

UPPER TANA-NAIROBI WATER FUND

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STRATEGIC PLAN **2022–2026**



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Prepared by:



LIST OF ACRONYMS

BoM	Board of Management
BoT	Board of Trustees
CAC	Counties Advisory Committee
CMS	Cubic Meters per Second
GDP	Gross Domestic Product
ICRAF	International Centre for Research in Agroforestry
IFAD	International Fund for Agriculture Development
IOD	Indian Ocean Dipole
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KenGen	Kenya Electricity Generating Company
Ksh	Kenya Shilling
M&E	Monitoring and Evaluation
NCWSC	Nairobi City Water and Sewerage Company
NGO	Nongovernmental Organization
PESTEL	Political Economic, Socio, Environmental, and Legal
PPP	Public-Private Partnership
SLM	Sustainable Land Management
SSP	Shared Socioeconomic Pathway
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TNC	The Nature Conservancy
TSS	Total Suspended Solids
USD	United States Dollar
UTNWF	Upper Tana-Nairobi Water Fund
WF	Water Fund
WRA	Water Resources Authority

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PRESIDENT’S FOREWORD

On behalf of the Board of Trustees and Management of the Upper Tana-Nairobi Water Fund (UTNWF) Trust, I am pleased to present the Trust’s Strategic Plan for the period 2022–2026. This plan is a result of synthesis and integration of accomplishments and lessons learned over the last five years as they relate to the mandate of the Trust as envisaged in the incorporation Trust deed. This plan is a statement of intent about how the Trust, operating independently as of 2022, will continue to support the long-term conservation, protection, and maintenance of the Upper Tana watershed and thereby improve Nairobi’s water security and optimal functioning of Seven Forks hydropower generation plants along the Tana River. It also indicates the efforts that will be undertaken “to mobilize and efficiently deploy resources for sustainable and innovative conservation in the Upper Tana, resulting in improved livelihoods and safeguarded river water quality and quantity.” Equally, the strategic plan establishes specific goals aimed at achieving the Trust’s vision and mission of ensuring a well-conserved and managed watershed for sustained better life in the region and beyond.

The Trust brings together public and private sectors to work together in partnership and deliver collaborative solutions throughout the Upper Tana watershed for one of the greatest challenges to our future: source water protection. The Upper Tana watershed supports 95% of the water supply for Nairobi City and generates 65% of the nation’s hydropower. The plan also identifies and assesses the Trust’s strengths, weaknesses, threats, and opportunities, as well as identifies specific five-year strategic objectives that will be achieved through a series of strategic initiatives and detailed tasks to help us realize our vision and achieve the Trust’s strategic goals. During the strategic planning process, the Trust refined its vision to align with the aspirations espoused in the Trust deed, the 2015 UTNWF business case, the country’s development agenda, and the world’s desire to achieve the United Nation’s Sustainable Development Goals. The Trust’s four strategic focus areas that will drive it in realizing its vision are customer focus, financial plausibility, sound internal processes, and sustained organizational capacity. Successful implementation of the strategic plan will depend on the leadership, senior management and all staff fully embracing it and committing themselves to its attainment. I therefore call on all of us to work together to effectively conserve the source water areas and to sustain water supply security to Nairobi while at the same time ensuring sustainable livelihoods of the millions of communities living in Upper Tana and beyond so that this plan can be realized. I am confident that we shall effectively tackle any issues that may arise and thus make a visible contribution to the broader environmental and human development and to our prosperity.

As a trust, we are fully committed to implementing the clearly articulated goals in this plan. We commit to working with all stakeholders to continually develop appropriate policies and review the Trust’s work and operations to ensure smooth, successful implementation of this plan. I commend all those who gave their invaluable input, and more specifically the Board of Management and staff of the Trust who worked tirelessly to produce the UTNWF Strategic Plan.

Eddy Njoroge, E.B.S., C.B.S.

President, UTNWF Board of Trustees

PREAMBLE

I am pleased to present the Strategic Plan of the UTNWF for the period 2022–2026. This strategic plan is the culmination of an all-inclusive consultative process that involved our Board of Management, Trustees, staff, and other stakeholders. The plan incorporates lessons learned over the past five years, reviews past challenges, present new ones, and outlines the future for the Trust. The plan articulates a comprehensive road map for the next five years and outlines the Trust's short- and medium-term strategies. I urge staff to study and internalize the plan so that we can deliver on the targets set out therein. Going forward, our trust and individual performance commitments, as well as resource allocation, shall be based on this plan. To our stakeholders, this plan will serve as a yardstick for evaluating our performance as a trust and how responsive we are toward environmental, social, human, conservation, and development needs.

In developing this plan, the Trust considered several important factors to ensure that it is anchored on the prevailing government policies, national development plans, and the law. The most notable was that the UTNWF has attained maturity stage, according to the water fund development cycle. This follows a successful incubation phase managed by The Nature Conservancy (TNC). This plan refreshes the Trust's priorities and strategic objectives to fully meet the business case goals and targets, and provides the building blocks for the Trust's organizational, financial, and operational sustainability. This plan considers both the internal and external environment that the Trust operates in. It also incorporates contributions from diverse stakeholders and the lessons learned in the past to develop three strategic focus areas. Successful implementation of this plan calls for prudent leadership to enhance efficiency, effectiveness, and greater client orientation. Through this process, the Trust has identified a set of values that provide the cultural foundation required to align ourselves to the new strategy.

I am happy that given the consultative process we went through in developing this strategic plan, there is common understanding, common ownership, and common commitment to its implementation. As the chairman, I commit the BoT and by extension the BoM and CAC to remain the custodians and drivers of the implementation process, keeping the directors and key staff focused on the intended results to provide an enabling environment for success. On behalf of the Trust, I wish to express my gratitude to all those who participated or supported us as we developed this strategic plan. It was an exacting but nevertheless fruitful process. I have every confidence that we will deliver on this plan and thus make a positive contribution to source water protection, community livelihoods, clean water supply, and the economy of this country.

Emmanuel Rurema

Chairman, Board of Trustees, UTNWF Trust

EXECUTIVE SUMMARY

The Upper Tana-Nairobi Water Fund Trust is registered as a public charitable trust in Kenya with the following **Mission**: To secure the long-term conservation, protection, and maintenance of the Upper Tana watershed and the benefits it provides for people and nature by advancing nature-based solutions to water security. The UTNWF's **Vision** is "a well-conserved and managed Upper Tana watershed that sustains healthy livelihoods and ecosystem functions in the region and beyond, with the **Goal** to support the long-term conservation, protection, and maintenance of the Upper Tana watershed and thereby improve Nairobi's water security and optimal functioning of hydropower facilities along the Tana River.

The purpose and objective of this Five-Year Plan is to

- **Create Clarity** — Establishing a framework for documenting and evolving important strategic choices made by the trust leadership.
- **Provide Focus** — Allowing for more effective goal setting and purpose-based leadership by the trust.
- **Develop a Shared Road Map** — Driving measurable progress toward impact and systemic change.

The Upper Tana watershed is among the most important in Kenya for water supplies, agricultural production, and biodiversity conservation. The watershed supports 95% of the water supply for Nairobi City and generates 65% of the nation's hydropower. Over the next five years and beyond, the goals of the trust will be to significantly increase its investments to improve water quality and quantity in the Upper Tana watershed, enhance food security, protect freshwater and terrestrial biodiversity, and improve human well-being of local communities. This will be achieved by implementing four strategic objectives: enhancing the climate change resilience of biodiversity and ecosystem function in the Upper Tana; improving socioeconomic conditions for local and regional communities; increasing water supply and quality with enhanced resilience to climate change; and establishing effective policies, knowledge sharing systems, and sufficient funding to sustain water and land conservation activities in the Upper Tana. Achieving these objectives will include increasing the capacity and accountability to trust stakeholders; establishing robust data collection and sharing systems as part of monitoring, evaluation, and adaptive management; improving policies and investments of local governments and partners; strengthening trust institutional capacity; and securing an operating endowment that can sustain the work of the trust indefinitely.

The Trust is set up as a public-private partnership working collaboratively throughout the Upper Tana watershed on solutions for one of the greatest challenges to our future: source water protection. The Trust is an incorporated charitable trust in Kenya, governed by a board of trustees (BoT), board of management (BoM), and counties advisory committee (CAC), all of which oversee the work of staff and are led by a full-time executive director. In addition, over the first five years of operation, the Trust has established robust partnerships with local nongovernmental organizations (NGOs), government agencies, and research institutions to assist with and guide the implementation of watershed management. The Trust is now in a transition phase and will

operate independently as of September 2021. The Trust has developed the necessary management systems, human resources, financial management, and operational systems necessary to operate as an independent entity. The strategic plan, therefore, will guide the Trust by clarifying its strategic objectives and priorities over the next five years, and by providing a road map for implementation and monitoring to ensure the Trust remains focused on delivering outcomes for the Upper Tana watershed and downstream water users. The plan will also provide the foundations for Trust leadership, key partners, staff, and stakeholders to measure progress and adjust programs as necessary to focus and consolidate the work of the Trust for the next five years.

Introduction

Tana River Watershed and Regional Context

The Tana River is perhaps Kenya's most important river. It is the country's longest river — stretching almost 1,000 km from the edge of the Great Rift Valley to the fertile delta where it meets the Indian Ocean. A healthy Tana River is a significant contributor to Kenya's diversity and sustainability (Figure 1).

