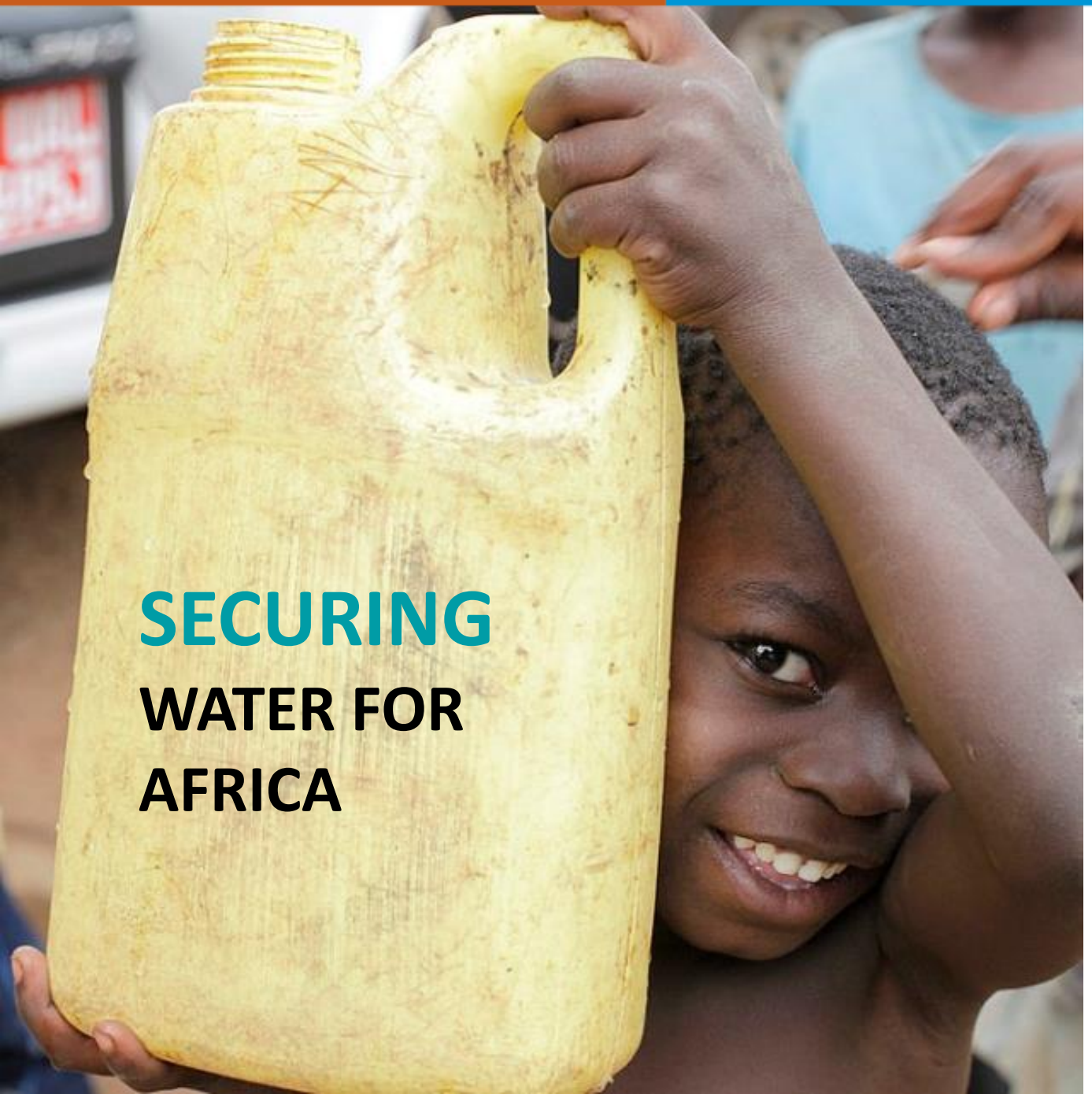


Nature based solutions for urban areas

Green Infrastructure Solution for Africa People and Economies

By SYLVAIN USHER, EXECUTIVE DIRECTOR- AfWA

THE AFRICAN WATER ASSOCIATION

Several managers of organizations involved in the African drinking water and sanitation sector decided in **February 1980** to establish an Association known as:

THE UNION OF AFRICAN WATER SUPPLIERS (U.A.W.S.)

