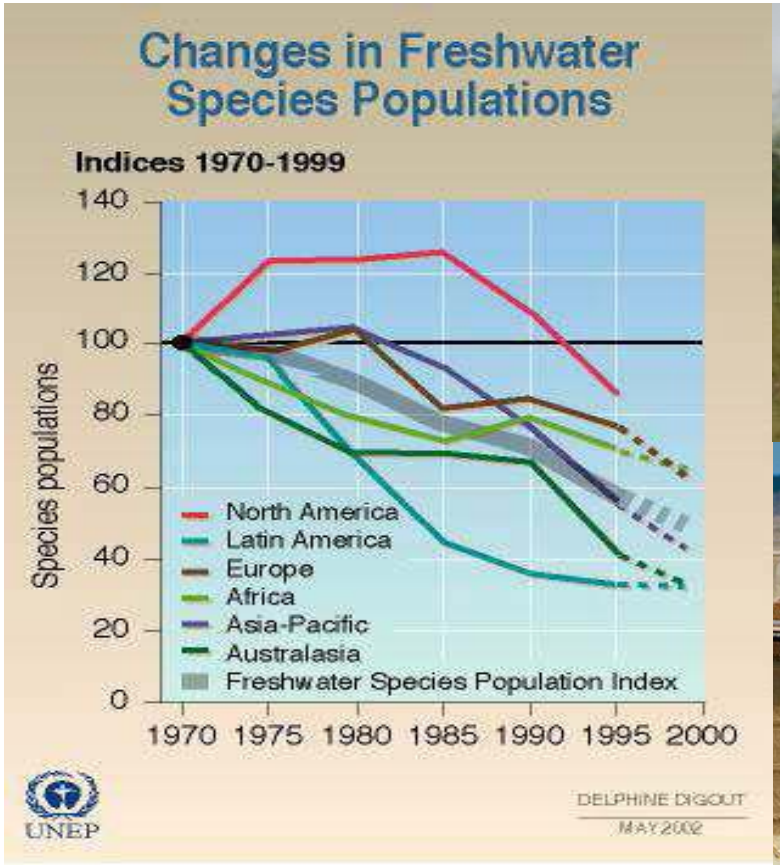


Water shortages are occurring in 20% of the planet's watersheds and aquifers

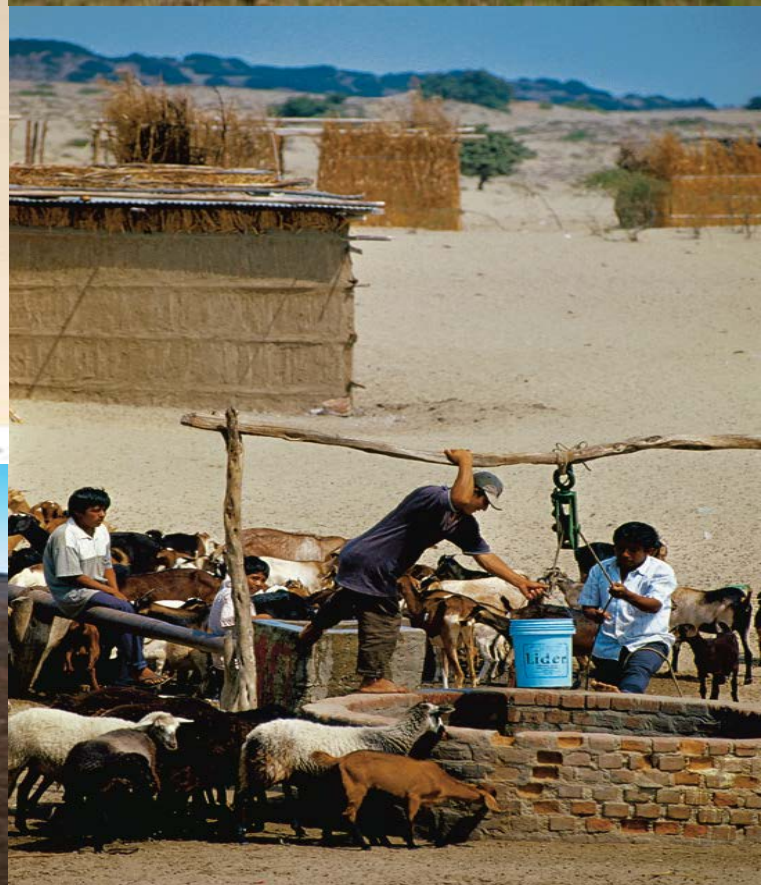
35% of the world's population is affected

60% of the world's irrigated acreage is affected

Running against time



Source: *Living Planet Report 2000*, World Wide Fund for Nature (WWF).



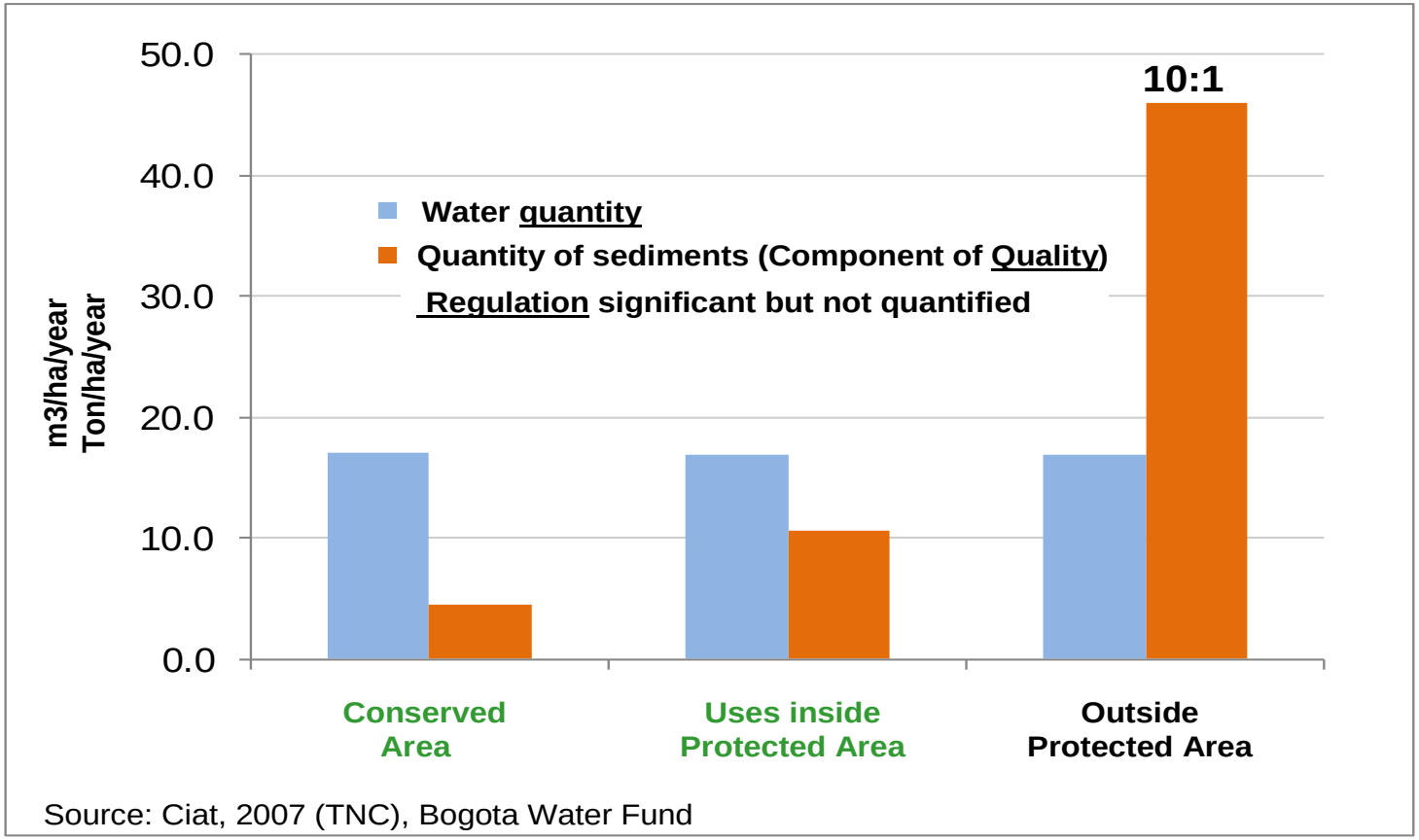
Combine development with conservation:

- Roads
- Rail roads
- Mining
- Agriculture

Ecosystems help us to:

- **Wetlands filter water**
- **Paramos regulate flows**
- **High Andean forests retain soil**
- **Riparian buffers retain N and P**

Healthy ecosystems; better ecosystems services provision



Source: Ciat, 2007 (TNC), Bogota Water Fund

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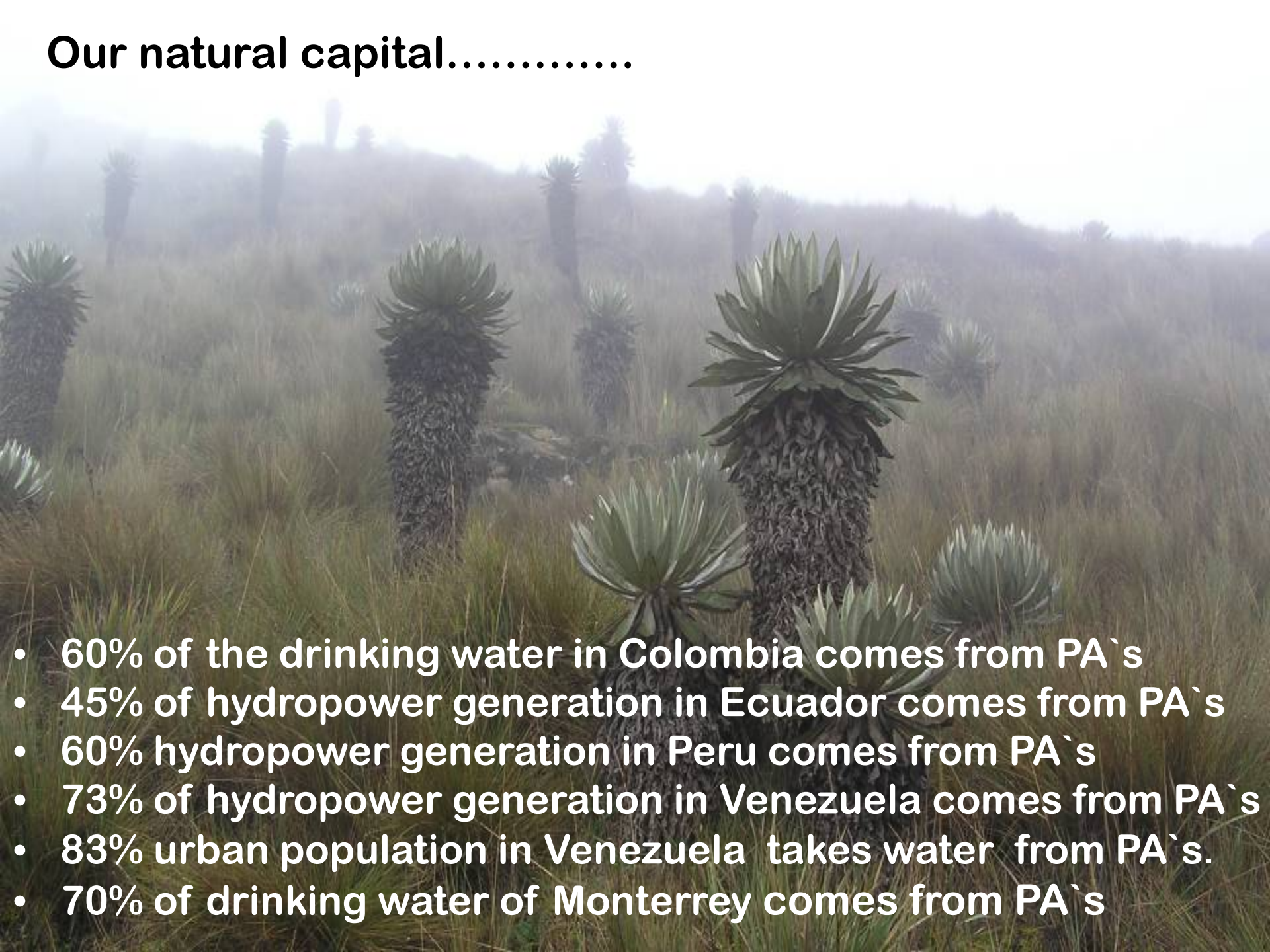
IDB
Water and Sanitation Initiative

