LOCALISING FOREST GOVERNANCE



to scale nature-based climate solutions, ensure long-term ecosystem restoration and build community resilience in fragile and conflictaffected contexts

> A Burkina Faso case study 2007-2024

CONTENTS

EXI		4
INT	RODUCTION	8
I. T GO	HE LOCALISING OF FOREST VERNANCE IN BURKINA FASO	10
	What is forest governance and why does it matter?	10
	Burkina Faso's historical transition towards local forest governance	12
	Making it a reality: the story of close collaboration with governments and communities	13
II. I ECC FOI	LOCAL FOREST GOVERNANCE ENABLES DSYSTEM RESTORATION AT SCALE R NATURE, PEOPLE AND CLIMATE	22
	a. Ecosystem restoration benefits	22
	b. Socioeconomic benefits for local people	26
	c. An effective and reliable approach to derisk long term private funding in conflict-affected contexts	30
	CONCLUSION AND RECOMMENDATIONS	32
REF	FERENCES	34
AN	NEXES	36

Authors

Tom Aindow, Matthew Ashpole, David Baines, Pietro Carpena, Jasmin Dorney, Abdoulaye Gango, Joseph O'Toole, Desiré Ouedraogo, Annie Schultz, Alexis Sompougdou

Date

December 2024



Localising Forest Governance • 3

EXECUTIVE SUMMARY

The interconnected and global crises of climate, loss of nature, and poverty are worsening and becoming more complex, especially in regional climate hotspots and fragile and conflictaffected contexts like West Africa¹.

Nature-based solutions (NbS) tackle these crises in an integrated way. They require an urgent scale up in the most vulnerable contexts, simultaneously holding great potential for climate, nature and people.

Community-led forest restoration is an effective NbS that yields longlasting results by building climate resilience, slowing down and reversing desertification, alleviating poverty and improving food security, all the while strengthening social cohesion — crucial in the West African conflict-affected context.

Successfully scaling NbS like community-led forest restoration in the region requires greater and more accessible international finance, but also investment in strong, local and inclusive governance systems whereby local communities have access and control over their forest resources.

THE CASE STUDY ALSO SHOWS THAT STRONGER LOCAL FOREST GOVERNANCE RESULTED IN:

Ecosystem restoration:

increased tree cover across project sites, reversal of land degradation trends, significant uptake in regeneration methods, and substantial carbon sequestered.

Socioeconomic benefits for local communities: increased and diversified incomes,

improved food security and nutrition, and adaptability and resilience in conflict-affected contexts.

FOREST GOVERNANCE IN BURKINA FASO: KEY LEARNINGS

This paper presents the case study of a programme of work led by Tree Aid in close collaboration with both national and local governments and local communities over 17 years (2007-2024) in rural Burkina Faso.

It demonstrates how this work supported the creation of an enabling policy and legal environment in Burking Faso that resulted in local and inclusive forest governance, allowing rural communities to develop a stronger sense of ownership and sustainable management of their forests.



Long-term, highquality private carbon investment

that ensures long-term restoration and income for communities through continued and intensified efforts up until 2064.



RECOMMENDATIONS

Building local forest governance to scale up successful community-led ecosystem restoration across the West African region and the Great Green Wall², requires:

 National governments to adopt policy, legislation and budgets to operationalise the decentralisation of forest

governance, including local forest taxation systems, building on successful national and local examples in the region.

- International public finance providers (multilateral banks, funds and bilateral development funding) to:
 - Redefine involvement in the region to tackle the interlinked climate, nature, development and humanitarian crises by prioritising investing in building local forest

governance. This is crucial for supporting conflict prevention, reinforcing community control over resources, and building communities' resilience to the impacts of conflict, economic and climate shocks. It is an efficient and influential intervention approach in unstable and insecure contexts.

• Amend disbursement channels to improve local access to funding and locally led approaches. This is vital for empowering local civil society to implement scalable, locally led naturebased solutions.

 Carbon investors to realise the latent potential for carbon investment in the region and invest in high-quality carbon programmes. This means programmes which encompass building local forest governance, including local capacity building, and safeguarding community rights to forest resources to ensure sustainable outcomes for people, nature, and climate.

 Development, climate and humanitarian practitioners across the Great Green Wall to assess and amend their project design and implementation practices in the light of locally led principles³.

Localising Forest Governance • 7

INTRODUCTION

The three Rio Conventions⁴ international summits⁵ hosted this year remind us of the interconnection between the global and worsening crises they have been set up to address. The last Sustainable Development Goals report⁶ also reminds us that climate change, loss of nature, and desertification cannot be tackled separately from the rising human challenges of poverty and conflict.

Scaling and speeding up the deployment of solutions that tackle these crises in an integrated way is urgent⁷ if we want to meet a range of crucial global goals, from the SDG 2030 Agenda⁸, to the Biodiversity Plan's 30x30 target⁹, the UNCCD's land degradation neutrality (LDN) goal¹⁰ and the Paris Agreement's decarbonisation timeline. Nature-based solutions (NbS) have increasingly been recognised as one of these holistic and integrated approaches in need of urgent scaling¹¹.

This urgency is particularly relevant in regional contexts like West Africa, which has been identified as one of the global vulnerability hotspots¹² for climate¹³, land degradation and poverty, where rural communities whose survival and livelihoods depend directly on natural resources are disproportionately affected¹⁴.

Deploying NbS in West Africa holds areat potential to build climateresilient communities, stop and reverse desertification, and reduce poverty in fragile and conflictaffected contexts. However, to

unlock this potential, it is crucial to ensure that NbS are embedded in community-based and peoplecentred approaches.

This paper aims to add to the growing body of evidence¹⁵ that these community-based approaches are not only effective at brinaina significant benefits for climate, nature/land and people, but they are essential for implementing NbS at the necessary scale and speed.

Here, we present a case study focused on the NbS of communityled forest restoration, embedded in local and inclusive forest aovernance in rural Burkina Faso. This case study is the Forest Governance Programme, implemented by international NGO Tree Aid in Burking Faso between 2007 and 2024.

The Forest Governance Programme is a long-term, large-scale ecosystem restoration initiative, aimed at building local and inclusive forest aovernance in rural Burkina Faso for the benefit of dryland communities and ecosystems. Spanning 17 years, different regions, and multiple project phases, it addresses the interconnected crises of climate change, poverty and desertification through a community-based approach. Its forest governance model underpins the initiative, which supports local rural communities to build, own, and lead their own forest restoration.

This paper aims to demonstrate how NbS can be successful in fragile and conflict-affected contexts like Burking Faso's, and how important local forest governance is for communities to scale NbS across the region. It does so by:

- Showcasing a successful example of large-scale nature-based solution that benefits climate, nature and people in a fragile context: community-based forest restoration.
- Highlighting that local and inclusive forest governance is a key success factor for scaling NbS in this context.
- Providing clear recommendations to national and regional stakeholders involved in this context to further localise forest governance for the benefit of rural communities.

BOX 1. OVERVIEW OF THE FOREST GOVERNANCE PROGRAMME

Number of projects: 25 communes across 37 forest sites, over two phases. Funders: UK Department for International Development, Swedish International Development Cooperation Agency (SIDA).

Total area: 33,651 hectares

Two phases:

- 1. The pilot phase (2007-2019) covered 14 forest areas across eight communes in four 14,000 households and 42,000 people.
- 2. The scale-up phase (also called 'Weoog Paani', meaning "New Forest' in Mooré and An additional 7,592 hectares were placed under sustainable land management practices, bringing the total land undergoing restoration to 33,651 hectares.

The Forest Governance Programme has now been completed, handing over its forest sites to the 'Tond Tenga' project (2023-2063). Focused on long-term restoration of the 37 forest sites across 33,651 hectares in the 25 communes, this phase will intensify restoration activities and generate carbon credits while enhancing local and inclusive livelihoods.

regions. It piloted, anchored, and consolidated the forest governance model over three individual projects. The phase saw the restoration of 26,059 hectares of land, impacting

Gourmantché, 2019-2024) expanded to 23 additional forests across 18 new communes.

I. THE LOCALISING OF FOREST GOVERNANCE IN BURKINA FASO

A. WHAT IS FOREST GOVERNANCE AND WHY DOES IT MATTER?

Forest governance is the ensemble of tools (rules, structures, mechanisms) that enable state and non-state actors to define and enforce the modalities of access and control of forest resources.

