



CIFOR-ICRAF in Kenya

An evolving collaboration



1

Kenya: Challenges and opportunities

Kenya's rich biodiversity provides goods and services as well as key socioeconomic benefits, with 1,100 bird species, >7,000 plant species, >25,000 invertebrates, and 250 small mammals.¹



8.8% and 12.1%

of land covered by forest and trees, respectively²



47.6 million

people (1.93% growth rate in 2022)³



33%

of GDP from agriculture, mostly rainfed⁴

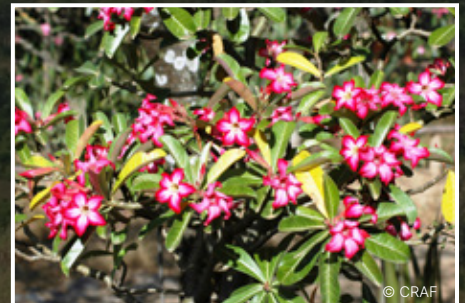


4.5 million

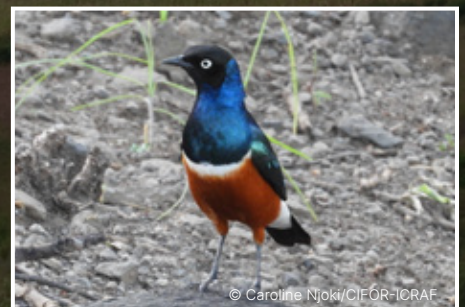
smallholder farmers⁵



© Caroline Njoki/CIFOR-ICRAF



© CRAF



© Caroline Njoki/CIFOR-ICRAF



© Caroline Njoki/CIFOR-ICRAF

Photos from top: Ochre bush squirrel in Gatamaiyu Forest; Desert Rose or *Adenium obesum*; Superb starling in Baringo County; Centipedes on decomposing plant matter in Juja-Kiambu County.

¹ Kenya's Natural Capital: A Biodiversity Atlas

² National Forest Resources Assessment Report 2021 Kenya

³ 2019 Kenya Population and Housing Census Volume 1: Population by County and Sub-County

^{4,5} Agricultural Sector Transformation and Growth Strategy 2019–2029

“Kenya is proud to partner with CIFOR-ICRAF, an international forestry and agroforestry organization that provides evidence-based solutions to address the national and global challenges. Kenya looks forward to working closely with CIFOR-ICRAF to enhance food security, biodiversity, forest and tree cover and mitigate against and adapt to climate change.”



Ephantus Kimotho, CBS
Principal Secretary, State Department for Irrigation Ministry of Water, Sanitation and Irrigation Government of Kenya Representative to the Board

However, 38.8 million hectares of Kenya’s landscape is degraded, leading to biodiversity loss and high vulnerability to increasing floods and droughts.



USD 270 million
annual cost of degradation⁶



>80%
of land is arid or semi-arid⁷



26%
of children under 5 years old suffer from malnutrition⁸



75%
of people use woodfuel for cooking/heating⁹

The many opportunities for CIFOR-ICRAF to contribute to Kenya’s development goals include:

- » The 2010 Constitution of Kenya commitment to achieve and maintain a minimum of 10% forest cover, as well as efforts to work with devolved (county) governments to strengthen environment structures and mainstream forest and landscape restoration, climate change adaptation, resilient refugee settlements, and agroecology into County Integrated Development Plans.
- » A focus on forest and rangeland restoration to realize 30% national tree cover by 2032 through the planting of 15 billion trees and restoration of 10.6 million hectares of degraded land. This includes requirements for farmers to establish and maintain at least 10% tree cover on farmland to fight climate change; conserve water, soil and biodiversity; protect riverbanks, and sustainably produce wood as per the Agriculture (Farm Forestry) Rules of 2009 under the Agriculture Act of 2012.
- » The Agricultural Sector Transformation and Growth Strategy 2019–2029 vision of sustainably transforming the agriculture sector to achieve food and nutrition security, improve smallholder and community incomes, and increase job opportunities.
- » The goal of reducing the country’s annual disease burden attributed to household air pollution from 49% to 20% by 2030 through a 50% increased adoption of households of improved biomass stoves, ensuring clean and affordable energy for all.
- » The target of lowering greenhouse gas emissions by 32% by 2030 as part of Kenya’s updated Nationally Determined Contribution.

⁶ Economics of Land Degradation and Improvement- A Global Assessment for Sustainable Development 2016
⁷ Land and Natural Resources Degradation in Arid and Semi-Arid Lands in Kenya Technical Report 2018
⁸ Kenya Demographic Health Survey 2014
⁹ Kenya Household Cooking Sector Study 2019

2

About CIFOR-ICRAF

CIFOR-ICRAF harnesses the power of trees, forests and agroforestry landscapes to address the most pressing global challenges of our time – biodiversity loss, climate change, food security, livelihoods and inequity.

“For almost half a century, our organization has built an intricate network of partnerships across Kenya through cutting-edge research and meaningful engagement with the government and communities. CIFOR-ICRAF is proud of its relationship with this vibrant and nature-based solutions focused country, and we look forward to ongoing collaboration.”



Éliane Ubalijoro
Chief Executive Officer,
CIFOR-ICRAF
Director General, ICRAF



Global crises are amplifying each other in catastrophic ways, fuelled by deforestation and biodiversity loss, climate change, dysfunctional food systems, unsustainable supply and value chains, and inequity.

But trees – whether in forests or on farms – are a key part of the solution.

