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**Addressing the Barriers to NBS Adoption for
Climate, Water, and Biodiversity in
Sub-Saharan Africa:**

A workshop to mainstream green-grey infrastructure solutions

October 5, 2022

Partners and Funders

Cities4Forests



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 GREEN GROWTH
Knowledge Partnership



Cities4Forests

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Opening Remarks



Wanjira Mathai

Managing Director
Africa and Global Partnerships
World Resources Institute

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Opening Remarks



Dr. Benjamin Kinyili

Principal Conservator of
Forest - Office of the
Directorate of Forest
Conservation and
Management (DFCM)

Opening Remarks



Dr. Vanessa Ushie

Acting Director
Africa Natural Resource Management &
Investment Centre
African Development Bank

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Welcome and Workshop Goals

- Learn from a **diverse set of experiences** about **barriers and enabling conditions** for NBS projects
- Chart strategies to **prepare, implement, and scale** NBS
- Build on **existing collaborations** and **spark new partnerships**



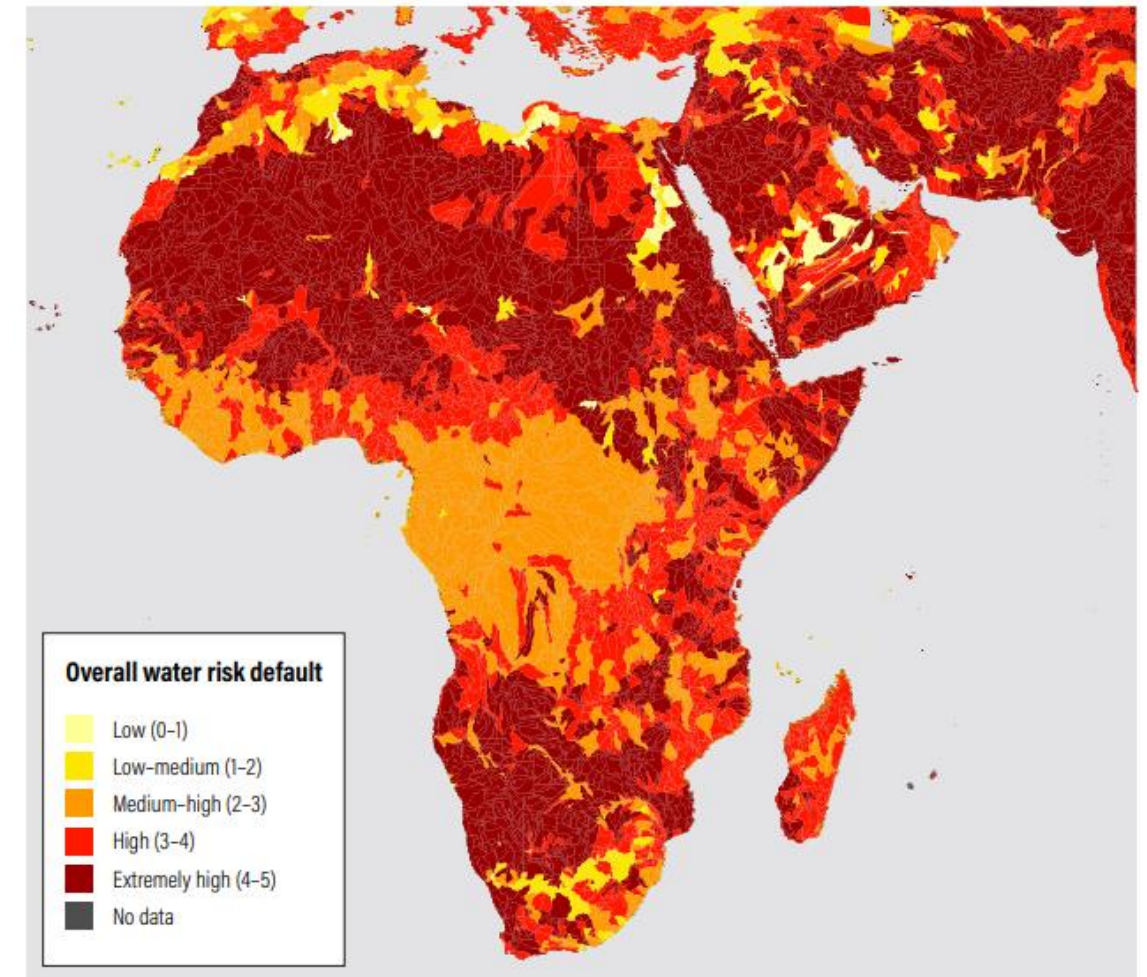
Photo: Aaron Minnick | World Resources Institute; Kakamega Forest, Kenya

The Urgency of the Moment



Photo: Flooding at entrance to Addis Abbaa University Source: L.W. Habtemariam, 2017

Figure 1 | Every region of Africa has water basins facing medium to extremely high water risk



Source: Workalehmarhu Habtemariam et al. 2021. From Aqueduct, based on Hofste et al. 2019.

NBS Infrastructure in Sub-Saharan Africa for Climate and Water Resilience: Regional Status and Opportunities to Scale

- Close **key knowledge gaps** about NBS adoption in the region
- Create **actionable strategies** to launch and scale NBS
- Create **strategic partnerships** to efficiently allocate limited resources to NBS



Photo: Aaron Minnick | World Resources Institute; Tree Planting and Degraded Landscape, Ethiopia

NBS Project Scan

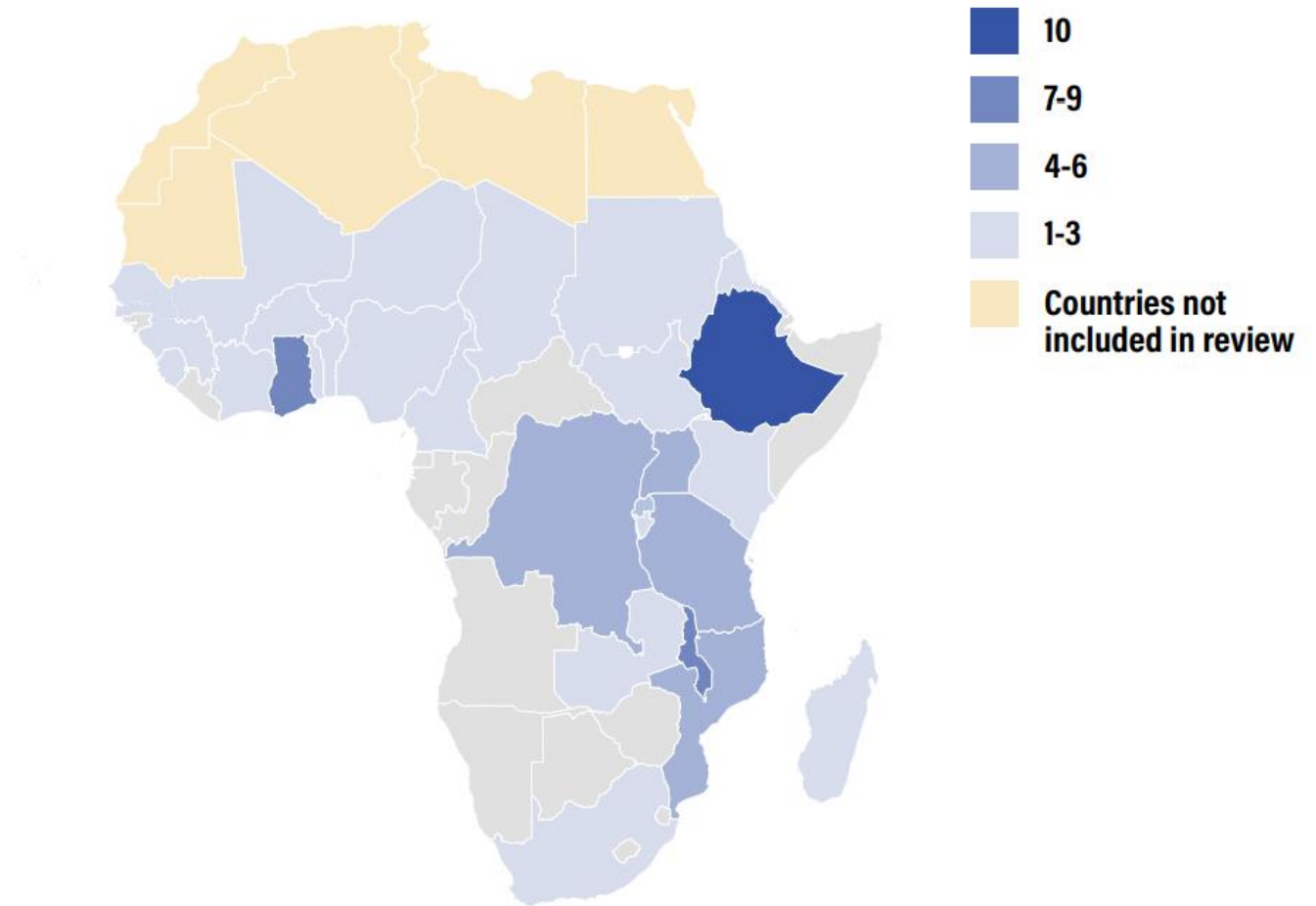
- **Regional scan** of NBS projects
- Identify **status and trends** of NBS implementation
- **300+ NBS** projects identified thus far across 42 countries



MDB NBS Projects in Sub-Saharan Africa

Figure 1 | Geographic Distribution of NBS Projects

- **85 projects** from 2012 to 2021
- **\$4.5 billion** towards components with NBS and Green-Gray Infrastructure



Funding and Financing NBS

- **Pathways to Scale NBS investments**
 - Infrastructure lending portfolios
 - Funding earmarked for nature, biodiversity, water and/or climate
- **Scale of opportunity and criteria for access**
- **Risk mitigation tools and mechanisms**
- **Innovative financing mechanisms**

The image shows the cover of a working paper titled "FINANCING SUSTAINABLE WATERSHED MANAGEMENT IN ETHIOPIA" published by the World Resources Institute. The cover includes the organization's logo, authors' names (Francesca Battistelli, Jemal Ahmed Tadesse, Lizzie Marsters), and contributors (Muluneh Bimrew, Lily Colburn). It features an executive summary with highlights on Ethiopia's land restoration history, financing challenges, and innovative strategies. A table of contents lists sections like "Environmental Degradation and the Need for Finance" and "Exploring New Financing: Highlighting Diverse Public and Private Sources of Finance for Nature-Based Solutions and Water Services Protection". A suggested citation is provided at the bottom.

WORLD RESOURCES INSTITUTE WORKING PAPER

FINANCING SUSTAINABLE WATERSHED MANAGEMENT IN ETHIOPIA

Exploring Innovative Financing Strategies for Nature-Based Solutions

AUTHORS: FRANCESCA BATTISTELLI, JEMAL AHMED TADESSE (PHD), LIZZIE MARSTERS
CONTRIBUTORS: MULUNEH BIMREW, LILY COLBURN

EXECUTIVE SUMMARY

Highlights

- Ethiopia has a long history of land restoration and watershed management; however, land and watershed degradation persist, threatening agricultural productivity, water supplies, and livelihoods.
- Inadequate financing and unsustainable conservation interventions are the key challenges to reducing and reversing environmental degradation in Ethiopia. New strategies are needed that can incentivize long-term, sustainable natural resources management and secure conditions for continued investment.
- Innovative financing strategies can help attract domestic and international investments for conservation interventions, or "nature-based solutions" (NBS), which help mitigate risks to economic activities, land productivity, and water security, while delivering livelihood benefits to rural and urban communities.
- In exploring tested or emerging NBS finance strategies applied in other countries, three mechanisms were identified that offer promising avenues for accelerating conservation in Ethiopia and promoting more sustainable and diverse funding sources for NBS: water funds, payments for ecosystem services (PES), and debt-for-nature swaps (DfNS).
- Recent federal propositions for Ethiopia's financial and environmental sectors could help the country tap into new funding to protect natural resources and vital ecosystems.

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2. An Overview of Watershed Management in Ethiopia	6
3. Exploring New Financing: Highlighting Diverse Public and Private Sources of Finance for Nature-Based Solutions and Water Services Protection	10
4. Assessing the Applicability of Innovative Financing Mechanisms for Nature-Based Solutions and Watershed Protection to Ethiopia	17
5. Ways Forward: Using Innovative Financing to Usher in a New Era of Watershed Management in Ethiopia	23
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Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues.