GLOBAL ENVIRONMENT FACILITY 20 YEARS
INVESTING IN OUR PLANET

Our natural capital……



- 60% of the drinking water in Colombia comes from PA`s
- 45% of hydropower generation in Ecuador comes from PA`s
- 60% hydropower generation in Peru comes from PA`s
- 73% of hydropower generation in Venezuela comes from PA`s
- 83% urban population in Venezuela takes water from PA`s.
- 70% of drinking water of Monterrey comes from PA`s

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Other considerations

1. The real cost of water is not internalized
2. Lack of planning about water management
3. Financial gaps in PAs' systems to improve water conservation
4. Non articulated efforts between different institutions
5. No consistent public/private partnership

The NYC case

In lieu of building a filtration plant for the newer and less-developed (rural) Catskill/Delaware water supply, NYC opted to <u>prevent pollution at the source</u> by working with watersheds constituents.

Pepacton Reservoir

Proof of Concept: Quito Water Fund

Páramos:
Páramo absorbs vast amounts of rainwater and cloud mist and slowly releases it, acting as a natural water tower

When intact is one of the more botanically diverse habitats on earth with approximately 4,700 plant species—all adapted to the intense ultraviolet radiation, cold and wind of high elevations.

Proof of Concept: Quito Water Fund

Importance	• 2 million residents • Condor Bioreserve: 2.5 million acres, exceptional biodiversity, including 760 bird species; 28 rivers
Fund Progress	• 2000: $21,000 start-up - 2013: $13,000,000 aprox. • Since 2006, 2% of the water utility revenues • Annual investments of nearly $2-3 million (leverage)
Conservation Progress	• 85,000 hectares of public lands protected; • 19,000 hectares of private lands restored and/or best management practices
Partners	• EMPAAQ (Quito's water agency); Quito Electric Company; USAID; Swiss Development Corporation; Cerveceria National (beer company); Tesalia Springs Co.

16

Atlantic Forest

- Originally 122 M ha - 12% of remnants

- Around 120 M people

- 70% Brazilian GDP

- High level of endemism and biodiversity rates

- Strong restoration needs. 90% in private hands

- Perfect place for PES high Water services demand (urban & industrial sectors)

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In Brazil – "Water Producer" concept - ANA

Water users

Income generation

Watershed Committees (water user fees)

Public funds

Water utilities

Restoration and conservation activities

Water ecosystems services

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Agricultural water users

ENVIRONMENTAL SERVICES MODEL

Users

$ →

WATER FUND

Board

Fiduciary fund

$ →

Providers

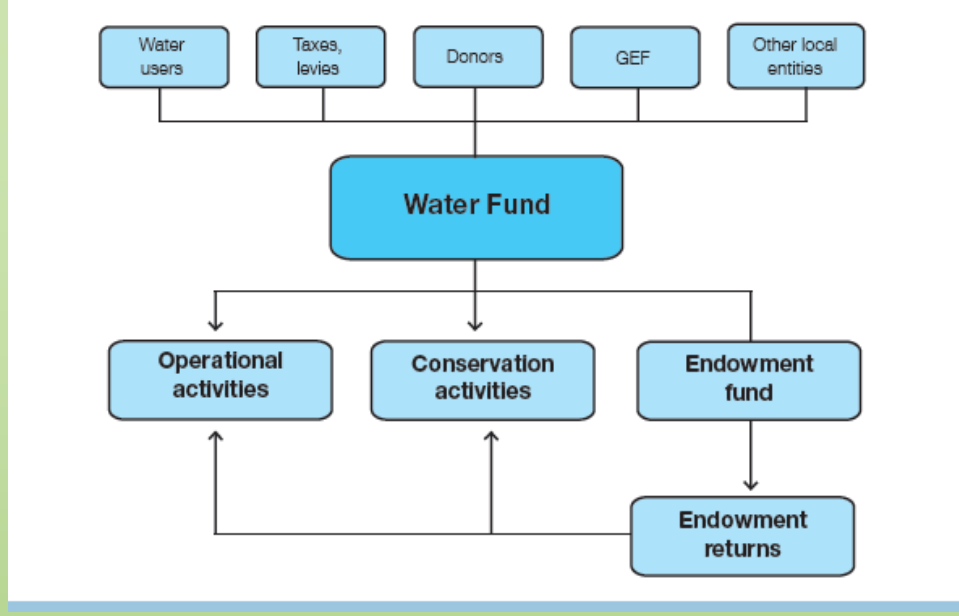
Cattle-ranching upstream

ACCOUNTABILITY
Reporting

← ←

Water Funds are effective tools for watershed conservation because they:

- Connect suppliers of ecosystem services with beneficiaries, providing direct benefits downstream and improved livelihoods upstream (efficient)
- Mitigate water scarcity and pollution problems at the source rather than end-of-pipe treatments (effective)
- Provide a sustained funding mechanism with a flexible governance structure to allow for adaptive management of risks and opportunities (sustainable)



ALIANZA LATINOAMERICANA DE FONDOS DE AGUA

Steps to establish a Water Fund

Pre-feasibility and evaluation

Which ecosystems services?

Where is the area of influence?

Who are the stakeholders?

Design

Feasibility studies:

Environmental

Socio-economic

Institutional

and legal

Negotiation

Institutional arrangement

Partners' commitment (financial and technical)

Operation

Contracts with local stakeholders

Field activities

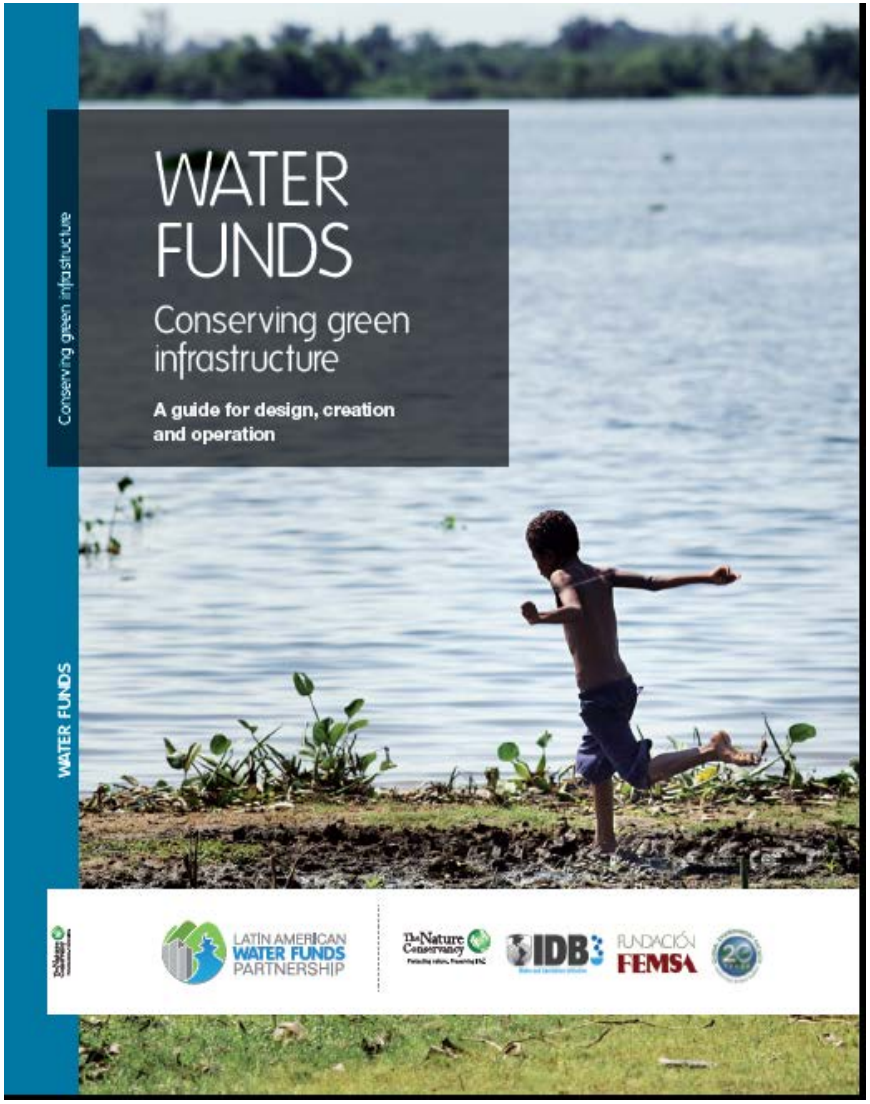
Fund-raising

Monitoring

Maturity

Financial sustainability

Consolidation of field activities and monitoring


Conserving green infrastructure
WATER FUNDS
Conserving green infrastructure
A guide for design, creation and operation
WATER FUNDS
LATIN AMERICAN WATER FUNDS PARTNERSHIP
The Nature Conservancy
IDB
FUNDACIÓN FEMSA


RECONOCIMIENTO DE LOS SERVICIOS AMBIENTALES HÍDRICOS EN LATINOAMÉRICA
Memorias del 1 Taller de Fondos de Agua:
Intercambiando experiencias y mejores prácticas.
Realizado del 6 al 7 de abril de 2011
Santiago de Cali, Colombia.
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fmam