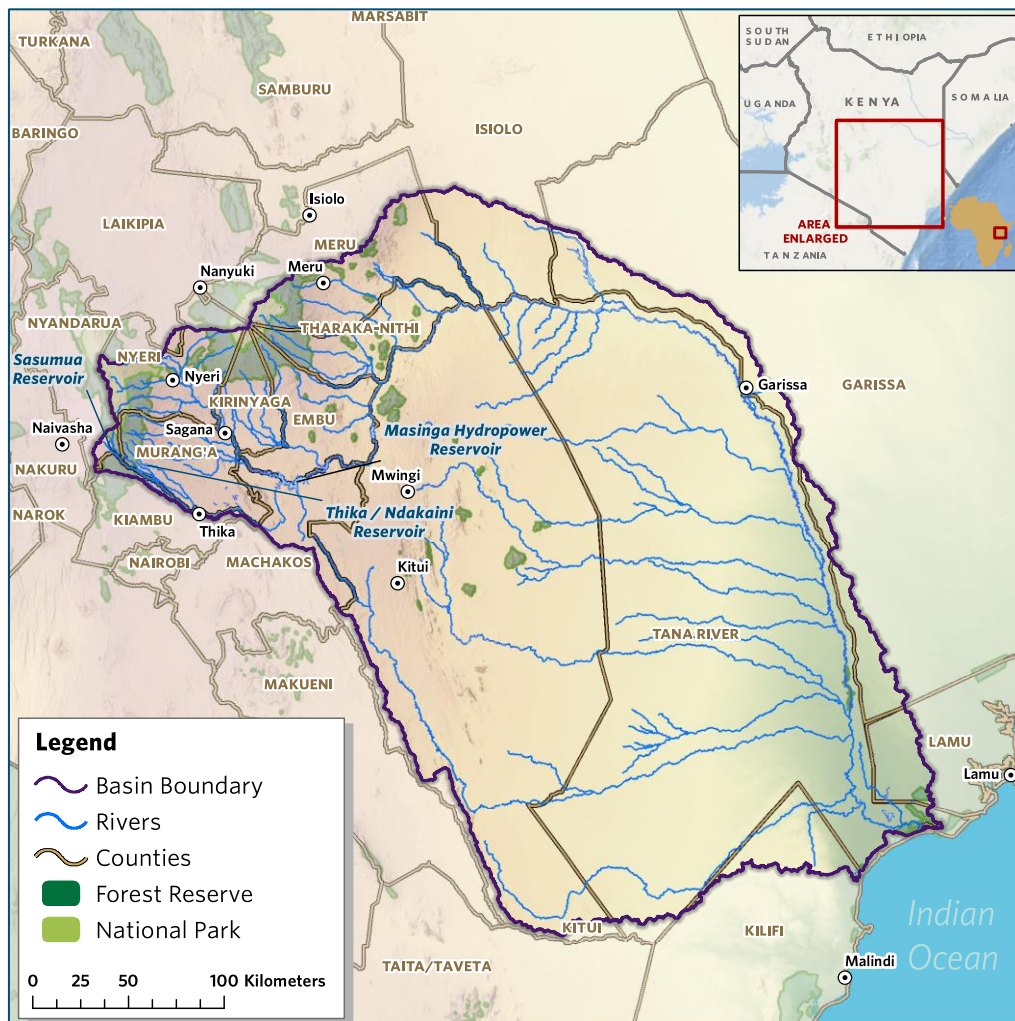


Figure 1: Tana River watershed.

The Tana sustains important aquatic biodiversity, provides water to key national parks, generates half of the total hydropower in the country,¹ and supplies 95% of Nairobi's wealth and water for

¹ Vogl et al. (2016). Valuing investments in sustainable land management in the Upper Tana River basin, Kenya.

a population of over 6 million people.² The water from the Tana is also the basis for Kenya's most productive agricultural area, driving agricultural activities that feed millions of Kenyans, and supporting over 300,000 smallholder farms along its course.

The Upper Tana basin is also among the most important for the people of Nairobi and Kenya for several reasons. The Upper Tana covers approximately 17,000 km² (the equivalent of 3 million football fields), including three catchments and two of Kenya's most important sources of water — Mount Kenya and the Aberdare Range (Figure 2).

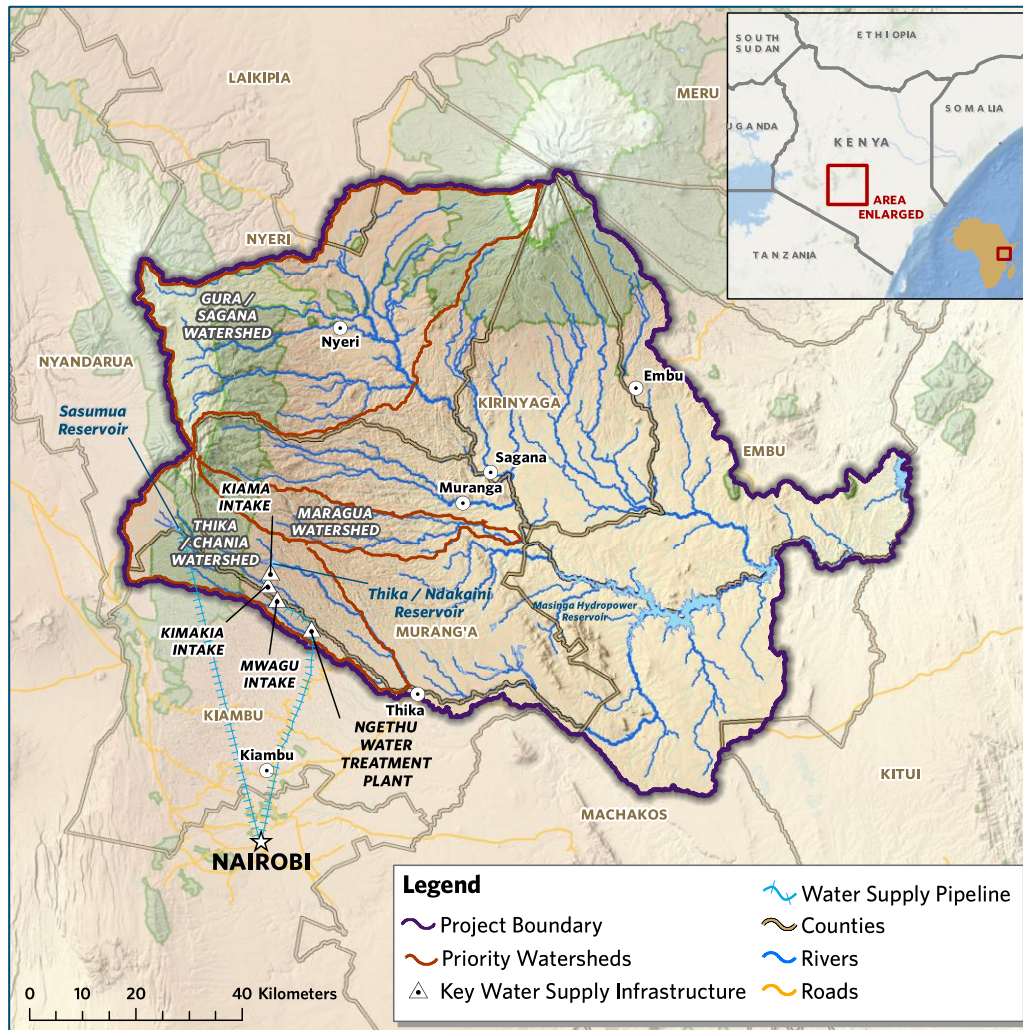


Figure 2: trust project area.

The Upper Tana supports over 5 million people in the counties of Kirinyaga, Murang'a, Nyeri, Nyandarua, Laikipia, Kiambu, Embu, and Machakos.

²2019 Kenya Population and Housing Census. Volume 1.

Agriculture is the backbone of Kenya's economy, contributing approximately 25% of the gross domestic product and employing 75% of the national labor force. The Upper Tana is no exception; thousands of smallholder farmers produce diverse crops in this watershed, including coffee, tea, macadamia nuts, avocados, Asian vegetables, potatoes, rice, citrus fruits, mangoes, arrowroots, maize, and beans. These crops are grown both for their importance for subsistence of local people and as cash crops. Given that approximately 80% of the Kenyan population lives in rural areas and makes a living directly or indirectly from agriculture, improving agricultural management and the resilience of farming communities in the Upper Tana through protection of clean water supplies will not only be important for these local communities, but also be an important contribution to Kenya's wealth and resilience.

The Upper Tana is also a crucial energy resource because it drains directly into the Seven Forks hydroelectric generation systems, with reservoirs at Masinga and Kamburu. The Seven Forks system generates 65% of Kenya's hydropower, which is a significant portion of the energy for Kenya overall. This is becoming increasingly important for Kenya's sustainable development. Biomass energy currently provides over 80% of Kenya's national energy needs, and demand for wood fuel already exceeds sustainable supplies, compromising both people's access to energy and the forested ecosystems from where this wood is collected. Thus, maintaining or even increasing the energy production of the Seven Forks dams will be essential for the region and the country in the coming decades. Also, developing and demonstrating improved watershed management and conservation to protect water supplies and energy production will provide a vital demonstration of how to improve energy and water sustainability that can be a model for Africa and the world.

It's not only people that depend on a healthy Upper Tana. This region is home to a rich diversity of plants and animals. The forests in these important but fragile mountain ecosystems are key sources of food, cover, and water, and they serve as migration routes and habitat connectors for a variety of wildlife. Several different kinds of forest characterize the watershed, each hosting a diversity of species. These forests are complemented by the river ecosystems, wetlands, and grasslands that create a mosaic of habitats providing the resources that hundreds of different kinds of wildlife depend on for their survival. Both Mount Kenya and the Aberdares are protected within a national park. They share many ecological affinities with each other and the surrounding, unprotected landscapes. Collectively, these watersheds support most of the country's surviving Afro-montane forest and Afro-alpine moorland, the latter an otherworldly landscape of open moorland studded with bizarre, giant forms of heather, lobelia, and groundsel. The two mountains host an outstandingly varied fauna, including the big five (lion, leopard, elephant, rhinoceros, and cape buffalo), alongside more localized forest species such as Sykes' monkey, the black-and-white colobus, Harvey's red duiker, mountain antelope, and the giant forest hog. The Aberdare Range is also one of the few places in Africa where melanistic (all black) leopard sightings are common, and its forests support one of only two remaining wild populations of the mountain bongo, a large, beautifully marked critically endangered forest antelope that is now effectively endemic to Kenya, having become extinct elsewhere.

The health and survival of this wild diversity will depend on maintaining sustainable land and water management in the basin. The importance of these diverse ecosystems to people cannot be understated. They deliver valuable ecosystem services that inhabitants of the Tana basin and beyond depend on. The forests help control water pollution, reduce erosion, mitigate floods, and increase groundwater recharge. They also attract wildlife tourism — an important economic driver in Kenya that depends on rich biological diversity. Tourism accounts for 10% of Kenya's GDP and 9% of total formal employment. The Tana basin overall contains several protected areas, including four national parks and eight game reserves. Mount Kenya National Park is listed as a UNESCO World Heritage site and alone receives over 15,000 visitors per year. The long-term health and beauty of Mount Kenya National Park and the other protected areas will depend on the health of water and land surrounding them. Thus, enhancing the health and resilience of the Upper Tana and surrounding regions has the potential to both enhance the region's importance for biodiversity and increase tourism and associated economic development to provide alternative sources of income and livelihood for residents.