Suggested Citation: Battistelli, F., J.A. Tadesse, and L. Marsters. 2022. "Financing Sustainable Watershed Management in Ethiopia: Exploring Innovative Financing Strategies for Nature-Based Solutions." Working Paper. Washington, DC: World Resources Institute. Available online at doi.org/10.46830/wriwp.20.00154.

WORLD RESOURCES INSTITUTE WORKING PAPER | September 2022 | 1

Challenges and Enabling Conditions



Technical



Financial



Legal



Institutional



Social

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Agenda

- **Session 1.** Barriers in NBS project design & implementation
- **Session 2.** Challenges to owning, operating, & maintaining NBS

Break

- **Session 3.** Scaling & replicating NBS infrastructure investment
- **Closing remarks** & next steps

Menti Poll:

www.menti.com

Code: 3612 7037

- **Workshop Goals**
- **NBS Challenges**
- **Enabling Conditions**

Session 1.

**Barriers in NBS project design & implementation:
Mainstreaming and adopting NBS infrastructure.**

Barriers in NBS project design and implementation



Photo: Residents taking refuge on rooftops in Mozambique during Cyclone Idai; Source: Flickr/Department for International Development 2019.

- Mainstreaming NBS into AfDB
 - [Dr. Al Hamdou Dorsouma](#)
- Case Study: NBS in Transportation
 - [Green Roads for Water](#)
- Case Study: NBS for Urban Resilience & Disaster Risk Management
 - [World Bank lessons from Beira, Mozambique](#)
- Breakout Sessions
- Summary

Overview



Dr. Al-Hamdou Dorsouma

Acting Director
Climate Change & Green Growth
Department
African Development Bank

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Case Study: **Green Roads for Water**



Michael Maluki

Superintendent Roads Engineer,
Department of Roads, Transport, Energy and
Public Works

Government of Makueni County, Kenya.



Theophilus M. Kioko

Program Officer
MetaMeta Research
Roads for Water

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Green Roads for Water

Addressing the Barriers to NBS Adoption for Climate, Water, and Biodiversity:

A workshop to mainstream green-gray infrastructure solutions.

5TH October 2022

The Social House, Nairobi, Kenya

Theophilus Kioko (**MetaMeta Kenya**)

Michael Maluki (**Makueni County Government**)

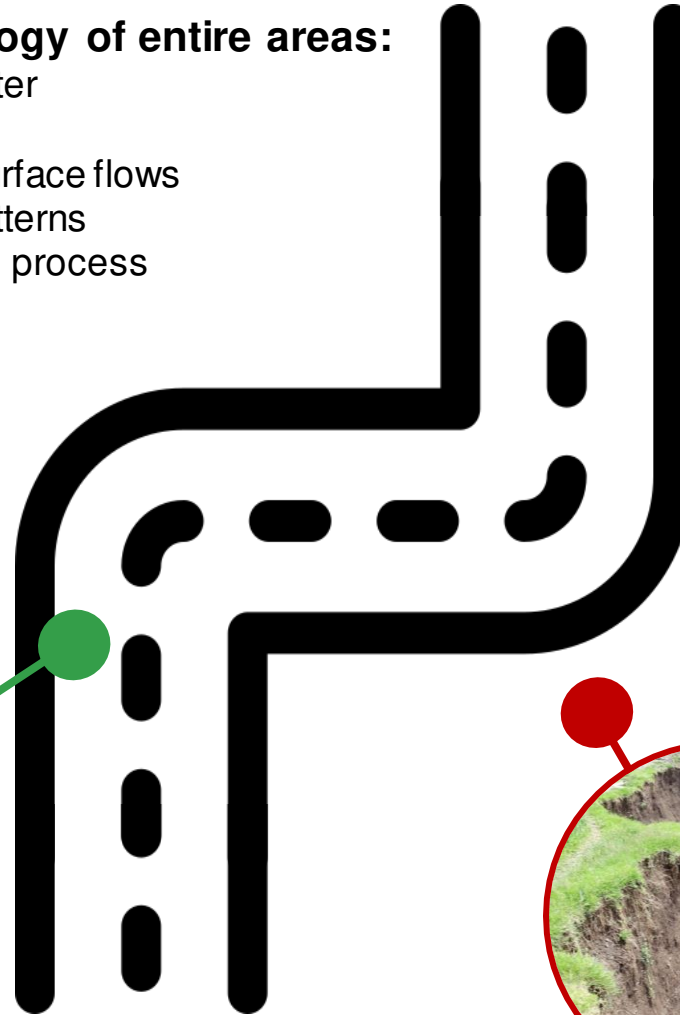


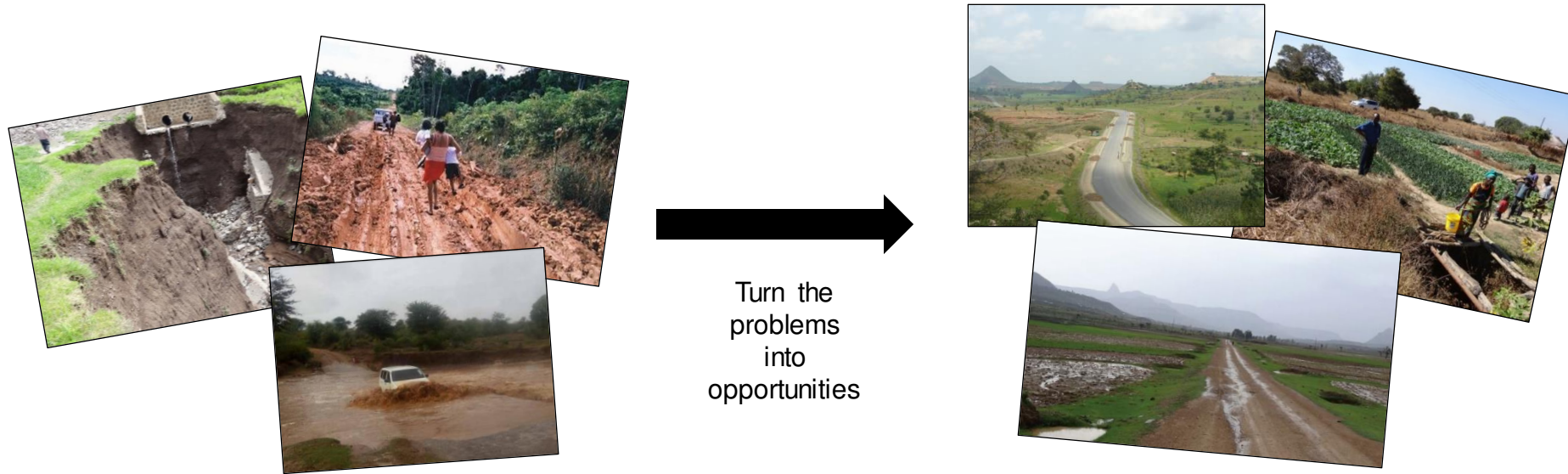
Roads affect the hydrology of entire areas:

- They block and guide water
- They concentrate runoff
- They interfere with subsurface flows
- They change flooding patterns
- They get damaged in this process

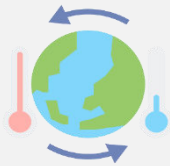
**Water-related road damage**

(on average there are 13-25 problem spots along a 10km stretch of road in Ethiopia)