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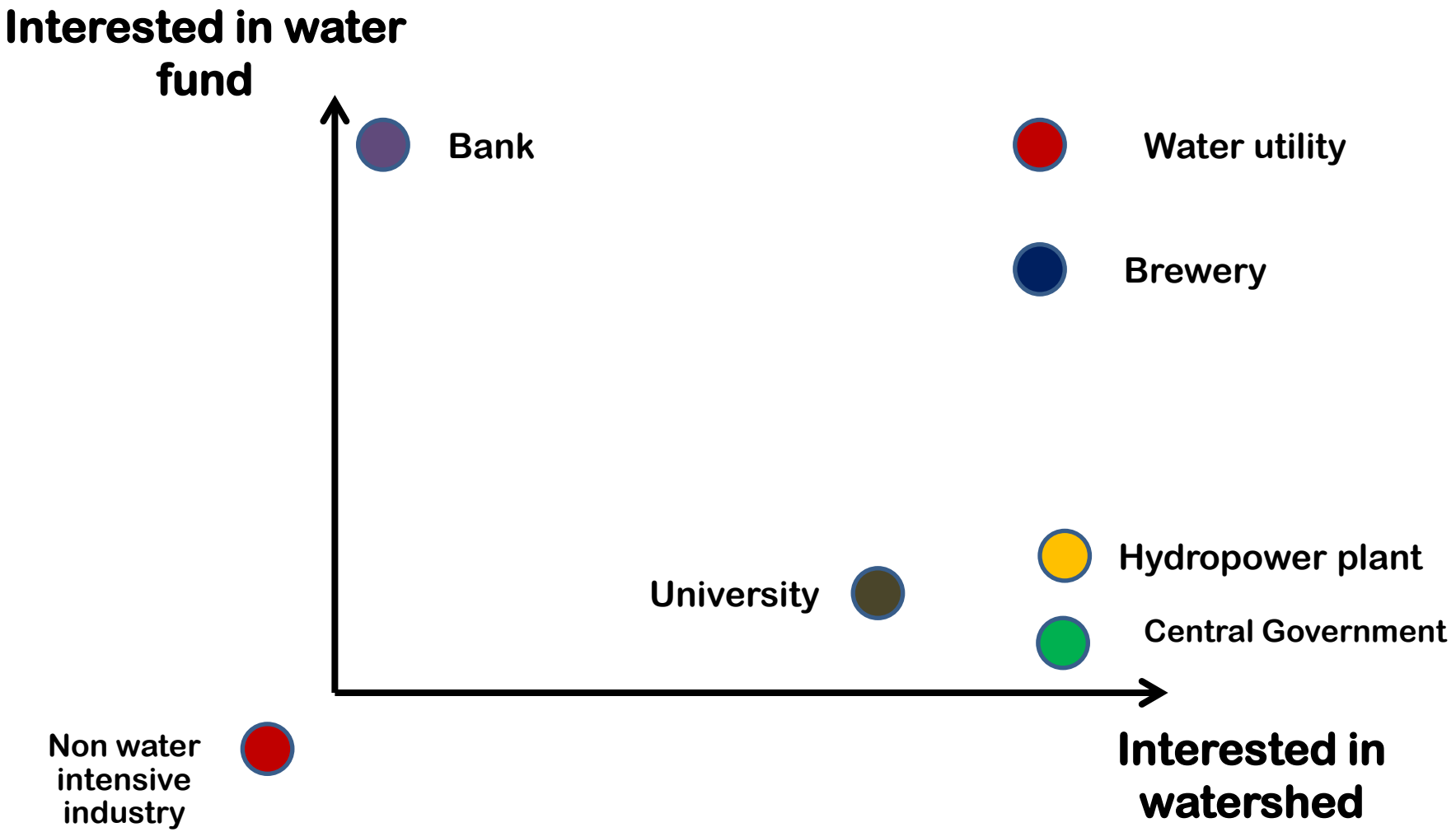
2. Design a water fund

Some basic enabling conditions

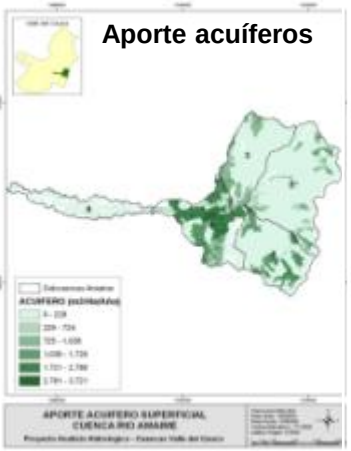
1. Watershed problems identified: flow? Sediments? Nutrients?
2. Downstream users ready to support the water fund
3. Long term commitment
4. Favourable regulatory framework