CIFOR-ICRAF delivers demand-driven evidence of the ways trees can revitalize both landscapes and livelihoods. Born of the merger of the most trusted research organizations on forests, trees and agroforestry – the Center for International Forestry Research (CIFOR) and World Agroforestry (ICRAF) – CIFOR-ICRAF

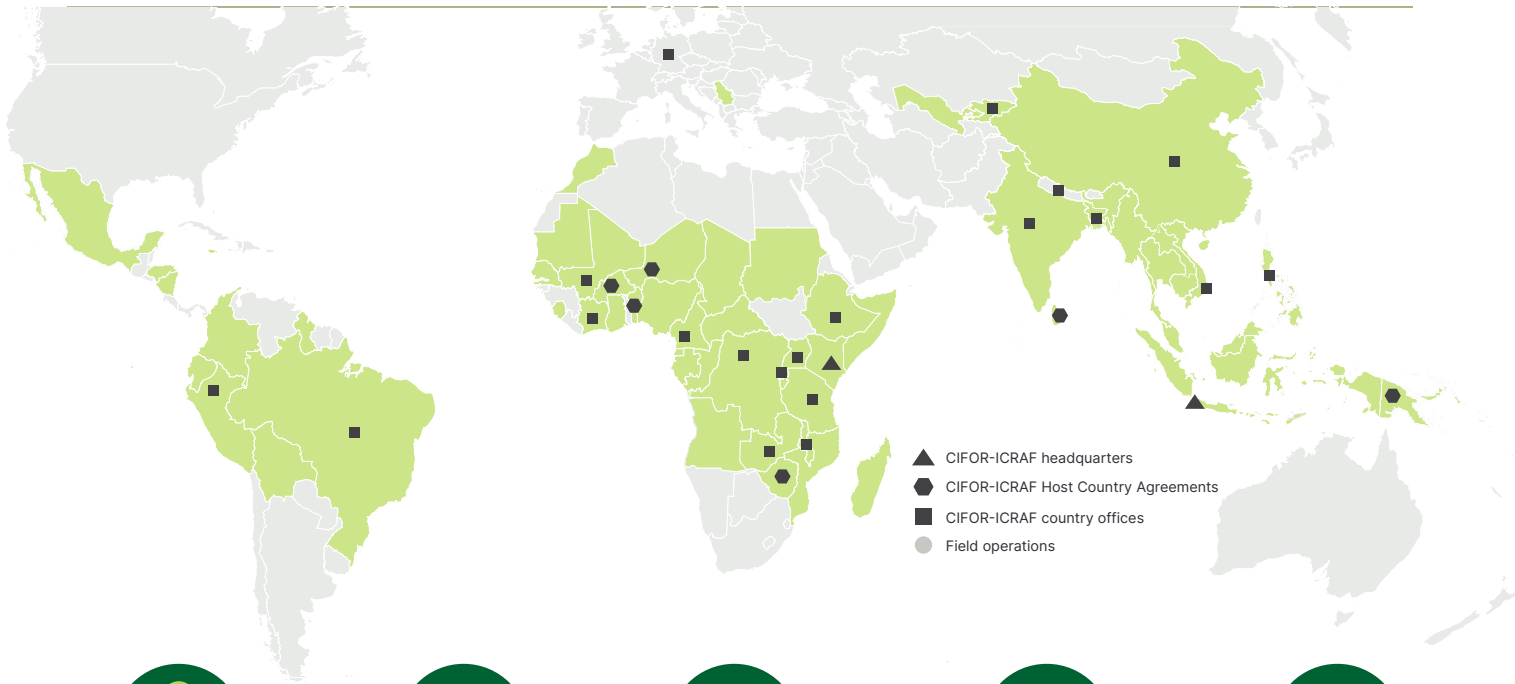
builds on a combined 70 years of expertise and extensive partnership networks across Africa, Asia and Latin America.

While maintaining separate legal entities and headquarters, CIFOR- ICRAF now operates under a single governing Board and leadership team, with a joint regional structure. Our over 700 dedicated staff work in 64 countries, with offices in 25. Our decades-long host country agreements with Indonesia and Kenya reflect their global leadership and commitment to nature-based solutions. We are deeply grateful for the financial support of our 159 funding partners and the collaboration of our 281 strategic partners.

Our work is possible thanks to the financial support of our Funding Partners and the collaboration of our Strategic Partners.

Our Strategy

The CIFOR-ICRAF 2020–2030 Strategy reflects both the confidence we feel in the relevance of our approach and our urgency to accelerate the radical transformation that is so badly needed.



▲ CIFOR-ICRAF headquarters
● CIFOR-ICRAF Host Country Agreements
■ CIFOR-ICRAF country offices
● Field operations



\$2 billion

total invested
in research



187

funding partners



270

strategic partners



2,200

Projects completed
in 92 countries



64

countries
partnerships

We provide actionable, game-changing solutions to five major global challenges:

- » Deforestation and biodiversity loss
- » Climate change
- » Dysfunctional food systems
- » Unsustainable supply and value chains
- » Inequality affecting women, Indigenous Peoples and other marginalized groups

Our approach to solving these challenges includes three innovations that will deliver game-changing solutions in response to global and national challenges and opportunities:

- » Transformative Partnership Platforms – alliances focused on critically important challenges
- » Engagement Landscapes – geographic locations where we

carry out concentrated, long-term transformative work with diverse and committed partners

- » Flagship Products – initiatives that provide action-oriented insights into key global issues

Supported by our new institutional structure, our long-established partnerships and the diverse skills of our staff, we provide actionable solutions to address local challenges and opportunities while solving global problems.

Global initiatives

The entities of the CIFOR-ICRAF network reinforce and advance our shared goals. As the leading global movement on sustainable landscapes, the Global Landscapes Forum has connected 1.9 billion

people, from youth leaders to large multilateral donors. The Global Partnership for Forests, Trees and Agroforestry has launched a new phase of collaboration. And Resilient Landscapes is fast becoming a critical nexus between science, business and finance.



3

CIFOR-ICRAF in Kenya

In November 1978, ICRAF signed a Memorandum of Understanding with the Government of Kenya that paved way for establishment and operation of its headquarter in Kenya. As host country, Kenya holds a seat on CIFOR-ICRAF's Board of Trustees.

“Together with our Kenyan partners, we have demonstrated how sound research and long-term engagement provides the needed people and nature-based solutions to address biodiversity loss, climate change, food security and livelihoods. We are lucky and grateful to work alongside our Kenyan colleagues and look forward for increasing our collaborations for the betterment of people and nature in Kenya.”