**Flooding****Water logging****Erosion (gullies and landslides)**



Green Roads for Water is a smart way of



**Meeting
climate
resilience of
roads**



**Collecting and
using the road
run-off for
various purposes**

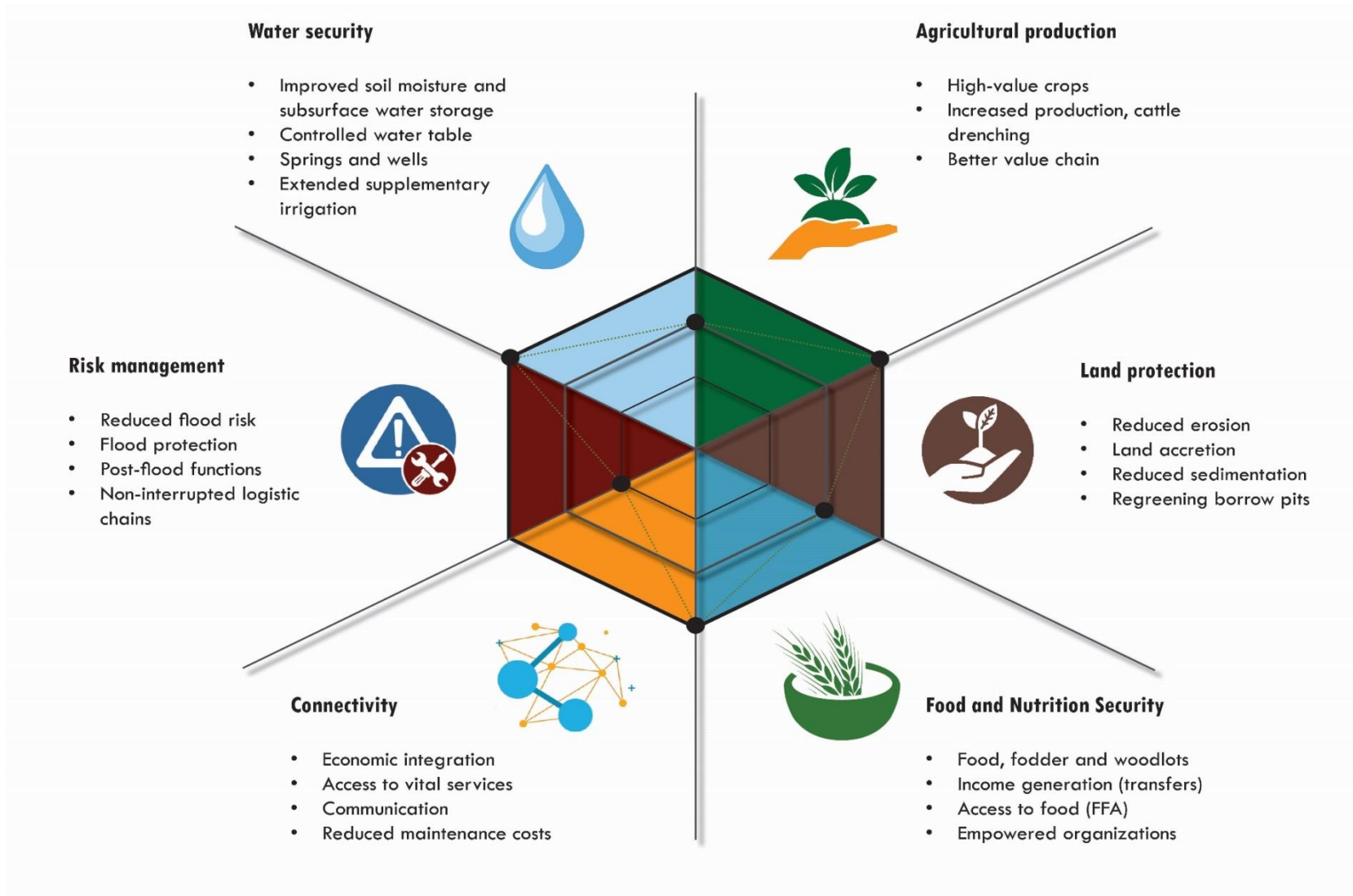


**Reducing
adverse weather
impacts on road
bodies and the
surrounding of
the road's
environment**



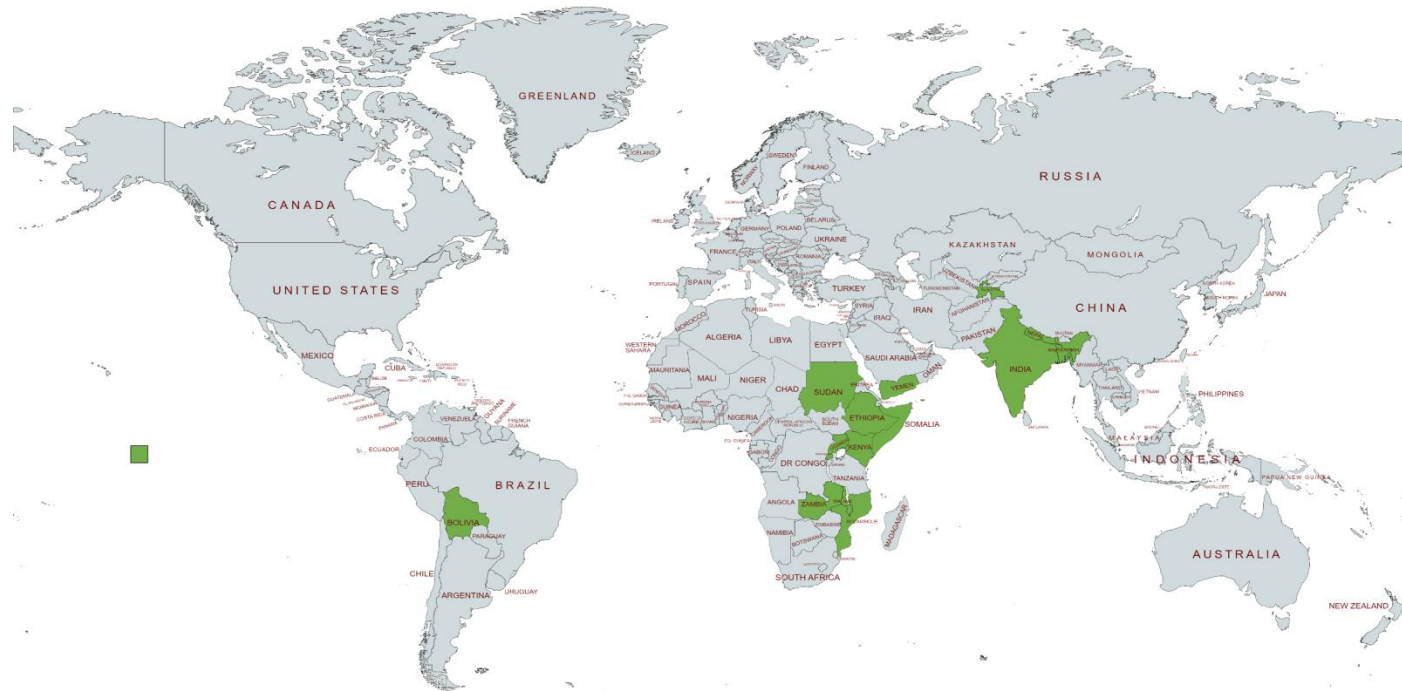
**Protecting
roads and
securing
transport**

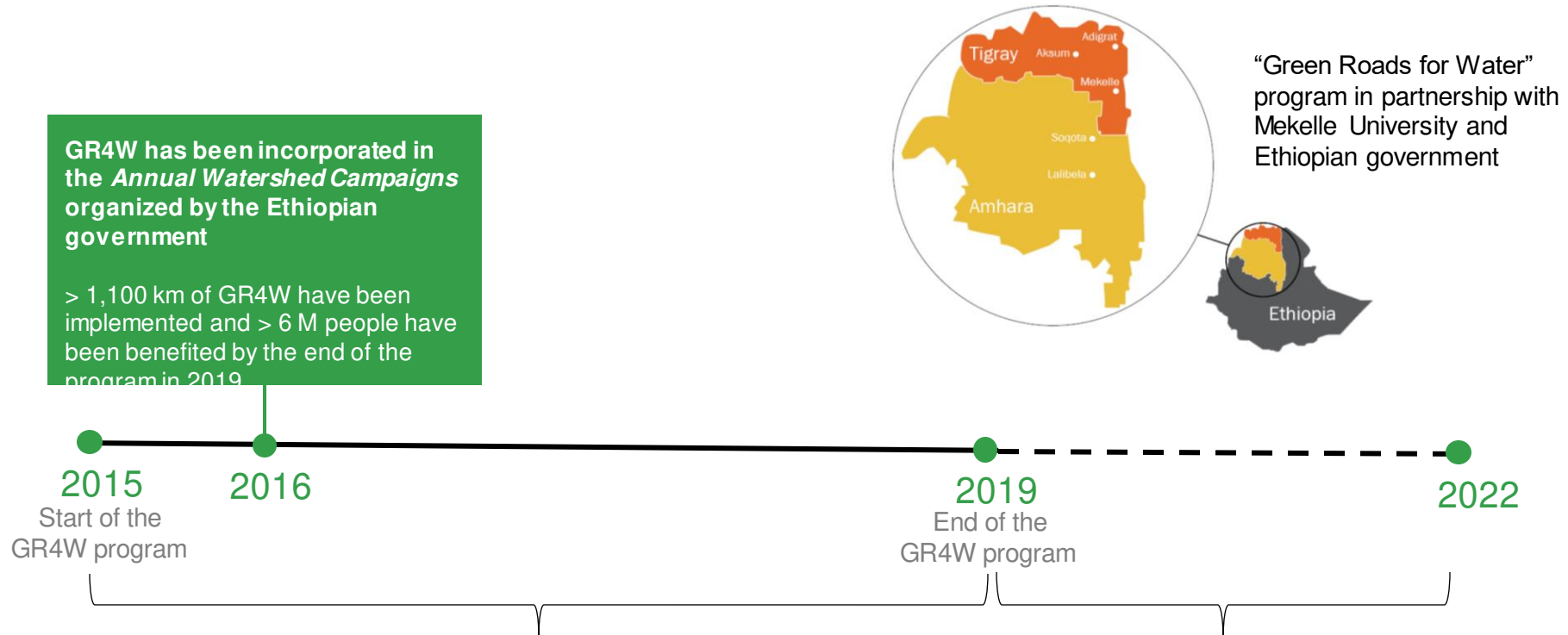
Green Roads co-benefits



Green Roads for Water work and geographical coverage

- Initiated by MetaMeta in 2015
- Active in more than 14 countries
- Various types of projects: research, capacity building, implementation, policy formulation
- Supported by: The World Bank, GRP (supported by USAID, SIDA and Rockefeller Foundation), IRF, ADB, NWO, NERC, RAP3, IFCD, IFAD, IKEA Foundation, NUFFIC, Welthungerhilfe, IUCN
- Total funding secured: about USD 3.6 M (2015-2022)

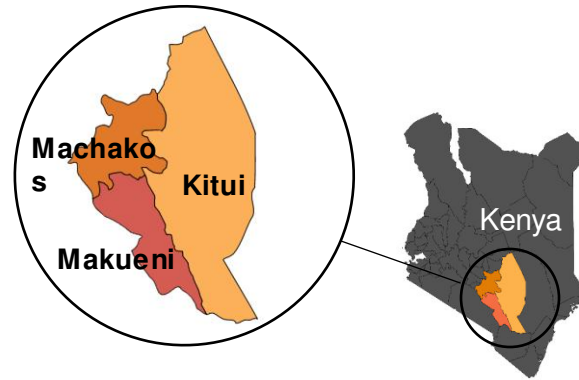




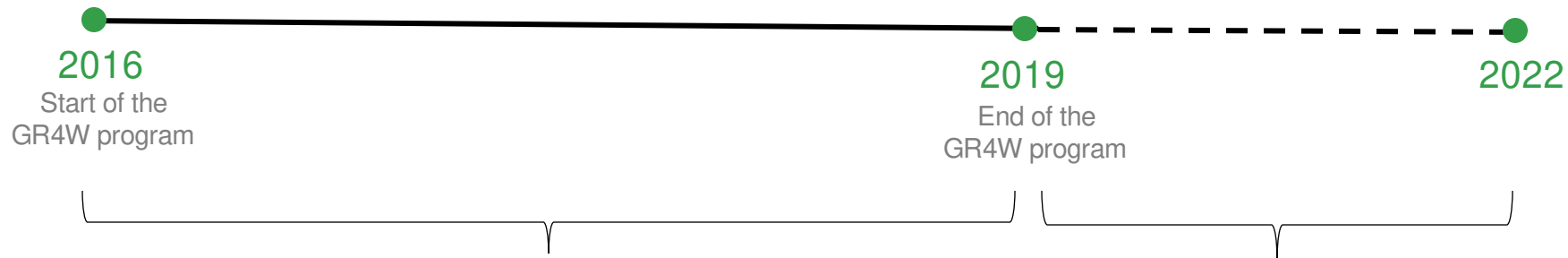
- The project has **enabled farmers to use water from roads that previously would cause flood damage**, by intercepting the water and guiding it to recharge areas, surface storage places or distributing it over farmland.
- The project has **measured the impact of the road water management interventions** in Amhara and Tigray regions. The C&B Analysis showed that GR4W measures are low cost in comparison to total road investment (<5%) with a very high rate of return (>4 per year).
- The project has **brought together government stakeholders from the agriculture, water and roads sectors** and **used extensive training of trainers to scale its approach** in Ethiopia.

Road Water Management has been connected to landscape restoration in Tigray and Amhara (GR4W has been implemented in a big scale through the Annual Watershed campaigns)





“Green Roads for Water” program in partnership with Kitui, Machakos and Makueni county governments and South Eastern Kenya University-SEKU



- The project had **introduced and adapted to ASAL conditions a myriad of road water harvesting techniques**
- The projects **trained >300 county staff and >1000 farmers in Kitui, Machakos and Makueni** on road water management (focusing on RWH)
- **The project set a up technical team in Kitui, Machakos and Makueni counties** to coordinate the GR4W activities across water, road and agriculture sectors and incorporate it into county programs
- The project **monitored the impact of the GR4W interventions** (>50.000 people benefit from improved road safety and connectivity, >10.000 people benefit from prolonged water availability for essential dryland agriculture)

Road Water Management has been incorporated in many county programs **in Makueni county.**



Original road condition without GR4W structures.



Green Road with miter drains to nearby farms.



Farming using harvested roadside runoff.



Road Run-off harvesting through cross culvert to a farm pond.



Harvested Road run-off stored in a roadside gravel borrow-pit.



Crop farming using road run-off stored in farm ponds.



Vented drift that evacuates water and sand at crossing points

Conventional drifts



Drift with Nbs factored in design



Non-vented road crossing/Drift which provides crossing and sand storage.



Roadside tree planting for dust control.



Roadside gully rehabilitation using natural methods..



Excavation of Road side mitre drains for road runoff harvesting.



Community capacity building and trainings for sustainability



Community field trainings and demonstrations on setting GR4W structures.



Community empowerment program for excavation of roadside mitre drains.



Community feedback-Monitoring and assessing impacts of road runoff on farming



Roadside farmer using roadside runoff for farming.



Community field monitoring and evaluation of GR4W progress.



Enabling conditions for the success of the GR4W programs

- **GR4W brings a triple win with one go:** (1) more durable roads with decreased maintenance costs, (2) healthier landscape around roads and (3) increased water availability through better managing the water around roads
- GR4W is not only about promoting/implementing measures and technologies – but is **a combination of management, operation and maintenance of the applied technologies in an inclusive manner**
- GR4W measures are considered as **Nature-based solutions** (supporting communities to build resilience against the negative effects of Climate Change)
- GR4W measures are **low-cost, low-tech** and can be constructed by **locally available materials**

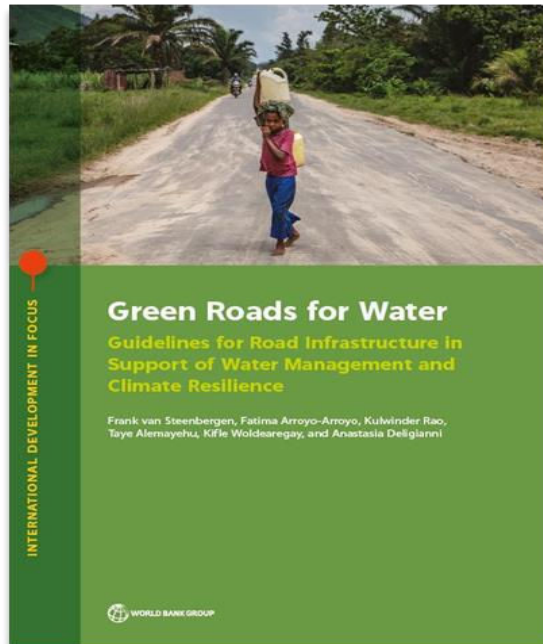
- **Community engagement** is an important



Barriers for upscale

- **the way the road sector is structured** in several countries (very conservative and focused only on engineering solutions)
- GR4W is a multisectoral approach that requires various sectors (water, agriculture, environment, roads, etc) to work together. However, one big barrier to project success is **all sectors work in silos** - a lot of effort is needed to bring all sectors together and explain how to work together so one does not harm the other
- **big need for capacity building/trainings and further research** on the GR4W approach, techniques and governance

- **GR4W website:** <https://roadsforwater.org/>
- **GR4W pitch video:** <https://roadsforwater.org/training/roads-for-water-the-pitch/>
- **GR4W guidelines (issued by the World Bank):**
<https://openknowledge.worldbank.org/handle/10986/35752>



For more information contact: adeligianni@metameta.nl

Case Study: Building Resilience Through Green-Gray Infrastructure: Lessons from Beira, Mozambique

Brenden Jongman

Senior Disaster Risk Management
Specialist,
Global Facility for Disaster Reduction
and Recovery
World Bank



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Case Study: Building Resilience Through Green-Gray Infrastructure



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Breakout Sessions

Question 1: What have been the biggest challenges you have witnessed or experienced in terms of the assessment, design, and/or implementation of NBS projects in SSA?