In a context like Burkina Faso's, forest resources are vital:

- As a Sahelian country with arid and semi-arid regions, Burkina Faso's forests¹⁶ can also encompass savannah and woodland areas, where trees are more sparsely distributed than in dense forests but still play a critical ecological and socioeconomic role.
- Forests cover 8.6 million hectares, or 31.6% of the country's area. They are divided between protected areas and classified state forests (3.9 million hectares) and protected forests managed locally by villages and communes (4.7 million hectares).

Land dedicated to agroforestry, which is not considered a category of forest, represents an additional 3.3 million hectares, or 12.2% of the country's surface area.

 Forests make a vital contribution to Burkina Faso's socioeconomic development. 80% of the population in Burkina Faso rely heavily on natural resources for survival through agriculture, animal breeding and forestry¹⁷. The forestry sector contributes approximately 9.6% of Burkina Faso's gross domestic product (GDP), through the production of firewood (5.3%), the sale of raw and processed non-timber forest products (NTFPs) (3.85%), as well as hunting, tourism and other biodiversity-related sectors (0.5%). Forests also provide invaluable goods and services that significantly reduce energy dependency and reduce land

degradation and vulnerability to climate change impacts at local, regional and national scales. As a result, people are highly dependent on forests and their products for food security and income, both directly (through forest products) and indirectly (through forest services)¹⁸.

Not only are forests vital for communities' livelihoods and food security, but they also provide strong protection against desertification and climate change. By retaining moisture in the soil and preventing erosion, forests keep encroaching deserts at bay, shielding communities in a region severely hit by acute climate impacts, ranging from frequent droughts, flash flooding and recordbreaking temperatures.

Forest resources are currently under threat, due to a complex combination of human activities, environmental pressures, and governance-related challenges, fuelling desertification and the loss of arable land.

Because of the importance of Burkina Faso's forest resources for the protection and development of its population against the growing threats of desertification and climate change, it is crucial that they are managed sustainably, and for the benefit of the most vulnerable. Forest governance is essential in ensuring this, as it dictates who has access to forest resources and how these are to be managed. Good forest governance needs to ensure the equitable access to, and sustainable management of, forest resources.

CENTRALISED VS. LOCAL FOREST GOVERNANCE

This paper focuses on the local forest governance that results from the process of decentralisation¹⁹, as opposed to centralised forest governance. Local forest governance involves the management of forest resources by local authorities (in Burkina Faso, these are regions and communes), rather than by a central government or its representatives. By localising forest governance, decision-making lies with local authorities and communities so they can lead the management of their forest resources based on their local expertise and needs.

Localising Forest Governance 11

B. BURKINA FASO'S HISTORICAL TRANSITION TOWARDS LOCAL FOREST GOVERNANCE

Over the past decades, Burkina Faso has progressively embraced a movement of decentralisation of certain central state prerogatives towards local authorities, including in forests and natural resources management.

Pre-1960, colonial period:

Forests are managed by a central colonial rule dictating the management of forest resources, primarily to maximise financial and aesthetic value.

1997:

The National Forest Code acknowledges the role of local communities in forest management²⁰, a first legal signal towards the decentralisation of the governance of natural resources.

1997

2006-2007:

Period of 'communalisation integrale' or 'comprehensive decentralisation', which reshapes the country's administrative geography by extending the 'commune' structure, the smallest administrative units of local government, to rural areas across the country. This process intends to bring governance closer to the local population, providing them with a more direct and localised form of administration and decision-making.

2009

2011

2006-2007

2009:

The National Code of Local Authorities is modified to reflect the transfer of power from central to local authorities, including in relation to natural resources²¹.

T C n s' ir r

2011:

Reform of the National Forest Code of Burkina Faso promoting greater involvement of local populations in decision-making processes. It encourages the participation of local communities in forest governance, recognising their role in sustainable forest management²².

1960:

Burkina Faso achieves independence from France.

1960-1990s:

Although the centralised state system remains, the independence movement and the revolutionary period (1983-87) highlight its limits, including in the forestry sector. As a result, some forest governance responsibilities are delegated to central government representatives across the country. The premises of decentralisation begin to emerge.



2020:

An interministerial committee set up by the Ministry of Environment validates three draft decrees that fill the remaining legal gaps for decentralisation, including the ability for communes to levy local taxes to fund their own forest governance. The draft decrees are submitted to ministerial signature.





2014:

The national government adopts 21 decrees that specify implementation modalities of the decentralisation of state prerogatives to communes. This includes two decrees specifically about natural resources and land tenure.

Figure 1: Stages of local forest governance approach

C. MAKING IT A REALITY: THE STORY OF CLOSE COLLABORATION WITH GOVERNMENTS AND COMMUNITIES

The process of delegating forest governance from central to local authorities between 2006 and 2007, and the reform of the Forest Code in 2011, demonstrated a strong political will behind decentralisation. However, it remained to be made effective in practice.

Making local forest governance a reality across Burkina Faso presented multiple barriers between 2006 and 2011. For local authorities to build ownership over their new prerogative, further legislation was required to provide them with technical and budgetary support. Newly formed local authorities also needed capacitybuilding around taking full responsibility for forest management.

To do this, Tree Aid began to actively collaborate with and support both central and local governments, as well as communities, towards achieving a truly effective local and inclusive forest governance across the country. Continued restoration, environmental stewardship, and reinvesting of income generated from access to resources helps local forest governance to become selfsustaining Come A Come Secone selfsustaining Come Secone selfsustaining Come Secone selfsustaining Come Secone selfsustaining

> Forest management plans are developed and rules and regulations for resource use are agreed between authorities and local governance structures

The forest governance model employs a strategic process approach comprising of three stages — learning, adoption, and consolidation — which provide stability and cement local ownership. In the learning stage, community awareness raising,

Degraded forest sites are identified and selected with communities for restoration through local forest governance

Consensus is built on restoration processes for forest sites by bringing local stakeholders together through consultations, village visits and discussions

Learning Adoption Consolidation



2

Local governance structures are created and tasked with overseeing environmental stewardship

Forest sites are delimited, mapped and assessed to decide on management techniques

mobilisation and training take place. During the adoption stage, sustainable forest management is integrated into local plans. In the consolidation stage, communities lead governance efforts, scaling successful practices.

WHAT WE DID **AT A LOCAL LEVEL**

Pilot phase

Scale-up phase

2007-2019:

In collaboration with the Ministry of Environment, we built and piloted a model to support local authorities and build community capacity and ownership over forest resources (figure 1).

BOX 2. WHAT IS THE GROUPE ACTION RECHERCHE SUR LA GOUVERNANCE FORESTIERE (GAGF)?

The GAGF is an independent scientific and advisory group at the science/policy interface. It is composed of highly educated volunteers with national influence across public law, research, forestry and public administration, with a common drive to protect forests and support rural communities. They focus their efforts on elevating evidence from this successful local forest governance initiative to the national government to achieve enabling policy changes nationwide. The GAGF's main tools are evidencing success from the local level; building strong relationships with national government, and hosting knowledge sharing workshops and events.

2007-2012:

Tasked local civil society organisations to deliver training for local authorities and communities. This aimed to mainstream good local governance principles, new roles and responsibilities, and local benefits from sustainable forest resources use and management for communities.

2012

Developing and sharing best practice guides based on specific needs identified by commune leaders and communities.

2012-2019:

Built further ownership within local authorities by:

Hiring technical forest governance advisors to

accompany elected local officials within the commune's environmental committee. This aimed to build ownership within commune leaders over forest governance and building capacity for them to organise local communities around forest resources themselves, instead of relying on civil society organisations.

Supporting them with technical advisors and best practice auides, to work with communities to organise them into village and inter-village forest governance groups, identify and delineate forests, host inclusive dialogues, and build governance tools, such as forest charters and management

plans.

2019-2024:

After successful results in the eight communes, this approach was scaled to 25 communes in Burkina Faso.

2022-2024:

Tree Aid and the Groupe Action Recherche sur la Gouvernance forestière (GAGF) (see box 4) mainstreamed the importance and principles of local forest governance with the new leaders of the special delegations that were put in place to replace the communal elected leaders.

2022:

Two political crises in January and September led to significant chanaes in the country's governance, temporarily shifting the administration by replacing elected commune members with special delegations and appointed representatives at the local level.