Côte d'Ivoire, Benin, Togo, Cameroon, Gabon, Ghana, Guinea, Upper Volta, Mali, Niger, Senegal, Liberia

In 2004 after the various institutional Reforms that took place in the water sector during the 90s in Africa, new bodies such as regulators, assets holding companies, sanitation utilities were brought to daylight and wanted to benefit from the various actions of AfWA and wanted to join the Institution.

The Union of African Water suppliers changed objectives and name and was called

THE AFRICAN WATER ASSOCIATION (AfWA)

AfWA /AAE

THE AFRICAN WATER ASSOCIATION

THE OBJECTIVES

Coordinate the search for knowledge and up-date technical, legal, administrative, and economic data gathered in the area of Water Supply, Sanitation and the Environment;

Initiate, encourage and promote any actions of cooperation and exchange in professional training;

Foster permanent exchange of information in all areas related to water supply, sanitation and environment, particularly on research and implemented techniques;

Promote contacts, exchanges and cordial relationship among professionals of the sector in Africa and throughout the world. The Association organizes congresses, colloquia, seminars, workshops and technical sessions.

THE ORGANS

THE CONGRESS
THE GENERAL ASSEMBLY
THE EXECUTIVE BOARD
THE SCIENTIFIC AND TECHNICAL COUNCIL THE EXECUTIVE OFFICE

THE RESOURCES

They are essentially the contributions of the Members and, exceptionally, by gifts and subsidies.

THE MEMBERSHIP

ACTIVE MEMBERS
AFFILIATE MEMBERS
INDIVIDUAL MEMBERS
HONORARY MEMBERS

THE ACTIVITIES

LIMITED INDIVIDUAL CAPACITY BUILDING PROGRAMS

SPECIFIC PARTNERSHIPS

TECHNICAL PROJECTS

ASSOCIATION INITIATIVES

PARTICIPATION IN TASK FORCES & WORKING GROUPS

LONG TERM CAPACITY BUILDING PROGRAMS

CAPACITY BUILDING INSTITUTION

AfWA /AAE

THE AFRICAN WATER ASSOCIATION CAPACITY BUILDING ACTIVITES

1. WATER OPERATOR PARTNERSHIP
2. MONITORING FOR SAFE WATER
3. NON REVENU WATER REDUCTION
4. KNOWLEDGE SHARING PLATFORM
5. RASOP AFRICAN SANITATION OPERATOR
6. AFRICAP AFRICA CAPACITY BUILDING

Association Africaine de l'Eau (AAE)
African Water Association (AfWA)
AfWA /AAE

THE AFRICAN WATER ASSOCIATION CAPACITY BUILDING ACTIVITES

7 AFRIALLIANCE FOR CIMATE CHANGE

8 YOUNG WATER AND SANITATION PROFESSIONAL

9 PROFESSIONAL WOMEN IN WATER AND SANITATION

10 MAYORS FORUM PROGRAM INITIATIVE

AfWA /AAE

Growing the Water Fund footprint in Africa.
African Water Association and The Nature Conservancy

The Nature Conservancy
Africa

Association Africaine de l'Eau (AAE)
African Water Association (AfWA)
AfWA /AAE

THE NATURE CONSERVANCY

The Nature Conservancy is an environmental protection organization founded in 1951 in the United States of America; **Its GOALS** : Preservation of plants, animals natural resources (Water) and natural communities that represent biological diversity through the storage and protection of the environment.

WATER FUNDS : Working with partners around the world, The Nature Conservancy (TNC) is developing WATER FUNDS that enable downstream water users to jointly invest in upstream land conservation and restoration, to secure improved water quality and regulate water supply.

Protecting water at its source by conserving and restoring upstream watersheds

Transforming the way cities manage their water by blending green and gray infrastructure investments

Inspiring and equipping others to replicate the proven water fund model

Over the past 15 years, TNC has helped established 29 water funds worldwide and currently has another 30 in development.

The Nature Conservancy

AfWA /AAE

THE CHALLENGES THAT THE NATURE BASED SOLUTION SHOULD OVERCOME

INCREASING DEMAND FOR WATER

As Africa's human population grows and urbanizes, demand for water to supply domestic, agriculture, industry, and energy needs escalates.