Robert Nasi
Chief Operating Officer,
CIFOR-ICRAF
Director General, CIFOR



© MoECCF



© Thomas Mulwa, CIFOR-ICRAF

In Kenya, our key contributions include financial investments, supporting policy development, strengthening training and capacity, and the establishment of research field stations through projects focusing on key agricultural and environmental challenges.

Investments in Kenya

CIFOR-ICRAF has substantial investment in Kenya. Our work is generously supported by various donors.



440
projects

in the last 25 years



\$136
million

invested in Kenya in the last 25 years


Partnerships

Over the years, we have built partnerships with **diverse partners** cutting across government ministries and agencies, county governments, academia, research institutions, development partners, donors, civil society organizations and farmers to deliver on our forestry and agroforestry mandate.

For instance, the **Agroforestry Long-Term Trial established in 2011 between ICRAF and Jomo Kenyatta University of Agriculture and Technology (JKUAT)** is enhancing understanding on beneficial tree-crop interactions by exploring best suit tree species combination and management practices to optimize crop productivity as well as water use.

CIFOR-ICRAF has people on the ground in over 35 counties in Kenya. In 2014, a dedicated Kenya Country Office was established to contextualize and deliver CIFOR-ICRAF's strategy in Kenya, working with diverse partners from across sectors to ensure quality implementation of research activities in the country.



 CIFOR-ICRAF HQ, Kenya Country Office, 6 cutting-edge laboratories

4

Strengthening capacity

Since 2010, we have contributed to training and capacity strengthening for scientists through supervision/co-supervision, internship placements, research fellowships and access to our modern laboratories.

“Kenya’s vast tree resources presents an opportunity for developing a resilient green economy. Tree commodities like gum arabic, avocado, macadamia, timber and others harbour great transformative economic potential with sustainable benefits such as nutrition, resilience, emission reductions and biodiversity. CIFOR-ICRAF is working to help realize these potentials.”



Peter Minang
Director for Africa
CIFOR-ICRAF



© Thomas Mulwa/CIFOR



© ICRAF

The African Plant Breeding Academy (AfPBA) is a premium professional development programme launched in December 2013. Designed for practicing plant breeders, the six-week specialized training programme develops skills to inform critical decisions in crop (and tree) genetic improvement. An AfPBA course on Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) for molecular scientists to apply gene editing to enhance and accelerate development of resilient crop varieties was launched in January 2023.

AfPBA partners include CIFOR-ICRAF, the University of California Davis, the New Partnership for

Africa’s Development (NEPAD) Agency, the Alliance for a Green Revolution for Africa (AGRA), Mars, Incorporated, the African Orphan Crops Consortium (AOCC), International Livestock Research Institute (ILRI), International Institute Tropical Agriculture (IITA), among others.

Our work with the African Network for Agriculture Agroforestry and Natural Resources (ANAFE) and other stakeholders led to development of a tertiary-level agroforestry curriculum, which has been adopted by several universities and colleges in Kenya and the region. CIFOR-ICRAF continues to develop a variety of context-appropriate and targeted training resources.



132
PhDs



224
MScs



534
BScs



152 scientists
from 28 countries
trained through AfPBA



10 scientists
from 6 countries took the
AfPBA CRISPR course

We continue to strengthen capacity among extension agents, technical staff and community personnel in the latest agroforestry, forestry and agriculture advances. The East and

Southern Africa Forest Observatory trained 188 rangers and community officers from four counties – Kericho, Baringo, Kakamega, and Kilifi on low-cost surveillance technology.

We also partnered with the Kenya Forest Service to upscale to the surveillance system to other forest hotspots for accurate monitoring of tree cover and rapid response.

Supporting policy making

Throughout our 45-year history in Kenya and in partnership with relevant stakeholders, CIFOR-ICRAF has provided decision-makers with evidence, analysis and technical support to inform policy on the sustainable use and management of forests and natural resources:

- » Contributing to the development of National Landscapes and Ecosystems Restoration Strategy including co-leading the agroforestry component towards restoring 10.6 million hectares of degraded landscapes and attaining 30% tree cover by 2032
- » Bioenergy Strategy (2020–2027) and related regulatory instruments including charcoal and briquette standards
- » Forest and Landscape Restoration Implementation Plan (FOLAREP) 2023–2027 to accelerate actions to restore 3.5 million hectares of degraded landscapes (leading to the development of an integrated forest monitoring and reporting framework for Kenya and a synthesis on forest and landscape restoration from 47 countries)
- » Kenya Climate Smart Agriculture Strategy 2017–2026
- » Development of Lamu County Spatial Plan 2016–2026 with biodiversity information mainstreamed
- » Formation of a Technical Working Group to coordinate landscape restoration monitoring and reporting in Kenya
- » Forestry and agriculture greenhouse analyses to support the mitigation sub-component of the National Climate Change Action (NCCAP) plan 2018–2022
- » National Agroforestry Strategy (ongoing)
- » Development of guidelines and terms of reference critical for functional County Environment Committees (CECs) – for effective coordination and management of environmental matters, in collaboration with the Ministry of Environment, Climate Change and Forestry, National Environment Management Authority and Council of Governors
- » Member of the Multi-Stakeholder Platform on Climate Smart Agriculture (MS-CSA), which coordinates CSA implementation
- » Kenya National Clean Cooking Strategy (ongoing)
- » Guidelines for Integrated Landscape Approach in Displacement Settings (GLADS)
- » Multi-stakeholder platform for development of an agroecology strategy for Kenya (Ongoing)
- » Participatory forest management and action plans for Londiani within the Mau Water Tower and Nyatike-Mirema Hills
- » Finalization of climate change action plans and policies for Migori, Homabay and Isiolo counties