WHAT WE DID AT A NATIONAL LEVEL

Our activities

Policy impact

2008:

Tree Aid set up the Groupe Action Recherche sur la Governance Forestière (GAGF)²³ to advocate for local and inclusive forest governance in Burkina Faso (see box 2).

Tree Aid and the GAGF advise

the Ministry for Environment to

operationalise decentralised

set up a task force to

forest governance²⁴.

2011:

2012:

The GAGF published a best practice manual²⁵ for local forest governance in Burkina Faso, based on Tree Aid's pilot model.

2012-2014:

Tree Aid and the GAGF organise a regional knowledgesharing dialogue between Burkina Faso and Mali, which Niger will later join, where national and local authorities exchange best practices for local forest governance.

2018-2020:

Tree Aid and the GAGF actively take part in drafting the resulting three interministerial decrees which enable communes to levy local taxes on forest products to fund their own local forest governance needs.

2018:

An interministerial committee is set up by the Ministry of Environment with the objective of producing and proposing legislation to fill the remaining gaps for effective decentralisation.

2018

2020

2011:

The task force on forest decentralisation (TFFD) is established, led by the Ministry of Environment Forests Division, with representatives across government ministries and local authorities.

2011:

The Centre for Forest Governance (CeGoF) is established by the GAGF with Tree Aid's support. It serves as a platform for information and dialogue on good practices in forest governance and management.

2012:

The TFFD hands in its recommendations²⁶, including multiple draft decrees operationalising decentralisation at the commune level.

2012:

The best practice

by the Ministry of

manual is later endorsed

Environment on behalf of

the national government.

2014

2014:

National government adopts 21 decrees that further specify modalities of implementation of the decentralisation of state prerogatives to local authorities. Based on the drafts provided by the TFFD in 2012, this includes two decrees about natural resources and land tenure²⁷.

2018:

Publication of two national policy briefs with recommendations for national and local authorities to secure forest access²⁸ and improve local forest governance²⁹.

2020:

The interministerial committee validates the three decree texts and submits to ministerial signature in December.



Two political crises in January and September temporarily destabilise the country, leading to a period of high turnover across national ministries and the replacement of the communes and their elected members by special delegations and nominated members at the local level.

2023:

A bilateral meeting with the Minister of Environment in October led to a declaration of intent by the minister to sign the three interministerial decrees. These remain to be signed.





2021-2023:

Tree Aid and GAGF publish and disseminate 10 policy briefs with public policy stakeholders, including:

- the contribution of forest products and services to local economies (2021)³⁰
- a review of legal texts relating to forest governance and decentralised management of forest resources (2022)³¹
- the efficiency of the local civil service and local governance of forest resources (2023)³²
- local governance of forest resources in the face of the security crisis: implications for action research (2023)³³

D. OVERALL IMPACTS

National legislation enabling the operationalisation of decentralised forest governance

In applying the recommendations of the Task Force, in 2012, the Minister of Environment tasked its Forestry Division to support decentralisation in the forestry sector. Legislation was nationally adopted in 2014 to support the implementation of decentralised

governance through 21 decrees, two of which were directly related to local forest governance.

Improved access and decisionmaking for women over forest resources

By the end of the scale-up phase, 73% of women reported having equal or more power to their partners on matters including income, decision-making, and control over forest resources. The proportion of women reporting that they were responsible for making decisions on household income and consumption increased by 25.93% (see box 3).

Sense of local community ownership of forest governance and resources

Higher average forest governance scores (see box 4) were recorded at the baseline for the scale-up phase than Tree Aid's newer forest governance projects. The average baseline for the Burking Faso forest aovernance scale-up phase was 52.2%. Comparatively, Tree Aid's forest governance project in Ghana began at 34%; Mali at 31%; Niger at 30.6%; and Ethiopia at 29.2%.



Locally generated funding for forest governance

Two communes have pioneered levying their own taxes to fund their local forest governance costs, despite grey areas remaining within national legislation on forest taxation (see Fada N'Gourma case study).



Lasting local forest governance structures ensuring longevity beyond the programme

To date, 22 sustainable forest development and management plans have been agreed; 34 local land charters developed; 76 functional local forest structures established, and 25 communal strategies created for forest 0 aovernance.



BOX 4. WHAT IS A FOREST GOVERNANCE SCORE?

The forest governance module in RHoMIS (further details in Annex I) is designed to assess changes in communities' awareness, access, and control over forest resources. This socioeconomic assessment module allows forest users to report on the direct impacts of local forest governance. Community members provide feedback on their awareness of local forests, the frequency and purposes of their access, permissions related to forest use, the availability of forest management tools and training, community engagement, and the presence of forest protections. They also assess whether the forest meets the needs of the population.

The module aggregates responses to offer an overall forest governance score of the accessibility and benefits of the forest within the area, providing valuable insights into the effectiveness of local forest governance. Tree Aid classes 'strong' forest governance as above 60%. Data shows that communities tend to score around 40% prior to project interventions.

Applied to the Forest Governance Programme, this module showed that between 2019-2024: • 78% of households in the programme classified their forest governance as 'strong'. • Increase from 20% to 39% of respondents reporting that local forest resources meet the

needs of the community.

BOX 3. WHAT IS VOICE, CHOICE AND CONTROL?

Voice, choice, and control is a 20-question survey designed to assess the relative power dynamics between a woman and her male partner, focusing on her influence and autonomy within the relationship.

The survey is divided into three key sections:

- **1.** Voice (the ability to express opinions and be heard)
- 2. Choice (the ability to make decisions)
- 3. Control (the ability to influence outcomes).

These sections are evaluated across two main domains: the home and the community. The survey specifically measures the respondent's perceived power in relation to her partner, providing insights into the balance of decisionmaking and influence within their relationship.

FADA N'GOURMA CASE STUDY

Fada N'Gourma is a commune in eastern Burkina Faso that has been part of the Tree Aid's Forest Governance Programme since its inception in 2007. Fada N'Gourma is one of the pioneering communes leading the way in creating local forest taxes to fund its forest governance costs.

DECISION

To reduce degradation and deforestation in the commune, the Mayor of Fada N'Gourma introduced a permit system for cutting and transporting firewood, as well as charcoal. This system began as a pilot in 2019 and was formalised in 2020, when the commune issued an official order establishing a local tax on firewood transportation permits. These are communal stamps worth 300 West African CFA francs (FCFA) and are easy for communal forest guards to control.

REVENUE

Revenue from this tax started at 1,000,000 FCFA in 2019 and grew to 7,500,000 FCFA annually from 2020 onwards. By 2023, the commune had earned more than 30,000,000 FCFA (around 50,000 USD). This is significant, given scarce local budgets, strong competing priorities with rising insecurity, and the fact that most communes do not take this initiative without being first granted clarity on the matter from national government.

IMPACT ON LOCAL FOREST GOVERNANCE

With this income, Fada N'Gourma is one of the only communes to have put in place an effective selfsustaining source of revenue to fund part of its forest aovernance cost, as it was able to part-fund the technical advisor provided by the programme. The revenue raised for

the 2021-2023 period covers around 17% of the salary of their local technical advisor on forest governance, which represents 7.84% of the commune's total investment budget over that period. This has only been seen in one other commune to date, Diapangou.

LEADERSHIP FOR CHANGE

This is a powerful example of leadership at the local authority level. National law on forest taxation has not been updated to reflect the decentralisation of forest governance. Therefore, uncertainty remains for communes as to whether they can levy taxes related to forest products. By deciding to be proactive, Fada N'Gourma demonstrates to other communes and to national government that localising forest taxation is viable and replicable. This case has attracted the attention and favour of the national government.

Figure 2: Map shows location of Fada N'Gourma commune in eastern Burkina Faso



II. LOCAL FOREST GOVERNANCE ENABLES ECOSYSTEM RESTORATION AT SCALE FOR NATURE, PEOPLE AND CLIMATE

A. ECOSYSTEM RESTORATION BENEFITS

HIGHLIGHTS:



437.29 hectares of tree cover gained across project sites from 2013 to 2023³⁴



reforestation rate which is more than 23 times greater than the reverse national average deforestation rate of 0.36% of forest area between 2000 and 2020³⁵

CO₂ 109,000 tonnes of CO²e sequestered

from 2017 to 2023 with another 2,970,000 tonnes expected to be sequestered by 2064, more than three times the average carbon sequestration per hectare in the Sahel³⁶

RESTORED LAND

The local Forest Governance Programme led to a reforestation rate of 8.44% across its project sites.