The region's biodiversity provides even more direct ecosystem services for local communities than tourism does. Most directly, the water and soils of the basin are the lifeblood of productive agriculture in one of Kenya's most important agricultural regions. Degradation of either of these precious resources over time will lead to a collapse of the agricultural economy and the livelihoods of millions of people in the region. Also, most Kenyans living in rural areas depend on medicinal plants for treating various ailments. With increasing exploitation of medicinal plants, demand for their sustainable management and utilization is rising. Protecting endangered plant and animal species and securing water resources from adverse impacts of pollution are crucial to enhancing and maintaining these natural resources.

Water Security Challenges and Consequences

The vegetation in the Upper Tana watershed plays a critical role in maintaining water quality and quantity, providing areas where runoff water is stored and sediment is naturally filtered. However, several factors— the conversion of forests to agriculture and unsustainable agricultural management practices chief among them—have contributed to the degradation of the river and surrounding lands, threatening the benefits of a healthy and diverse watershed. Since the 1970s, most of the unprotected forests and woodlands — including those on steep hillsides, along rivers, and wetlands — have been converted to agriculture so that now most of the landscape is covered in herbaceous (33.24%) and shrub (14.68%) crops like tea, coffee, and corn. Along with this conversion has come increased demand for irrigation water from a growing number of river diversions that reduce available river flows that sustain downstream users and hydropower generation. Rain-fed smallholder agriculture now uses 36% of the available water, and irrigated agriculture uses an additional 4%. Hydropower generation depends on 33% of the available water in the watershed; however, this use is non-consumptive since the water is returned to the river after being used for power generation (Figure 3).

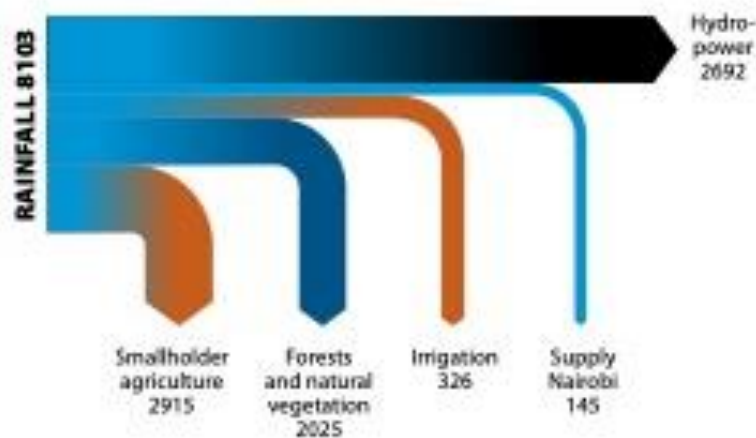


Figure 3: Annual water use by those who depend on the water supply of the Upper Tana River basin above Masinga Dam (WRMA, 2011).

This rapidly increasing demand is severely reducing dry season river flow, not only because of diversions, but also because the Upper Tana's dry season flows depend on groundwater. The conversion of natural wetlands that once stored runoff water and recharged groundwater supplies to agriculture is reducing groundwater availability, further reducing dry season flows. Increasing demand and decreasing water supply in the river is consequently increasing local conflicts among different water users in and downstream from the watershed.

In addition to reduced river flows, water quality is declining. Unsustainable farming practices are causing widespread soil erosion, degrading farmland productivity and — combined with increasing competition for space — forcing farmers onto steeper and steeper slopes, where erosion is an even larger problem. Increased sedimentation is reducing water quality for both residents and downstream users, with important social and economic implications. Increased sediment in the river reduces the quality of drinking water available to people and increases maintenance and water treatment costs for water providers. Nairobi City Water and Sewer Company (NCWSC), the major water and sewerage service provider for Nairobi, reports that water treatment costs increase by more than 33% as sediment runoff fills and disrupts treatment equipment during the wet season, causing supply interruptions. Without intervention, this problem will likely worsen, especially as climate change causes more intense rainfall events and population growth leads to more farming on steep slopes.

These impacts are coming at a time when Nairobi's water treatment and distribution facilities are already under pressure. The current water supply deficit for the city stands at 299,000 m³ per day (or 36% of demand) when the system is operating at full capacity. New capacity added to address these shortages must also face the challenges and costs associated with high sediment loads in the water.

Furthermore, sediment deposition in reservoirs and reduced dry season flows are also a problem for hydroelectric energy production by Kenya Electricity Generating Company (KenGen). KenGen,

the country's leading electric power generation company, operates several hydropower dams in the Tana watershed. The Masinga reservoir, for example, was designed on the basis of a siltation rate of 3 million tons per year. However, by 2010, the annual siltation rate was 6.7 million tons. As a result, the Masinga reservoir has already lost an estimated 158 million m³ of storage volume, 10% of its capacity since 1981.³ Similarly, the other major hydroelectric reservoir in the system, Kamburu, is estimated to have lost 15% of its capacity since 1983. This lost capacity substantially reduces the energy production potential of these important renewable energy sources for Kenya. As dry season flows decrease, the amount of energy that can be produced is significantly reduced. For example, during the 2009 drought, KenGen's electricity production dropped 12% compared with the previous year, a decline of \$19.8 million.⁴

Water quality for residents is also being compromised by development and agricultural production in the landscape beyond just the effects of sedimentation. Livelihoods and health are being adversely affected by reduced drinking water quality and increased probability of waterborne disease. Surface and groundwater quality is affected by new and expanding settlements, especially informal settlements, towns, and markets that do not have conventional sewer systems and, as a result, are polluting nearby ground and surface water bodies. Wet coffee milling factories add pollution to the river if not managed sustainably, and other agricultural activities contribute pesticides and fertilizers, increasing pollution in the Tana River.

In short, the Tana River receives inadequate protection despite providing water and livelihoods to millions of people, 95% of Nairobi's water, and 50% of Kenya's hydropower supply. The watershed's potential to continue providing water and other vital ecosystem services is declining rapidly. Yet local residents who farm the upper watershed receive no outside investment or incentives to protect this critical resource by implementing measures that can ensure it provides abundant, safe water for everyone. If significant investments are not made to protect and improve land and water management in the Upper Tana, the river will become increasingly choked by sediments and pollutants, as well as provide less water. All these impacts will exacerbate declining productivity of farmland, water supplies, and water quality, while increasing the costs of water distribution and energy production for everyone in the Upper Tana and downstream. At the same time, the unique biodiversity that depends on a healthy Tana River will continue to be lost.

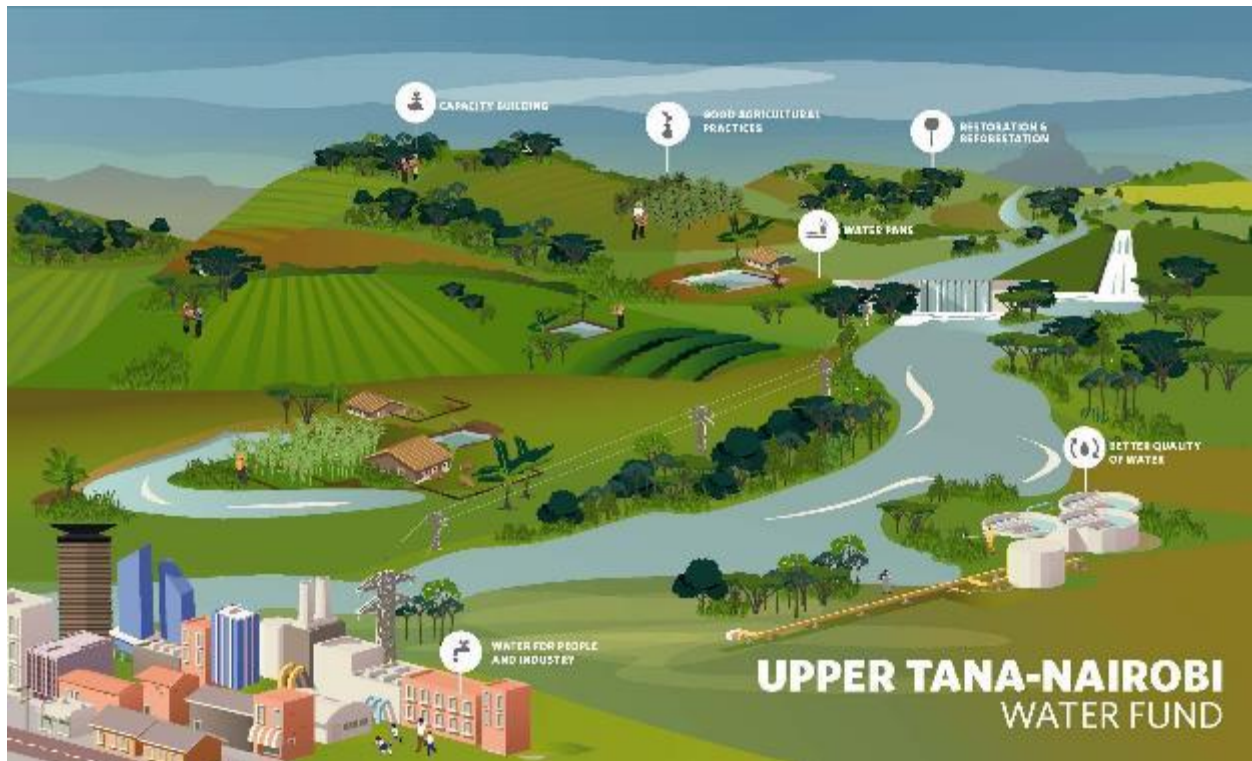
Water Security and the Upper Tana-Nairobi Water Fund

Given all the challenges the Tana River watershed faces, the Upper Tana-Nairobi Water Fund is one of Kenya's best, most cost-effective opportunities to protect these vital water supplies for millions of people, improve the livelihoods of more than 300,000 smallholder farmers, ensure sustainable production of hydroelectric power, and protect the Tana River's rich biodiversity.

³ WRMA 2011. Physiographical baseline survey for the Upper Tana catchment: Erosion and sediment yield assessment.

⁴ KenGen 2010. Annual report and financial statements.

Why a Water Fund and How Does It Work?