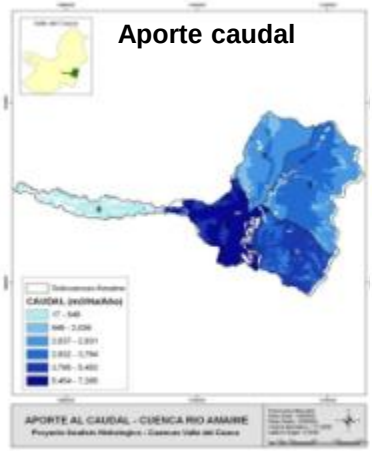
Stakeholders analysis

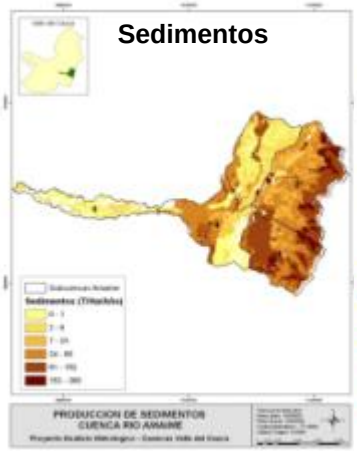


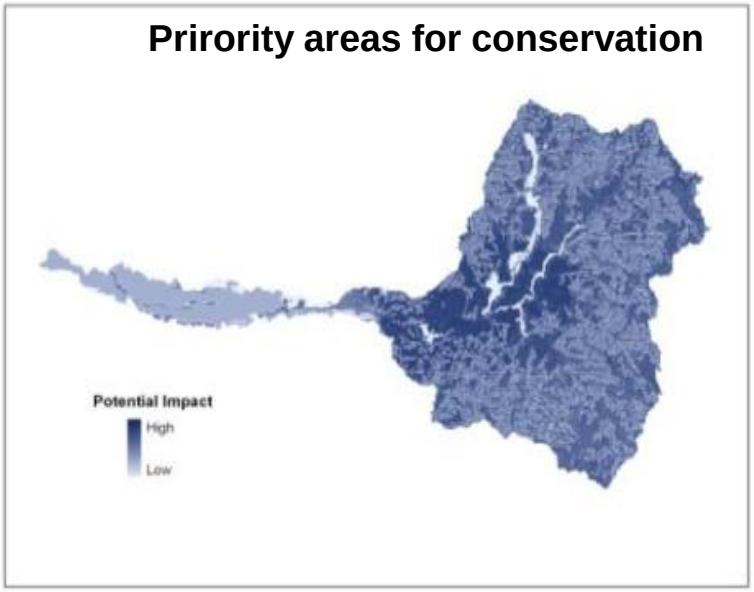
Technical analysis 1: Modelling

Highest investment return concept

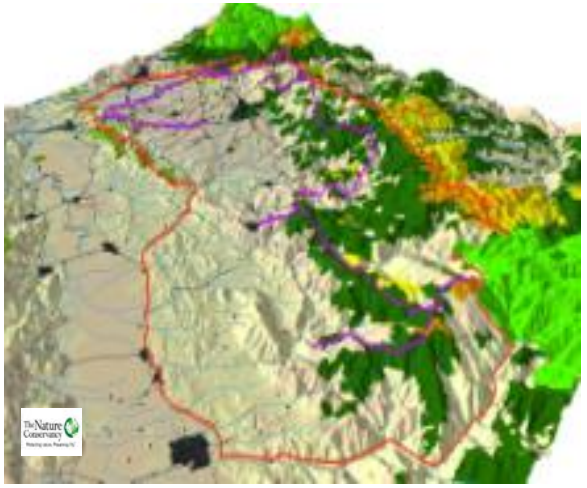




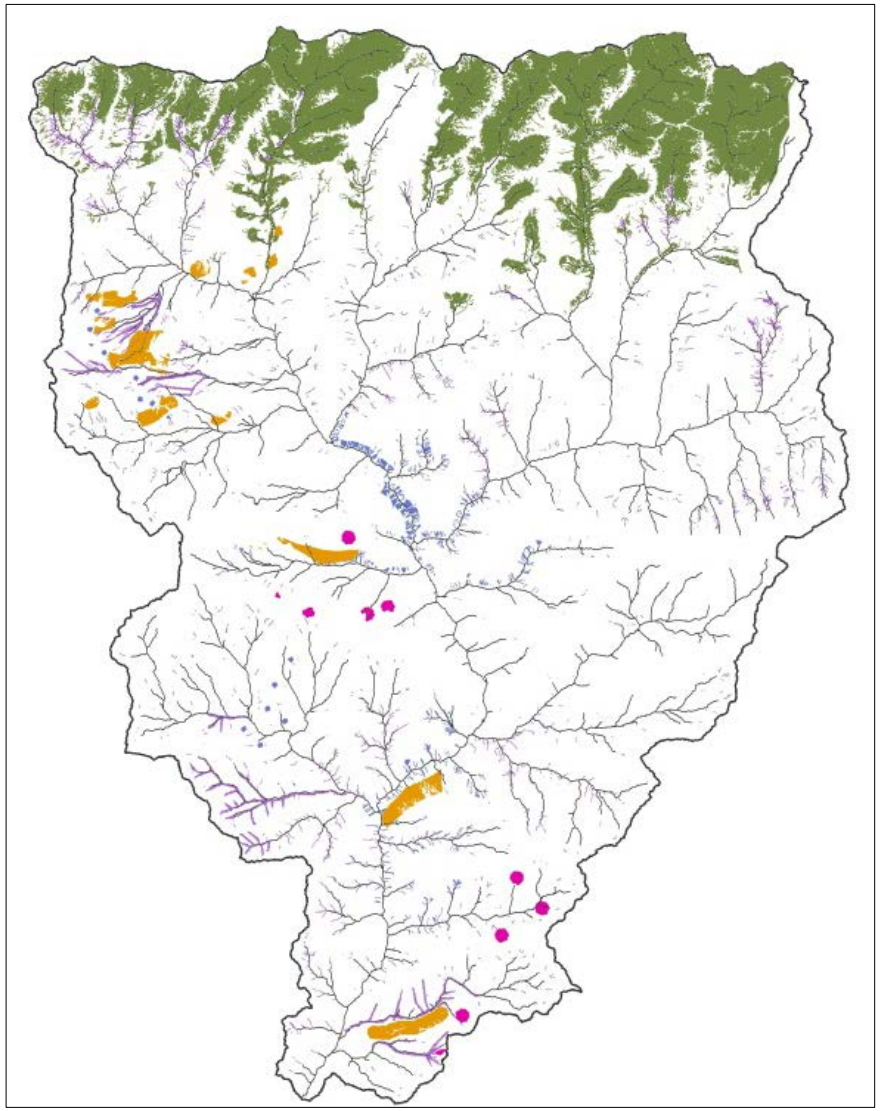




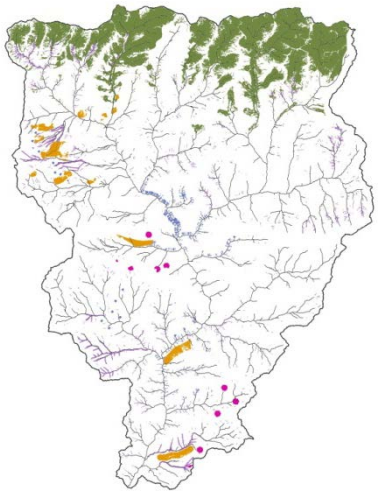
Connectivity, biodiversity



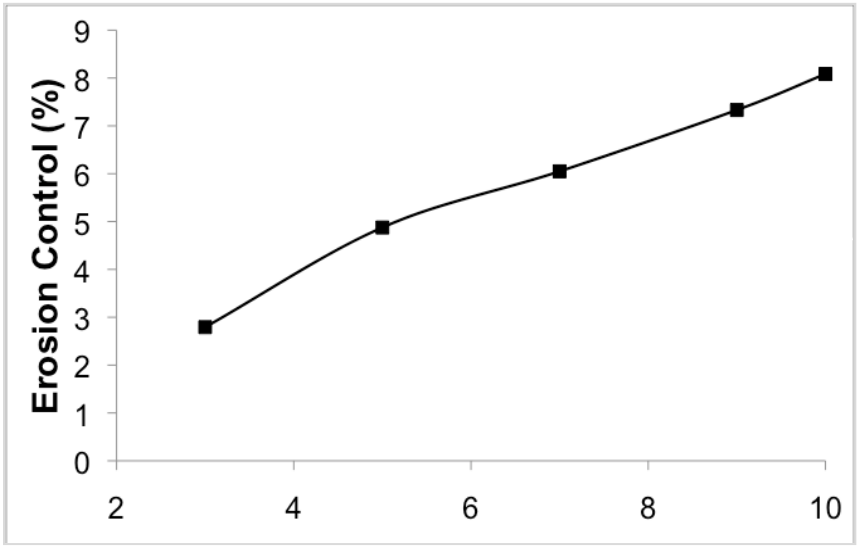
Investment Portfolio



Return on Investment

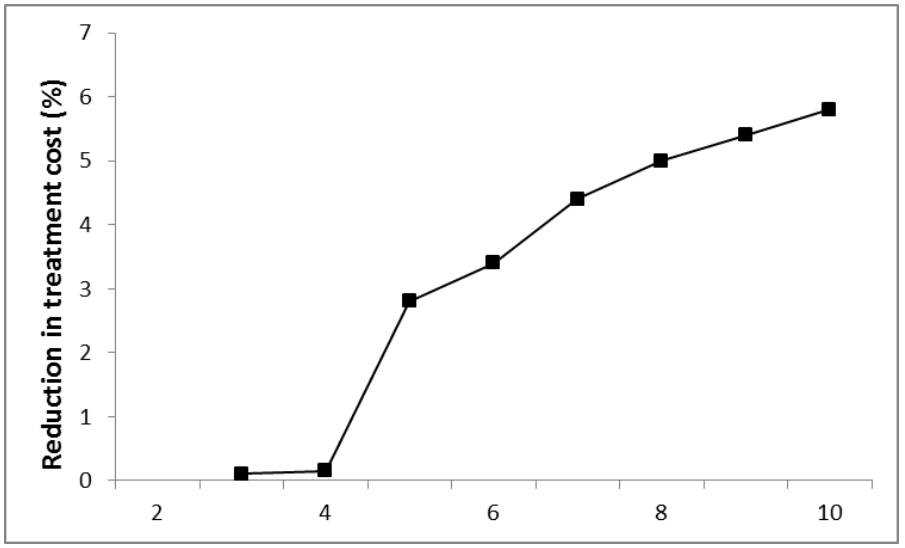


Change in Erosion



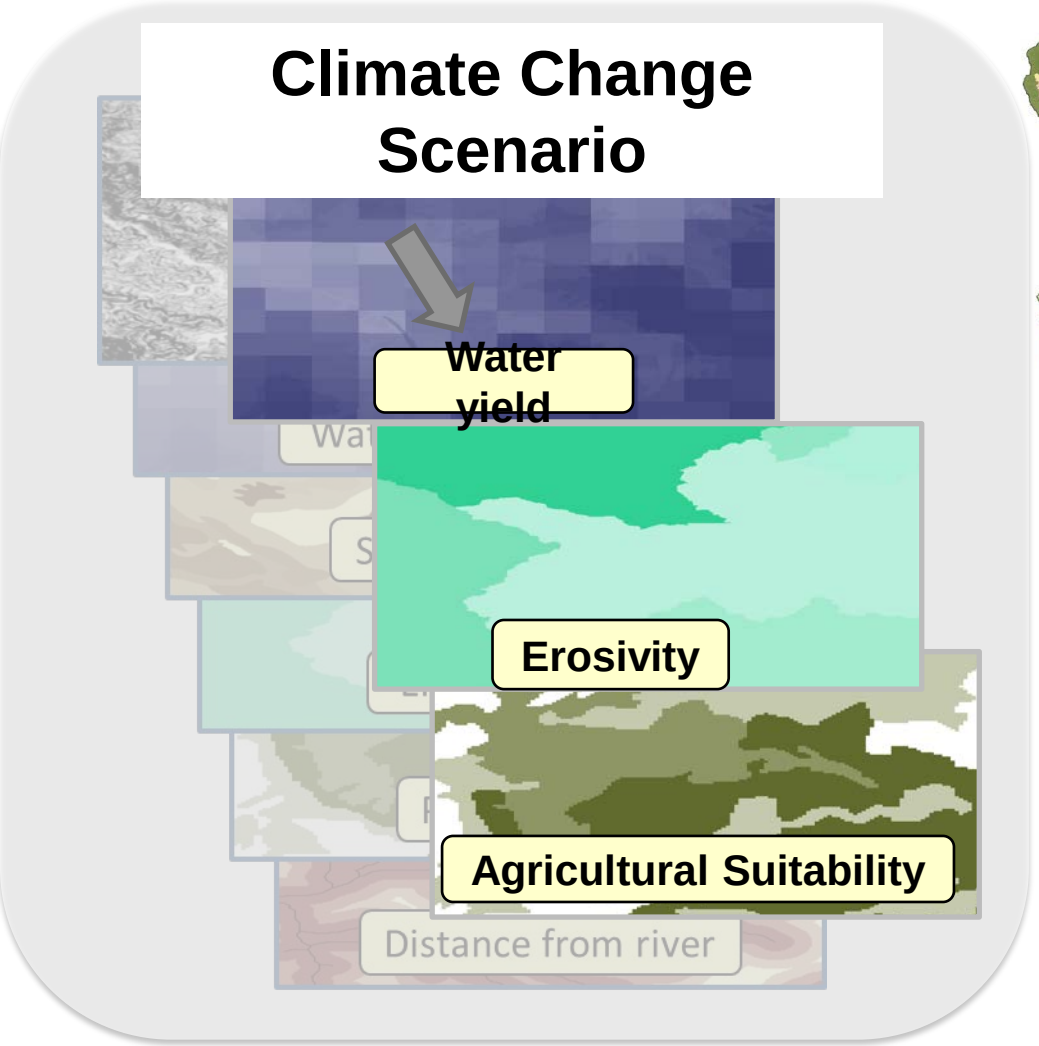
Total budget (US$ millions)

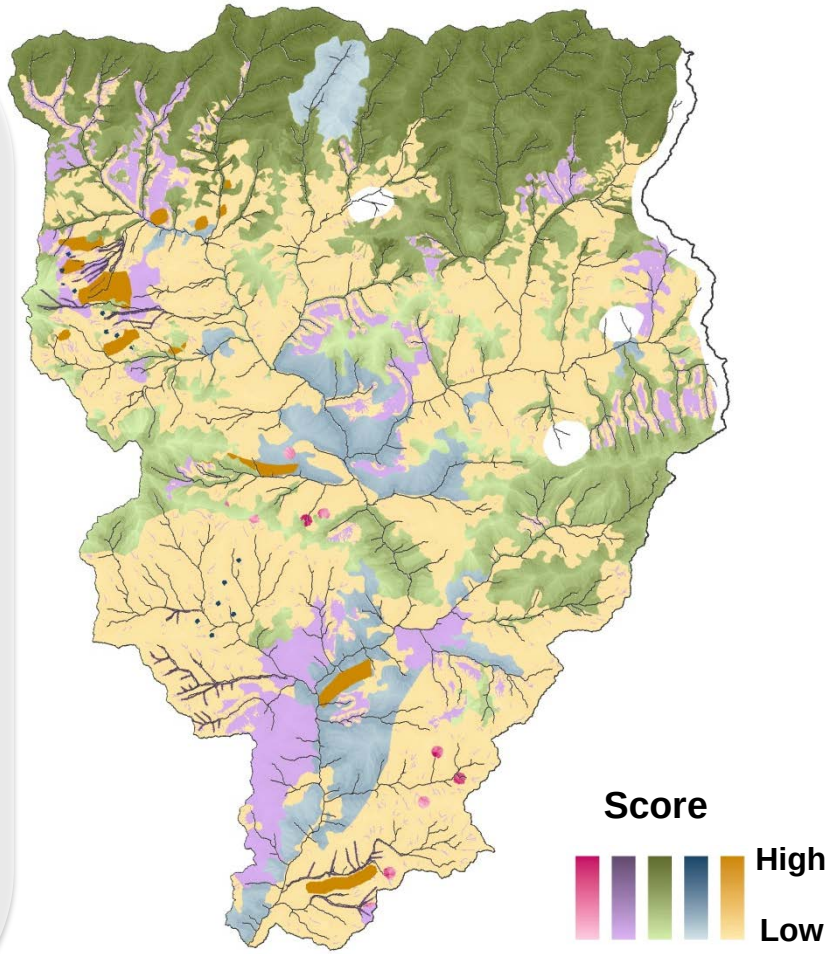
Change in Treatment Cost $



Total budget (US$ millions)