Our forest governance model established robust measures to reduce and slow the rate of forest degradation. Between 2013 and 2023, Landsat 8 satellite imagery shows a net gain of 437.29 hectares of tree cover over all project sites.

Figure 3: Vohoko West forest site dense vegetation cover between 2013 (left) and 2023 (right)



Forest governance sites in Nobéré commune: Vohoko East, Vohoko West, and Bakago Sud between 2013 and 2023. Dense vegetation cover change is shown, with Vohoko West increasing by 600.89 hectares (+50.98%), Vohoko East increasing by 142.73 hectares (+12.79%), and Bakago Sud increasing by 2.16 hectares (+1,012.68%).

This rate of degradation is notably the reverse of the historic national trend. Between 2000 and 2020, Burkina Faso experienced a net forest loss of 0.36%. In contrast, the Forest Governance Programme sites saw a restoration rate of 8.44% of the 2013 forested area, over 23 times that of the reverse national historical trend.



Localising Forest Governance • 25

CARBON SEQUESTERED

109,000 tonnes of CO²e sequestered from 2017 to 2023, laid the groundwork for a further 2,970,000 tonnes of CO²e expected to be sequestered by 2064, more than three times the average carbon sequestration per hectare in the Sahel³⁷.

Forest restoration significantly contributes to carbon sequestration by absorbing and storing carbon dioxide from the atmosphere in trees and soil. Aided by a partnership with Chloris Geospatial, we have been able to access high-resolution estimates of carbon sequestration within our intervention sites between 2017 to 2023.

In this time period, the Forest Governance Programme sequestered 0.46 tonnes of CO²e per hectare per year without direct planting intervention, leading to a total of 109,000 tonnes of CO²e. This figure was reached in part because of a 19% reduction in CO² emissions from avoiding further land degradation (from 9,590 tonnes in 2018 to 7,780 tonnes in 2023).

Low density planting intervention through agroforestry in the Sahel has been seen to sequester up to three tonnes per hectare per year³⁸. The Forest Governance programme, though under this average so far, has laid the groundwork to intensify restoration and reforestation efforts in programme sites in the long-term, high-quality carbon programme Tond Tenga, which started in 2023. Tond Tenga will bring the sites towards mature forest density and expects to sequester 9.4 tonnes per hectare per year over 40 years, more than three times the Sahelian benchmark

BOX 5. WHAT ARE BOULIS?

Boulis are large pits that are dug deep into the ground, which stretch roughly 30 metres across and three metres deep, to hold significant amounts of water throughout the year, despite the high temperatures and limited rainfall during the dry season. Over time, as the soil quality around the boulis improves, life begins to thrive, and communities can use the surrounding land to grow crops as a source of nutritious food all year round.

26 • II. Local forest governance enables ecosystem restoration at scale...

BOX 6. WHAT ARE NUTRITION GARDENS?

Small communal village plots dedicated to growing non-timber forest products (NTFPs), such as moringa and baobab leaves, for consumption and sale.

BOX 7. WHAT IS ASSISTED NATURAL REGENERATION (ANR)?

Assisted natural regeneration is a forest restoration method that promotes the natural growth of forests by protecting and nurturing existing vegetation while managing disturbances along with the use of organic liquid fertilisers, and agroforestry practices.

HOW?

These ecosystem restoration results stem from the local governance systems that were built over time in the communes of intervention:

- Local forest management plans were developed and led by communes (local authorities), and communities. These plans led to the implementation of an array of restoration activities over 33,651 hectares, 37 forest sites and 25 communes.
 Examples include the creation of 145 boulis (see box 5), the planting of 2.318 million trees, regenerating 1.252 million trees, planting 882,022 seedlings of local species, and creating 43 nutrition gardens (see box 6).
- Part of building local forest governance systems is about building capacity on how to manage forest resources sustainably. For example, the



Forest Governance Programme supported forest quards in bushfire management techniques (see box 8), as well as farmers and communities in assisted natural regeneration (ANR) (see box 7), planting and conservation techniques aimed at improving crop productivity, reducing soil erosion and regenerating trees. As a result of these efforts, the scale-up phase saw a significant increase in the adoption of these methods. For example, there was an increase from 9.45% to 50.25% of households employing ANR techniques. This remarkable shift in practices reflects the effectiveness of the sensitisation and training components of the project, leading to substantial improvements in sustainable land management.

BOX 8. IMPROVED BUSHFIRE MANAGEMENT -NAMOUNGOU CASE STUDY

The Forest Governance Programme worked with community leaders to develop and implement training programmes for forest guards and local communities focusing on reducing incidents of fires, as part of their forest management plans. 'Forest guards' were trained in bushfire management techniques, playing a vital role in enacting and enforcing the forest management policies on the ground.

The success of these interventions is illustrated by our work in Namoungou, our largest forest site. Namoungou is a site in eastern Burkina Faso covering 9,400 hectares, nearly half (44%) of all the land managed in project regions. Prior to the project's intervention in 2009, Namoungou experienced a significantly higher proportion of burning over its total area compared to the average for both the whole country and its local area.

Since the introduction of our forest management activities, we have been observing less of the total area burnt overtime, with trends often falling below the national average.

Although not witnessed across all project sites, this outcome in Namoungou provides additional evidence to suggest the effectiveness of our forest governance model in reducing fire incidents and protecting vital forest resources.

Figure 4: Proportion of total area with detected burning by year: Burkina Faso and Namoungou



Graph shows the proportion of total area with detected burning by year in Namoungou forest site, compared to Burkina Faso's national trend. Prior to Tree Aid intervention in 2009, the proportion of detected burning was higher than the national average. After intervention, the site consistently recorded less burning, often below national trends.

B. SOCIOECONOMIC BENEFITS FOR LOCAL PEOPLE

HIGHLIGHTS:



29%)39

184% increase in average household income (an increase of 1052.73 USD per year)

14% increase in the proportion of income from NTFPs (3% to 17%)





increased and diversified incomes and improved food security and nutrition







260 USD

increase in average income from NTFPs per year

15.2% reduction in the proportion of households

that are moderate to severely food insecure





Inclusive and local

forest governance structures provided adaptability and resilience

in conflict-affected contexts with internally displaced people

Tree Aid's forest governance model goes beyond environmental restoration by empowering rural communities to sustainably utilise trees as a source of income. By establishing local governance structures that protect and promote the responsible use of forest resources, negotiating land access rights for the creation of nutrition gardens, and supporting the production and sale of forest products, the Forest Governance Programme has significantly improved socioeconomic outcomes for these communities.

LOCAL FOREST GOVERNANCE IS LINKED TO INCREASED INCOMES AND IMPROVED FOOD SECURITY AND NUTRITION

Evidence of a strong correlation and causal link was established through statistical and qualitative analysis (see box 10), between improved local forest governance and an increase in NTFP production; an increase in household incomes from NTFP production, and a reduction of the proportion of households below the poverty line.

BOX 9. WHAT ARE VILLAGE TREE ENTERPRISES (VTES)?

A group of people who work together to produce commodities from NTFPs, like seeds, fruits and nuts. Together they process and sell them.

INCREASED INCOMES AND DIVERSIFIED INCOME STREAMS

During the scale-up phase (2019-2024) our analysis shows that annual household income increased by an average of 1,052.73 USD over the course of the project – an 184% increase from the phase baseline of 571.73 USD. Household income from NTFPs increased from an average of 16.82 USD to 275.99 USD. This represents an increase of 14.05% in the proportion of income generated from NTFPs, providing increased resilience to economic shocks through diversified income streams. The proportion of households below the poverty line (1.90 USD per adult per day) fell from 84% to 29%, when considering total value of activities (the total value of all homegrown produce consumed by the household as well as cash income).

The scale-up phase also supported the creation of 206 village tree enterprises (VTEs) (see box 9). From a sample of 182 groups, VTEs saw an average annual profit of 2,138.97 USD. Of these, VTEs producing products from shea (shea nut and shea butter) were the most popular type of establishment (147 VTEs), with an average annual profit of 1,686.50 USD. These figures demonstrate progress in raising incomes from NTFP production.