Healthy, functioning watersheds that maintain ecological services have been shown to reduce water treatment costs and improve water regulation for people who rely on the watershed. Further, investment in *green infrastructure* using natural systems to trap sediment and regulate water often provide a more cost-effective approach than relying solely on *grey infrastructure*, such as reservoirs and treatment systems. Water funds are a cost-effective way for downstream water users to invest in green infrastructure that will maintain sustainable water supplies from the watershed they depend on. Water funds usually involve public-private partnership (PPP) and a financing mechanism to invest in watershed conservation. The watershed conservation measures are strategically designed to protect the quality or quantity of water available for communities and the environment. Thus, a water fund unites public and private downstream users (e.g., water utilities and major private users), upstream watershed stewards (e.g., agricultural landholders), and other interested stakeholders (e.g., development organizations) to participate in and contribute to the fund, given their shared stake in a healthy water future.

Financial support of the water fund is used to promote sustainable land and water management practices upstream that filter and regulate water supply. These management practices can include strategically sited tree planting and land terracing, natural water holding features, and on-farm soil and water management practices. Funding is also used to support economic opportunities that enhance livelihoods and the quality of life for upstream communities that further incentivize farmers and landowners to implement sustainable management practices.

Indeed, many of the interventions that improve water quality and quantity also lead to increased agricultural yields. A water fund can also enhance communities' ability to adapt to climate change, by building in resilience to fluctuating water supplies and temperatures.

Implementation of water funds is a proven model founded on the principle that ***it is less expensive to prevent water problems at the source than it is to address them further downstream***. For every dollar invested in conservation strategies in the Upper Tana River watershed, it is estimated that downstream stakeholder's dependent on the water will avoid two dollars in costs of correcting impacts on water supply and energy production. The trust provides a secure and transparent program through which public and private investors who depend on clean water supplies from the Upper Tana watershed can direct resources to conservation strategies that will yield the greatest returns for the common good and the economy.

Upper Tana-Nairobi Water Fund Mission and History

The Upper Tana-Nairobi Water Fund Trust was established in October 2015 and incorporated in October 2017 as a charitable Trust in Kenya. Its vision is to achieve a well-conserved and managed Upper Tana watershed that sustains healthy livelihoods and ecosystem functions in the region. To help achieve this vision, the mission of the trust is to secure the long-term conservation, protection, and maintenance of the Upper Tana watershed by advancing nature-based solutions to water security. The trust was the first water fund of its kind in Africa, built on experience TNC had gained from designing more than 40 water funds around the world. The trust was founded by three main partners — TNC, the NCWSC, and Pentair Inc. — in order to support long-term conservation, protection and maintenance of the Upper Tana watershed and thereby improve local livelihoods, Nairobi's water security, and Kenya's renewable energy supply. The trust has adopted a PPP model working collaboratively throughout the Upper Tana watershed on solutions to one of the greatest challenges to Kenya's future: source water protection. The trust is working to secure water for more than 6 million people in the city and an additional 5 million who live within the watershed area.⁵ The primary focus of the trust is incentivize and increase adoption of farming practices that significantly improve water supply reliability and quality, and long-term watershed resilience. In doing this work, the trust operates based on five key values: integrity, partnership, accountability, commitment to nature, and empowerment. Together, living and working by these values, the trust will ensure that the work it does achieves the vision with transparency, equity, and collaboration.

⁵ 2019 Kenya Population and Housing Census. Volume 1.

Vision

A well conserved and managed Upper Tana watershed that sustains healthy livelihoods and ecosystem functions in the region and beyond.

Mission

To secure the long-term conservation, protection and maintenance of the Upper Tana watershed and the benefits it provides for people and nature by advancing nature-based solutions to water security.

Values - I-PACE

- 1. Integrity*
- 2. Partnership*
- 3. Accountability*
- 4. Commitment to nature*
- 5. Empowerment*

The Business Case for the trust

The trust's creation followed a study assessing the economic and biophysical viability of a water fund for the Upper Tana River basin. The study, commissioned by TNC, NCWSC, KenGen, Pentair, International Centre for Tropical Agriculture, Tana and Athi Rivers Development Trust, Water Resources Authority (WRA), East Africa Breweries, Coca-Cola, and Frigoken Limited, evaluated the potential for widespread adoption of management interventions to reduce suspended sediment in waterways and increase dry season water flows in three priority watersheds (Sagana-Gura, Maragua, and Thika-Chania). These sub watersheds were selected because previous studies highlighted them as critical areas for improving water quality and quantity in the basin. The analysis used state-of-the-art land use planning and watershed modeling tools to quantify the benefits that would arise from a \$10 million investment in spatially targeted implementation of six interventions over a 10 years. The six interventions assessed were:

1. Vegetation buffer zones along riverbanks
2. Agroforestry along riverbanks
3. Terracing of steep and very steep farmlands
4. Reforestation for degraded lands
5. Grass buffer strips in farmlands
6. Mitigation of erosion from dirt roads

The annual impact of these interventions was evaluated both in terms of change in water supply and quality, as well as the economic impact for three key stakeholders: farmers in the watershed, NCWSC, and KenGen. This study concluded that over a 30 years, the benefits of strategically implementing the six management interventions at scale across all three watersheds over 10 years would result in reducing sediment concentration in the river by half, including a 20%

reduction in sedimentation in Masinga reservoir, and increasing water supplies during the dry season by 15% (Figure 4)

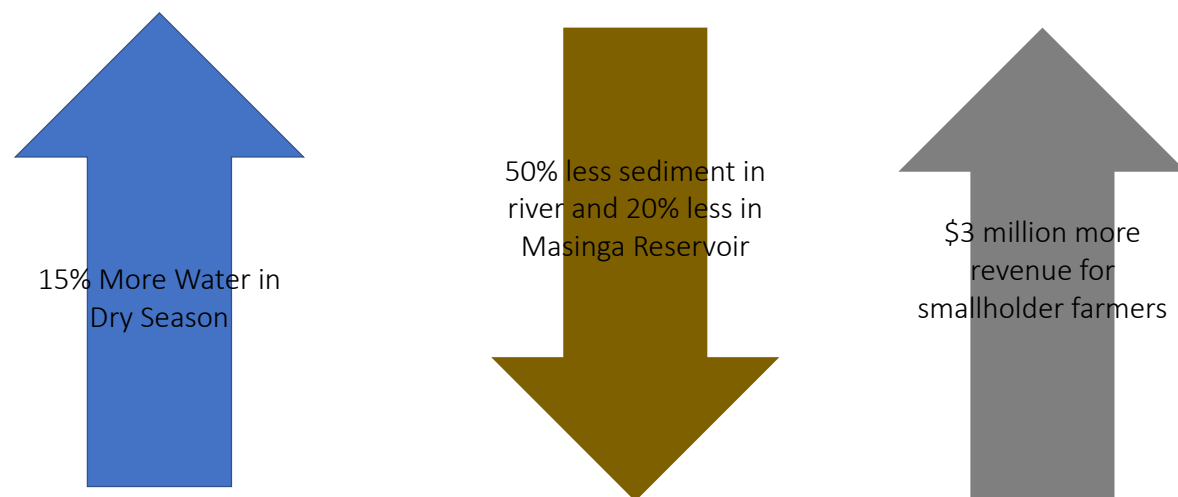


Figure 4: Predicted benefits of a \$10 million investment in best land and water management practices in the Upper Tana watershed over 30 years.

The study also found that these water benefits would lead to significant economic benefits for farmers, NCWSC, KenGen and their customers. These benefits would include more clean water for half a million people; \$3 million more revenue for farmers from increased crop yields; over 40 million m³ more water in Masinga Reservoir, leading to fewer power interruptions, enough new energy to support 2 million people, and \$600,000 more revenue from hydroelectric energy; and a reduction in annual water management costs of \$250,000 for NCWSC.

Overall, a \$10 million investment in the trust is expected to return nearly \$23 million in economic benefits over a 30-year time frame. In other words, for every \$1 invested, stakeholders in the basin will see over \$2 worth of benefits.

These calculated benefits are conservative and do not account for many other benefits that are difficult to quantify but highly valuable, including new employment opportunities, educational opportunities due to increased revenue for smallholder farmers, improved ecosystem services like pollination (worth about \$1 billion each year in Kenya), and improved air quality from planting over 100,000 new trees. There is also the possibility to see greater returns on the

investment if, for example, increased water yield results in greater energy production for KenGen.

Trust Progress 2015–2020

The trust has been under implementation for five years, during which time the main focus has been establishing partnerships and trust with Upper Tana communities and local leaders, building knowledge sharing systems, and engaging the Upper Tana communities to implement practices. Trust management staff also are working closely with county and regional representatives, as well as other partners (NCWSC, WRA, and the National Environment Management Association), to share information and advance campaigns for policy reform and to generate government support. As a result, the trust has established robust partnerships with four counties (Nyeri, Murang'a, Nyandarua, and Laikipia) in the Upper Tana River Basin. Those counties have committed to expand trust's impact by making additional investments in watershed management. Also, partnerships have been established with three local NGOs in the three priority sub watersheds of Thika-Chania, Maragua, and Sagana-Gura, including the International Centre for Research in Agroforestry (ICRAF), National Museums of Kenya, and Jomo Kenyatta University of Agriculture and Technology (JKUAT), which have been providing technical support to scientific baseline studies and impact monitoring.

Over the last five years, the trust has been using these partnerships and growing financial investments to work directly with farmers and volunteers to implement the sustainable land management (SLM) interventions listed above, as well as to install water pans that collect water during the wet season and reduce river diversions. Trust has also been working with local communities to install biogas units as a sustainable energy source. At the same time, the trust has improved existing and built new knowledge management and learning systems, including installation of 33 new automated river gauging stations and enrollment of 45,000 farmers in a mobile data monitoring program. These investments working with farmers in the watershed have already yielded significant benefits and set the stage for rapid growth and much greater impact over the next five years.

In its first five years, trust has exceeded expectations, leading to significant improvements in watershed management and local livelihoods (Figure 5). To date, trust has directly benefited over 200,000 farmers and is working with more than 44,725 farmers who are applying soil and water conservation practices (see Success Stories below). These improvements in management have helped 8,500 coffee farmers achieve Rainforest Alliance certification, thus increasing the value of their crop. The trust is on track to be working with 70,000 farmers by 2026. Further, 15,131 water collecting pans have been installed that collectively harvest over 900 million liters of water every year. Approximately 73,000 hectares of land in the watershed are now under improved, more sustainable management, including 36,000 hectares of public forest. Also, trust and partners in the watershed have already planted over 3 million trees in the last five years, which will lead to sequestering over 5 tons of carbon (CO₂e) per hectare over the next 30 years.