WATERSHED DEGRADATION

Unsustainable land and water use practices impact the availability, reliability, and quality of water flows on which people, wildlife, and ecosystems depend. Climate change increases the challenge. **Watershed Degradation Costs Global Cities $5.4 Billion in Water Treatment Annually**

WATER FUNDS

A tested approach for investing in watershed rehabilitation and services; Water funds are a proven mechanism for pooling and deploying resources to finance protection of source water areas and their capacity to maintain downstream water quality and quantity.

The Nature Conservancy

AfWA /AAE

THE CHALLENGES THAT THE NATURE BASED SOLUTION SHOULD OVERCOME

All of those threats affect the quality and quantity of water resources.

- ❑ Pollution due to runoff (leaching of riverbanks, thrust of solid waste, silting, siltation, turbidity of dams)
- ❑ Chemical pollution (agricultural inputs, industrial waste)
- ❑ Urbanization (occupation of protected areas, deforestation of protected areas, poor management of the watershed
- ❑ Organic pollution (water hyacinth, eutrophication)
- ❑ Climate change (non-controlled rainfall, drying up of rivers and dam)
- ❑ Salinization
- ❑ Land degradation along the River course i.e. sand mining

The Nature Conservancy

AfWA /AAE

The Nature Conservancy

CASE OF UPPER TANA-NAIROBI WATER FUND

NICK HALL

WATER

ESSENTIAL INGREDIENT FOR HEALTHY LIVES AND HEALTHY ECONOMIES

Tana River provides 95% of Nairobi's water supply

50% of Kenya's energy

Supports more than 300,000 smallholder farmers

The Nature Conservancy

AfWA /AAE

TANA RIVERS CHALLENGES

Unsustainable farming practices sending sediment into the river, resulting in:

- Higher costs for water treatment
- Lower water levels
- Lower hydropower output

Water security will only become more challenging as climate change brings increasingly unpredictable rainfall and the city's population continues to climb

The Nature Conservancy

AfWA /AAE

Upper Tana-Nairobi Water Fund (UTNWF): Goals

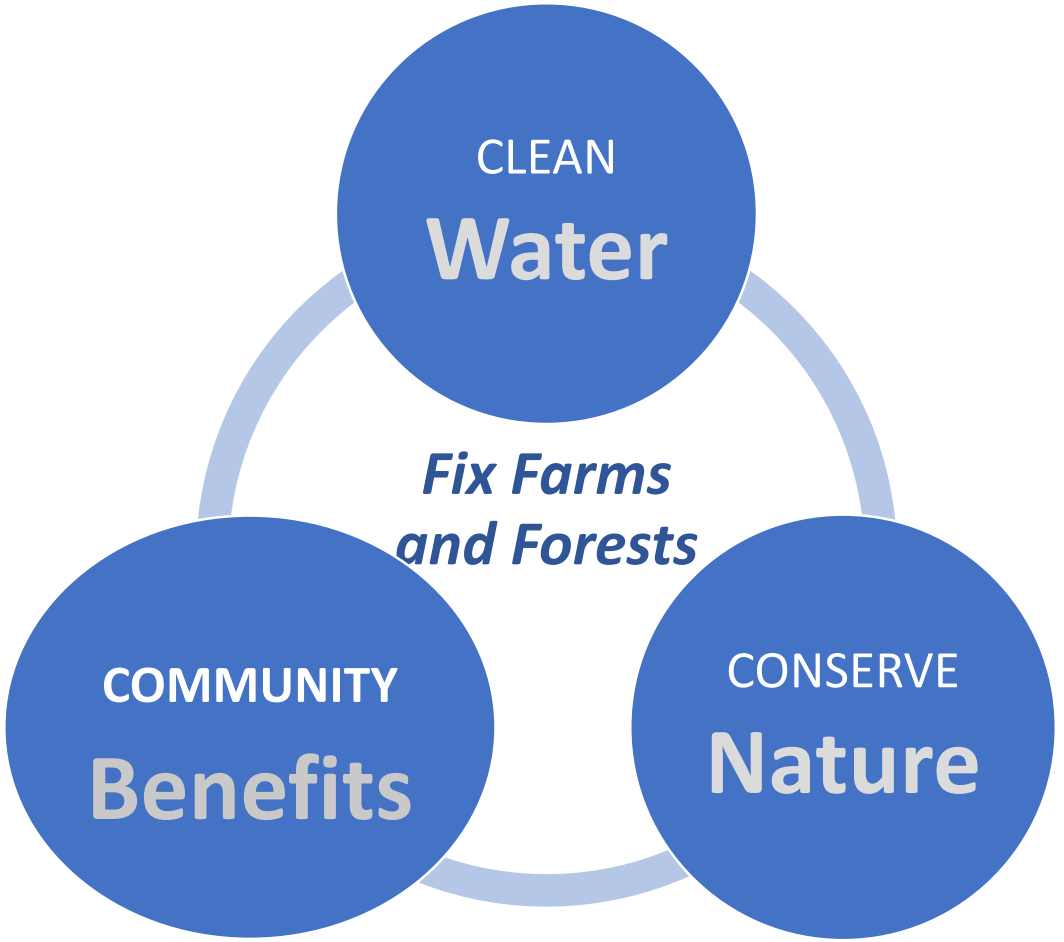
OPPORTUNITY: TNC worked with partners to create a Water Fund, a globally proven model that brings people together to harness the power of nature conservation to solve water challenges.