IMPROVED FOOD SECURITY AND NUTRITION

Food security and nutritional outcomes improved during the scale-up phase (2019-2024). The proportion of households consuming below the calorie line (2500kcal per day per male adult equivalent) decreased from 100% to 66%. The proportion of households scoring from moderate to severe food insecurity on the Food Insecurity Experience Scale (FIES) decreased from 75.6% to 60.4%. The average number of 'hungry months' reported decreased from 2.7 to 2.0. These results represent increased food security and resilience to climate shocks through the promotion and consumption of NTFPs.

LOCAL FOREST GOVERNANCE PROVIDES RESILIENCE IN CONFLICT-AFFECTED CONTEXT

The Forest Governance Programme operated successfully for 17 years, while Burkina Faso went through significant periods of political crises. In that period, three notable political crises, very high turnover in national political leadership, and a rising terrorist threat have contributed to an unstable political context. Despite this, the Forest Governance Programme remained uninterrupted. This can largely be attributed to the fact that the programme is built on existing local actors and leaders, who are less sensitive to change during times of

30 • II. Local forest governance enables ecosystem restoration at scale...

political crises than international and national actors.

In addition, the Forest Governance Programme built local and inclusive systems that were able to adapt to the fast moving and conflictaffected context in Burkina Faso. Burkina Faso is currently home to more than two million internally displaced people (IDPs) and is also hosting close to 40,000 refugees and asylum-seekers, primarily from Mali⁴⁰.

The local governance structures strengthened by the programme ensured an inclusive dialogue between IDPs and host communities. This inclusive approach allowed for the equitable distribution of forest resources, which are vital for the survival of IDPs. IDPs were specifically included in project activities, ensuring their participation in forest aovernance and restoration efforts. For instance, through providing opportunities to engage in, and benefit from, nutrition gardens.

The existence of strong, local and inclusive governance structures enabled the communes and communities to adopt adaptive strategies to address the challenges posed by internal migration and the associated pressure on natural resources, while keeping and reinforcing social cohesion. This enhanced the resilience of both the displaced and host communities, contributing to more sustainable and stable livelihoods in conflict-affected contexts.

BOX 10. SOCIOECONOMIC METHODS*

Rural Household Multi-Indicator Survey

The Rural Household Multi-Indicator Survey (RHoMIS) is a well-established household survey designed for farming communities living in poverty and food insecurity that gathers data on agricultural practices, livelihoods, food security and dietary diversity, as well as gender dynamics. In the scale-up phase of the Forest Governance Programme, socioeconomic benefits were measured using the RHoMIS. A baseline survey was conducted in 2018 with 546 submissions, and a project endline survey in 2023 with 469 submissions.

Correlation analysis

Correlation analysis used the RHoMIS to statistically assess significant relationships between forest governance and improved socioeconomic outcomes. This analysis shows that an increased forest governance score has a strong positive correlation with:

- Increased value of NTFP activities
- Improved food security
- Reduced poverty
- Improved voice, choice, and control score (gender equality)

Causal mapping

Our causal mapping study interviewed community members to see whether they attributed these positive socioeconomic changes to the Forest Governance Programme. Through interviews with community members, the programme was frequently referenced as both a direct and indirect driver of:

- Local governance of forest resources
- Improved community livelihoods
- Valorisation of forest products
- Regeneration and production of forests
- Improved household dynamics
- Food security

*Full methodologies included in annexes.

C. AN EFFECTIVE AND RELIABLE APPROACH TO DERISK LONG TERM PRIVATE FUNDING IN CONFLICT-AFFECTED CONTEXTS

HIGHLIGHTS:



A strengthened enabling environment

de-risked private investment through long-term, locally-owned forest governance structures



Private carbon finance

successfully leveraged to scale-up and secure long-term restoration over the next 40 years

ocalising Forest Governance 33

LEVERAGING PRIVATE CARBON INVESTMENT

Our Forest Governance Programme has leveraged substantial private carbon investment to continue and intensify restoration efforts after the end of the programme.

Working with communities on longterm ecosystem restoration efforts has anchored locally led forest governance structures and ownership. Local anchorage and ownership in forest governance act as a de-risking strategy for investors: it ensures that local people have a strong incentive in protecting and restoring the forest long term, since forest management is aligned with local knowledge, practices, and interests.

This is exemplified by Tree Aid's Tond Tenga project. Tond Tenga (meaning 'Our Land' in Mooré, the most spoken language in Burkina Faso) is a pioneering restoration model that will contribute to the Great Green Wall by regreening degraded lands, capturing CO², and giving local communities direct access to a share of income generated from carbon credits. This 40-year project builds on the previous years of local forest governance work to bring local communities together to restore degraded land. The sale of carbon credits generates substantial and rightful benefits for those communities, bought from restoring the land they are custodians of, working to alleviate poverty and strengthen their resilience to climate change.

In its first eight years, communities continue to benefit from support for on-the-ground restoration activities, such as tree arowing and training in agroforestry techniques. Six million native trees will be planted, contributing to ecosystem restoration in the region and an anticipated 2.97 million tonnes of CO² captured over a 40-year period to help mitiaate the climate crisis. This will give communities capital to further invest in forest management and sustainable production, and livelihood-related activities.

Tree Aid expects to generate 30 million USD over the lifetime of this project in direct financial benefits for local people living in and around the forest areas working to restore, manage and protect the natural resource base.

A PUBLIC-PRIVATE FINANCE MODEL SCALABLE TO THE GREAT GREEN WALL

The Great Green Wall (GGW) is an African-led initiative aimed at restoring degraded land across the width of the continent, between Dakar and Djibouti. By 2030, the GGW aims to restore 100 million hectares, create 10 million jobs and sequester 250 million tons of carbon, all towards the improvement of living conditions of rural communities. Tree Aid's Forest Governance Programme is a contribution to the Great Green Wall vision.

However, the GGW is only currently 30% complete and not on track to meet its 2030 goals due to a variety of factors, including a lack of resources. A 2020 review⁴¹ by the United Nations Convention to Combat Desertification (UNCCD) estimated that at least 33 billion USD more is needed to realise the project's ambitions⁴².

Increased public and private funding is needed to make the Great Green Wall a reality. The One Planet Summit in 2021 and the UNCCD Great Green Wall Accelerator have achieved progress on this already, reaching a total amount of pledges from

34 • II. Local forest governance enables ecosystem restoration at scale...

international donors of 16 billion EUR⁴³, of which disbursement is ongoing. Increased private investment is also needed: mainstreaming of the potential for carbon investment in the Great Green Wall can drive private finance to the initiative as carbon investment globally is increasing rapidly. Recent analysis⁴⁴ using globally recognised and peerreviewed data has highlighted the potential of the voluntary carbon market in the region, estimating it at 1.8 billion tonnes of CO². Mediumterm carbon removal credit prices suggesting a potential value for the carbon market of the GGW at 28 billion USD⁴⁵.

However, the challenge is not just about attracting more public and private finance to the Great Green Wall to scale up restoration, it is about how to get these funds to reach local communities, who are yet to see them. The public-private funding partnership model described above is a solid and proven solution to bridge this gap. It can ensure the scale up of ecosystem restoration across the region while making sure it is embedded in locally led leadership. This anchors restoration in the long term, and ensures benefits across climate, nature and people.

III. CONCLUSION AND RECOMMENDATIONS

Through the Forest Governance Programme, communities across project areas in Burkina Faso have significantly improved access and control over forest resources. Continuous collaboration and advocacy efforts have achieved great strides in the decentralisation of forest governance to the local level, empowering communities to deliver the best outcome for climate, nature and people.

This strengthened forest governance has in turn generated substantial socioeconomic impacts for communities around income and food security, improving household and community resilience to both economic and climate shocks. Our analysis also evidences how the Forest Governance Programme has succeeded in ecosystem restoration, encouraging the uptake of sustainable forest management practices that resulted in the restoration of 437 hectares of land. This represents a reforestation rate of 8.44% of the sites, contrasting sharply with the national deforestation trend of 0.36% in similar time periods.

As this work is absorbed by the Tond Tenga project, we expect to see further ecosystem restoration impacts, along with carbon sequestration that goes beyond the usual Sahelian benchmark. The project's focus on local forest governance has also been pivotal in attracting private carbon finance, which will help scale restoration efforts and ensure their continuity for the next 40-plus years.