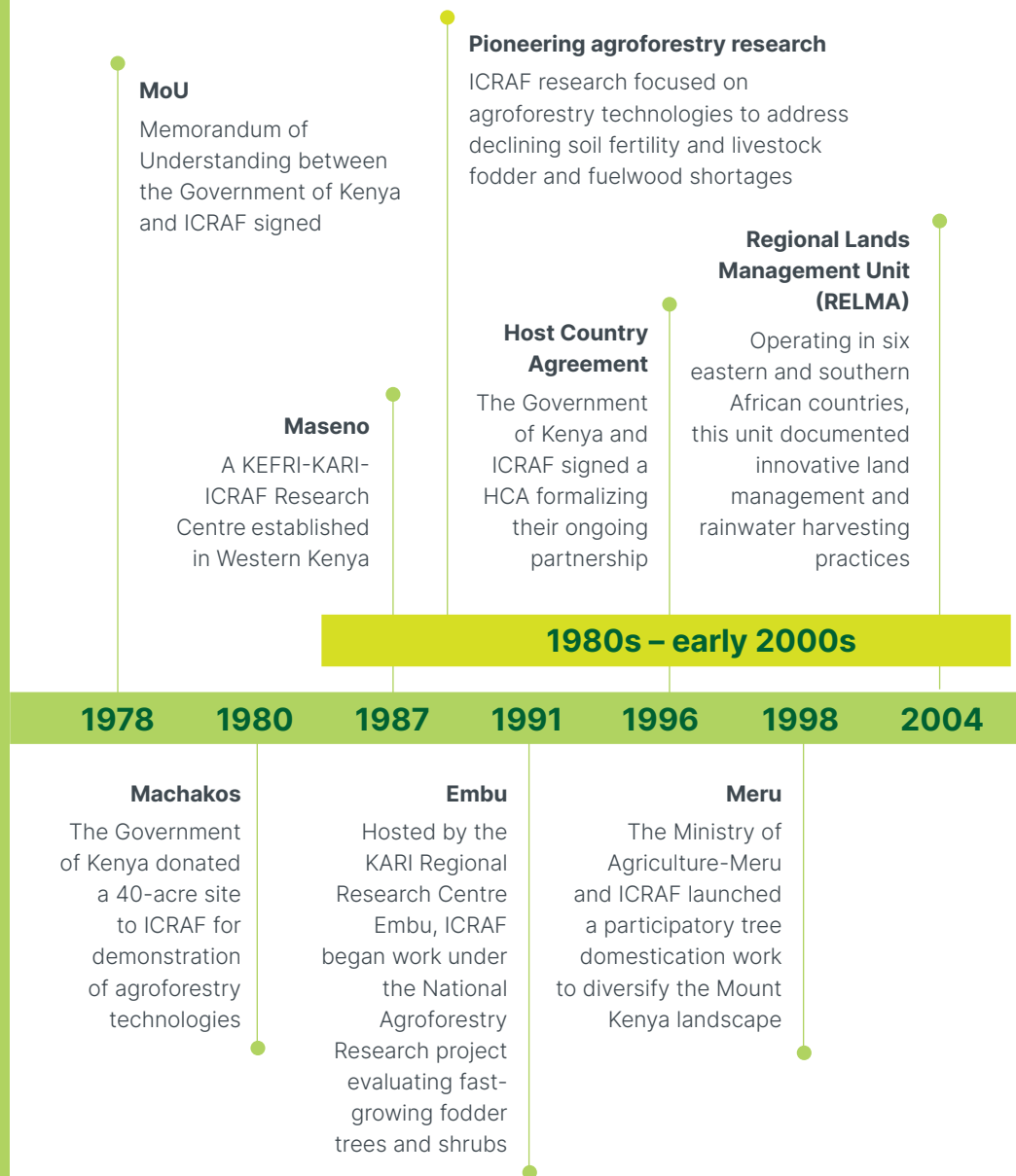
CIFOR-ICRAF is also part of the government-led Working Group on **TSave Tsavo Landscape Restoration Initiative**, which aims to conserve and restore the transboundary landscape covering 13 counties (Narok, Nairobi, Kajiado, Taita Taveta, Kwale, Mombasa, Kilifi, Tana River, Lamu, Garissa, Kitui, Makueni and Machakos) in Southern Kenya.



5

CIFOR-ICRAF in Kenya: A timeline

For over 45 years, ICRAF, CIFOR and CIFOR-ICRAF have supported Kenya's efforts to increase food security, improve livelihoods, forest management and climate resilience for smallholders and communities across the country.



Photos from left to right: Policy Plenary during GLF Nairobi; Prof. Fred H. Segor, CBS, Principal Secretary, Water Services, Ministry of Water and Irrigation signs the Declaration of Intent for the Billion Dollar Business Alliance-Kenya Chapter; PS Agricultural Research, Hamadi Boga ICRAF visit; 2018-2022 Londiani PMFP launch.



© Global Landscapes Forum



© ICRAF



© ICRAF



© Violet Otieno-CIFOR

Itare-Chemosit sub-catchment management plan 2018–2022

The sub-catchment plan launched emanating from research conducted by CIFOR together with Community Water Association members and other stakeholders to inform protection and water resources management

Londiani Participatory Forest Management Plan 2018–2022

Launch of the reviewed forest management plan arising from a participatory process involving CIFOR, Kenya Forest Service and Community Forest and Water Association members

Global Landscape Forum (GLF) Nairobi

by CIFOR, United Nations Environment Programme (UNEP) and the World Bank held with focus on Forests and Landscape Restoration in Africa with 800 and 13,380 participants attending physically and virtually, respectively

Billion Tree Campaign unveiled by UNEP and ICRAF during UNFCCC COP 12 held in Nairobi in response to climate change challenges with 12 billion trees planted and 193 countries reached by October 2011

2nd World Congress of Agroforestry

co-hosted by United Nations Environment Programme (UNEP) and ICRAF held in Nairobi with 1,200 participants from 96 countries attending

Africa Plant Breeding Academy (AfPBA) course

launched and hosted by ICRAF

ICRAF deploys cutting-edge laboratory equipment and staff

to support the Kenyan Government in its COVID-19 testing and control efforts during the pandemic