GOALS (benefits) of the Upper Tana-Nairobi Water Fund are **3Cs**

- ***C****lean* ***W****ater: Improve quality and increase quantity of water.*
- ***C****ommunity Benefits: Increase income and other livelihood benefits for farming families.*
- ***C****onserve* ***N****ature: Reforest and improve the health of freshwater ecosystems.*

STRATEGY to achieve these goals is to **fix farms and forests**.
Plant 2 million trees and to work with 50,000 farmers on steep slopes by:

- Implementing *on-farm practices* that save soil and save water.
- Mobilizing a *force for conservation*, from youth to corporate leaders.
- Ensuring *durable progress* through independent governance and a Water Fund endowment.



THE WATER FUND | a proven model

- Founded on the principle that it is less expensive to **prevent water problems at the source** than address them further downstream

Scientists have shown that for every one dollar invested in conservation strategies in the Tana River watershed, we will avoid two dollars in costs of correcting impacts on water supply and energy production.

- Urban water users invest in upstream **watershed conservation strategies** that aim to improve farming practices

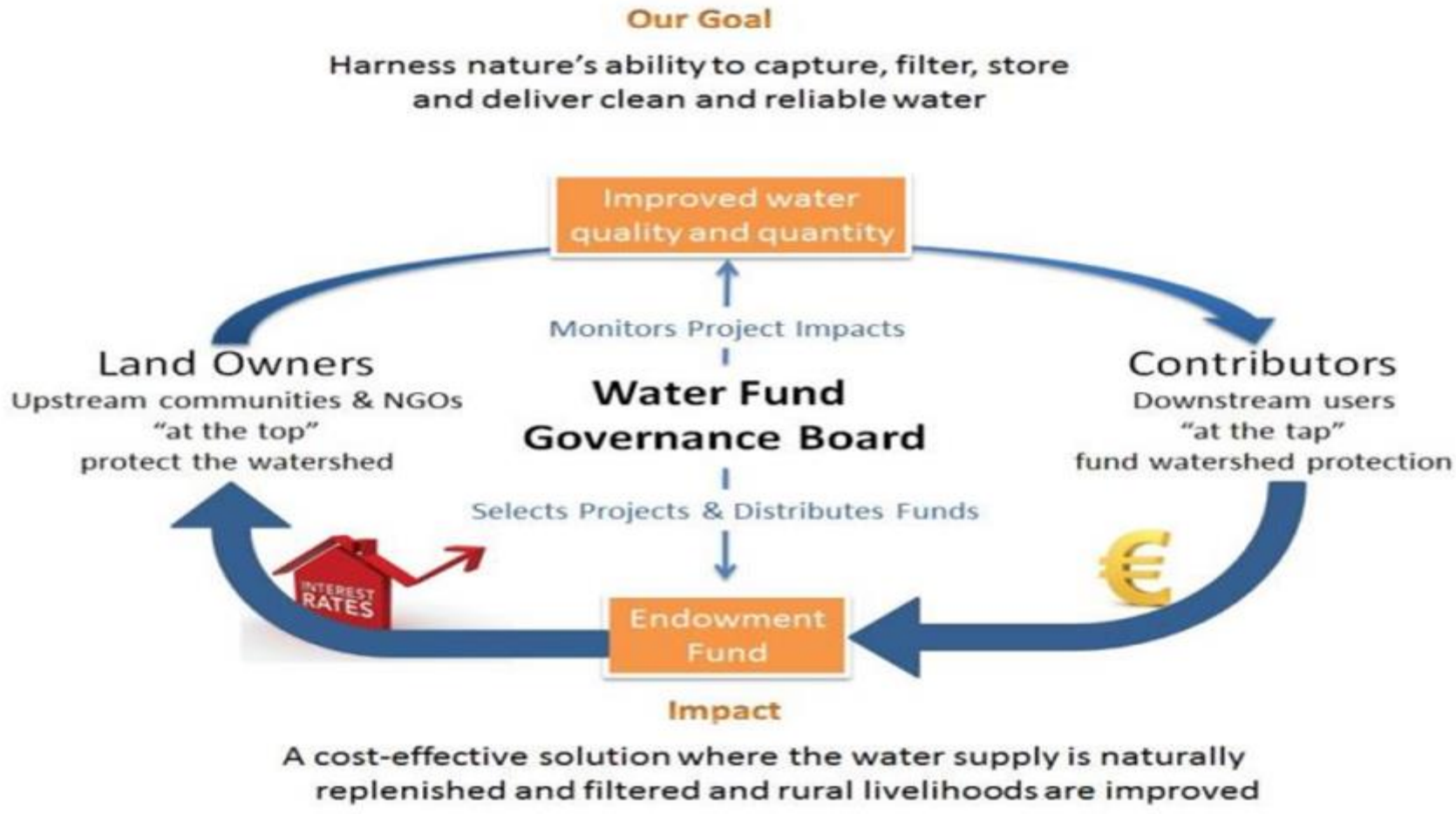
- Provides a **secure and transparent tool** for corporate and public investors to **direct resources to conservation strategies** that will yield the greatest returns for the common good and the economy