For these reasons, the Forest Governance Programme provides a proven model to replicate inclusive forest governance and scale up locally led ecosystem restoration across the Great Green Wall. This transformative publicprivate model provides a scalable and replicable approach for leveraging the additional finance needed to progress locally led ecosystem restoration not only in Burkina Faso but across the Great Green Wall. Public investment in building locally led forest governance structures can reap significant benefits when partnering with private finance to scale up these locally led ecosystem restoration efforts and anchor them in the long term.

THIS REQUIRES:



National governments across the Great Green Wall to adopt policy, legislation and budgets to operationalise decentralisation of forest governance, including local forest taxation systems, building on the successful national and local examples available in the region.

CO₂

Carbon investors to realise the latent potential for carbon investment in the Great Green Wall and invest in high quality carbon programmes. This means

programmes which encompass building local forest governance, including local capacity building, and safeguarding community rights to forest resources to ensure sustainable outcomes for people, nature, and climate.

. ≣©

Development, climate and humanitarian practitioners in the Great Green Wall to **assess and amend their project design and implementation practices in the light of locally led principles**⁴⁶.



International public finance providers (multilateral banks, funds and bilateral development funders) to:

• Redefine involvement in the region to tackle the interlinked climate, nature, development and humanitarian crises by prioritising investing in building local forest governance. It is crucial, as it supports conflict prevention, reinforces community control over resources, and builds communities' resilience to the impacts of conflict, economic and climate shocks. It is an efficient and influential intervention approach in an instable, insecure and geopolitically charged context.

Amend disbursement channels to improve local access to funding and locally led approaches. This is vital for

empowering local civil society to implement scalable, locally led nature-based solutions.

Localising Forest Governance 37

REFERENCES

1 "Regions and people with considerable development constraints have high vulnerability to climatic hazards (high confidence). Global hotspots of high human vulnerability are found particularly in West-, Central- and East Africa, South Asia, Central and South America, Small Island Developing States and the Arctic (high confidence). IPCC 2022 AR6, Summary for policymakers B.2.4. URL: https://www.ipcc.ch/report/ar6/wg2/ downloads/report/IPCC AR6 WGII SummaryForPolicymakers.pdf

2 The Great Green Wall (GGW) is an African-led initiative aimed at restoring degraded land across the width of the continent, between Dakar and Djibouti. By 2030, the GGW aims to restore 100 million hectares, create 10 million jobs and sequester 250 million tons of carbon, all towards the improvement of living conditions in rural communities. In this paper, GGW refers to its 11 founding countries: Djibouti, Eritrea, Ethiopia, Sudan, Chad, Niger, Nigeria, Mali, Burkina Faso, Mauritania, and Senegal.

3 IIED (2022) Principles for locally-led adaptation. URL: <u>https://www.iied.org/</u> principles-for-locally-led-adaptation

4 United Nations Convention for Biological Diversity (CBD), United Nations Convention to Combat Desertification (UNCCD), and United Nations Framework on Combatting Climate Change (UNFCCC).

5 The Convention on Biological Diversity will host its COP16 in Colombia in October, followed by the Climate COP, COP29, in Azerbaijan in November, while the Desertification COP16 will close out the year in December in Saudi Arabia.

6 UN DESA, The UN Sustainable Development Goals Report 2024. URL: https://unstats.un.org/sdgs/report/2024/

7 Joint Statement of the Presidents of CBD COP15, UNCCD COP15 and UNFCCC COP27. URL: <u>https://www.unccd.</u> int/sites/default/files/2023-11/Joint%20 Statement-signed%20by%20UNCCD%20 COP15%20CBD%20COP15%20and%20

UNFCCC%20COP27%20Presidents.pdf

8 United Nations, Transforming our world: the 2030 Agenda for Sustainable Development. URL: <u>https://sdgs.un-</u>.org/2030agenda

9 The Kunming-Montreal Global Biodiversity Framework was adopted at the CBD COP in 2022. Its Target 2 and 3 (also called '30x30') commits its 190 signatories to restore 30% of degraded ecosystems and conserve 30% of land, waters and seas by 2030. Global Biodiversity Framework, 2030 Targets (with Guidance Notes). URL: https://www.cbd.int/abf/targets

10 United Nations Convention to Combat Desertification, Land Degradation Neutrality. URL: <u>https://www.unccd.int/</u> <u>land-and-life/land-degradation-neutrality/</u> <u>overview</u>

11 "Nature-based solutions (NbS) are one mechanism for addressing biodiversity loss, climate change and poverty in an integrated manner". International Institute for Environment and Development, Nature-based solutions in action: lessons from the frontline. URL: <u>https://www.iied.</u> <u>org/20451g</u>

12 Ibid 1

13 "Temperatures are climbing at a rate 1.5 times faster than in other parts of the world, with projections indicating a rise of 2- 4.3°C by 2080". International Rescue Committee, The Central Sahel: How conflict and climate change drive crisis. URL: <u>https://www.rescue.org/article/</u> <u>central-sahel-how-conflict-and-climate-</u> change-drive-crisis

14 "Loss of ecosystems and their services has cascading and long-term impacts on people globally, especially for Indigenous Peoples and local communities who are directly dependent on ecosystems, to meet basic needs (high confidence)". IPCC 2022 AR6 Summary for Policy Makers, B.2.1. URL: https://www.ipcc.ch/report/ar6/ wg2/downloads/report/IPCC_AR6_WGII_ SummaryForPolicymakers.pdf

15 Zhang et al. (2023) Governance and Conservation Effectiveness in

Protected Areas and Indigenous and Locally Managed Areas. Annu. Rev. Environ. Resour. 2023. 48:559–88. URL: https://www.annualreviews.org/ content/journals/10.1146/annurev-environ-112321-081348#cited

16 Forest is defined as: Land Area: Typically, a forest is defined as a land area greater than 0.5 hectares. Tree Canopy Cover: The area must have a tree canopy cover of more than 10%. Tree Height: The trees in the area must be capable of reaching a height of more than 5 meters in their natural location. Non-Agricultural Land: The land classified as forest is not primarily used for agricultural or urban purposes. It is meant to support natural or semi-natural ecosystems. Food and Agriculture Organization of the United Nations, Global Forest Resource Assessment. URL: <u>https://</u> openknowledge.fao.org/server/api/core/ bitstreams/531a9e1b-596d-4b07-b9fd-3103fb4d0e72/content#:~:text=OTHER%20 WOODED%20LAND-,FOREST,reach-20these%20thresholds%20in%20situ

17 World Bank Group, The World Bank in Burkina Faso. URL: <u>https://www.worldbank.</u> org/en/country/burkinafaso

18 Groupe de la Banque Mondial. BURKINA FASO NOTE SECTORIELLE SUR LES FORÊTS Pour une gestion durable des forêts du Burkina Faso (2022). URL: <u>https://</u> openknowledge.worldbank.org/server/ api/core/bitstreams/7f01eb43-b931-5460b9a8-054bd827b8cf/content

19 The process by which a central State devolves responsibility and resources to local authorities over a certain prerogative.