2006 2009 2012 2013 2017 2018 2019 2020 2022

CIFOR opens Nairobi Hub Office and embarks on research in Kenya focusing on land use/cover changes on water provisioning with focus on Mau Forest, Mount Elgon and Cherangany Hills water towers

Billion Dollar Alliance for Rainwater Harvesting-Kenya
Kenya Chapter of Billion Dollar Alliance for Rainwater Harvesting launched in collaboration with ICRAF, the Government of Kenya and other partners

CIFOR-ICRAF
ICRAF and CIFOR launched a 3-year merger process to become CIFOR-ICRAF
An initiative to restore an urban road reserve along the Waiyaki Way-Red Hill Link Road in Nairobi by ICRAF, Kenya Urban Roads Authority (KURA), Kenya Forest Service (KFS), resident associations and other partners started

ICRAF hosts 40 Diplomats representing Kenya in various overseas missions around the world familiarizing with agroforestry-forestry-land use research and development work

6

Field research stations

Over the years, several research stations and programmes have been established to address critical issues facing Kenyans, such as fodder and fuelwood shortages, low productivity, erosion, and narrow tree species diversity.

Machakos (1980–1997) – This 40-acre site donated by the Government of Kenya was established in 1980 to demonstrate agroforestry technologies, boundary planting, live fences, soil-conservation technologies, alley cropping, windbreaks and fodder banks. Work under the Dryland Agroforestry Research Project (DARP), launched in 1983 in Kakuyuni, was instrumental in the development of agroforestry technologies for semi-arid areas in Kenya.

Maseno (1987–2016) – This KEFRI-KARI-ICRAF Research Centre located in Western Kenya focused on species-screening trials, farmer surveys, selection and breeding research on high-priority species, breeding biology, vegetative propagation studies and tree-root symbionts. The station was transferred to KEFRI in 2016.

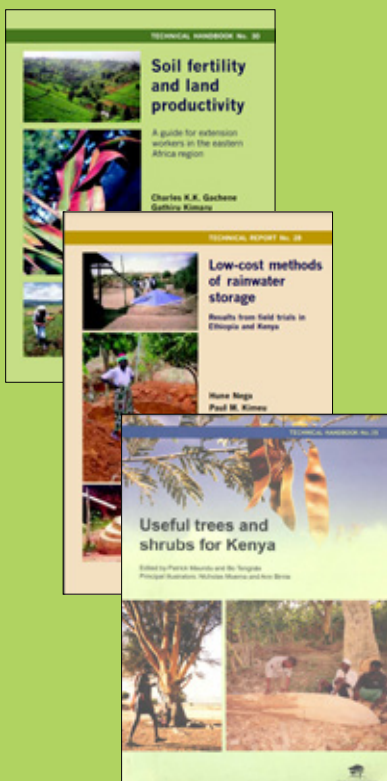
Embu (1991–2004) – Hosted by KARI Regional Research Centre Embu, work began in 1991 under the National Agroforestry Research project conducting on-farm and on-station evaluation of fast-growing fodder trees and shrubs to address seasonal fodder shortages. This was followed by efforts to train farmer groups in Central Kenya to produce and distribute fodder shrub seeds to establish fodder nurseries to meet the high demand.

Meru 1998–2011 – This centre focused on participatory tree domestication work with the aim of diversifying the landscape on Mount Kenya with high-value trees and to reduce over-reliance on *Grevillea robusta*, involving Meru farmers, the Ministry of Agriculture-Meru and ICRAF. It established a network of nursery operators, sensitized farmers to the need for diversification, and conducted on-farm tree species trials to identify suitable species for diversification.

Regional Lands Management Unit (RELMA) 2004–2006 – Operating in six eastern and southern African countries including Kenya, RELMA succeeded the Regional Soil Conservation Unit (RSCU) established by Sida in 1982, and produced a series of guidebooks, extension manuals and documentation of innovative land management and rainwater harvesting practices.



© Danyell Odhiambo/ICRAF



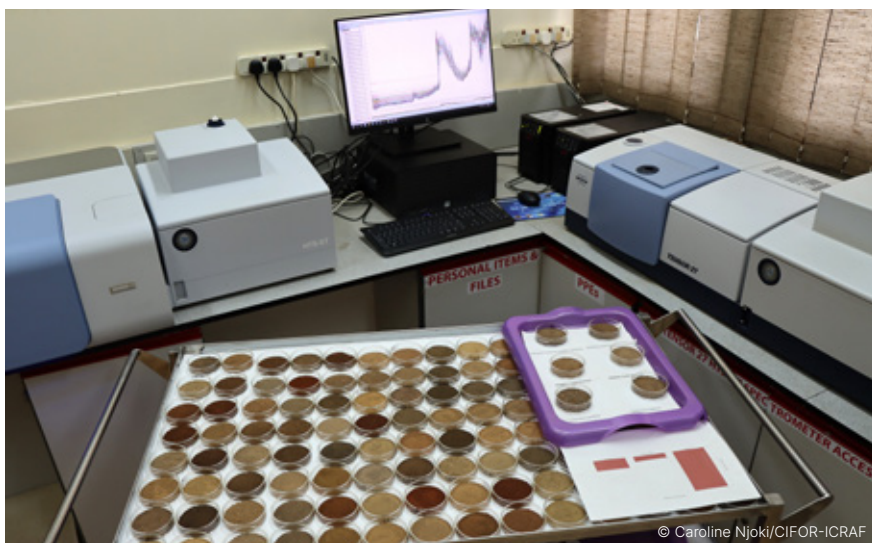
2,600
farmers

involved in the development of 250
fodder nurseries by 2000

Our laboratories

The CIFOR-ICRAF Nairobi Campus is home to several cutting-edge laboratories:

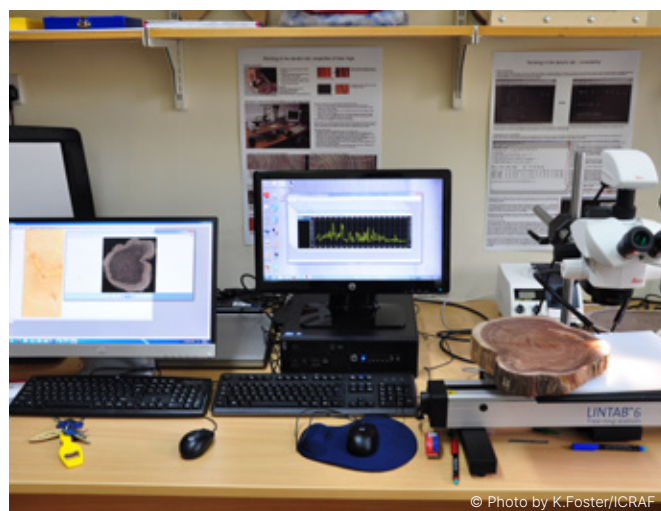
- » **Genetic Resources Unit** – maintains and conserves a diverse collection of tropical tree species, mainly in seed form at the Nairobi Headquarters. Additionally, CIFOR-ICRAF works with national partners to manage established field genebanks (in Thika, Muguga, Kakamega, Matuga, Meru, Malava, and Molo) for evaluation, characterization, multiplication and distribution of agroforestry species.
- » **Soil-Plant Spectral Diagnostics Lab** – offers robust, low-cost and rapid analysis of soil, plants and agricultural inputs using dry spectral methods.
- » **Living Soils Lab** – studies and assesses soil biota that are important in maintaining and improving soil fertility in agroforestry systems.
- » **Dendrochronology Lab** – studies tree growth rings to better understand and reconstruct relationships between tree growth, climate and landscape conditions.
- » **African Orphan Crop Consortium** – focuses on less-researched or underutilized but nutritionally important crops and trees by sequencing them to facilitate genetic improvement of their traits.
- » **Geospatial Unit** – applies geoscience tools, methods and services for real decision contexts in the form of visual spatial data and maps, all using open source software.



© Caroline Njoki/CIFOR-ICRAF



© Michael Major/Crop Trust



© Photo by K.Foster/ICRAF

7

Impacts and outcomes

CIFOR-ICRAF has contributed to Kenya's development agenda in several focus areas and continues to generate new evidence and insights, all while integrating gender and social inclusion considerations throughout activities.

“CIFOR-ICRAF is committed to support Kenya's target of growing 15 billion trees and restoring 10.6 million hectares of degraded land by 2032. It will do this through provision of evidence-based and context-appropriate solutions for enhanced climate resilient landscapes and livelihoods through partnerships with national and county governments, farmers and local communities.”



Catherine Muthuri
Kenya Country Director and
Regional Convener for East Africa
CIFOR-ICRAF



Sustainable water management systems

In the face of recurring droughts and floods, efficient rain and floodwater management is critical. The following innovations contribute to improved water security, sustainable farming (including tree growing and management), better livelihoods, and climate resilience for smallholder farmers.

- » CIFOR-ICRAF has co-developed context-based water harvesting and management technologies, including the construction of 193 farm ponds in the dryland counties of Kitui, Makueni and Machakos to harness rainwater for domestic

use and agribusiness, under the Drylands Development Programme (DryDev)

- » We contributed to the establishment of the Kenya Chapter of the Billion Dollar Business Alliance for Rainwater Harvesting to boost investments for increasing farm ponds through multi-actor partnerships for improved livelihoods and climate resilience.
- » Our biophysical and socioeconomic assessment of landscapes using Watershed Management Protocol Application (WAMPA) tool informed the Food and Water Security

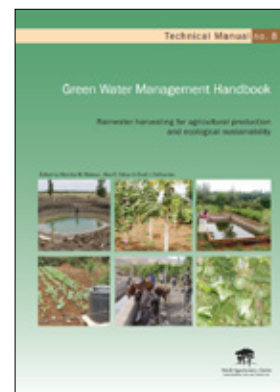


Master plan for Turkana County, as well as sustainable land management interventions for Mwache dam catchment area in Kwale County, land degradation and restoration studies for Bungoma, Kakamega and Siaya Counties, and mapping flood-based farming systems.

- » Greywater recovery and reuse, such purification using charcoal/biochar and Moringa seed protein at the household level in Kwale and Siaya, has been a focus, as well as greywater use for

kitchen gardening, tree growing and fuel briquette production, as practiced in Kakuma-Kalobeyei refugee-hosting landscapes in Turkana.

- » CIFOR-ICRAF co-leads the Optimizing rainwater in rainfed agriculture Transformative Partnership Platform, which focuses on developing technologies and management practices to improve rainwater use efficiency, and attracting investments to support rainfed agriculture for sustained food production.



Food and nutritional security



© Regreening Africa



© Caroline Njoki/CIFOR-ICRAF



© Sherry Odeyo/CIFOR-ICRAF

This work contributes to transformed agricultural, forest and dryland landscapes, including those inhabited by refugees.

- » Trees provide a variety of products such as fruits, fodder, nuts, fibre, medicine, fuel and timber – including African orphan tree crops. CIFOR-ICRAF is helping to enhance on-farm tree diversity through domestication and genetic improvement of priority species that provide a variety of products and services. Some domesticated exotic and indigenous trees and shrubs species in Kenya include *Grevillea robusta*, *Calliandra calothyrsus*, *Cytisus scoparius*, baobab (*Adansonia digitata*), Tamarind (*Tamarindus indica*), *Balaenites aegyptica*, *Ziziphus Mauritania*, *Sclerocarya birrea* and *Calotropis procera*. Species-site matching with an emphasis on ‘right tree-right purpose-right place’. The Africa Tree Finder App supports the selection of suitable indigenous trees, and includes a map of Kenya with information on each tree species’ products and services.
- » Trees offer ecosystems services (supporting, provisioning, regulatory, and cultural services)

that enhance agricultural productivity and livelihoods. CIFOR-ICRAF develops and generates superior planting materials and strengthens technical capacity, including establishing quality seedling production, setting up supply centres and accompanying trainings in different locations across Kenya.