- Builds on the expertise TNC scientists have gained from designing more than **30 water funds around the world**

The Nature Conservancy

AfWA /AAE

The Water Fund Model



SIMPLE SOLUTIONS TO BIG CHALLENGES

- Vegetation buffer zones along riverbanks
- Agroforestry
- Terracing of steep and very steep farmlands
- Reforestation for degraded lands at forest edges
- Grass buffer strips in farmlands
- Mitigation of erosion from dirt roads
- Rain water harvesting – water pans

The Nature Conservancy

AfWA /AAE

SIMPLE SOLUTIONS TO BIG CHALLENGES

Nairobi Water Fund budget has averaged $1.2- 1.5 million per year over the last 2 years. Of this $1 million is invested in the direct conservation activities as stipulated in the Nairobi Water Fund Business Case 2015. The rest pays for operation costs, assets and monitoring systems establishment for rivers and land.

Fundraising is underway to capitalize a $15 million (USD) UTNWF Endowment to generate a stable source of funding for conservation

The Nature Conservancy

AfWA /AAE

IMPACTS | farmers

More than 21,000 farmers are applying **soil conservation and water-saving methods**

Up to **US$3 million per year in increased agricultural yields** for smallholders and agricultural producers

8,500 coffee farmers jointly certified for **Rainforest Alliance**

- **Conservation of biodiversity**
- **Livelihood improvement and human well-being**
- **Conservation of natural resources**
- **Effective agricultural planning and management systems**

IMPACTS | land & water

27 million more liters of water flowing into Nairobi each day

Up to **50% reduction in sediment** concentration in rivers over time

Over 250,000 trees are planted annually in the watershed

120,000 acres are under **sustainable management**

IMPACTS | business sense

Over **US$600,000 increased annual revenue for KenGen** as a result of increased power generation and avoided shutdowns and spillages

Approximately **US$250,000 in cost savings a year for Nairobi City Water & Sewerage Company** stemming from avoided filtration, lowered energy consumption, reduced sludge disposal costs and fewer shutdown days