20 Loi°006/97/ADP of January 31st 1997, Article 7 of Burkina Faso's Forestry Code, on the foundations and main fundamental principles of national forestry policy, already recognised the participation and effective empowerment of the population in the design, implementation, monitoring and evaluation of forestry activities, notably through decentralised natural resource management. URL: <u>https://www.</u> fao.org/faolex/results/details/fr/c/LEX-

FAOC011545

21 Loi N°065-2009/AN of 21 décembre 2009 portant modification de la loi N°055-2004/AN du 31 décembre 2004 portant Code Général des Collectivités Territoriales au Burkina Faso, URL: <u>https://</u>faolex.fao.org/docs/pdf/bkf92244.pdf

22 Article 15, 20, 21, 22, 26, 29, 34 et 38, Loi n° 003-2011/AN portant Code forestier au Burkina Faso. URL: <u>https://www.fao.org/</u> faolex/results/details/fr/c/LEX-FAOC106703

23 Centre pour la gouvernance forestière. URL: <u>https://www.gagfbf.org/</u>

24 Arrêté n°2011-001/MEDD portant création, attributions, organisation et fonctionnement d'un Groupe de Travail sur la Décentralisation dans le secteur forestier (GDSEF). URL: <u>https://www.treeaid.org/</u> <u>media/y3kacrlr/24.pdf</u>

25 GAGF (2012) Document d'orientation - Gouvernance forestière et gestion décentralisée des ressources forestières. URL: https://www.treeaid.org/media/ jlbm3cup/25.pdf

26 Ministère de l'Environnement et du Développement Durable du Burkina Faso, 2012, Proposition pour la mise en place d'un mécanisme institutionnel d'appui à la décentralisation dans le secteur forestier. Rapport définitif. URL: <u>https://www.treeaid.</u> org/media/n02azubl/26.pdf

27 Décret n.2014-926/PRES/PM/MATD/ MEDD/MEAHA/MEF/MRAH/MFPTSS portant modalités de transfert des compétences et des ressources de l'Etat aux régions dans le domaine de l'environnement et de la gestion des ressources naturelles. URL: https://www.fao.org/faolex/results/details/ fr/c/LEX-FAOC146182/

Décret n.2014-937/PRES/PM/MATD/MEDD/ MASA/MHU/MFPTSS portant modalités de transfert des compétences et des ressources de l'Etat aux régions dans le domaine foncier. URL: <u>https://www.</u> informea.org/fr/legislation/d%C3%A-9cret-n%C2%B02014-937-prespmmatdmeddmasamhumefmfptss-du-10-octobre-2014-portant-modalit%C3%A9s-de 28 GAGF, Tree Aid, World Agroforestry Centre (2018). Note de politique sur la sécurisation fonciere des forets. Programme Drydev. URL: <u>https://www.</u> treeaid.org/media/nxxcuns1/28.pdf

29 GAGF, Tree Aid, World Agroforestry Centre (2018) 2017. Note de Politique sur la gouvernance forestière. Programme DryDev. URL: <u>https://www.treeaid.org/</u> <u>media/3igcc1ln/29.pdf</u>

30 GAGF, Tree Aid. NOTE DE POLITIQUE la prise en compte de la contribution des produits et services forestiers aux économies locales. URL: <u>https://www.</u> <u>treeaid.org/media/mthfy4wt/30.pdf</u>

31 GAGF, Tree Aid. Révue des textes et projects de textes en lien avec la gouvernance forestière et la gestion décentralisée des ressources forestières au Burkina Faso. URL: <u>https://www.treeaid.org/</u> <u>media/xlrfgllu/31.pdf</u>

32 GAGF, Tree Aid. Fonction publique territoriale et gouvernance locale des ressources forestieres: que faire pour rendre les administrations locales operationnelles et efficaces ? URL: <u>https://www.</u> <u>treeaid.org/media/msxdf055/32.pdf</u>

33 GAGF, Tree Aid. La gouvernance locale des ressources forestières a l'épreuve de la crise sécuritaire : quelles implications pour la recherche action. URL: <u>https://www.treeaid.org/media/</u> <u>pz3hdmsj/33.pdf</u>

34 Net Dense vegetation cover is calculated as a factor of fluctuations at the pixel level from Sparse vegetation and Bare land to Dense vegetation, and vice versa. Percentage restoration rate is calculated as the area (hectares) that is converted to Dense vegetation by 2023, compared to that of 2013.

35 Global Forest Watch, Burkina Faso Deforestation Rates & Statistics. URL: <u>https://www.globalforestwatch.org/</u> <u>dashboards/country/BFA/?location=WyJjb-</u> <u>3VudHJ5liwiQkZBII0%3D</u>

36 P.H. Thangata and P.E. Hildebrand, Carbon stock and sequestration potential of agroforestry systems in smallholder agroecosystems of sub-Saharan Africa: Mechanisms for 'reducing emissions from deforestation and forest degradation' (REDD+). URL: <u>https://www.sciencedirect.</u> <u>com/science/article/abs/pii/</u> S0167880912002332

37 Ibid 36

38 Ibid 36

39 Proportion of households below the poverty line (\$1.90 per adult per day) based on Total Value of Activities (income + consumption).

40 United Nations High Commissioner for Refugees, Burkina Faso. URL: <u>https://</u> <u>reporting.unhcr.org/operational/</u> <u>operations/burkina-faso</u>

41 UNCCD (2020), Great Green Wall Implementation Report, URL: <u>https://</u> www.unccd.int/resources/publications/ great-green-wall-implementation-statusand-way-ahead-2030

42 Reuters, Exclusive: Africa's Great Green Wall to miss 2030 goal says UN desertification president. URL: <u>https://www.</u> <u>reuters.com/business/environment/africasgreat-green-wall-miss-2030-goal-says-undesertification-president-2024-06-12/</u>

43 One Planet Summit, Great Green Wall Accelerator, URL: <u>https://oneplanetsummit.</u> <u>fr/en/coalitions-82/great-green-wall-accelerator-193</u>

44 World Economic Forum, Tree Aid (2024) Realising the Voluntary Carbon Market Opportunity for Sahelian Communities URL: <u>https://treeaid.org/</u> <u>vcm-sahel</u>

45 Carbon Credits.com. Trust Can Bring Carbon Credit Price to \$238/Ton by 2050. URL: https://carboncredits.com/trust-canbring-carbon-offset-credit-price-to-238ton-by-2050/#:~:text=BloombergNEF's%20 (BNEF)%20Long-Term,%241.1%20trillion%20 annually%20by%202050.

46 IIED (2022), Principles for locally-led adaptation, URL: <u>https://www.iied.org/</u> principles-for-locally-led-adaptation

ANNEXES: METHODOLOGICAL APPROACHES

The Rural Household Multi-Indicator Survey (RHoMIS): RHoMIS assessed socioeconomic outcomes for project participants, with additional modules for non-timber forest products, forest governance, and women's empowerment (voice, choice, and control). Data from 1,570 households was collected across baseline, midline, and endline surveys.

Correlation Analysis: Single-predictor regression models assessed the relationship between forest governance scores and outcome variables. Statistical significance was determined using linear and logistic regressions with transformations applied to financial and proportional data.

Causal Mapping: Qualitative data from the Qualitative Impact Protocol (QuIP) was analysed using Causal Map, an online tool to visualise cause-and-effect relationships. It produced causal maps illustrating project impacts. The Qualitative Impact Protocol (QuIP) captures beneficiaries' perceptions of changes in food consumption, income, forest access, and household dynamics. Data was collected from women's enterprise group members and key informants in two communes.

Burned Area Analysis: The Moderate Resolution Imaging Spectroradiometer (MODIS) Burned Area Product was used to calculate burned area proportions within project regions. The data informs fire incidence trends.

Vegetation Cover Analysis: Vegetation changes were analysed using a Random Forest algorithm with indices such as NDVI, EVI, and NDMI derived from Landsat 8 imagery. This method provided accurate classifications of vegetation cover to monitor project impacts.

Full methodological annexes: <u>https://www.</u> <u>treeaid.org/media/t1fcneql/annexes.pdf</u>

I. RHOMIS

Tree Aid measures socioeconomic outcomes for project participants with the Rural Household Multi-Indicator Survey (RHoMIS). The questions are designed to ensure that reasonable results can be produced while remaining flexible to accept the information that the local farmers can give most easily and accurately.

In addition to the usual calculations (above), including cash income and consumption values for crops and livestock, Tree Aid has developed three further modules. These concern non-timber forest products (NTFPs), forest governance (FG) and voice, choice and control (VCC).

The non-timber forest products module allows detailed data collection concerning the species, products, quantities, and values of NTFPs collected by each household, which enables estimation of total income from NTFPs, and the value of all NTFPs harvested by the household (whether sold or consumed).

The forest governance module asks seven questions concerning the satisfaction of local community members with the governance of their local forest(s), their access to forest resources, and the wider benefits of the forest for their community. The questions are weighted in a composite score, which places each household on a scale from the least to most favourable possible answers. The questions are:

- 1. Do you have to ask/receive permission to access the forest?
- 2. Do you feel there is fair and equal access to the local forest resources for the people in your village/municipality?



Source: https://www.rhomis.org/design.html

- 4. Do you feel the village is engaged/interested/has the forest at heart in regard to the management of local forest resources?
- 5. Are there any actions that are carried out by the village for the protection of the forest?
- 6. Considering the state of forest resources in the municipality, do you think that the resources meet the needs of the community?
- 7. Are there any actions that are carried out by the municipality for the protection of the forest?