- » Legume CHOICE is a participatory tool developed to inform decisions on selection and matching suitable multi-purpose legumes (crops and trees) to widely varying farming contexts for food provision, income, livestock feed, fuel, soil erosion control and soil fertility improvement. In Kenya, this tool has been applied by smallholders in Migori and Kisii counties. This involved ILRI, ICRAF, KALRO and IITA.
- » Nature-based solutions support food production systems through integration of agroecological practices. Under the CGIAR Agroecology Initiative, CIFOR-ICRAF is co-creating innovative agroecological practices to be scaled through on-site planned comparisons and on-farm trials with smallholders and food system actors in Kiambu and Makueni counties.



- » Working with Kenyan smallholder farmers, CIFOR-ICRAF has developed and trialled 'portfolios' of food trees and crops that promote location-specific and ecologically suited food tree species (including both exotic and indigenous species as well as crops) to provide nutritious and diversified diets that meet nutrition and livelihood needs year-round. Specifically, these portfolios have been developed for Laikipia, Tharaka Nithi, Kwale, Machakos, Siaya, Kakamega and Vihiga counties.
- » Under the [Refugee-Hosting Engagement Landscape](#), CIFOR-ICRAF is working on partnership development with stakeholders in the humanitarian sector and implementing innovations on agroforestry, tree and drylands management, and sustainable bioenergy and bioresources recovery and reuse for energy, food and environment in Kakuma-Kalobeyei, Turkana. It has also developed a strategy for gender integration in research and development in the context of displaced populations.



Climate change mitigation and adaptation



© Chloride Exide



© Denis Wakaba/CIFOR-ICRAF

Our focus is on the role of forests and trees in agricultural productivity, climate resilience and carbon storage.

- » CIFOR-ICRAF co-designs and implements nature-based solutions for climate change adaptation and mitigation.
- » Our researchers developed allometric equations to determine the carbon storage potential for key agroforestry tree species in agricultural landscapes of Western Kenya to better understand the contribution of agroforestry in climate change mitigation in smallholder farming systems (including priority fruit trees such as mangoes and avocados in Makueni and Kiambu counties, respectively). This is critical for informing carbon financing and benefit sharing in ongoing restoration and climate change mitigation and adaptation measures.
- » We support climate change action planning at the county level, namely in Nyeri, Kajiado, Taita-Taveta and Busia.
- » CIFOR-ICRAF developed and tested climate-smart agriculture options for farmers across diverse contexts in Kenya, from dairy farming to dryland agriculture.
- » The first Agrivoltaics system in Africa was co-developed in Kajiado County through collaboration between the University of Sheffield, University of York, CIFOR-ICRAF, Teesside University, Stockholm Environment Institute, Centre for Research in Energy and Energy Conservation, African Centre for Technology Studies and Latia Farm Kenya. The system combines solar power and rainwater harvesting to enable crop production and provision of clean energy.
- » We study greenhouse gas emissions in livestock farming systems to improve emissions factors for Kenya and find ways to reduce emissions without lowering productivity, by combining clean renewable energy generation with increased climate resilience.
- » Through the Ministry of Agriculture, CIFOR-ICRAF designed an online training course to enable counties to design their own climate-smart agriculture plans.



Land restoration

We take an 'Options by Context' (OxC) approach to enable the matching of appropriate restoration options to biophysical and socioeconomic conditions.

- » Farmer managed natural regeneration has been widely implemented in Makueni, Kitui, Machakos and Baringo counties through various forms of growing trees on farm, as well as sustainable biochar systems (in Kwale, Embu and Siaya).
- » Application of Land Degradation Surveillance Framework (LDSF) for assessing key soil and land health indicators including soil organic carbon (SOC) and to inform appropriate restoration interventions has been generated for 13 counties. Findings show higher SOC concentrations in Western Kenya compared to Eastern Kenya.

- » CIFOR-ICRAF co-designed dashboards that provide evidence-based information to support decision making on priority interventions and track impacts around soil and land health for Turkana, Laikipia and Makueni counties.
- » The Regreening Africa App developed by CIFOR-ICRAF is helping to track on-farm restoration practices through assisted citizen science data collection in African countries including Kenya.
- » We are building the capacity of County Environment Committees on the monitoring and reporting of land restoration initiatives in their counties; this is critical to track Kenya's progress for its Nationally Determined Contribution and restoration targets.

- » We supported governance around grazing management in Western Kenya through the Restoring African degraded landscapes (ReDEAL) project.
- » We are synthesizing knowledge and lessons on effective Integrated Landscape Management which are impactful and offer inclusive landscape solutions to the to context-specific land use challenges from 23 projects under EU-Landscapes for Our Future programme

The above initiatives contribute to the Landscape restoration Transformative Partnership Platform, which aims to generate evidence and action towards context-specific restoration solutions.



Sustainable tree-based value chains

Trees provide a range of economic, social and environmental benefits to local communities through both timber and non-timber products and services. CIFOR-ICRAF is supporting tree product entrepreneurs with locally grown tree resources to improve livelihoods and the local environment while incentivizing regeneration.

- » We are strengthening tree input systems (seed quality seedling supply) to catalyse the development of profitable tree products for enhancing regenerative practices such as farmer managed natural regeneration in both dryland and humid counties.
- » The sharing and use of appropriate knowledge and tools is being enhanced through innovations involving Climate Appropriate Portfolios of Tree Diversity (CAPTD) that offer tools on how to mix tree-planting materials matched to planting sites and purpose.