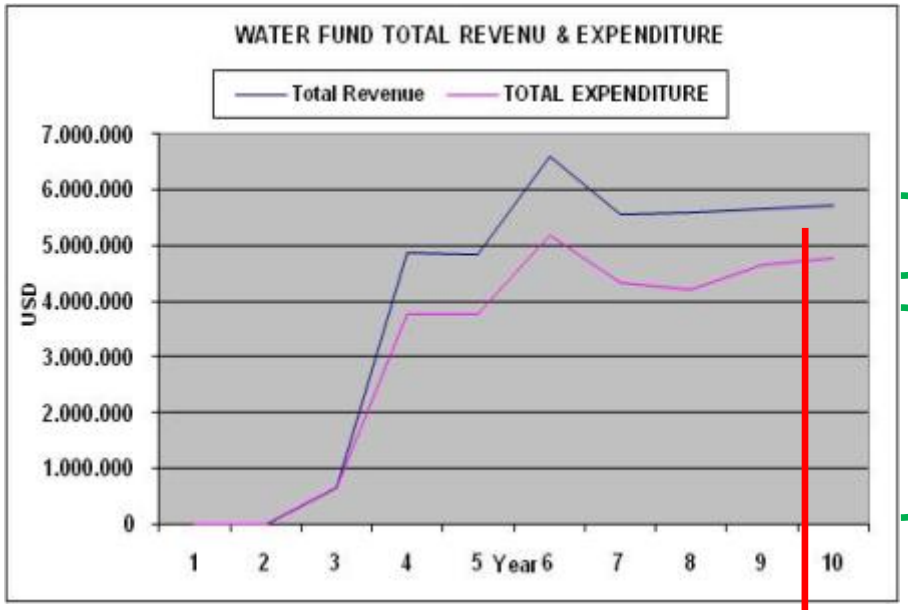
Incorporating climate change



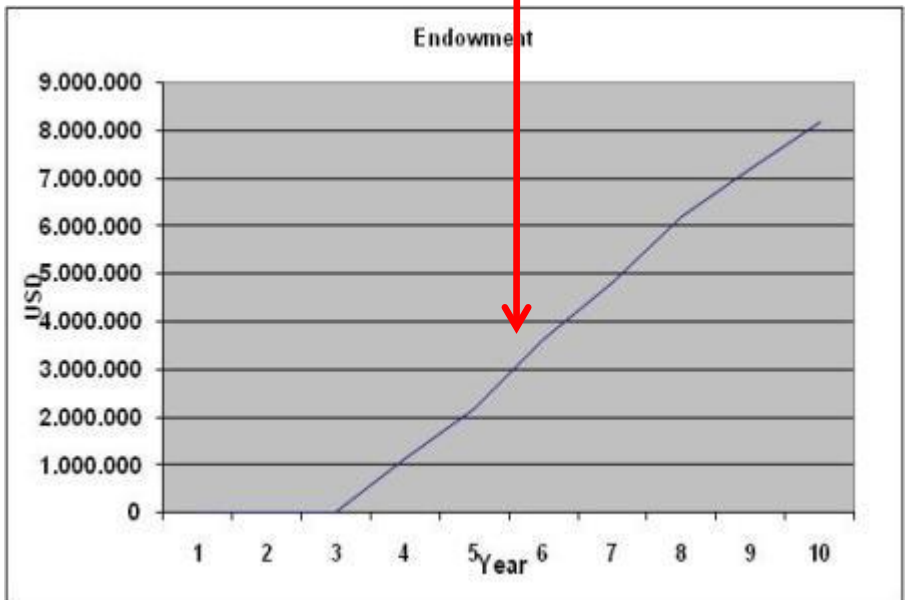


Activity scores

Technical analysis 2: Financials



1. Conservation costs
2. Operation costs (10%)
3. Endowment fund



5-7 M in 5 years

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Technical analysis 3: Legal

1. Regulatory framework about watershed protection
2. Potential sources of public funding for the Water Fund
3. Water Fund complementing (not competing) public entities tasks

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The business case

Green Vs Grey

1. Reducing current costs
2. Avoided costs (flooding, health)
3. Delaying asset facility investments, such as turbiness

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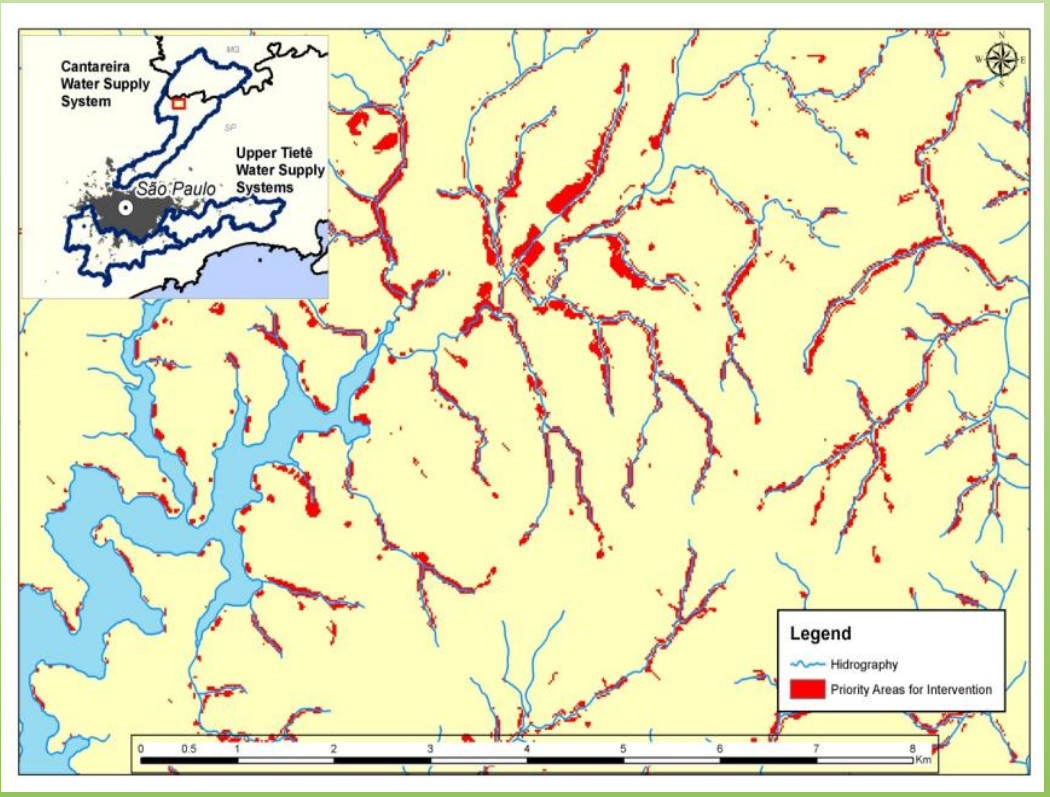
Business case São Paulo, Brazil



- 14,300 hectares of priority areas (3% of total area) = 50 % of sediments abatement = 600,000 tons per year
- US$ 4.9 million/year of potential reduction in water treatment and drainage costs (no considering other potential benefits as reduction of other contaminants)

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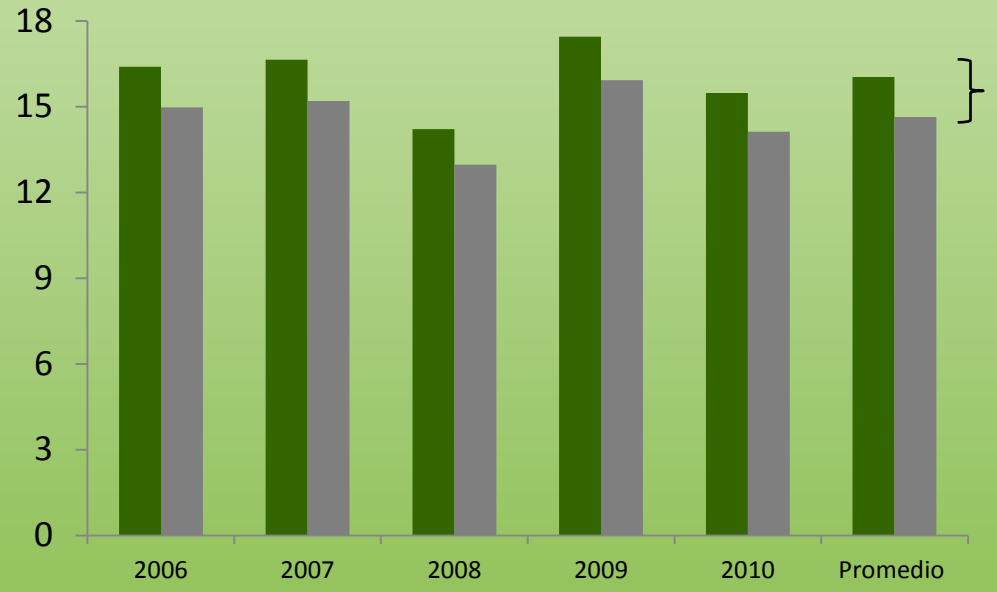
Business case Cauca Valley, Colombia

Increased pressure on water resources: potential reduction from 5 to 4 irrigation cycles

Sugar cane harvest (tons millions)



8,7% decrease in productivity

Loss of $33 millions / year
Loss of $250 / ha / year

Source: Cenicaña – estimations Asocaña

Water Funds Business Case:

Conservation as a Source of Competitive Advantage

- The Business Imperative
- Why Green Infrastructure Over Gray?
- Water Funds as Green Infrastructure: How do they work?
- Cases

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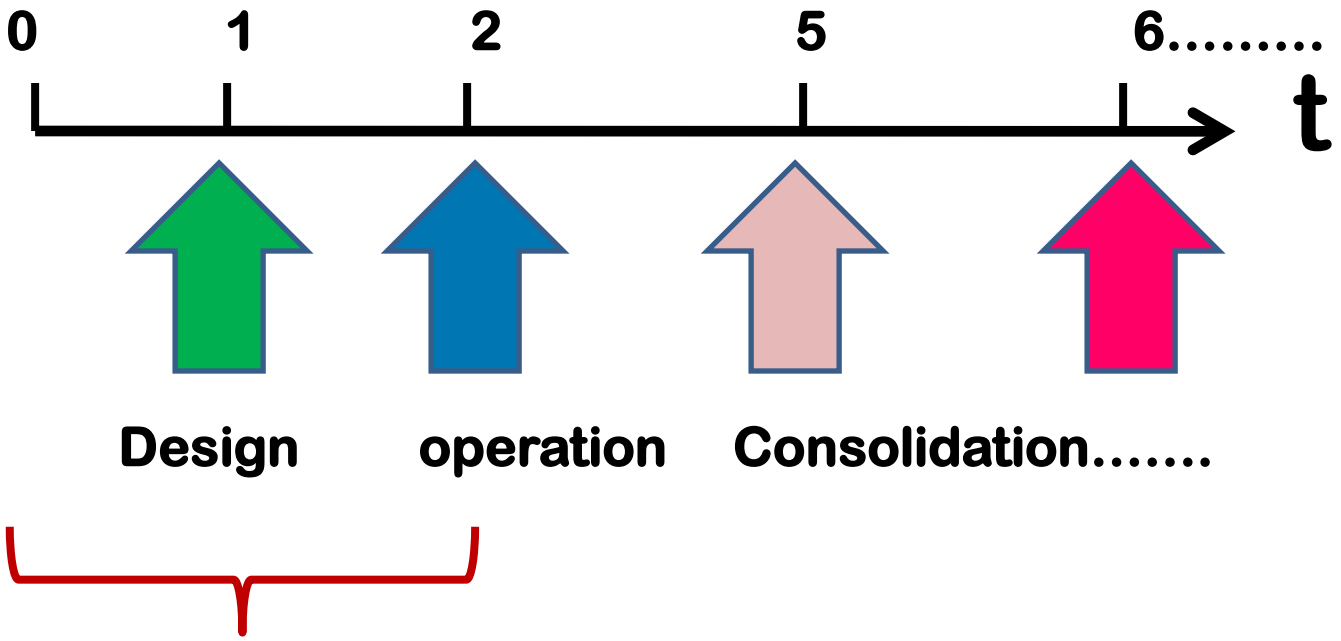
How much???