Question 2: In light of these challenges, if you could wave a magic wand, what would be the one thing that you would change to help increase NBS adoption in SSA?

Question 3: In NBS projects that you have seen make progress in SSA, what have been the enabling conditions that have contributed to success?

Summary of Breakout Sessions



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Session 2.

Challenges to owning, operating, and maintaining NBS: Showing pathways to support Operations and Maintenance (O&M), Monitoring, Evaluation and Learning (MEL), and quantification methods for measuring co-benefits.

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Challenges to owning, operating, and maintaining NBS



Photo: Aaron Minnick | World Resources Institute; Kakamega Forest, Kenya

- Presentation
 - Caroline Wangeci, Kenya Water Towers Agency
- Panel session
 - Hannah Benn, Pegasys
 - Kevin Mutia, ICLEI
 - Larissa Duma, World Bank
 - Melissa de Kock, UNEP
- Summary

Presentation: Kenya Water Tower Agency (KWTA)



Caroline Wangeci

Acting Assistant Director
Ecosystem Research and Monitoring
Kenya Water Towers Agency (KWTA)

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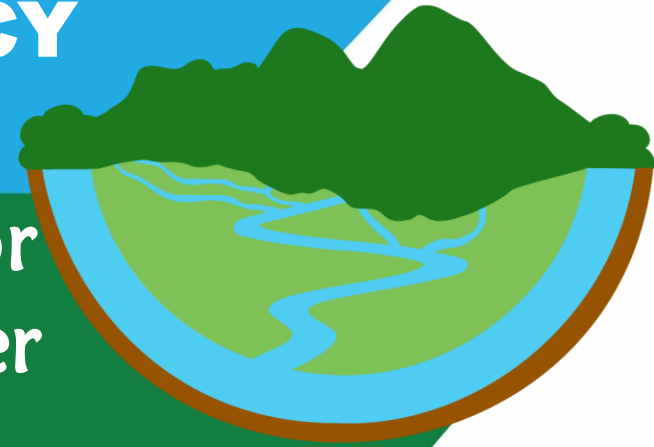
Conclusion

KENYA WATER TOWERS AGENCY

Integrated Monitoring Systems for Sustainable Management of Water Towers in Kenya

By

Caroline Wangeci Muriithi
Directorate of Ecosystem Research, Planning & Audit
(DERPA)

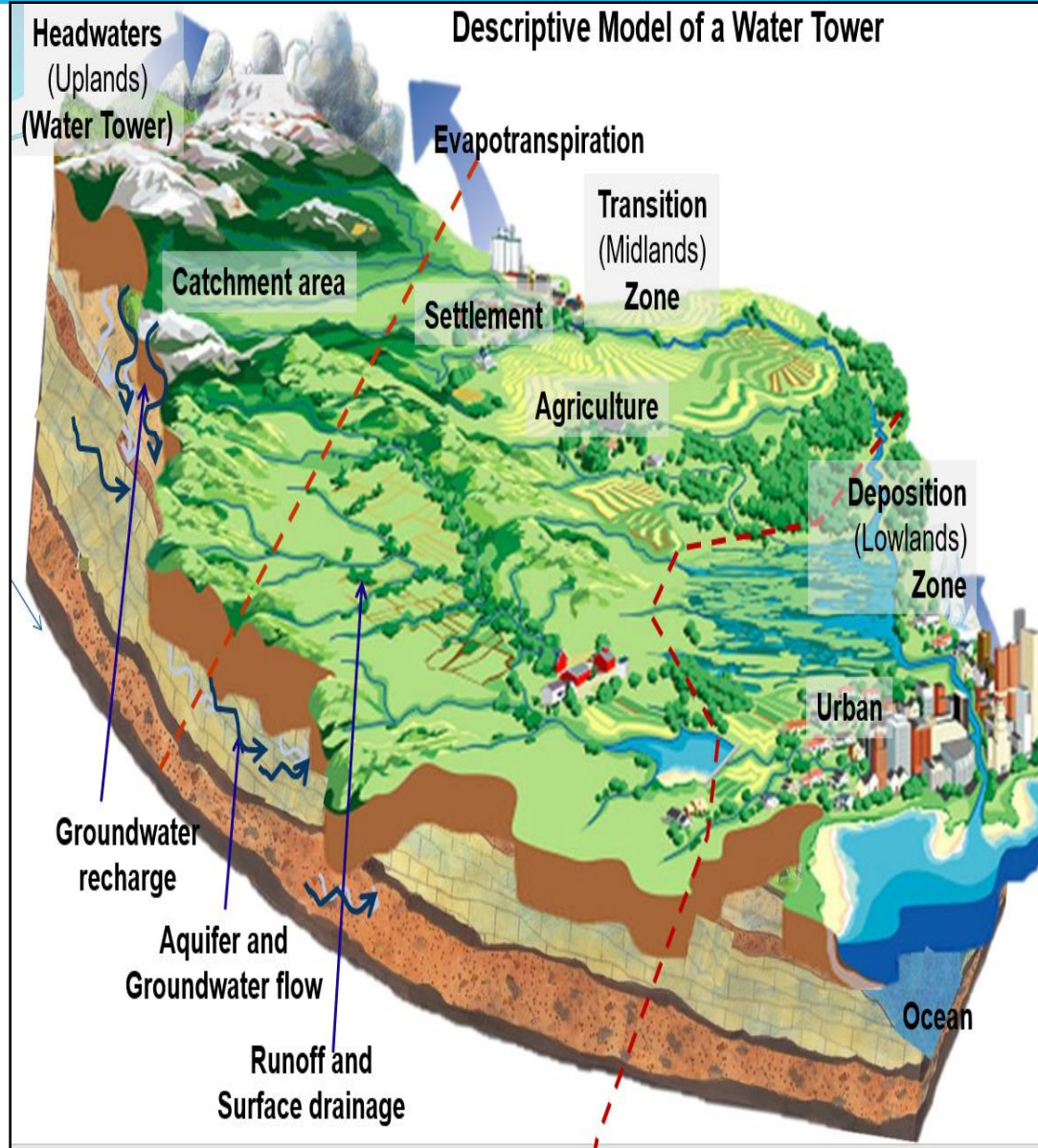


Conserved Water Towers: Our Shared Heritage

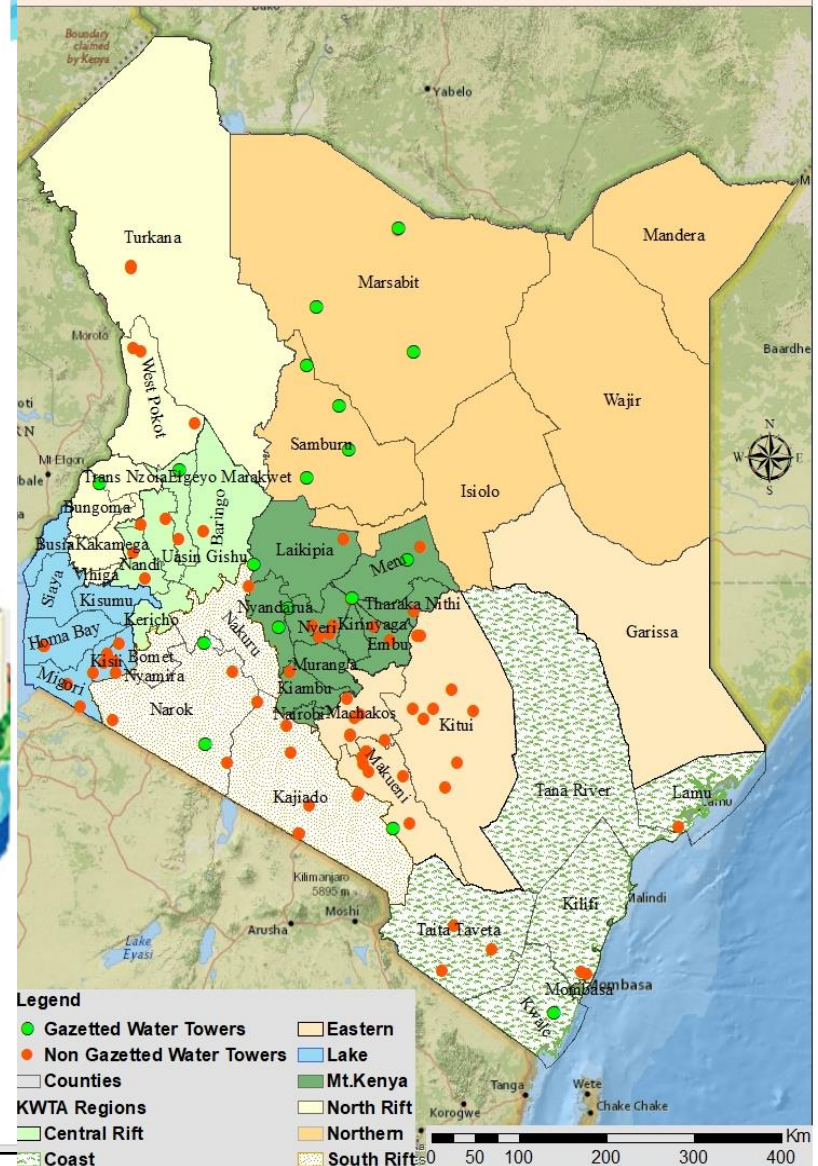
10/14/2022

www.watertowers.go.ke info@watertowers.go.ke
[@watertowerske](#)       020-2711437

The Kenya Water Towers Ecosystem



Distribution of Water Towers in Kenya per Region



Contribution of Water Towers to the Big 4 Agenda

Water towers supports **key sectors:**
agriculture, energy, tourism,
manufacturing and health



Agriculture - Tea

Mau Forest Complex contributes about Ksh. 189 billion per year



Manufacturing - Processing of coffee



HEP generation - Masinga dam



Tourism - Maasai Mara



Water supply – Saumua dam

Threats facing the water towers

Farming on steep slopes – Elgeyo

Deep gullies in Namanga



Invasive species

Forest Fires -Mau



Charcoal production

Unsustainable land management practices



Management of Water Towers in Kenya

KWTA is mandated to coordinate and **oversee** the protection, rehabilitation, conservation and sustainable management of all the Water towers in Kenya. The Agency was established through the Legal Notice No. 27 of 2012

Strategic Objectives

Coordinate and Oversee -

1. **Water Towers Ecosystem Health and Resilience;**
2. Securing of Catchment Lands, Wetlands, and Critical Biodiversity Hotspots Within the Water Towers Ecosystems;
3. **Acquisition of Appropriate Infrastructure to Support Sustainable Management of Water Towers;**
4. Promotion of Sustainable Livelihood Support Programmes Within the Water Towers
5. **Establish Strategic Partnerships and Linkages for Sustainable Management of Water Towers;**
6. Undertake Institutional Strengthening for Effective Service Delivery

Barriers Facing Water Towers Restoration

- 1) **Inadequate information** on the status of water towers -(socio-economic, physical and biological data);
- 2) **Uncoordinated approach** across partners on monitoring ecosystem health of water towers – data collection, processing and data management;
- 3) **Lack of a centralized data platform** – data in scattered and disaggregated
- 4) **No clear mechanism to share data** among the existing interested stakeholders
- 5) **Limited capacity** to monitor the status and health of the water towers ecosystem
- 6) **Limited long-term monitoring programs** and **systematic collection** and **archiving** of data

Approaches Adopted Towards Addressing Barriers and Achieving Goal for the Water Towers Ecosystem Restoration: **Awareness**