All of this progress toward more sustainable management of the watershed is yielding the water supply and quality benefits envisaged.

The trust actively collects a variety of biophysical data to measure its impact on water quality and quantity, including data on streamflow, turbidity, and total suspended solids (TSS). These data, taken together and analyzed, have been collected primarily in three main subbasins: Sagana-Gura, Thika-Chania, and Maragua. The results over the last seven years, comparing water quality and quantity before and after trust interventions, provide strong evidence that trust interventions are working as promised and improving watershed health by reducing turbidity and contributing to sustained baseflow in the rivers ([Appendix 2](#)). This is evident in that turbidity in the river has remained stable or even decreased during high river flows after interventions in targeted watersheds. As much as 55 million more liters of water are now reaching Nairobi's water supply reservoirs every day with an 11% reduction in turbidity. Also, baseflows in the rivers where best management practices have been implemented are either remaining stable or increasing despite growing water demands in the watershed.

In addition to these tangible physical results on the ground, trust is providing local farmers with new skills, training, and resources to improve the productivity of their land. UTNWF has deliberately sought to engage women and youth in its programs to increase their involvement and empowerment. So far, over 39% of women in the watershed are participating in sustainability programs, along with over 17% of youth (over the 10% national average⁶). These engagements have led to improved livelihoods and incomes of households, improved biodiversity, and enhanced ecosystems services for women-led households, youth, and people living with disabilities.

⁶ Kenya Youth Agribusiness Strategy, 2018–2022.

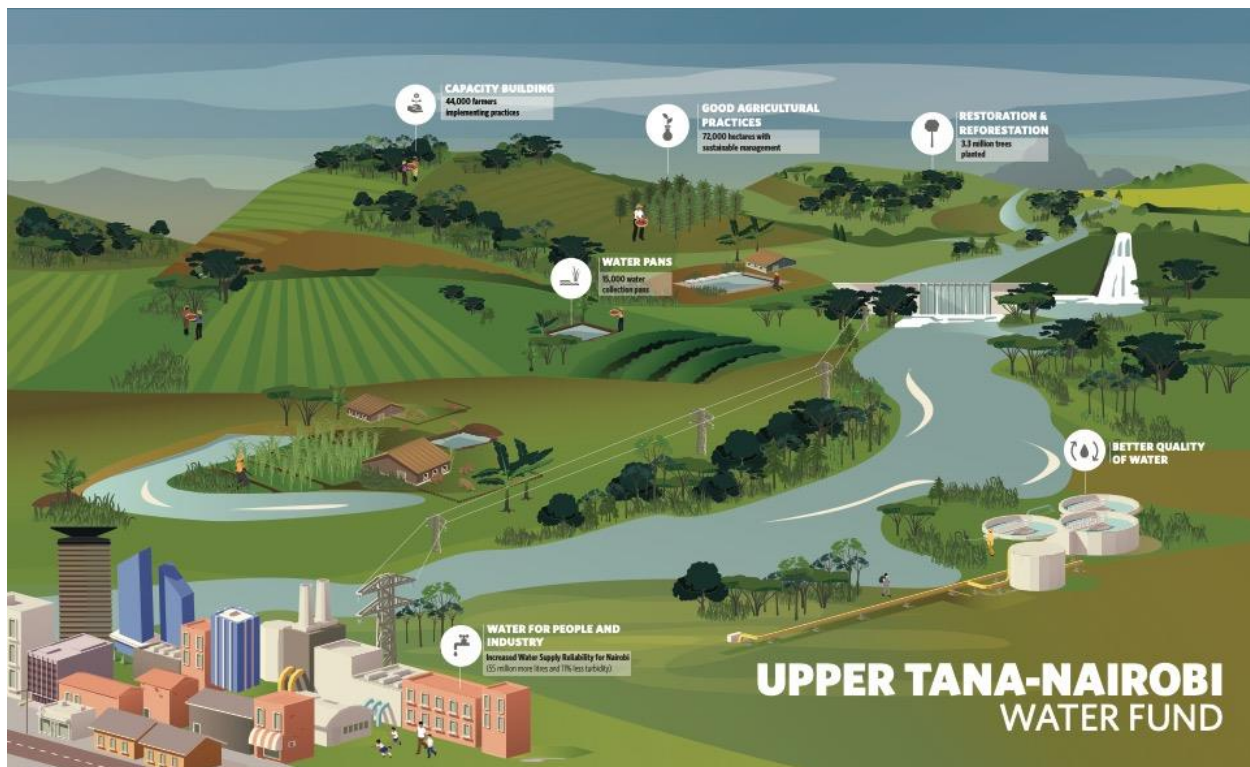


Figure 5: Watershed-scale results from the first five years of the Upper Tana-Nairobi Water Fund.

This progress has been made possible by a growing, dedicated staff of five full-time and 30 part-time extension coordinators working directly with communities to educate farmers about practices and help them implement best management with the investments made by trust. Long-term success will now depend on both scaling up implementation and having effective monitoring systems in place to measure water supply benefits being created.

This impact has occurred with 20% of the targeted \$10 million total investment. The goal is to fully fund the endowment by the end of 2022.

“We have grown the trust to an organization that delivers tangible results for people and nature. This water fund is well on its way to becoming the first financially sustainable water conservation initiative in Africa. Continued investment by stakeholders in the endowment fund to grow it from the current \$2 million to the targeted \$7.5 million will safeguard our water source and ensure its sustainability for the benefit of all.”

— EDDY NJOROGE, President, International Organization for Standardization and President and Trustee, Upper Tana-Nairobi Water Fund Trust

Purpose of this Revised Strategic Plan

The plan of the trust is to become fully established and staffed as an independent entity, separate from TNC, beginning in September 2021. This new strategic plan provides the road map for that

transition and for dramatically scaling the impact of the trust on water supplies, livelihoods, and the health of the Tana River watershed over the next five years. A successful transition and increased impact will require the continued dedication of the trust Steering Committee, the participation of NGO and community groups, and the support of the Kenyan government. While TNC, steering committee members, and other donors — including the Global Environment Facility, the Swedish International Development Agency, and Coca-Cola’s Replenish Africa Initiative — have provided funding to date, the trust’s success as an independent entity will depend on expanding public and private financial support. Support is needed from major Nairobi water users who recognize the business case behind this effort, as well as from generous donors interested in backing an innovative approach to development, climate change adaptation, and conservation.

The objectives of this five-year plan are to:

1. **Create Clarity:** Establish a framework for documenting and evolving important strategic choices made by water fund leadership.
2. **Provide Focus:** Allow for more effective goal setting and purpose-based leadership by the water fund.
3. **Chart a Shared Road Map:** Drive measurable progress toward impact and systemic change.

BOX: Success Stories

Irene Wanjiru Mumiria and her husband, James, own a farm that is their only source of livelihood. They depended on rain-fed subsistence agriculture. This was a challenge because of unpredictable and poorly distributed rains, as well as low market prices for their produce, as every farmer in the market sold the same crop. In 2017, the trust trained her on rainwater harvesting, agroforestry, and drip irrigation. Irene and James repaired existing soil conservation structures on their farm and planted high-value fruit trees along the contours. She excavated a 100,000-liter water pan and, by irrigating her crops, was able to grow high-value vegetables for the local market and for their household needs. In 2018, Irene bought two dairy goats worth Ksh 20,000, and in 2019, she installed a biogas unit from her farming income that now meets all her cooking and heating needs. These interventions have released time for Irene, and she is now able to join other women's activities and enjoy leisure time. The water pan on her farm has made it possible to harvest some food with unreliable rain in 2021. Irene and James can now fully pay for their two sons' secondary school education. Irene invests in shares worth Ksh 2,000 monthly from her banking group as part of a saving strategy for her family's future.



Peter Marubu was born deaf and mute and had nobody to help till the six-acre piece of land he inherited. He planted bananas, maize, and beans; reared two cows for subsistence on half an acre; relied on casual labor for income??; and leased the remaining five acres to other farmers. In 2018, trust staff taught him to build terraces on his farm and harvest water for irrigation, and his nephew helped him install a water pan to harvest rainwater from his roof. He took back his land and planted tomatoes, capsicum, watermelon, maize, and spinach. The sales from his capsicum and tomato harvest made him a total of Ksh 27,200. He installed a 10-horsepower pump to complement his new drip irrigation system, and in 2019, harvests from vegetables, tomatoes, and bananas made him Ksh 110,000. Peter has invested Ksh 10,000 to construct a zero-grazing unit for his dairy cows, and in 2020, he completed building a two-room stone house to replace his mud-walled house.



In 2021, Peter completed over 75% of recommendations on his farm-specific action plan. He has further prepared over 46 pits to plant plantain bananas, which have a high demand in the region. Currently, he can feed himself and maintain a healthy life from his farm proceeds. He is generating Ksh 40,000 from his banana plantation only. Before the water fund, he relied on income earned from casual labor.

Gladys Wangeci Migwi owns a four-acre farm and is one of the 8,500 farmers who are now Rainforest Alliance certified and selling their coffee at a premium. Using trust's technical advice, she built terraces and planted Napier grass to stabilize the soil on her farm. The Napier grass was used to feed her cows better and resulted in an increase in milk production from 10 to 14 liters a cow per day. She also planted more coffee trees, increasing them from 250 to 450, and the harvest grew from 3 kg to 10 kg per tree. She established a tree nursery from which she sells seedlings to her fellow farmers. She excavated a 100,000-liter water pan that enabled her to start



an organic vegetable garden, which has improved her family's nutrition and whose excess produce fetches her Ksh 800 to 1,000 every week at the market. Gladys runs a poultry farm and sells the eggs, while the droppings from her fowl are used for fish farming in a pond and as fertilizer for her vegetable garden. The dung from her two cows and 18 pigs feeds her biogas unit, while the bio-slurry is used as manure for her coffee trees. She runs a fully integrated farm enterprise, and her conservation efforts earned her an award for Best Overall Woman in Agriculture at a national competition held in 2017 by the Ministry of Agriculture.