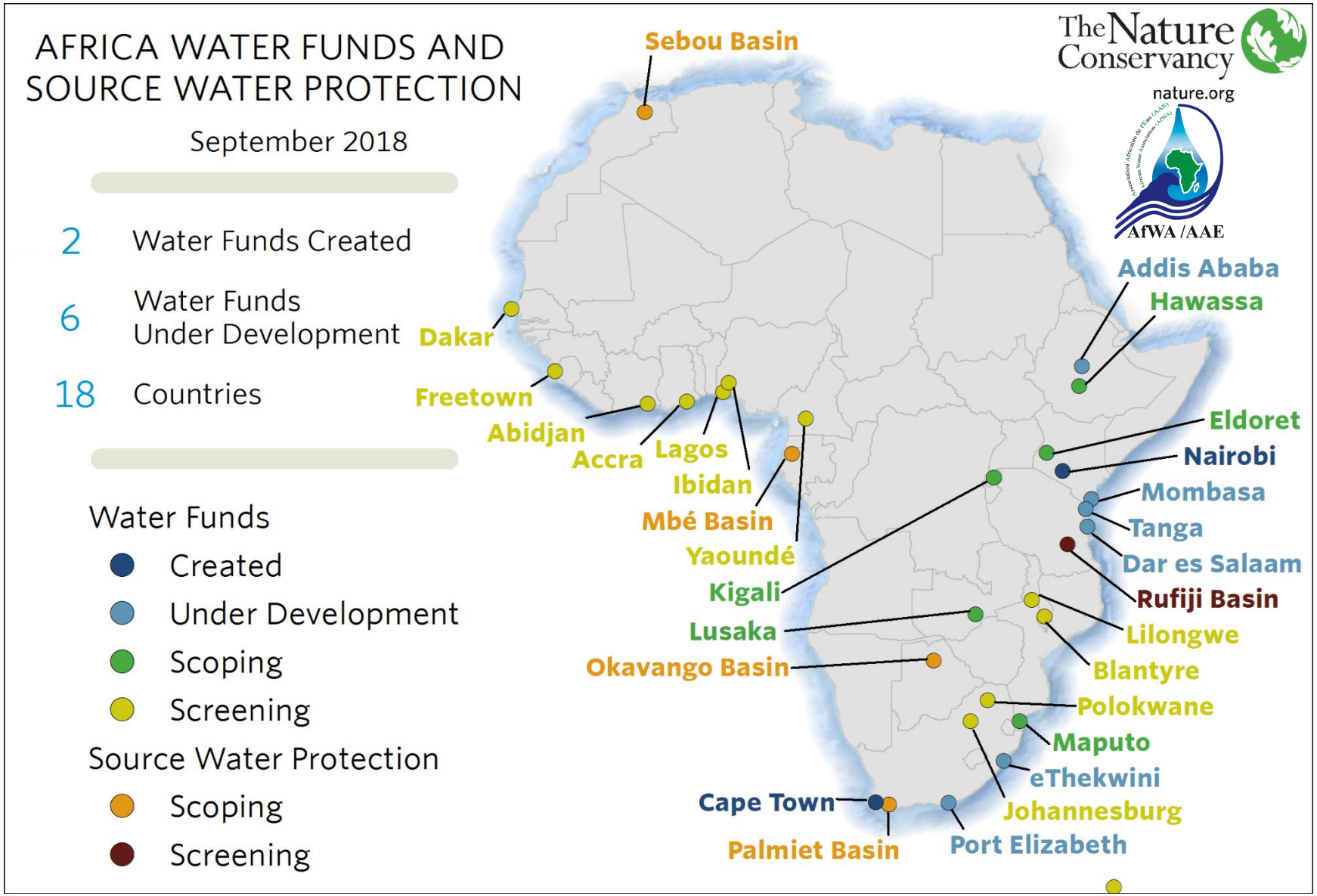
The Nature Conservancy

AfWA /AAE

UTNWF Partners

A PPP Model replicable across Africa

Projected water fund footprint, 2025



Impact Investment in Cities:

Enabling Conditions for Broad Conservation Gains

natureVest™ | The Nature Conservancy

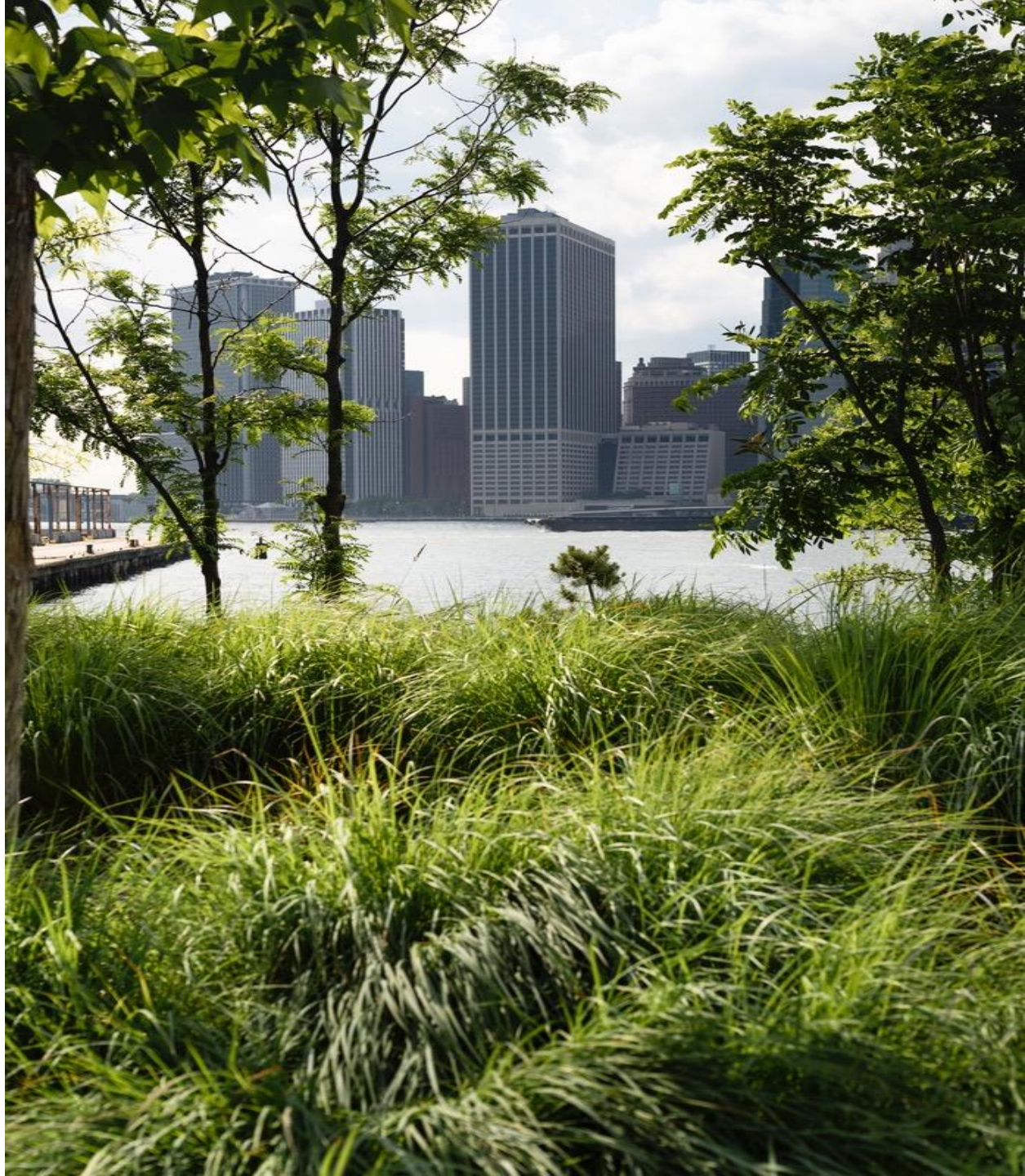
AfWA /AAE

What problem are we solving for the city?

1. What mandates are driving the municipality or private actors within that jurisdiction to consider conservation measures (e.g. consent decree, sustainability plan, local regs)?
2. What is preventing success (e.g. lack of financing, legal/procurement rules, lack of staff capacity, lack of leadership/coordination)?
3. Are there sufficient service providers/labor to deliver the conservation outcome?

What are the critical factors that determine investment viability?

1. Does the policy or regulatory environment ensure that the public good (conservation) is valued monetarily?
2. Is the public or private actor that is the beneficiary of the public good willing to pay for it? If so, how secure is that revenue (e.g. is it mandated, are they credit worthy)?
3. Is there capacity on the ground to deliver the benefit?



Enabling Conditions

POLICY

- Local policies mandating storm water retention
- Regulatory pressure to invest in municipal infrastructure
- National Standards for green infrastructure that allow to manage a portfolio of projects across jurisdictions

MUNICIPAL LEADERSHIP

- Leadership from municipal leadership connecting land-based storm water management and policy development with citywide economic development
- Connectivity among city agencies responsible for resource management (e.g. mayor's office of sustainability, water dept, environment conservation

COMMUNITY PRESENCE

- Leadership from staff and local NGOs committed to community outreach and watershed management are necessary to reduce project predevelopment costs.
- Community commitment to water quality and urban greening, assurance that sites will be seen and cared for as assets in the community.

Thank You!

Sylvain Usher, African Water Association

AfWA /AAE