Community meetings



State and non-state stakeholders

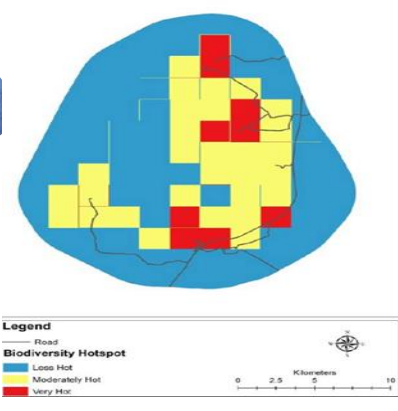
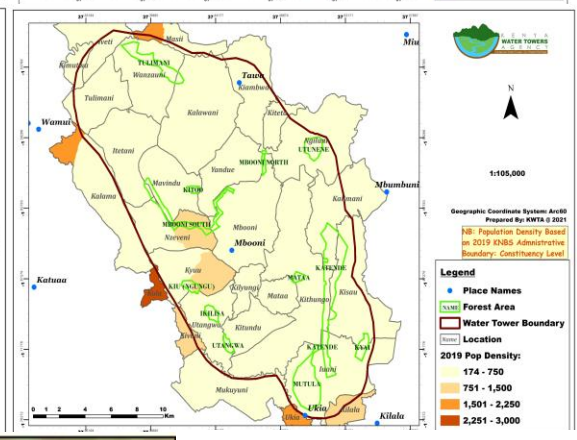
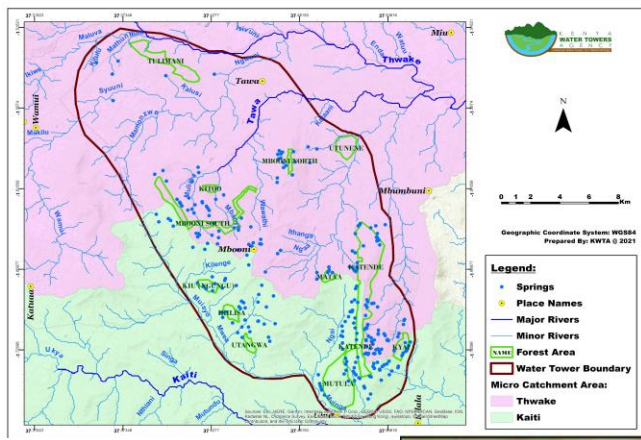
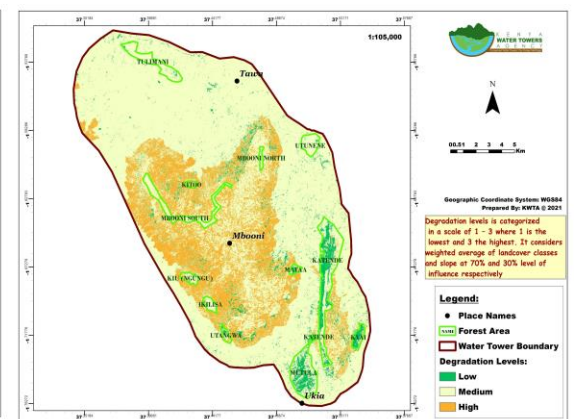
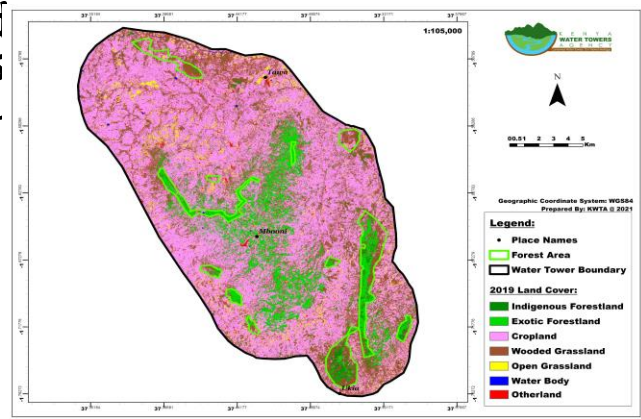


Mapping



Approaches Adopted: **Scientific Research**

1. Research, monitoring and planning of water towers
 - A. Development of Water Towers Status Report
 - ❖ Landcover Mapping
 - ❖ Biodiversity hotspots Mapping
 - ❖ Critical catchment Mapping
 - ❖ Mapping Degradation levels

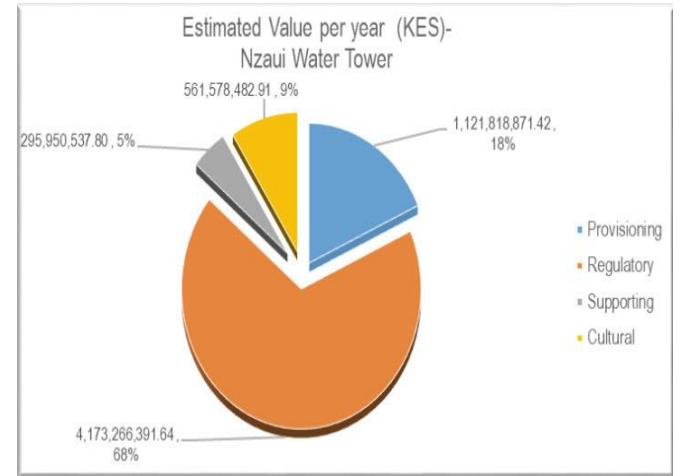
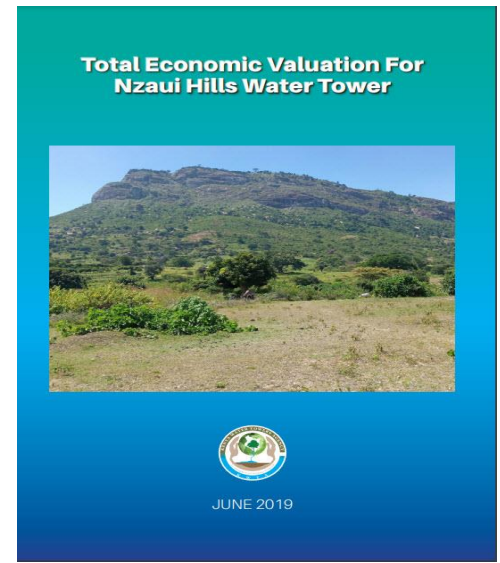
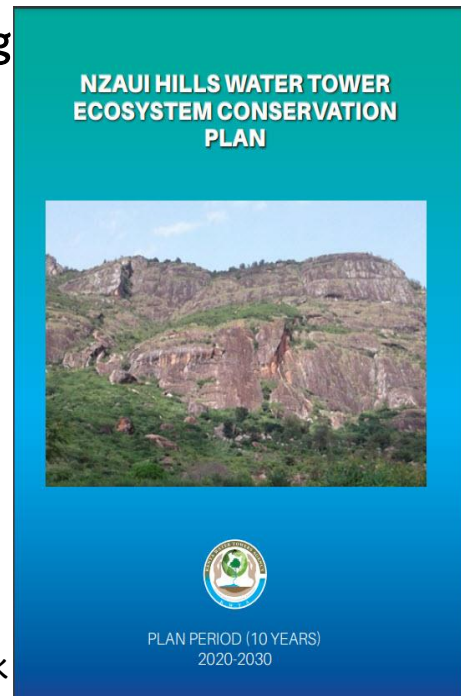


Approaches Adopted: **Scientific Research**

1. Research, monitoring and planning of water towers

B. Water Towers Planning and Audit

- ❖ Community Resource Assessment
- ❖ Development of Ecosystem Conservation Plans
- ❖ Undertaken Total Economic Valuation
- ❖ Audit tree seedlings in rehabilitated sites
- ❖ Develop Payment of Ecosystem Services framework



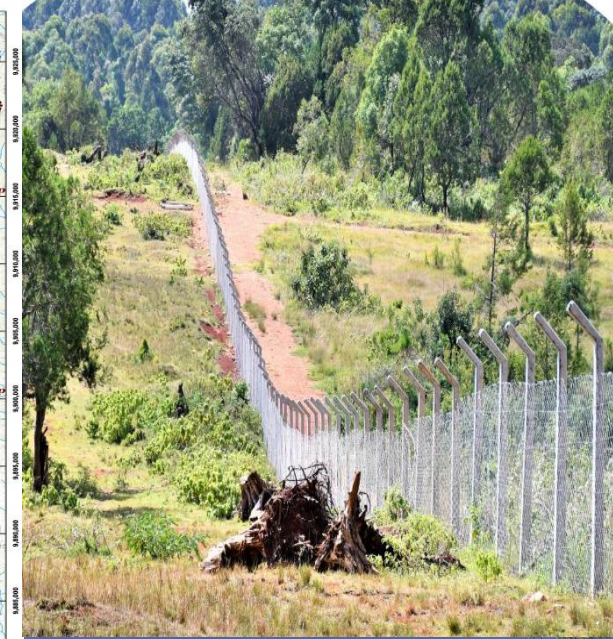
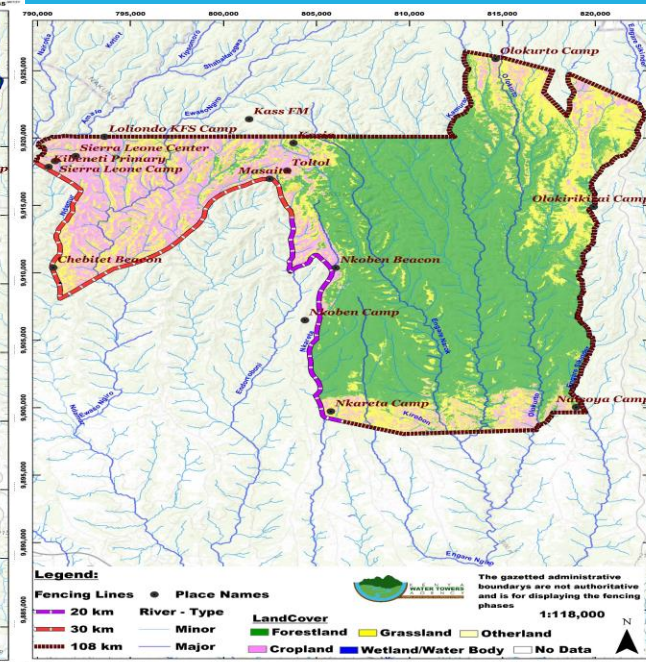
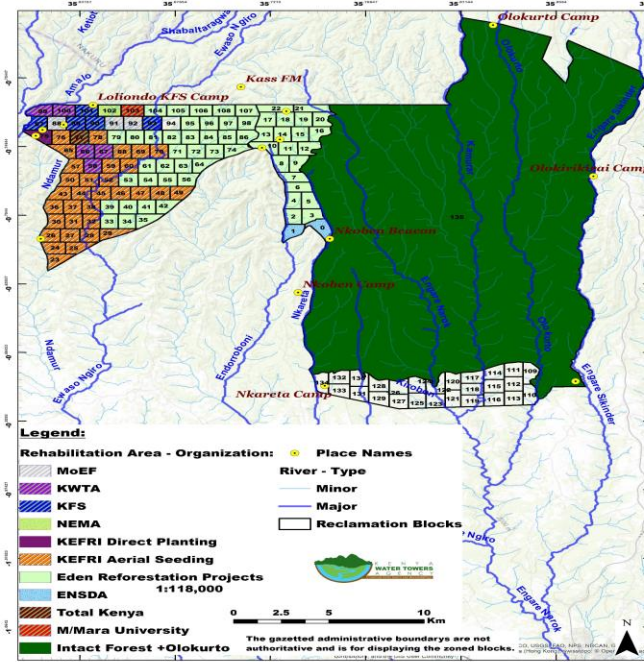
Water Tower Protection, Surveillance and Law Enforcement Program

Table 5.1: WT protection, surveillance and law enforcement program

Issue	Strategy	Key Activities	Timelines			Proposed Budget in Kes (Millions)	Key Partners
			2020-2022	2023-2025	2026-2029		
Objective 1: Secure Nzaui Hills Water Tower							
Unclear Forest Boundaries (Encroachment)	Community/ stakeholder engagement, survey and mapping	<ul style="list-style-type: none"> • Preliminary assessments • Identify relevant multi-Agencies for the boundary survey including (KWTA, County Government of Makueni, Area Chiefs, KFS, Survey of Kenya, security agencies, CFA) and hold preliminary meetings • Undertake community sensitization in all three locations and identify key issues with respect to boundary establishment • Conduct a reconnaissance and preliminary surveys to establish the scope of work, areas with high encroachment, human and capital resource requirements, time to undertake the exercise and identify teams necessary • Develop detailed programme of work-What activities need to be undertaken, who, when and how, time required and Budget 				4.5	KWTA, County Government of Makueni, Area Chiefs, KFS, Survey of Kenya, security agencies, CFA
		<ul style="list-style-type: none"> • Constitution of boundary survey teams and Boundary Survey • Identify specific persons from the relevant Multi-Agencies, develop and adopt Terms of References (ToRs) • Establish all necessary background information-Maps, history, levels of encroachment, community issues • Draw an operational plan and undertake a 2nd Community sensitization (to be undertaken when the team is on the ground) • Undertake boundary Survey to reconfirm the Boundaries of Nzaui Hills Water Towers 				35	KWTA, Survey of Kenya, KFS, Ministry of Interior and Coordination of National Government, County Government of Makueni, CFA