Obstacles and Opportunities for Success of the trust

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

Despite the significant success the trust has had so far in its first five years, the watershed continues to experience significant challenges and many social and institutional barriers exist to realize the vision of a well conserved and managed Tana River watershed with improved livelihoods, healthier human and natural communities, and greater resilience to climate change. Generally, the key challenge that remains is the fact that water demands in the Upper Tana continue to rise with a growing number of diversions, leading to increasingly scarce surface water supplies. This problem is made worse by the significant soil erosion coming from many farms not enrolled in trust programs, along with encroachment on riparian zones and water quality degradation due to pollution from domestic or industrial sources. Also, river flows, especially dry season flows, that are intimately linked to groundwater levels are being further impacted by increased use of groundwater wells and decreased groundwater replenishment in the watershed overall. Groundwater and surface water are being used and managed independently without any watershed-level integrated management to ensure both are being used sustainably.

In formulating this strategic plan to ensure that trust can build from its success and be well prepared to address key barriers to achieving its mission, an assessment was conducted of both internal and external operating environments. Specifically, the trust assessed its existing strengths and weaknesses, as well as the external opportunities and threats that will enable or hinder progress in the watershed. In implementing this strategic plan over the next five years, the trust will use this assessment to enhance its internal strengths and capitalize on the most important opportunities while also addressing identified weaknesses in its operations and mitigating those factors that pose a threat to achieving success. A summary of this assessment is provided in [Appendix 3](#).

Critical Issues and Priorities

Based on this assessment, there are three critical priorities vital to the trust's success with this strategic plan:

- 1) Partnership.** Active participation by county governments and local communities will be essential for implementing and scaling nature-based solutions in the Upper Tana watershed. Fortunately, the trust has strong relationships with devolved governments that have committed to helping fund the trust's work; with community-based organizations (CBOs); and with a well-developed network of community volunteers. Critical challenges that remain include maintaining effective partnerships with local governments, insufficient communication about the trust's work and impact, and capacity to engage national and regional leaders for influencing relevant legislation. To address these issues, the trust over the next five years will prioritize the following activities to increase effective partnerships:
 - a. Increasing coordination with county governments and other regional groups to improve communication and increase the level of regular collaboration; mitigate

the impacts of high staff turnover in county government; and reduce impacts of incompatible legislation or lack of local enforcement.

- b. Increasing the trust's capacity to implement marketing strategies highlighting the benefits of its work, partnerships, and impact in order to raise trust levels of commitment from internal and external partners.
- c. Improving the trust's capacity to engage regional and national decision-makers and investors so that trust can have greater influence on supportive legislation and inspire multiple levels of government to invest in upper watershed management.

2) Science and Innovation. Key to trust's success will be using innovation and science-based decision-making in its planning and management. The trust has helped build a more robust monitoring network that includes local volunteers and a network of remote river monitoring stations. However, environmental data being collected regularly in the watershed remains too inadequate to prioritize interventions and measure impact over time. Also, the trust and its local partners do not yet have enough staff or technical capacity to deploy monitoring systems or collect and analyze data regularly. To address these problems, the trust over the next five years will prioritize:

- a. Modernizing and digitizing environmental data collection networks and information management systems for the watershed.
- b. Recruiting, retaining, and motivating qualified, professional staff both internally and externally.
- c. Increasing internal and external staff capacity to deploy monitoring systems and analyze data to guide investments so that they have the greatest environmental and social return on investment.

3) Financial Resources. Without adequate financial resources, the trust will not be able to adequately resolve the critical issues described above or sustain and expand the implementation programs developed over the last five years. The trust's goal is to secure and invest \$10 million into the watershed over the next five years. This will include an approximately \$1 million annual operating budget for the trust and \$1 million per year in direct implementation. To achieve this, the trust over the next five years will prioritize the following:

- a. Improving understanding of the link between environmental conditions in the Upper Tana and the needs of downstream water users.
- b. Developing and executing a fundraising campaign to secure the partnerships and financial resources needed to significantly improve environmental and social well-being in the watershed.
- c. Implementing and documenting the benefits of high-impact interventions in the watershed and use these projects to inspire new and bigger investments in the watershed.

The key risks and critical issues will evolve over time as some are resolved and others arise. However, over the next five years, the critical issues above will be the trust's priority focus. Any

other risks or critical issues that arise over the next five years will be prioritized and addressed as necessary.

Trust 2022–2026 Objectives and Strategies

Objectives

The trust is advancing a holistic approach to supporting the long-term conservation, protection, and maintenance of the Upper Tana watershed in order to protect the environment in ways that improve the lives of thousands of smallholder farmers, improve Nairobi’s water security, and ensure optimal functioning of hydropower facilities along the Tana River. This will be achieved by deploying practical conservation measures in the Upper Tana that improve livelihoods through greater water security and income, while also ensuring that downstream water users reap the benefits of their investments for water security in the upper watershed. With this holistic view in mind, the trust over the next five years will focus on increasing its credibility and reputation as a leader and partner with regional and local stakeholders, applying the best available science and technology to ensure the greatest environmental and social return on investments, and securing the resources (both financial and social) to ensure the long-term sustainability of the trust and its partnerships.

The goal of the trust over the next five years and beyond is to improve water quality and quantity in the Upper Tana watershed for downstream users, enhance food security, protect freshwater and terrestrial biodiversity, and improve human well-being of local communities.

The trust has identified four strategic objectives toward these goals:

Objective 1: Enhance the Upper Tana’s Resilience Climate Change to Protect its Biodiversity and Ecosystem Functions. This objective includes improving ecosystem conservation; restoring forests, riparian zones, and wetlands; and conserving soil and water.

Objective 2: Improve Socioeconomic Conditions for Local and Regional Communities Through Improved Land Management and Economic Opportunities. This objective includes improving the supply and quality of water, creating higher value and sustainable supply chains for agricultural produce of the region, contributing to economic development and poverty reduction, increasing food security, and empowering youth.

Objective 3: Protect and Increase Water Supply and Quality with Enhanced Resilience to Climate Change. This objective will include reducing overall sedimentation in the river, increasing average water yield, and increasing dry season flows.

Objective 4: Secure and Establish Effective Policies, Knowledge Management Systems, and Funding to Sustain the Water and Land Conservation Activities in the Upper Tana. Achieving this objective will include increasing the capacity and accountability of trust stakeholders; establishing robust data collection and sharing systems as part of monitoring, evaluation, and

adaptive management; improving policies and investments of local governments and partners; strengthening trust institutional capacity; and securing an operating endowment that can sustain the work of the trust indefinitely.

Strategies

To achieve the objectives above, the trust will invest in four core strategies focused on addressing the critical issues identified above and on demonstrating and scaling its impact over time. These strategies are:

1. **Demonstrate Effective Integrated Natural Resources Management** in the Upper Tana watershed by working closely with communities to implement and measure the impact of an integrated suite of interventions that protect and improve water supplies. This will include protecting intact riparian forest and wetlands, water harvesting, conserving and efficiently managing soil and water, and improving quarry management and reclamation.
2. **Increase Watershed Capacity to Improve Livelihoods, Food Security, and Economic Development** in the Upper Tana by developing value chains for niche agricultural produce, improving rural road shoulders with low-profile vegetation cover to prevent soil erosion, creating smallholder food security initiatives, automating climate and weather advisories with early warning systems, providing effective land use planning, and empowering the entire community.
3. **Build a Robust Knowledge Management and Learning System** to strengthen accountability, stimulate learning, improve program performance, and facilitate better organizational decision-making. This will require increasing internal and external capacity through training and mentoring, building larger, more robust data collection and analysis systems, and improving reporting about watershed conditions and the social and environmental impacts of trust programs.
4. **Enhance Financial Sustainability and Institutional Capacity of the Trust** by increasing donations and growing the endowment fund; creating and implementing plans for staff recruitment, training, and retention; implementing the successful transition to an independent fund; and finalizing trust standard operating procedures for financial accounting, staffing, contracting, and partnerships.

Implementation/Action Plan

A diverse and interrelated suite of activities has been identified to implement the strategies above. These activities are intended to be measurable and specific as well as to directly contribute to meeting the ultimate objectives of the trust. Some of these activities are external and, to be successful, depend on the close partnerships with stakeholders. Others are more internal and associated with managing the trust as a well-functioning, accountable, and transparent organization. All these activities depend on acquiring the resources needed to make

direct and indirect investments within the watershed. To achieve the set objectives, Table 2 provides the activity outputs and outcomes indicators.

Table 1: Indicators of success for trust priority objectives.

Objectives	Output Indicators	Outcomes
Objective 1: Enhance the Upper Tana's Resilience Climate Change to Protect its Biodiversity and Ecosystem Functions	<ol style="list-style-type: none"> 100,000 hectares of natural lands and agroecosystems managed under sustainable land and water management best practices. Relative abundance and composition of intolerant macroinvertebrates (BCG Attribute 2) for sites in treatment micro watersheds with BCG scores >3 increased compared with 2021 baseline data. 	<ol style="list-style-type: none"> Sustainably managed lands in Upper Tana catchment. % of households with increased permanent vegetation cover. Increased dry period water flows in Upper Tana. Acreage of forest under improved management. Tons of greenhouse gas avoided or sequestered. Abundance and composition of intolerant macroinvertebrates for sites in treatment micro watersheds.
Objective 2: Improve Socioeconomic Conditions for Local and Regional Communities Through Improved Land Management and Economic Opportunities	<ol style="list-style-type: none"> 70% of smallholder farmers report increased productivity as a result of the implementation and adoption of climate smart SLM practices, compared with the 2021 baseline, by 2026. 70% of smallholder farmers report increased incomes through the implementation and adoption of climate smart SLM practices, compared with 2021 baseline, by 2026. 	<ol style="list-style-type: none"> Smallholder agricultural productivity improved by 30% by June 2026. Improvement in water quality and quantity for downstream water users by 2026 compared with 2016 baseline. The number of polymers used for treating water per m³ for the Nairobi water supply reduced by 10% by June 2026.
Objective 3: Protect and Increase Water Supply and Quality with Enhanced Resilience to Climate Change	<ol style="list-style-type: none"> Number of installed and operational water monitoring stations in the watershed. Number of km of riparian land protected. Number of water pans and drip irrigation systems installed. Number of acres under improved management. 	<ol style="list-style-type: none"> Average total suspended sediments and the turbidity of the Upper Tana rivers are reduced by 15% compared with the 2016 baseline data. Mean annual water yield in the Upper Tana rivers increased by at least 15% compared with the baseline annual averages of 2016. Dry season flows of the Upper Tana rivers in the micro watersheds increased by 15% as compared with baseline in 2016. Annual average amount of polymers used to treat a unit volume of raw water decreased by 10% compared with the 2015 baseline. Number of hours for which turbidity at Mwagu intake is more than 200 NTU reduced by 10% compared with 2015 baseline.