Cost: 300,000

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3. Operate a Water Fund

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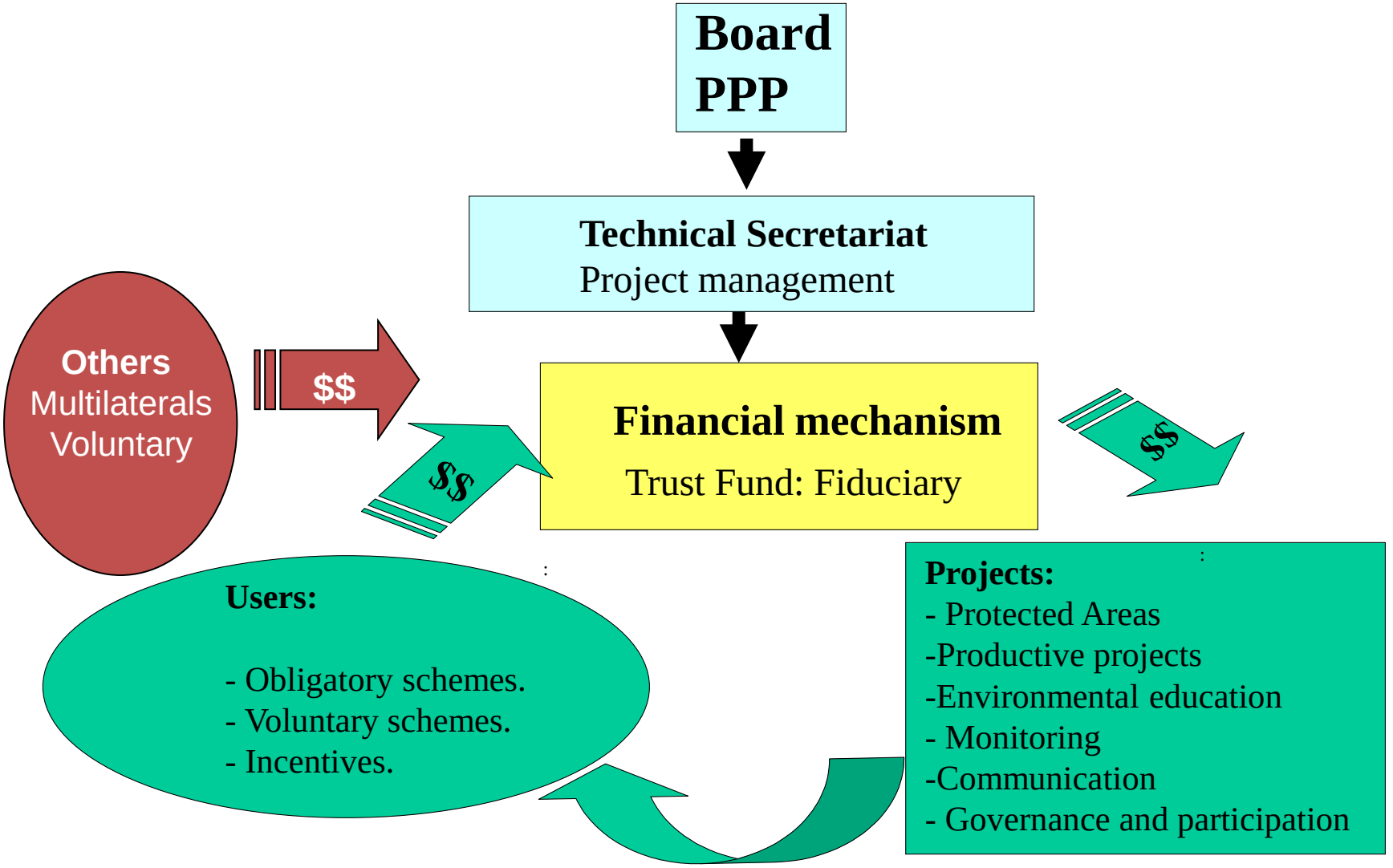
Setting up a structure



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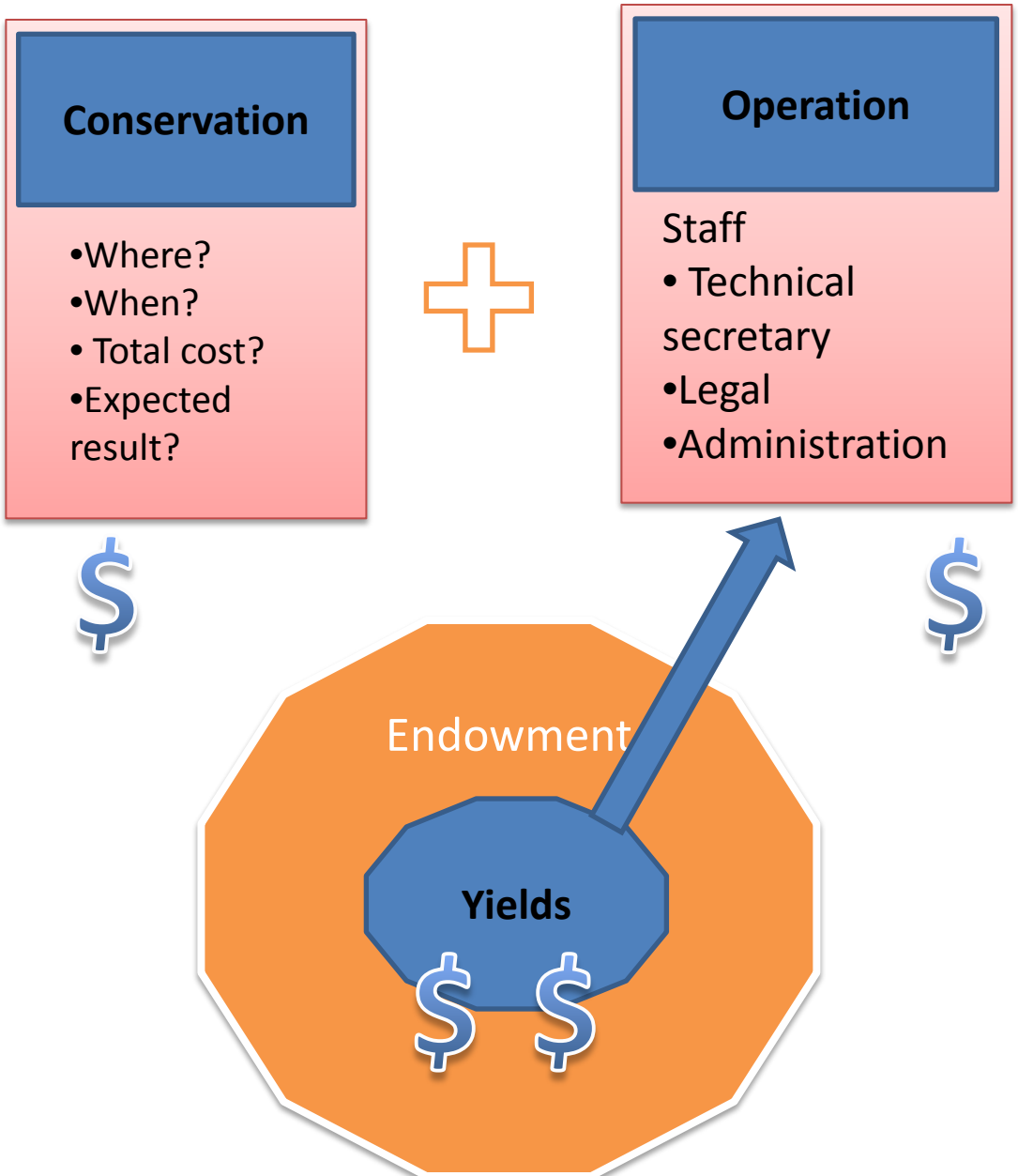
Build a strategic plan



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Start implementation

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Investments

Private and communal lands

1. Conservation agreements (in kind support; cash payments)
2. Best agricultural and cattle ranching practices (silvopastoril systems)
3. Riparian forests
4. Reforestation & restauration
5. Environmental education

Public areas

1. Park guards
2. Implementation of management plans

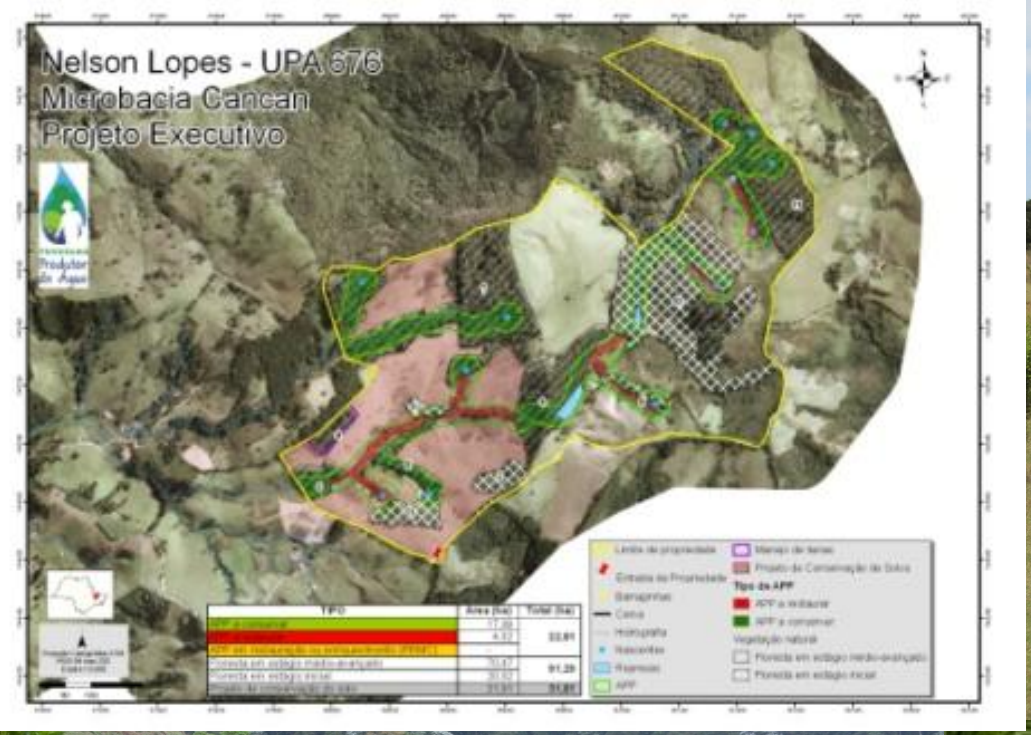
Start implementation










Nelson Lopes - UPA 676
Microbacia Cancan
Projeto Executivo


Brasil


Colombia
25/08/2010


Colombia

Peru


Ecuador


Colombia


Colombia

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4. Consolidate a Water Fund

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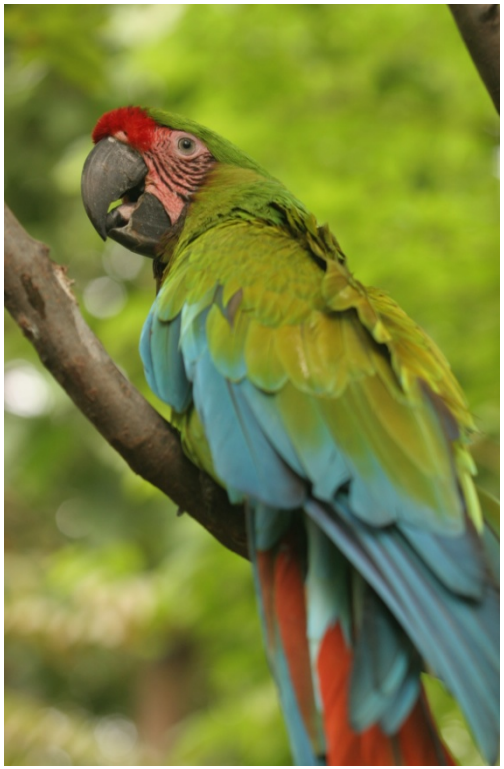
Secure financial resources, sustainability

1. From public sector
2. From private sector
3. From multilaterals
4. From international cooperation

Consolidate social capital

Increase local communities participation

A monitoring plan: hydrological, socioeconomic indicators



ACCOUNTABILITY

A monitoring plan design

- Measure – relates to water fund goal?
  - Be as quantitative as possible
  - Be as simple and handy as possible
  - Counterfactual - What would happen to water quality, water flow, biodiversity , people in absence of water funds?