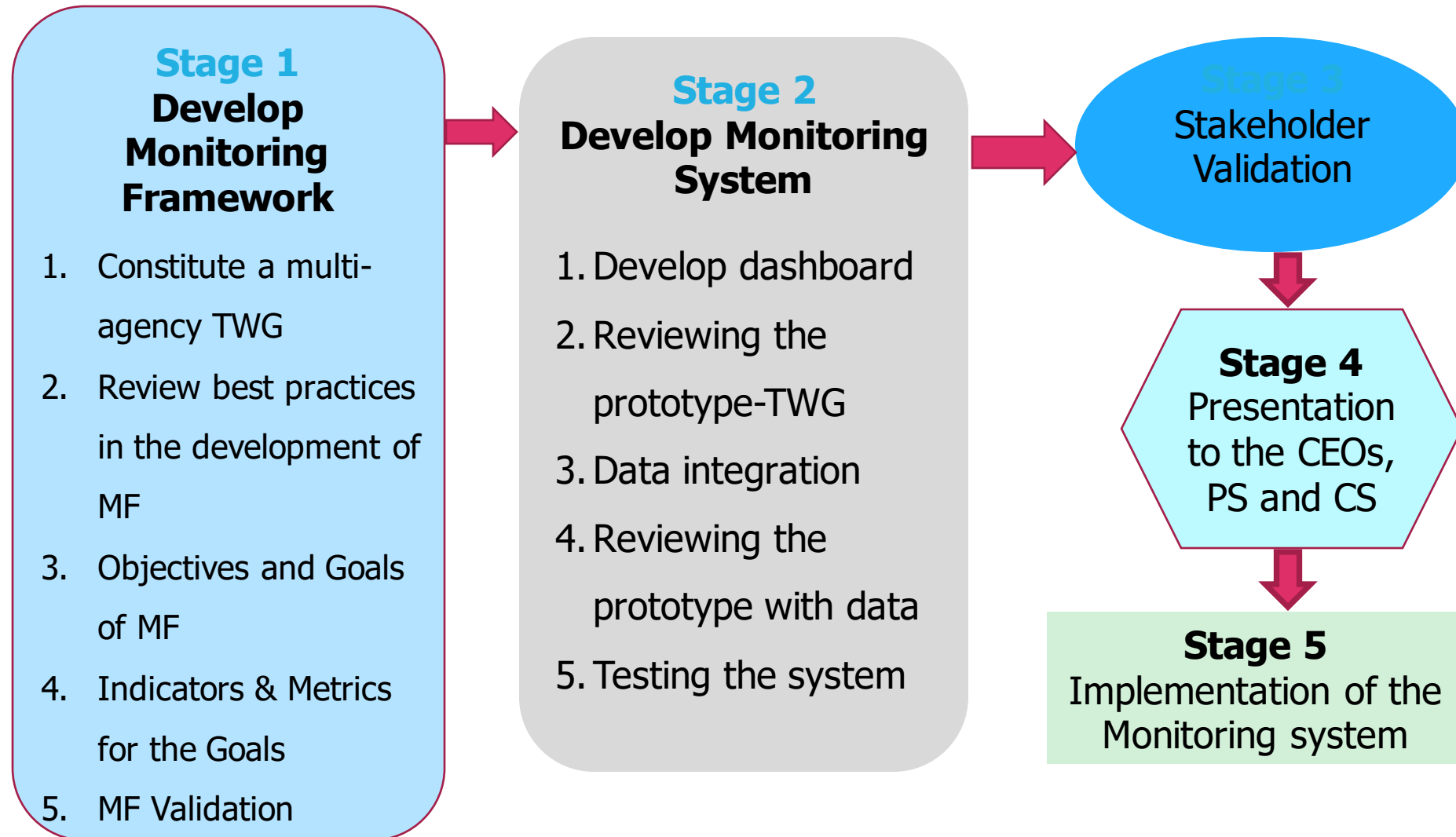
Nzaui Hills Water Tower Integrated Ecosystem Conservation Plan 2020-2030

Approaches Adopted: Implementation and monitor water towers ecosystem



Integrated Water Towers Monitoring System

Process of developing a Monitoring system



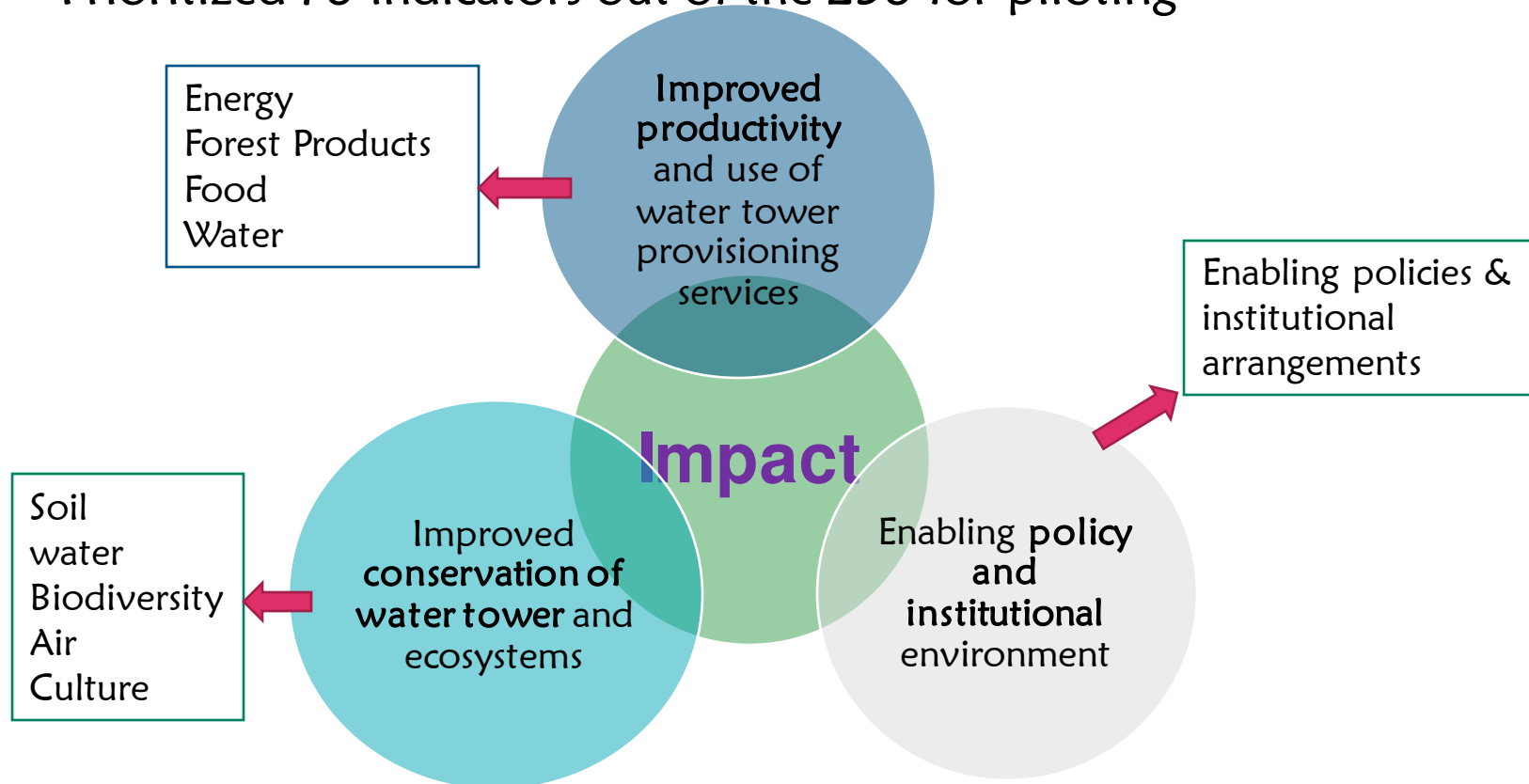
Process of developing the Monitoring System

- **Multi-stakeholder driven-** developed through a Technical Working Group bring on board **18 institutions** (mainly state actors)
- **Technical support from World Resource Institute (WRI)**

1. Kenya Forest Service	11. Kenya Institute for Public Policy Research and Analysis
2. Council of Governors	12. Ministry of Water and Sanitation
3. Ministry of Agriculture	13. National Museums of Kenya
4. Kenya Forest Research Institute	14. Nature Kenya
5. Kenya Metrological Department	15. Ministry of Environment and Forestry
6. Kenya Wildlife Service	16. Ministry of Energy
7. Climate Change Directorate	17. Kenya National Bureau of Statistics
8. Water Resources Authority	18. Ministry of Industrialization and Trade
9. National Environment Management Authority	
10. World-Agro Forestry Center -ICRAF	

IWTMS Goal: Sustainably Managed Water Towers and Ecosystem

- Identified three main goals
- 256 indicators to be monitored within the water towers
- Prioritized 76 indicators out of the 256 for piloting

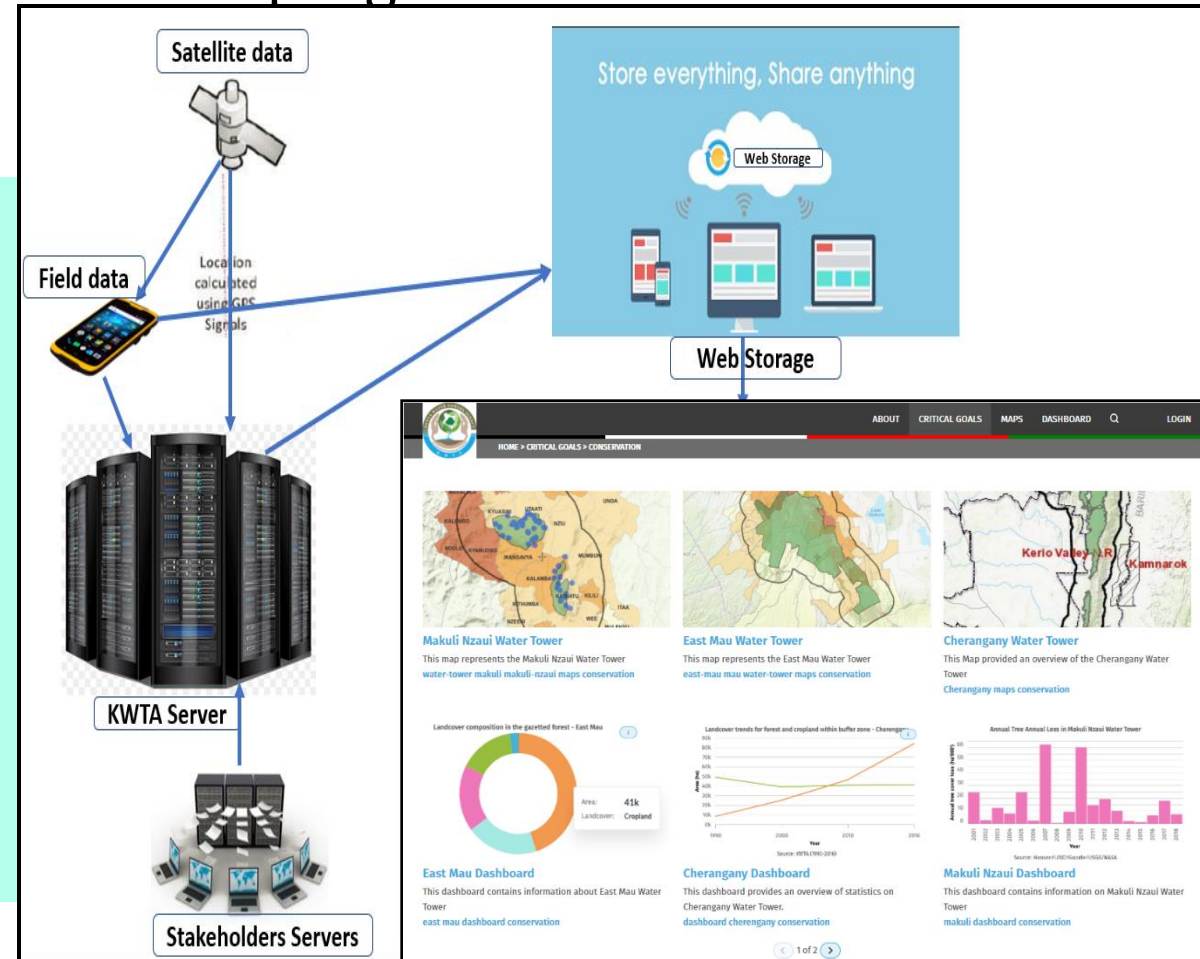


Integrated Water Towers Monitoring System(IWTMS)