<p>Objective 4: Secure and Establish Effective Policies, Knowledge Management Systems, and Funding to Sustain the Water and Land Conservation Activities in the Upper Tana</p>	<ol style="list-style-type: none"> 9. Water fund is fully transited to a separate entity by September 2021. 10. Knowledge sharing done with at least two other water towers by 2026. 11. \$7.5 million invested in an endowment account, generating \$750,000 annually for operations and conservation investments. 12. Four county governments within the trust priority watersheds have at least four new conservation-based operational policies in place. 13. Clear annual reports on activities, budget, and outcomes are publicly available. Operating and compliance manuals completed. Annual meetings with BoM and BoT have taken place. 14. Number of coordinated national and local strategies and policies in watershed have taken place. 	<ol style="list-style-type: none"> 14. Other sites or water funds benefit from the water fund's learning and improved knowledge by 2026. 15. National and local partners have improved capacity to adaptively manage watersheds by 2026. 16. Water fund leadership transparency and accountability is sustained.
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Road Map

To increase accountability, track progress, and inspire staff as well as partners to achieve the trust's important objectives, the trust has set specific and tangible measures of progress based on the priority activities that should lead to the achievement of the fund's five-year objectives. These metrics of success will be the standard by which trust measures its progress over the next five years and to which staff will be held accountable. Each year, there will be an evaluation of progress, and adjustments will be made to strategies and activities as needed to direct the fund's resources to the most important aspects of its work and to ensure that investors' contributions are used wisely. **Error! Reference source not found.** Table 2 lists the priority activities that the trust will dedicate its time to over the next five years to achieve the objectives above.

Table 2: Five-year road map of outputs for all priority activities.

Objectives	Strategy	Activity	Indicator	Target	Year 1	Year 2	Year 3	Year 4	Year 5
Enhance the Upper Tana’s Resilience Climate Change to Protect its Biodiversity and Ecosystem Functions	Demonstrate Effective Integrated Natural Resources Management	Promote and implement terracing on steeply sloped cropland	# Meters excavated	500,000	30,000	50,000	120,000	200,000	100,000
		Promote and implement reforestation of degraded lands	# Hectares reforested	30,000	2,500	12,000	10,000	3,500	2,000
		Promote and implement grass strips on flat and gently sloping farms	# Meters planted	500,000	30,000	50,000	120,000	200,000	100,000
		Promote and implement vegetation buffer zones along riverbanks and with grass buffer strips in farmlands	# Meters planted	50,000	5,000	10,000	15,000	15,000	5,000
		Promote and implement vegetation cover along rural roads	# Meters conserved	20,000	2,000	4,000	5,000	6,000	3,000
		Promote and implement agroforestry practices	# of seedlings planted	3 million	600,000	800,000	600,000	500,000	500,000
Protect and Increase Water Supply and Quality with Enhanced Resilience to Climate Change		Promote rainwater harvesting through installation of water pans	# of water pans installed	5,000	500	2,000	2,000	300	200
		Promote efficient water use through drip irrigation	# of drip kits installed	300	50	100	100	30	20
		Promote biogas for efficient energy use	# of units	100	20	20	20	20	20
		Ensure that smallholder households implement at least two sustainable land management best practices or technology	# of households with >1 SLM	20,000	5,000	5,000	4,000	3,000	3,000

Objectives	Strategy	Activity	Indicator	Target	Year 1	Year 2	Year 3	Year 4	Year 5
Improve Socioeconomic Conditions for Local and Regional Communities Through Improved Land Management and Economic Opportunities	Increase Watershed Capacity to Improve Livelihoods, Food Security, and Economic Development	Support farmers groups in attaining appropriate certification	# of certified groups	5	1	1	1	1	1
		Support farmers by establishing improved market value chains for their products	# of value chains supported	3	-	1	1	1	-
		Provide technical agronomic support and services to smallholder farmers	# of farmers reached	70,000	10,000	20,000	20,000	15,000	5,000
Secure and Establish Effective Policies, Knowledge Management Systems, and Funding to Sustain the Water and Land Conservation Activities in the Upper Tana	Build Robust Knowledge Management and Learning Systems	Finalize a monitoring and evaluation framework, and establish capacity through partnerships to implement robust annual monitoring and analyze and communicate results	# Plan and partnerships		Finalized M&E plan	Monitoring partner-ships established			
		Establish a digital and community-based data and knowledge sharing platform for the Trust	# digital and community data systems established		Digital data systems developed	Community data sharing framework created			
		Share data and lessons learned from implementation with partners, stakeholders, and other watersheds in Kenya	# of reports, meetings, and events held	20	3	4	4	4	5
		Monitor water quality and quantity	# of campaigns conducted	20	4	4	4	4	4

Objectives	Strategy	Activity	Indicator	Target	Year 1	Year 2	Year 3	Year 4	Year 5
		Download data and maintain river gauging stations	# of Monthly data downloads	60	12	12	12	12	12
		Field monitoring visits	# of field visits	20	4	4	4	4	4
		Share data, lessons, and experiences of the water fund with partners, stakeholders, and other watersheds in Kenya	# of workshops held	20	3	4	4	4	5
		Build, calibrate, and validate the Biological Condition Gradient (BCG) model and use it to inform land and water resources conservation	BCG model calibrated and validated				Completed model		
		Install automated climate and weather advisories systems to disseminate information on weather patterns to farmers	Climate and weather advisory system installed		System installed				
Secure and Establish Effective Policies, Knowledge Management Systems, and Funding to Sustain the Water and	Enhance Financial Sustainability and Institutional Capacity of the Trust	Assemble, train, and effectively manage a trust team capable of achieving objectives	# of trainings conducted	10	5	3	2	-	-
		Develop and implement fundraising plan	# of Plans developed and # of fundraising events or meetings	Completed plan and 40 events	15	10	5	5	5

Objectives	Strategy	Activity	Indicator	Target	Year 1	Year 2	Year 3	Year 4	Year 5
Land Conservation Activities in the Upper Tana		Raise at least \$7.5 million, generating \$750,000 annually.	US\$ raised	\$7.5 million	\$1.52 million	\$1.52 million	\$1.52 million	\$1.32 million	\$1.32 million
		Participate in county, national, and international forums to inform and influence policy decisions on natural resources management	# of meetings attended	10	2	3	3	1	1
		Coordinate national and local strategies and policies in the watershed and catchment	# of policies/ strategies adopted	5		2	2	1	

Monitoring and Evaluation

Monitoring and evaluation (M&E) is critical for the sustainability and impact of a water fund. If the trust fails to systematically and rigorously demonstrate the benefits of nature-based watershed management, it risks losing its political, social, and financial support and, ultimately, to achieve its vision for the Upper Tana watershed. At the core, trust's M&E trust will focus on tracking achievement based on key performance indicators (output and outcome indicators) related to the ultimate objectives and what can be reliably reported to stakeholders.

The indicators that the trust will focus on are closely tied to its theory of change (Figure 6), which trust can be summarized accordingly: If we implement at scale soil and water conservation activities that also improve the livelihoods of smallholder farmers in the Upper Tana watershed, people downstream will have better water security, people in the watershed will have improved livelihoods and well-being, and the diverse ecosystems of the Upper Tana will be conserved and made more resilient to climate change.

The project's theory of change drives the selection of output and outcome indicators. Output indicators measure project implementation progress, while outcome indicators are results that are necessary to achieve the intended impact of the water fund. The project has 14 output indicators and 17 outcome indicators covering ecological, social, and economic focal areas (Table 1).

Data for the indicators will come from several sources. Water quality data will come from 33 new or upgraded water monitoring stations. Household-level indicators will be collected via 1,000 household interviews. Greenhouse gas estimates will come from the Ex-Ante Carbon Balance Tool informed by Land Degradation Surveillance Framework surveys. Data for indicators that include acres, households, and trees will be collected and analyzed quarterly. Water quality Data will be analyzed every six months. Data for all the other indicators will be collected and analyzed annually.

In addition to enabling the trust to measure its progress and remain accountable to its objectives for stakeholders, the data collected will also be an important way for the trust and its partners to inform local communities, investors, and government. To share progress and knowledge over time, the trust will establish a knowledge center, complete annual reports on performance indicator changes, engage in school awareness programs and peer-learning groups, and present the trust's work and results at workshops and seminars.

A Project Management Unit will have the primary responsibility for M&E activities, and the project's full-time M&E officer will lead this work. The M&E Committee of the trust BoM will provide oversight for the M&E activities. The committee will also conduct field visits to stay informed on progress and then communicate their observations to the trustees and project steering committee members.