- » Through our collaboration with the Kenya Plant Health Inspectorate Service (KEPHIS), we support training in and adherence to phytosanitary standards quality and disease-free germplasm sources for fruits, fodder and timber in support of national goals on restoration, nutrition and gender transformative approaches.
- » Under the Regreening Africa project implemented in Migori and Homabay, CIFOR-ICRAF worked with tree-based businesses to identify practices that yield benefits in the short, medium and long term, while also conducting scoping assessments with communities to prioritize options to inform County Integrated Development Plans (CIDPs).
- » We are conducting actor-mapping work within targeted communities, business development trainings, and capacity development support such as improving stakeholder linkages and exchanges.



- » The Green Tree Commodities Initiative generates evidence of how climate-smart and sustainable tree commodities contribute to socioeconomic and environmental benefits; in Kenya, the focus is on nine selected tree crop commodities – coffee, avocado, macadamia, mango, wood, cashew, orange, bamboo and gum arabica.
- » We conducted a gender analysis and series of gender-transformative value chain workshops in Kericho and Nandi Counties for Fairtrade International's Growing Women in Coffee program to enhance equitable benefit sharing.



Sustainable forest management

- » In Kenya's water towers (Mau and Cherangany Hills), CIFOR-ICRAF is strengthening forest and water community associations in forest and water resource governance for joint and equitable forest and water management.
- » The East and Southern Africa Forest Observatory (OFESA) platform is comparing Kenya's forest cover trends with other East and Southern African countries to support decision making, track restoration and climate change targets, and produce the first-ever 'state of forests' report for the region.



Greening urban road reserves



ICRAF, resident associations and local nursery workers embarked on greening the bare verges of a four-lane highway in Nairobi. In a partnership with Kenya Urban Roads Authority (KURA) and Kenya Forest Service (KFS), over 3,500 seedlings of at least 40 tree species, mostly indigenous, from the nurseries of KFS, ICRAF, Friends of Karura Forest, Plants for Life international at Brackenhurst, and Plants Galore have been planted and are being maintained along the Waiyaki Way-Red Hill Link Road along with grass and shrubs. The result is a linear urban forest providing respite for pedestrians and habitat for biodiversity as well as absorbing stormwater and reducing erosion. This model is being replicated across the city of 5 million which has an estimated 7,000 ha of road reserve and other counties.



Sustainable bioenergy-biochar systems

Sustainable bioenergy systems work involves application of a theory of change in improving efficiency in all the components including sourcing feedstock, processing and utilization. The innovation include:

- » Sustainable biomass production through management of native and invasive species, tree growing and use of tree and crop residues.
- » Improvement of efficiency in biomass conversion into charcoal e.g., in Baringo, Kitui.
- » Bioenergy products quality assessment including participatory field testing.
- » Cleaner biomass cooking and other uses such as work on gasifier stove for household cooking while producing biochar for soil amendment in Embu, Kwale and Siaya.
- » Participatory planned comparisons on performance of biochar on soil and crop yields in Embu, Kwale, Siaya, South Nandi.
- » Resource Recovery and Reuse (RRR)-circular bioenergy economy for fuel briquettes in Kakuma-Kalobeyei Turkana, Kibera Nairobi, Maai Mahiu Naivasha.
- » Capacity development for members of the United Briquette Producer Association (UBPA)-Kenya, charcoal producers and county government staff in Kitui and Baringo under the Governing Multifunctional Landscapes (GML) project.
- » Socioeconomic and environmental assessment on the briquette and charcoal using the Global Bioenergy Partnership (GBEP) indicators, mapping women's energy burden in sourcing and use of firewood in Embu and Kiambu.
- » Climate impacts assessment comparing improved versus traditional practices such as that conducted on charcoal, biochar and fuel briquettes.





CIFOR-ICRAF envisions a world in which people enjoy livelihoods supported by healthy, productive landscapes made resilient through the transformative power of forests, trees and agroforestry.

Global crises are amplifying each other in catastrophic ways, fuelled by deforestation and biodiversity loss, climate change, dysfunctional food systems, unsustainable supply and value chains, and inequality affecting women, Indigenous Peoples and other marginalized groups.

But trees – whether in forests or on farms – are a key part of the solution.

CIFOR-ICRAF delivers demand-driven evidence of the ways trees can revitalize both landscapes and livelihoods. Born of the merger of the most trusted research organizations on forests, trees and agroforestry – the Center for International Forestry Research (CIFOR) and World Agroforestry (ICRAF) – CIFOR-ICRAF harnesses a combined 70 years of expertise and extensive partnership networks across Africa, Asia and Latin America.

While maintaining separate legal entities and headquarters, CIFOR-ICRAF now operates under a single governing Board and leadership team, with a joint regional structure. Our over 700 dedicated staff work in 60 countries, with offices in 25. Our decades-long host country agreements with Indonesia and Kenya reflect their global leadership and commitment to nature-based solutions. We are deeply grateful for the financial support of our 159 funding partners and the collaboration of our 281 strategic partners.

In total, we have completed over 2,200 projects worth more than USD 2 billion in 92 countries. Through our over 25,000 research products and a suite of websites, news, social media and events, our message continues to mobilize an ever-growing audience, whether in academia, government or civil society.

The entities of the CIFOR-ICRAF network reinforce and advance our shared goals. As the leading global movement on sustainable landscapes, the Global Landscapes Forum has connected 1.5 billion people, from youth leaders to large multilateral donors. The Global Partnership for Forests, Trees and Agroforestry has launched a new phase of collaboration. And Resilient Landscapes is fast becoming a critical nexus between science, business and finance.

© 2024

cifor-icraf.org



Center for International Forestry Research (CIFOR)

Jalan CIFOR, Situ Gede, Bogor Barat,
Bogor, 16115, Indonesia
Email: cifor@cifor-icraf.org
Web: www.cifor.org

World Agroforestry (ICRAF)

United Nations Avenue, Gigiri, PO Box
30677, Nairobi, 00100, Kenya
Email: worldagroforestry@cifor-icraf.org
Web: www.worldagroforestry.org



Global
Landscapes
Forum



Resilient
Landscapes

globallandscapesforum.org | resilient-landscapes.org



CIFOR and ICRAF are CGIAR Research Centers