KWTA has developed an Integrated Monitoring System for collecting and integrating data from various stakeholders to inform implementation and track progress towards restoration of water towers

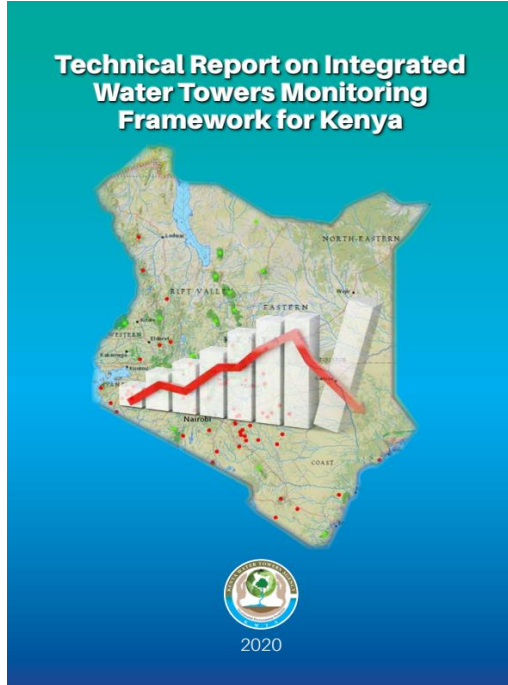
Platform for **managing** and **visualizing** water towers **information** via a web platform

Integrates data from various **stakeholders**



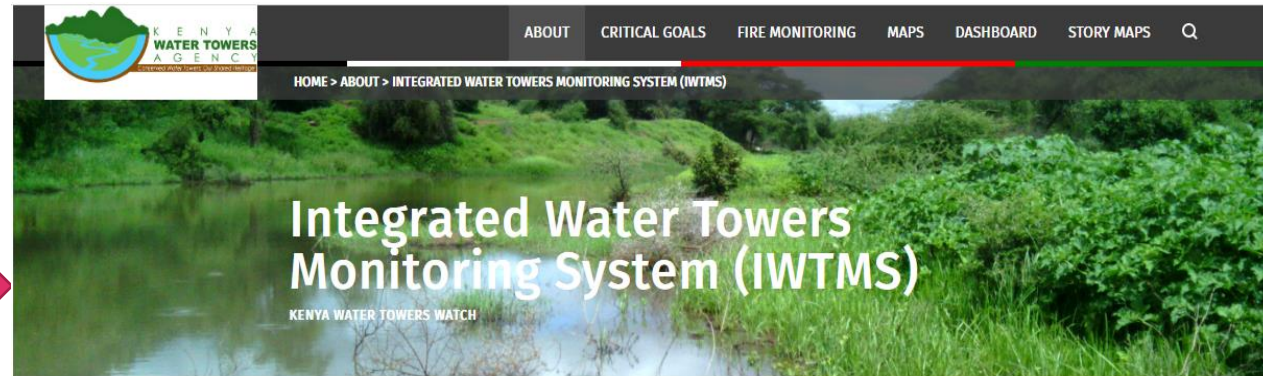
Framework to System

Water Towers Monitoring Framework



Provides guidance on **indicators, metrics and criteria** for monitoring within the Water towers

Water Towers Monitoring System Portal - Home Page



Background of Integrated Water Towers Monitoring System (IWTMS)

The Water Towers are multi-functional and provide significant ecosystem goods and services that are important for the livelihoods, hydrology and biodiversity of the surrounding communities and the wider region in which they occur.

However, wanton destruction of these important ecosystem has led to the country experiencing prolonged dry season towards the end of 2017 which led to acute shortage of water flows resulting to low water levels and drying up of rivers, streams and wells. This situation has been occurring over the years and is attributed to deforestation; degradation and encroachment of water towers; catchment and riparian areas. In addition, expansion of agricultural and settlement activities into forested areas; unsustainable land-use practices; and overharvesting of forest resources in the farmlands have aggravated the problem. This therefore call for deployment of technologies to aid in effective monitoring, surveillance, tracking and other intervention for efficient and sustainable water towers management. The goal of the Water towers watch is to provide cost-effective, scientifically based and integrated information on ecosystem conditions to inform programs, and policies intended to protect and manage the Water Towers

The Kenya Water Towers Agency Strategic plan for the year 2014-2019 provided need for development of infrastructure and tools for monitoring ecosystem health of the water towers. The Agency therefore formed a technical working group bringing together total of 17 institutions, mostly drawn from Government institution to help in developing the framework which highlight the indicators and metrics to measured so as to report on the health status of the water towers.

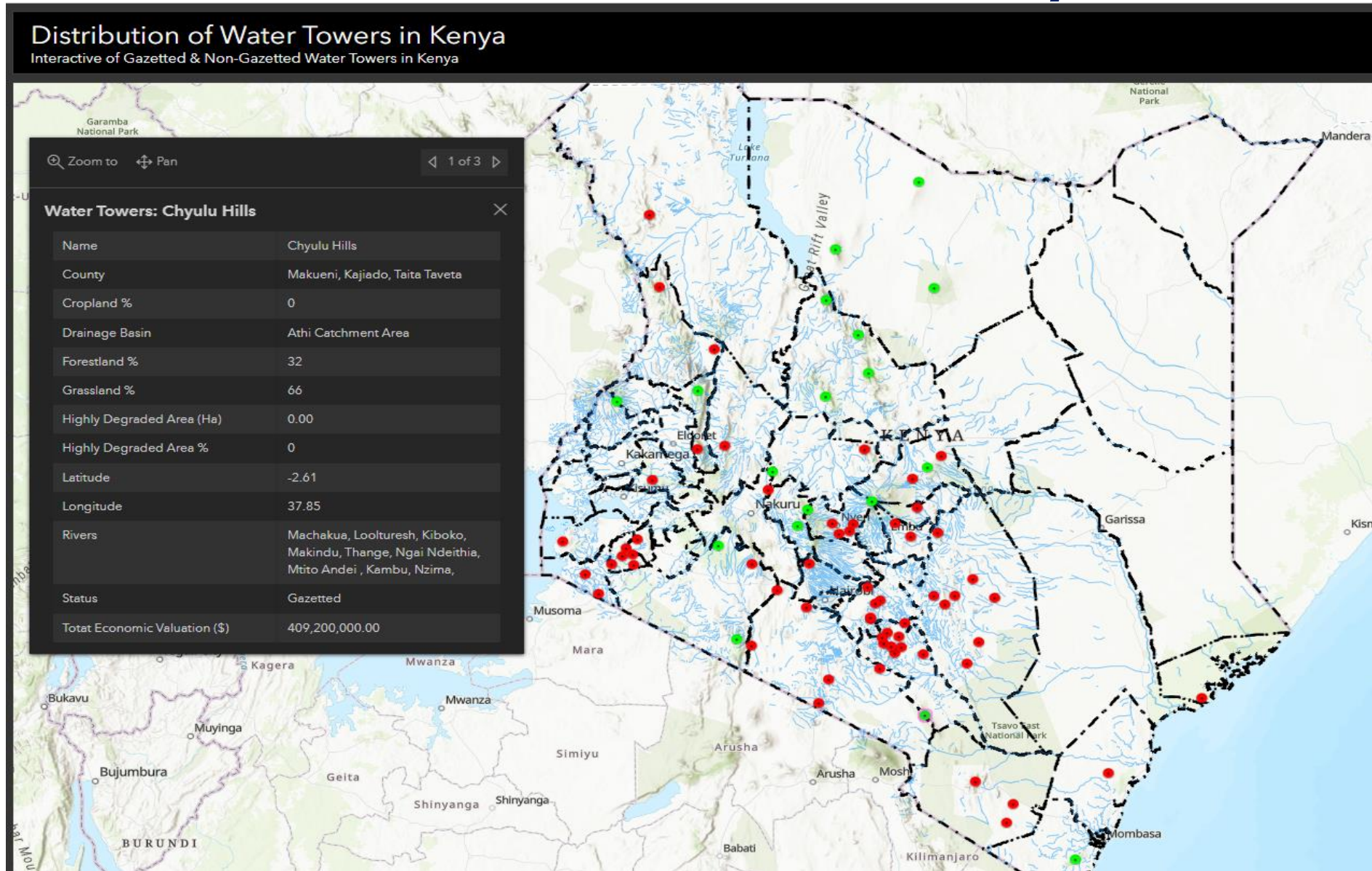
The framework was then transition to an integrated water towers monitoring system (referred to as Water Towers Watch). The Water Towers Watch is a web-based system developed in collaboration with World Resources Institute. It comprises of a dashboard for visualizing water towers maps and a dashboard showing graphs and pie charts of trends and proportion of indicators being reported.

<https://www.arcgis.com/apps/dashboards/073aae6540e24506bcdf65f2e307162b>

Integrates datasets collected and processed by various institutions in form of maps and graphs (dashboard)

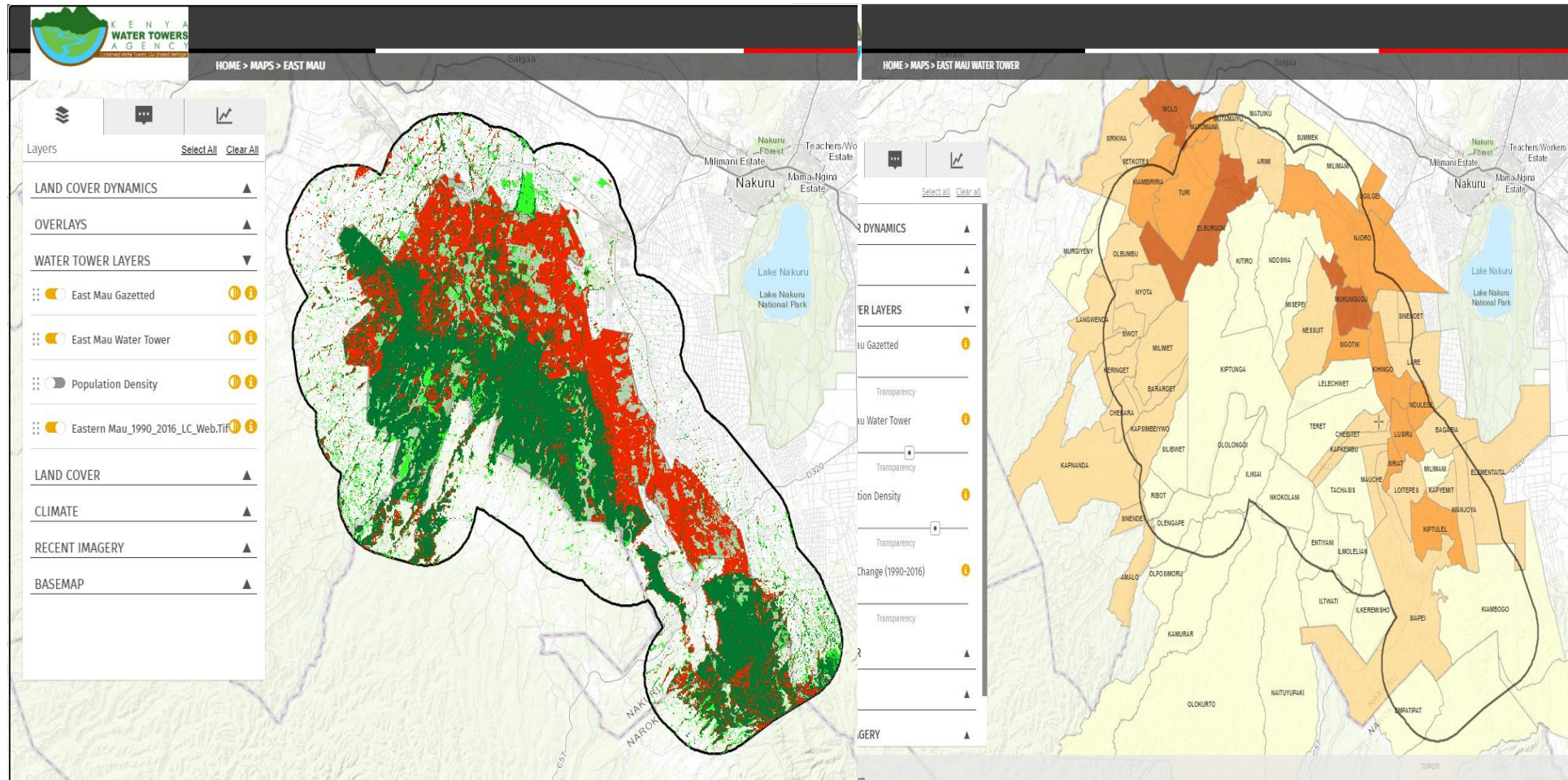
Integrated Water Towers Monitoring System