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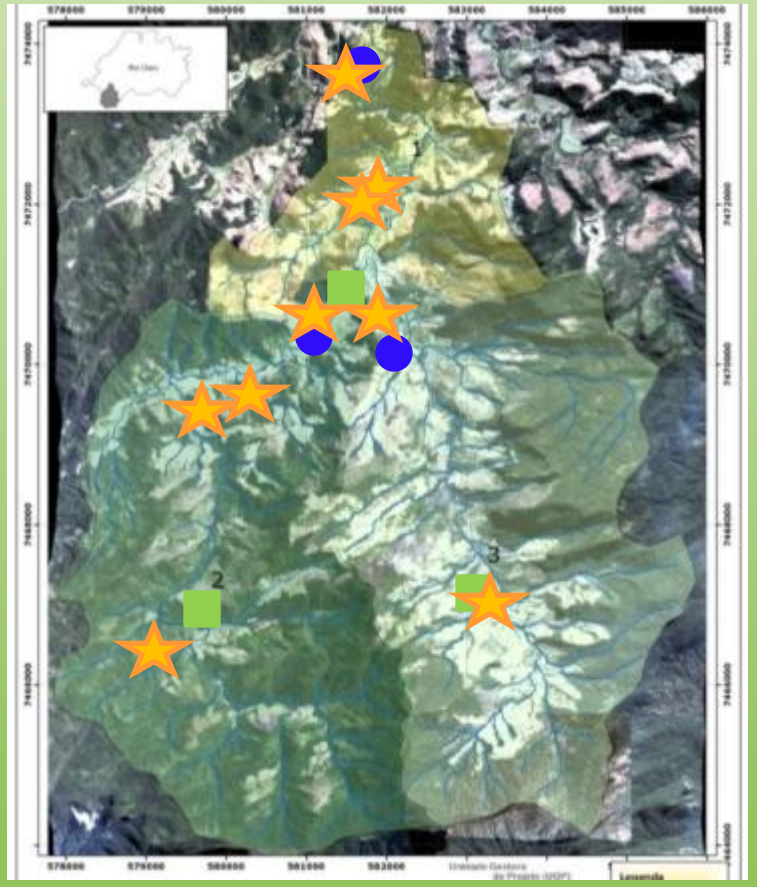
WATER MONITORING

Water Monitoring Sites

Precipitation
- 3 sites

Flow
- 3 sites

Community engagement



Quality
- 9 sites
- 9 items

Parâmetro Analítico
PH
Turbidez
DBO
Cor
Coliformes Termotolerantes
Oxigênio dissolvido
Nitrogênio amoniacal
Fósforo Total
Temperatura

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Biodiversity Monitoring

Paulo Petry

- Importance of riparian areas

- Terrestrial monitoring (páramos and forests) show encouraging results

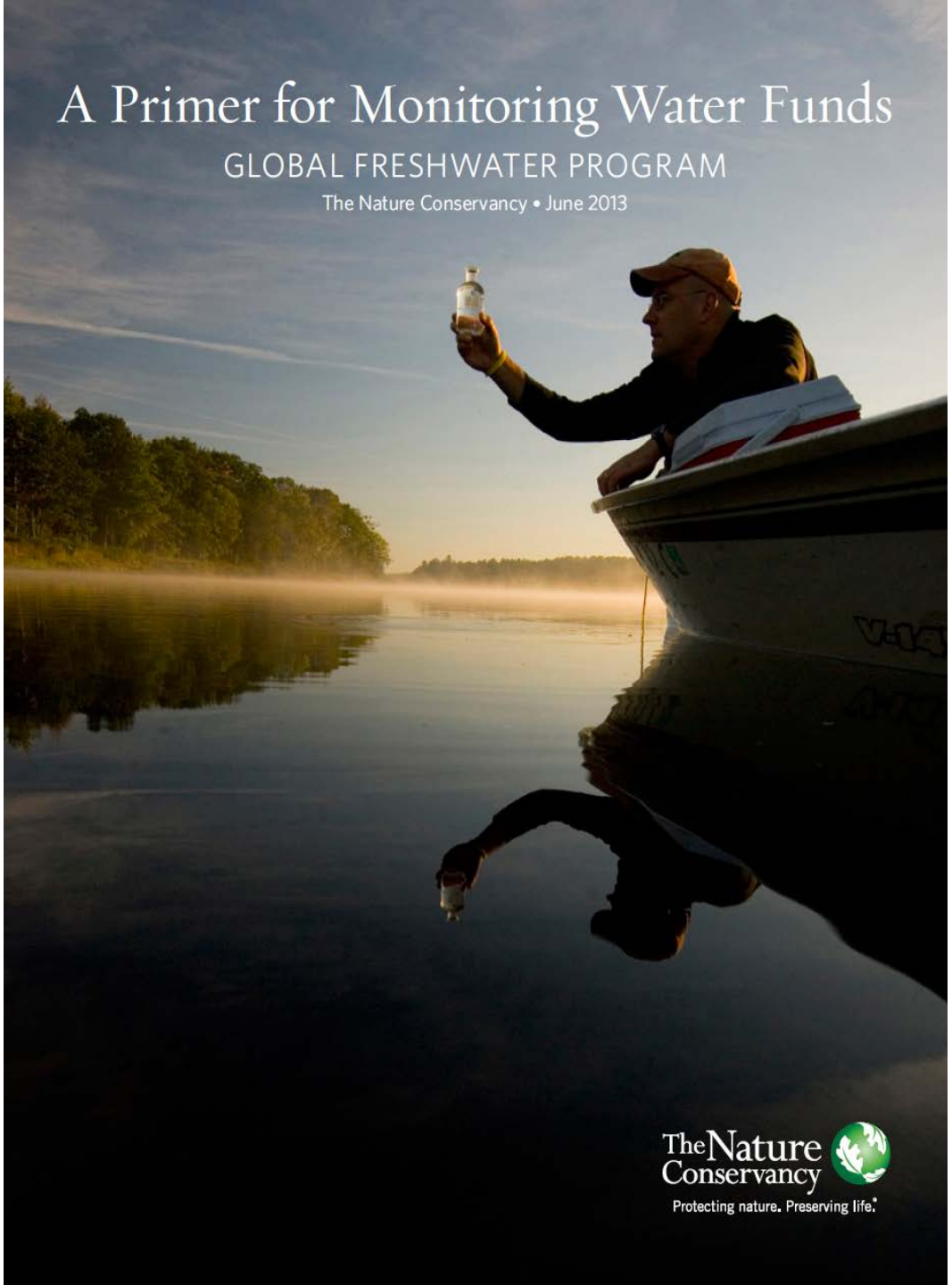
Biodiversity Monitoring

Results show forest species in restoration areas at buffer zones of Protected Areas close to Rio de Janeiro

A Primer for Monitoring Water Funds

GLOBAL FRESHWATER PROGRAM

The Nature Conservancy • June 2013



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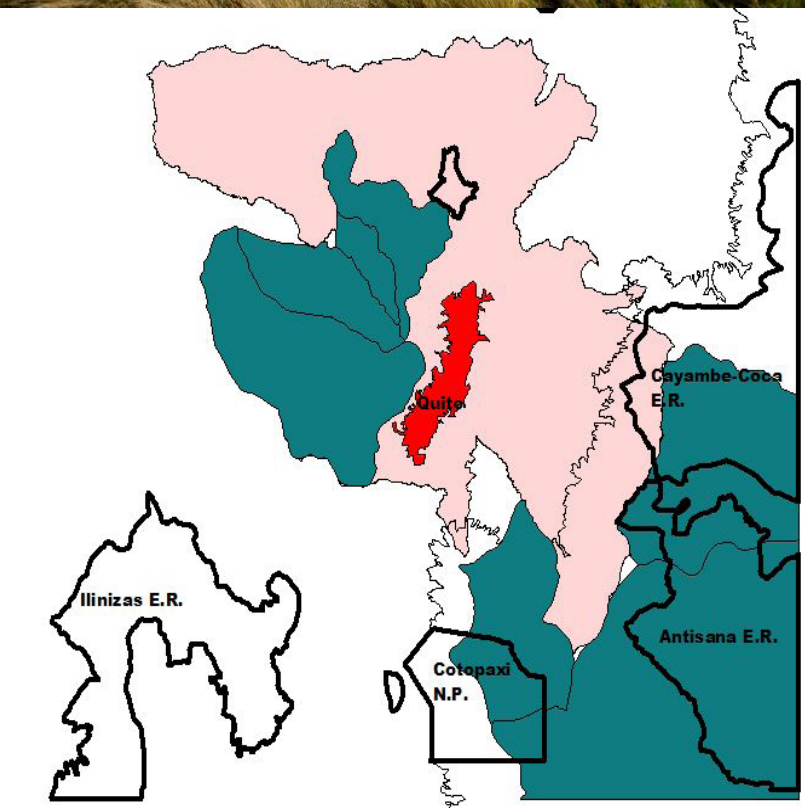
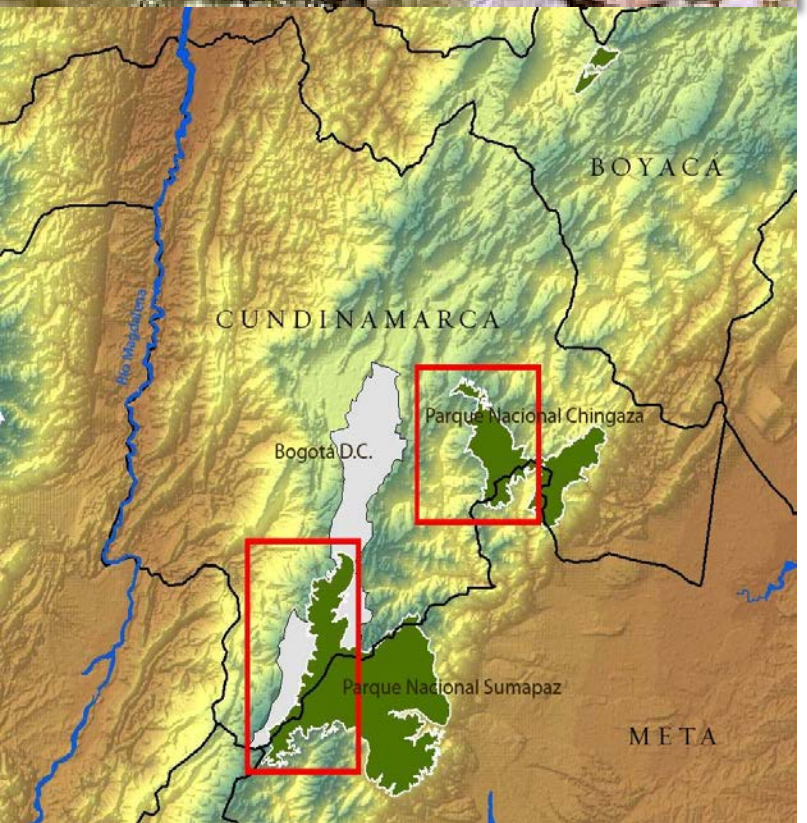
5. Successful stories