The voice, choice and control module asks 21 questions of the most senior woman in each household, regarding her perceived equality of power within the household and community in comparison with her male partner. The questions are given equal weighting in a composite score, which places each household on a scale from the least to most favourable possible answers. The questions are:

- 1. How much influence do you have regarding crops that are grown for household consumption?
- 2. How much influence do you have regarding the expenditure of household savings?
- 3. How much influence do you have regarding the crops grown for sale?
- 4. How confident do you feel to express your opinions in the household?
- 5. How much opportunity do you have to speak in public?

- 6. How much can you participate in community meetings?
- 7. How much can you participate in community activities?
- 8. Can you choose to attend training?
- 9. To what extent are you able to make certain household decisions on your own, such as paying school fees and health care?
- 10. Can you choose how to spend your own income?
- 11. Can you choose what to sell in the market or which market to attend?
- 12. Can you choose to participate in village or community committees?
- 13. How much control/access do you have over the farmland?
- 14. How much control/access do you have over the communal land?
- 15. How much control/access do you have over assets?
- 16. How much control/access do you have over livestock?
- 17. How much control/access do you have over trees?
- 18. How much control/access do you have over savings?
- 19. How much control/access do you have over community resources?
- 20. Do you have any leadership roles?
- 21. How much control/access do you have over by-laws?

The RHoMIS responses for the scaleup phase of the Forest Governance Programme initiative included a total of 1,570 household surveys across baseline (July 2020), midline (December 2021), and endline (December 2023).

II. CORRELATION ANALYSIS

The correlation conclusions included in the impact paper (p32) are based on single-predictor rearession models using householdlevel data, which assessed the positivity and statistical significance (at a 5% confidence level) of the relationships between the forest governance score and a range of outcome variables. Linear rearession models were used for continuous outcome variables, with logistic regression models for binary outcome variables. The variables were linearised using loait (for proportions) and logarithm (for financial values) transformations before the regressions were applied.

The Qualitative Impact Protocol, known as QuIP, provides a

straightforward and cost-effective mechanism to ask people about significant drivers of change in their lives, and to analyse and present the data collected. It was designed to help organisations to assess, learn from and demonstrate the social impact of their work. It places beneficiaries' voices at the centre of reporting and demonstrates a aenuine commitment to learning about what the most important stakeholders really think makes a difference to their lives and livelihoods.

For this paper, domains discussed with beneficiaries include: food consumption, income, access and use of forests, and household dynamics.

Data was collected from two communes (Gomponsom and Toecé). Data was collected from women members of enterprise groups, and key informants.

III. CAUSAL MAPPING



Example: Causal map of the Forest Governance Programme

Causal Map is an online research tool that lets you code, analyse and visualise fragments of information about what causes what. It creates a repository of testimonies of change from your interviews, reports, surveys, or any other narrative data, from which it can generate causal maps and other outputs.

For this paper, qualitative data collected through QuIP was subsequently analysed and visualised using causal mapping.

IV. BURNED AREA ANALYSIS

In order to try and assess the impact of our forest governance work on fire incidence, we used the MODIS Burned Area Product MCD64A1. The data was accessed via Google Earth Engine using the image collection 'MODIS/061/ MCD64A1' and combined with project and administrative shapefiles that delineated the areas of interest.

For each area of interest, we calculated the number of $500m^2$ cells within the area that had detected burning at any point during the calendar year (at any confidence level). This was then expressed as a proportion of the total area. This is the metric visualised on the y-axis of Figure 4 on p28.

We note here that the spatial resolution of the dataset means that smaller fires are unlikely to be detected, limiting our ability to

2

accurately assess the behaviour of fire across many of our smaller sites in particular. We hope to explore alternative datasets in the future.

V. VEGETATION COVER ANALYSIS

Vegetation cover as a metric is invaluable to remotely sense the impact of forest avernance projects. Here, this was achieved through a Random Forest (RF) machine learning algorithm within Google Earth Engine (GEE), and Earthblox. Within Earthblox, the World Resources Institute's (WRI) Dynamic World dataset¹ was used to establish a training dataset that the algorithm will later use to classify modified satellite imagery. 600 onehectare squares were randomly generated within QGIS² mapping software around the project area and imported into Earthblox. These were manually annotated according to the vegetation type given in the Dynamic World dataset. If the generated square was >15% 'trees', it was designated as 'dense vegetation', if >15%'shrub', 'grass', or 'crop' but <15% 'trees', it was designated as 'sparse vegetation', and lastly if there was no vegetation within the hectare, it was designated as 'bare'.

These polygons were exported into GEE to contribute to the RF classification. Using Landsat 8 imagery, filtered for a period covering the post-rainy season (September to November, where vegetation is at maximum 'greenness', with low cloud cover).

Brown, C.F., Brumby, S.P., Guzder-Williams, B. et al. Dynamic World, Near real-time global 10m land use land cover mapping. URL: https://www.nature.com/articles/s41597-022-01307-4

QGIS, QGIS overview. URL: https://gis.org/project/overview/

Clouds were then masked using the included 'QA_PIXEL' band. A number of derived indices were then calculated and added as bands to the imagery. First, normalised difference vegetation index (NDVI) was calculated using the following equation:

[Equation]

Where:

NDVI is normalised difference vegetation index,

NIR is the near infrared radiation band,

And RED is the red band.

NDVI takes advantage of the spectral reflectance dynamics of photosynthetic plants, which absorb solar radiation in the photosynthetically active radiation (PAR) region and re-emit solar radiation in the near-infrared spectral region. This is compared through the equation to visible red radiation, and therefore if a satellite reading shows a significantly higher proportion of NIR, the vegetation within that pixel is expected to be dense and have healthy photosynthetic material.

Second, enhanced vegetation index (EVI) was calculated using the following equation:

[Equation]

Where:

NIR, red, and blue are surface reflectance variables,

L is a canopy background adjustment that addresses nonlinear, differential NIR and red radiant transfer through a canopy, C1, C2 are the coefficients of the aerosol resistance term, which uses the blue band to correct for aerosol influences in the red band.

G is a gain factor.

Within the algorithm, coefficients are adopted from MODIS³ where L = 1, C1 = 6, C2 = 7.5, and G = 2.5.

EVI is more responsive to structural variations in vegetation, such as leaf area Index, canopy type and architecture.

Lastly, normalised difference moisture index (NDMI) was calculated using the following equation:

[Equation]

Where:

Moderate Resolution Imaging Spectroradiometer (MODIS). URL: https://modis.gsfc.nasa.gov/data/

NIR is near infrared radiation,

And SWIR is short-wave infrared radiation.

NDMI is used to determine vegetation water content – the ratio between NIR and SWIR allows for water to be detected both within the leaves and around the vegetation itself, when water is lost through transpiration. This makes it a very effective proxy for canopy cover which is difficult to assess in dryland ecosystems.

These indices are all very useful in their own right, but face flaws when applied independently. For example, NDVI is limited by its propensity to pick up small NIR reflectance from soils, distorting values in some cases to display a non-zero value, skewing analysis to suggest higher vegetation cover if not corrected for. EVI is limited in its dependency on coefficients such as the canopy background adjustment, which may not be well parameterised to dryland ecosystems. NDMI has its limitations also in being best placed to sense the canopy of broad-leaved vegetation with large, tall canopy areas, rather than smaller-leaved ground level vegetation.

Extracting the spectral values for the Landsat original bands as well as the derived indices assigns a range of values for these bands to the classification as defined through the Dynamic World dataset. This extraction is fed into a Random Forest machine learning algorithm for training, where 1,000 individual decision trees are created using

dataprod/mod13.php

a random subset of the data. This trained classifier can then predict land cover across the whole project area, by aggregating the results of all trees through a 'voting system', assigning classes from the results of multiple decision trees.

By taking into account the extra indices and training a model from imagery directly focused on the semi-arid environment in which we pursue our interventions, we are able to monitor the impact of our forest governance project with high accuracy, in order to tailor our efforts, and review individual sites' success under the project.



www.treeaid.org info@treeaid.org 0117 909 6363

Tree Aid is a registered charity in England, no. 1135156 and a company limited by guarantee registered in England, no. 03779545 at BrunswickCourt, Brunswick Square, Bristol, BS2 8PE.