Portal – Water Towers Interactive Map



Integrated Water Towers Monitoring System

Portal – Maps (15 uploaded)



[East Mau Maps Portal Link](#)

Integrated Water Towers Monitoring System

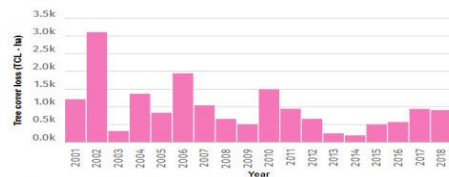


East Mau Water Tower Dashboard

Tree Cover Loss and Carbon Emissions

Annual Tree Cover Loss in East Mau

Tree cover loss data in East Mau

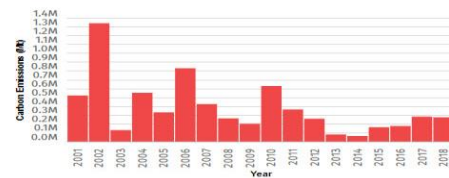


Source: Hansen/UMD/Google/USGS/NASA



Carbon Emissions from Tree Cover loss in East Mau

Carbon emissions in East Mau Water Tower



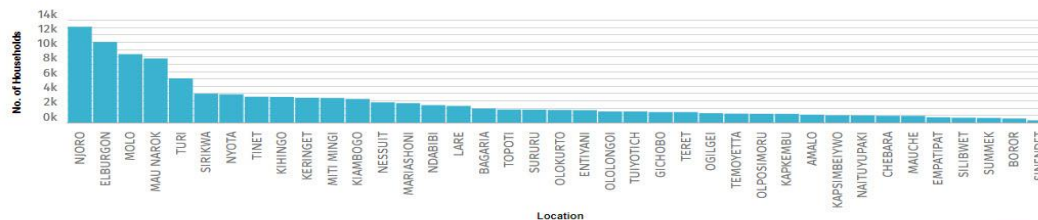
Source: Hansen/UMD/Google/USGS/NASA



Water Tower Population

Number of Households in East Mau Water Tower

Number of households around the water tower



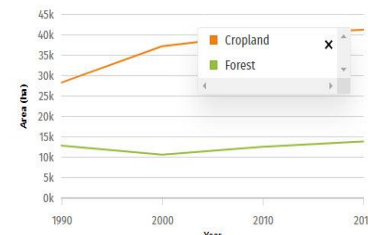
Source: KNBS (2009)



Landcover composition in the gazetted forest and buffer zone

Landcover trends for forest and cropland within gazetted forest - East Mau

Landcover trends for forest and cropland within the gazetted forest - East Mau

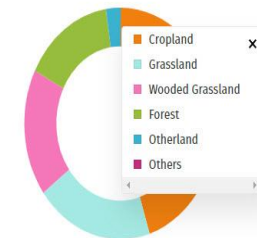


Source: KWTA (1990 - 2016)



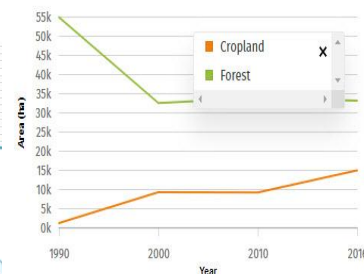
Landcover composition in the gazetted forest - East Mau

Landcover composition in the gazetted forest - East Mau



Landcover trends for forest and cropland within buffer zone - East Mau

Landcover trends for forest and cropland within buffer zone - East Mau

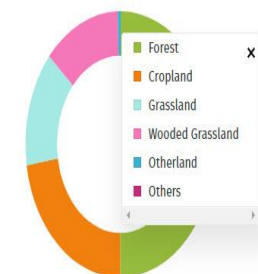


Source: KWTA (1990 -2016)



Landcover composition in the buffer zone - East Mau

Landcover composition in the buffer zone - East Mau



Source: KWTA (2016)



[East Mau Dashboard Portal Link](#)

Challenges Faced

1. Financial Limitations
2. Software Updates
3. Tear and wear of equipment
4. Data acquisition limitations
5. Data sharing limitations
6. Modification of the GUI
7. Skilled Personnel

Future Plans

1. Ensure **goodwill** among institutions providing data – Reaching out to the Key Decision Makers (C.E.Os)
2. **Actualizing the data sharing guidelines** (protocol)
3. Official Launch of the System
4. Upload all data collected for the already assessed Water Towers
5. Increasing Technical Capacity
6. **Capacity building of institution** on data management and utilization of the system
7. Acquiring/Upscaling to ArcGIS Enterprise
8. Developing **algorithms** to mine, process, and visualize data from various sources
9. **Development of Mobile applications** to facilitate **crowdsourcing data from communities and rangers**
10. Tracking User Traffic using Google Analytics.

10/14/2022

Thank you

East Mau Water Towers



Panel: Challenges to owning, operating, and maintaining NBS



Melissa de Kock
Head of the Biodiversity,
People and Landscapes
Unit
UNEP



Hannah Benn
Engagement Manager
Pegasys



Kevin Mutia
Professional Officer, Urban
Systems
ICLEI Africa



Larissa Duma
Urban Ecology and Resilience
Specialist
World Bank

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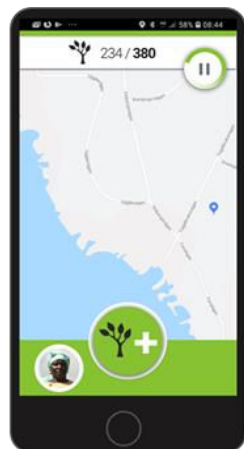
Tree Tracking & Verification- Freetown, Sierra Leone



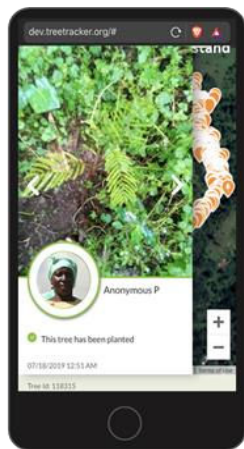
Mobile App Registration



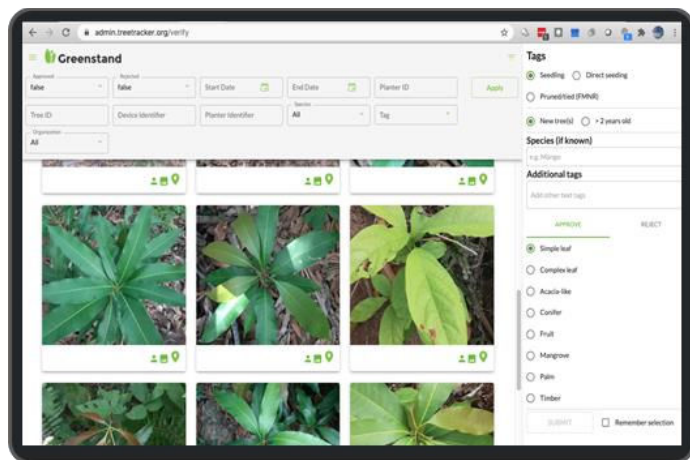
Take Selfie



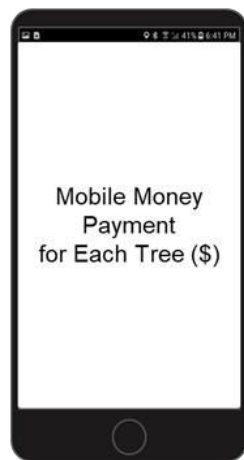
Select 'Plant Tree'



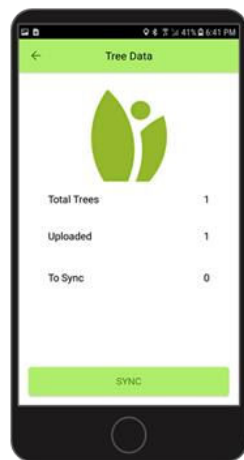
Plant Tree, Take Photo, 'Send'



Planted Tree is Third Party Verified Using a Dashboard



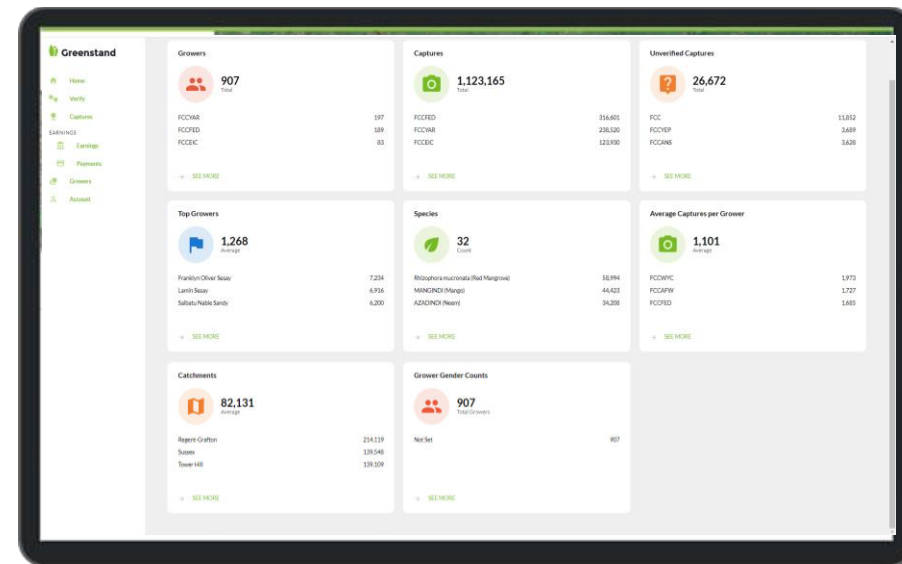
Send Tree Payment



Tree Tracking



Tree Monitoring Dashboards



Session 2 Summary

Photo: Andrew Wu, World Resources Institute: Truck transporting plants, Nairobi, Kenya



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Scaling and replicating NBS infrastructure investment

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Scaling and Replicating NBS Infrastructure Investment



Photo: Aaron Minnick | World Resources Institute; Kakamega Forest, Kenya

- Case Study
 - Mary-May Jeremie, Chief Executive Officer, Seychelles' Conservation and Climate Adaptation Trust (SeyCATT)
- Panel session
 - Kevin Massingham, FSD Africa
 - Ian Isherwood, WWF Kenya
 - Marie-May Jeremie, SeyCATT
- Summary

Case Study: Seychelles Debt-for-Nature Swap



Marie-May Jeremie

Chief Executive Officer
SeyCCAT

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Panel: **Barriers to Financing and Scaling NBS**



Kelvin Massingham
Director, Risk and
Resilience
FSD Africa



Marie-May Jeremie,
Chief Executive Officer
SeyCCAT



Ian Isherwood
Bankability Lead, Bankable
Nature Solutions (BnS)
WWF Kenya

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Closing remarks and next steps

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Closing Remarks



Boris van Zanten
Nature-based Solutions &
Disaster Risk Management
Consultant
World Bank Group



Sun Cho
Country Engagement
Coordinator
Green Growth Knowledge
Platform (GGKP)

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Closing Remarks



Photo: Sabin Ray | World Resources Institute; Machinga District, Malawi

- **Stay Engaged:**
 - Project Developer Survey
 - Investor Survey
- **Contribute to interviews**
- **Share innovative case studies**
- **Help build a community of practice**

Contact

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Emmie Oliver | Research Analyst

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World Resources Institute

Emmie.oliver@wri.org

Appendix

Deliverables

- **Technical Note:** By COP27, a published methodology of regional project inventory and initial findings of a rapid scan of MDB-led NBS projects in SSA
- **Workshops** in May and September 2022 with regional project developers and partners to evaluate challenges and opportunities to scale NBS
- **Searchable Project Database** of NBS projects led by MDBs, NGOs, governments, and other actors.
- **Final Report** to be published in August 2023 capturing full spectrum of trends and opportunities
- **Outreach Materials** throughout the engagement, including blogs, infographics, PowerPoints, and jointly sponsored events to disseminate key findings



Photo: Andrew Wu, World Resources Institute: Truck transporting plants, Nairobi, Kenya

The Urgency of the Moment