Theory of Change: Upper Tana-Nairobi Water Fund Trust

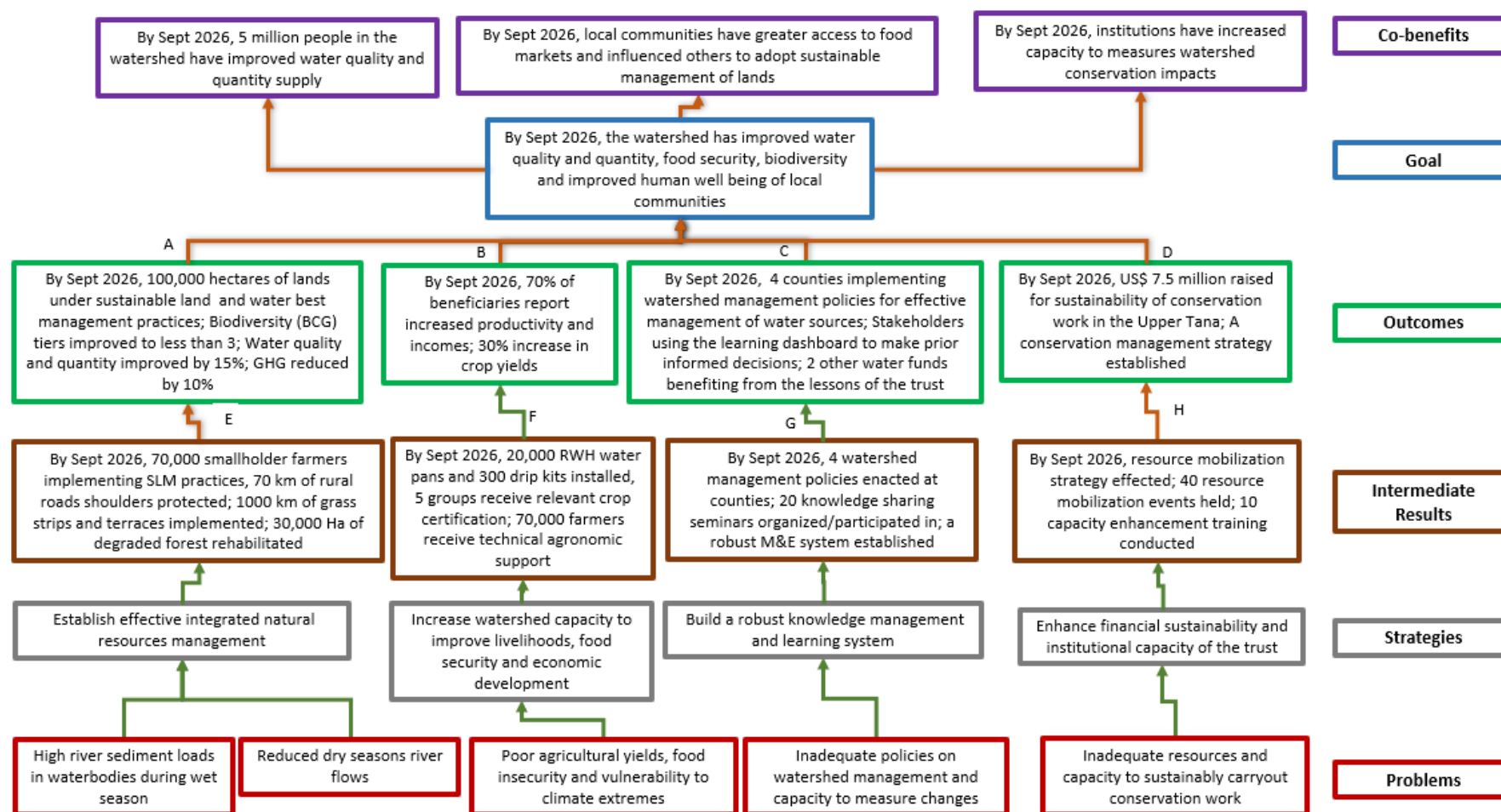


Figure 6: Theory of change

The intermediate results in the theory of change are tied to a strategy that is supported by an output and outcome indicators that lead to the realization of the trust goal and objectives.

Assumptions underlying the theory of change

- A. If land and water resources are put under best management practices in the upper Tana watershed, water quality and quantity will be improved as well as record a vibrant biodiversity status.
- B. If land productivity and food production is improved, then incomes and food security at the household level will increase thus improving the human wellbeing of the communities.
- C. If watershed management policies are formulated and enacted, and stakeholders/partners have access to data and information, then there will be better and adaptive management of the watershed.
- D. If US\$ 7.5 million are capitalized in an endowment fund, there will be a guaranteed sustainability of activities implemented in the watershed in perpetuity.
- E. If 70,000 farmers implement at least one SLM measure and 30,000 Ha of degraded forest are under improved management, 100,000 Ha of forests and agroecosystems will be conserved leading to improved water quality and quantity by 15% and reduced GHG emissions.
- F. If farmers implement rainwater harvesting (RWH) technologies and efficient irrigation methods are used in the dry seasons, and the trust further offer agronomic support, then crop production will increase thus increase incomes from sale of farm produce.
- G. If the trust provides a platform for development and formulation of watershed conservation policies and engages stakeholders in knowledge sharing seminars and workshops, then at least four participating counties will adopt and implement the policies; and IF the water fund knowledge and lessons learnt are shared widely, replication in other watersheds will be observed.
- H. If a robust resource mobilization strategy is established and at least 40 mobilization campaigns held, then the trust will raise US\$ 7.5 million endowment fund for sustainability of conservation activities in the watershed.

Five-Year Trust Budget

The trust has an annual operating budget of \$2 million. This figure includes all operational costs of the trust and needed direct investments in conservation actions within the watershed. Of this total \$10 million budget for five years, the trust anticipates a 1:1 matching investment from counties based on their previous investments over the last five years. Exact annual budget amounts will vary based on opportunities and the phasing of work overtime as the trust establishes itself as an independent organization and expands its programs. Given the existing endowment and funding commitments already secured and assuming the \$1 million matching investment per year from partners, the trust has a funding gap of approximately \$500,000 for the first two to three years, which will grow to approximately \$800,000 in the final two years of this strategic plan. A priority for the trust is to close this funding gap by raising \$3-5 million within

the first three years of this strategic plan, with a goal of securing some or all of this funding as an endowment to provide long-term operating funds for the trust.

Operational Plan

The trust has a governance structure that includes a board of trustees, a board of management, and six full-time staff led by an executive director (Figure 7). The Board of Trustees is responsible for setting the vision, mission, and policy directions. The trustees comprise the Board of Management, whose mandate is to oversee the overall implementation of the Trust's conservation programs, projects, and activities in a coordinated manner operating from the Trust's headquarters. Twelve full-time staff members, led by an executive director, develop and implement the strategies and day-to-day activities of the trust. Complementing the BoM and staff efforts is the Counties Advisory Committee. The CAC is responsible for advising trust staff and ensuring that county policies are addressed in trust operations, and for enabling implementation of strategies at the county level. The CAC also serves as close partners and co-funders of trust programs by aligning county programs with those of the trust and providing financial support.

The trust's work also depends on collaboration with other implementing partners, including Government of Kenya agencies, NGOs, CBOs, and the farmers who will be supported by technology promoters (TPs) and interns.

Additionally, the structure provides for other part-time positions for which staff will be engaged as and when required. These positions include retainer services (such as IT, communication, events/marketing, and human resources management and other human resource services), as well as outsourced services such as auditing, investments, tax advisory, training and fundraising. The Organograph is as displayed in Figure 7.

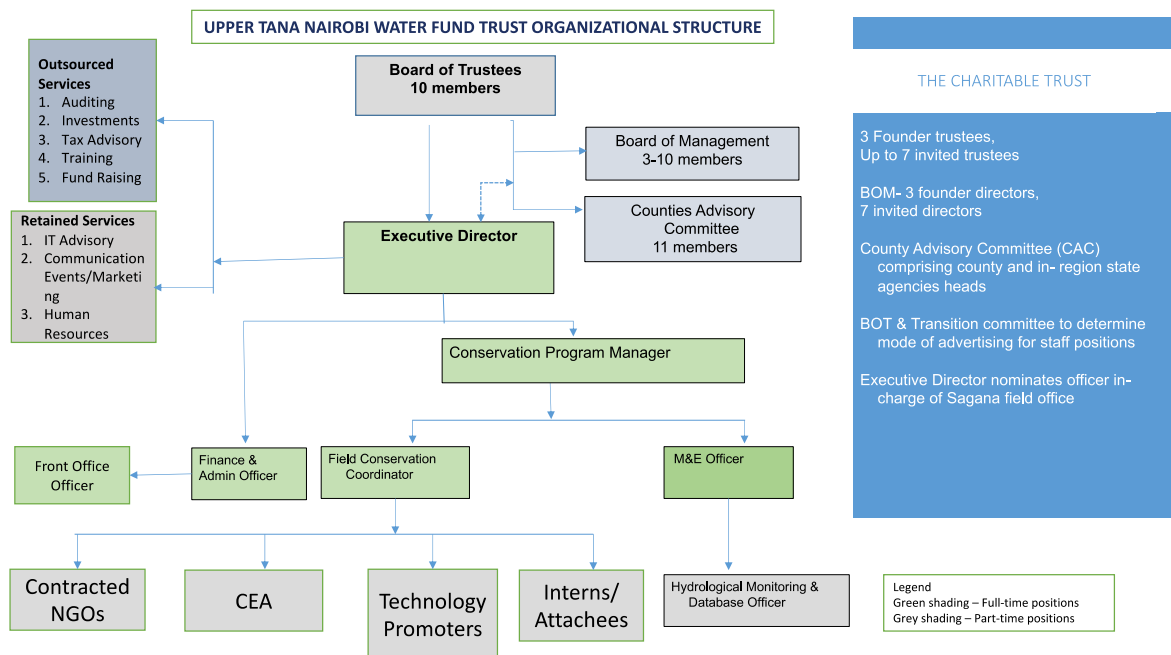


Figure 7: The Trust’s organizational structure.

Communication Plan

The trust will require to communicate various aspects of its operations to partners, stakeholders and clients both internally and externally. This communication will basically involve communicating the progress in the implementation of the strategic plan and also creating awareness and education on the trust. In this regard therefore, the trust will adopt various methods of communication including but not limited to development of fliers and educational materials, workshops, seminars, webinars, participating in world days to mark various water and environment related celebrations under a defined communication plan.

The trust communication plan is as per the Table 3.

Table 3: Communication Plan for the Upper Tana Nairobi Water Fund Trust

Description	Frequency	Channel	Tools	Audience	Responsibility
Field activities implementation status	Weekly	Zoom/Teams	Weekly reports	CEAs, HMA, program staff	Field Conservation Coordinator
Program implementation status	Bi-weekly	Zoom/Teams	Biweekly reports and workplans	Trust staff	Conservation Program Manager
Focal Area Team meetings	Monthly	Zoom/Teams	Monthly report, workplans, success stories	CBOs, NGOs, implementing partners, counties, and Trust staff	Field Conservation Coordinator

Description	Frequency	Channel	Tools	Audience	Responsibility
Counties program updates and policy reviews	Quarterly	Zoom/ in-person meetings	Quarterly reports, PowerPoint slides, policy documents	County executive members, government agency heads, Trust staff	Field Conservation Coordinator
Program check-in meetings	Monthly	Zoom/ in-person meeting	Monthly progress reports, workplans	Trust staff	Executive director
Milestones and deliverable updates	Quarterly	In-person	Quarterly reports, Quarterly memos, Quarterly workplans, Success stories, blog articles	Trust staff, BOM	BOM and BOT chairpersons
Sharing project outcomes in national events	Annual	In-person/Zoom	Annual reports, flyers, brochures, PowerPoint slides, documentaries, success stories	All stakeholders, trust staff, CAC, BOM and BOT	Executive Director
Financial and program review	Annual	In-person/Zoom	Financial statements, annual progress report, annual workplan and budget, newspaper articles	BOT, BOM, project staff	BOT Chairperson