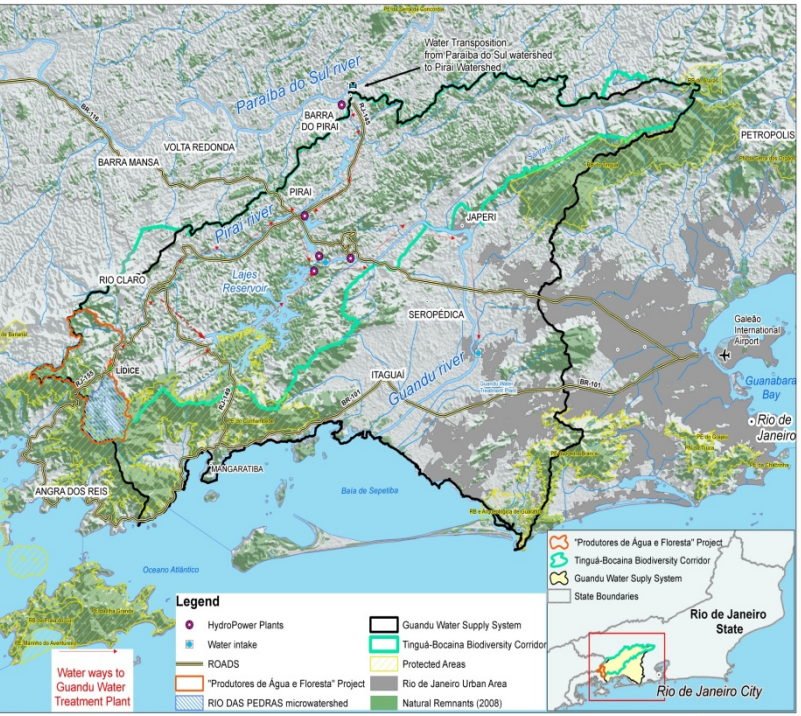
- Quito: 2,3 Million people
- Illinizas, Cotopaxi, Antisana, Cayambe Coca P.A.
- WF Started in 2000
- Goal: Protect Quito water sources
- Partners: Quito water facility, National brewery, Tesalia springs bottled water; Swiss Cooperation
- Endowment: USD 12 Million
- Projected resources for 2014: US 950,000
- Accomplishments:
  - More than 100,000 Has of priority ecosystems conserved
  - Protected areas strengthened (11 parkguards)
  - Increase food security and income
  - 1,000 families implementing sustainable practices
  - 31,000 children involved in environmental education



- Bogota: 7,8 Million people
- Chingaza and Sumpaz P.A.
- WF Started in 2009
- Goal: sediments reduction
- Partners: SAB Miller, Parques Nacionales, Patrimonio Natural Foundation. Support Coca Cola system (Colombia)
- Endowment: USD 400,000
- Projected results 2014: US 350,000
- Accomplishments:
  - Fencing and protection of more than 25 Km of riparian buffers
  - More than 450 has under conservation
  - Public/private articulation

*

Produtores de Água e Floresta
Guandu - RJ



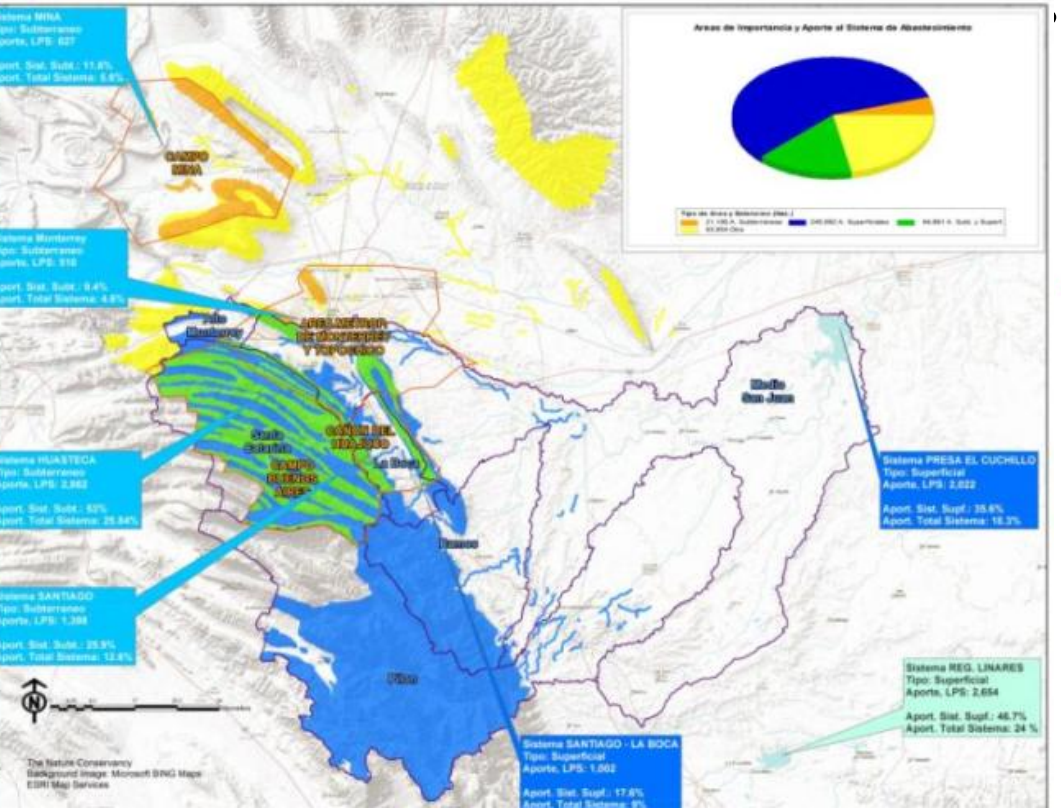
- Rio de Janeiro: 8 Million people
- Cunhanbebe and Bocaina P.A.
- Project launched in 2008
- Goal: set up 14,000 Has under conservation for water protection and sediment retention
- To date:
- 7.649 has protected and more than 533 has reforested
- More than USD 4,5 Million raised for watershed conservation

Unidade Gestora do Projeto (UGP):

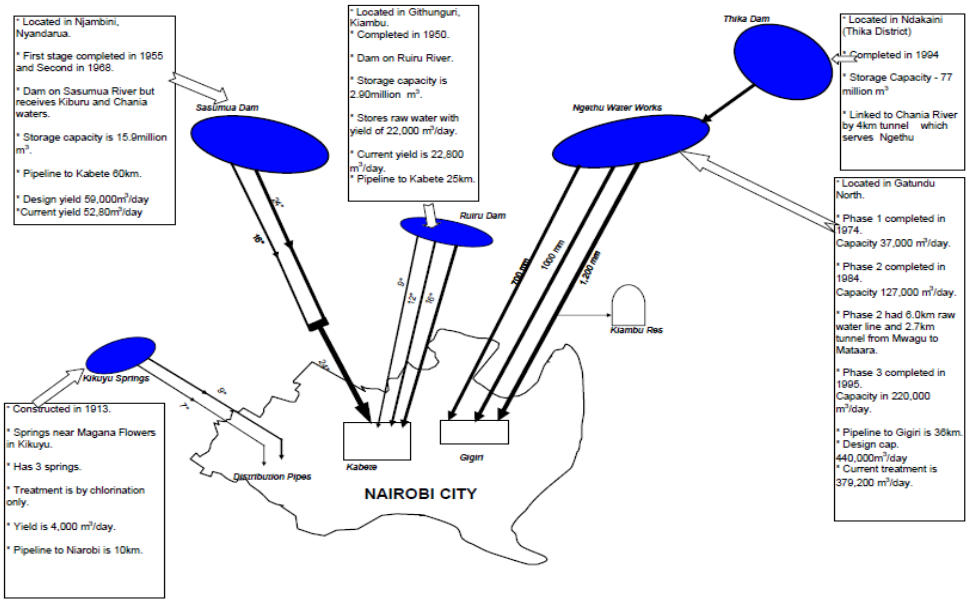
GOVERNO DO Rio de Janeiro
Secretaria do Ambiente
inea instituto estadual do ambiente
GUANDU Comitê da Bacia Hidrográfica
RIO CLARO
The Nature Conservancy
Proteger a natureza é preservar a vida.
iTPA Instituto Terra de Preservação Ambiental

FONDO DE AGUA
Metropolitano de Monterrey

- Monterrey: 5,2 Million people
- Cumbres P.A.
- Launched in 2013
- Goals: flood control; increase infiltration
- Committed funds: US 12 Million



WATER SOURCES FOR NAIROBI CITY WATER AND SEWERAGE COMPANY



- Nairobi: 3,3 Million people
- Key watershed: Upper Tana River
- Protected Areas: Mount Kenya National Reserve, Aberdare National Park, Aberdare Forest Reserve, Meru National Park, and Mwea Reserve.
- Main stakeholders: Nairobi Water and Sewerage Company- NWSC-
- Technical studies ongoing, expected to be launched in early 2015

- **44 Water Funds initiatives in Latinamerica across 14 countries**
- **17 Created and Operating, 17 in Design and 10 under Evaluation by TNC and partners**
- **Potential to benefit 86 million of people**
- **More than 85 million USD raised for green infrastructure initiatives**

LATIN AMERICAN WATER FUNDS PARTNERSHIP

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Water and Sanitation Initiative

Top 25 Cities for Green Infra investment

1	Bucaramanga, CO
2	Curitiba, BR
3	Bogota, CO
4	Santos, BR
5	Maceió, BR
6	Salvador, BR
7	Sao Paulo, BR
8	Barquisimeto, VZ
9	Medellin, CO
10	Recife, BR
11	Quito, EC
12	Guatemala City, GT
13	Tijuana, MX
14	Joao Pessoa, BR
15	Brasilia, BR
16	San Jose, CR
17	Rio de Janeiro, BR
18	Caracas, VZ
19	Maracaibo, VZ
20	Santiago, CH
21	Monterrey, MX
22	Vitoria, BR
23	Belo Horizonte, BR
24	Goiania, BR
25	Toluca, MX

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natural capital PROJECT

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