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MPA in Environmental Science and Policy



TerraFund for AFR100

Flowing Finance to Locally Led Land
Restoration Projects in Africa

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Executive Summary

Deforestation and land degradation continue to be one of the most pressing global challenges of our time, and Africa is no exception to this trend. According to the UN Food and Agriculture Organization (2016) and United Nations Environmental Program (2013), the African continent loses 2.8 million hectares of forest each year, and about 50 million hectares of land is affected by degradation. Through restoration of degraded and unproductive land, great opportunities arise to develop short and long-term strategies to build economic, social, and ecological benefits. Investments in Nature-based Solutions (NbS) are crucial for enabling land use systems that deliver better outcomes for local communities. Providing locally led projects with proper funding will ensure that benefits are widely shared throughout African countries. To capitalize on the immense land restoration potential in Africa, widening access to capital and financial instruments is critical to bolster forest and landscape restoration efforts.

In response to this need, TerraFund for AFR100, a joint effort between the World Resources Institute (WRI), OneTreePlanted, and Realize Impact Investment, was established to direct funding towards organizations developing land restoration projects in Africa. TerraFund distributed its first round of funding, totalling USD 15 million, to 100 organizations in 2022.

A team of ten graduate students created this report as part of a capstone project for the Columbia University School of International and Public Affairs' (SIPA) Master of Public Administration in Environmental Science and Policy program. WRI engaged the MPA-ESP project team to determine a funding baseline for the African land restoration organizations provided funding in its recent TerraFund for AFR100 initiative. To determine this baseline, the team analyzed and categorized funding streams of each organization before receiving TerraFund funds. This report provides a deep-dive analysis into the financial and access to capital analysis conducted by the team and delivers strategic recommendations for WRI pertaining to its project portfolio.

Section II of this report provides an overview of the reasons why clearly understanding the dynamics of restoration funding in Africa is important, as well as the underlying issues that have made the AFR100 initiative necessary.

Section III provides an overview of the team's methodology in developing a funding baseline, as well as the team's work analyzing two other key components in funding distribution: gender and equity. The team's methods for analyzing these variables, which included survey responses, desktop research, and interviews, is also discussed in this section.

Section IV provides an overview of the findings from the survey data, desktop research, interviews with experts, and statistical analysis of numerical data.

Section V presents the report's recommendations based on the experience of the project, which may help to strengthen WRI's data collection and governance process and bolster its internal evidence-based decision making-processes in regards to its next TerraFund portfolio.

Finally, the team has included a glossary of terms that the team believes will be useful in reading this report and in conducting any future iterations of the TerraFund program

The team believes that this report and the findings of the project can directly facilitate WRI in determining the TerraFund for AFR100 portfolio's baseline funding flows. The baseline data of fundings flows constructed will eventually enable WRI to independently verify its central hypothesis that TerraFund patient capital supports nonprofit and for-profit organizations in reaching their land restoration goals, building self-sufficiency, and generating significant economic, social, and environmental impacts.





Background

About our Client

The World Resources Institute (WRI) is a global nonprofit organization founded in 1982 whose main focus is engaging government, business, and civil society in researching, designing and implementing practical solutions to environmental and social problems. WRI describes its mission as “to move human society to live in ways that protect Earth’s environment and its capacity to provide for the needs and aspirations of current and future generations. (About Us, n.d.). WRI’s many program divisions help to advance this goal through policy development and funding programs in areas ranging from urban planning to food systems development.

This project was conducted for WRI’s Global Restoration Initiative, which aims to accelerate ecosystem restoration financing worldwide. Focusing on building partnerships between stakeholders and mobilizing financing, the Global Restoration Initiative has three major focus areas for its programming:

- Monitoring restoration
- Financing restoration implementation
- Connecting leaders to coordinate restoration goals

(WRI.ORG/Global Restoration)

WRI is particularly focused on scaling ecosystem restoration globally and enabling partner organizations to access sustainable funding streams for restoration projects. WRI is the founding partner of two country-led regional initiatives in Latin America and Africa, and also works in India and Indonesia. WRI is also a lead partner in the TerraFund for AFR100 initiative, which will be discussed in more detail further on.



Figure 1: Outline of Global Restoration Initiative Scope Source: FAO

The Environmental Problem: Land Degradation



Degraded Agricultural soils in South Africa (Source: Farmers Weekly Zambia)

Land degradation refers to a number of distinct but linked processes of soil and ecosystem decay. The UN Environmental Program defines land degradation as “any reduction or loss in the biological or economic productive capacity of the land resources base” (Mansourian & Berrahmouni, 2021). Many activities can contribute to land degradation, including wind and water erosion, overfertilization, deforestation and de-vegetation of land, poor irrigation management, overly intensive agriculture, and mining.

The United Nations Environmental Programme (UNEP) subdivides land degradation into multiple categories, but some of the most important are:

- Soil Degradation: the deterioration of soil processes and ability to support life;
- Soil Erosion: the removal of vital topsoil by water and wind, often exacerbated by human activity;
- Nutrient Depletion: the loss of nutrients vital for vegetation growth and agriculture from the soil;
- Desertification: soil degradation and erosion occurring in dry lands, which can create desert-like conditions that are often irreversible and make the land impossible to use for agriculture.

(Mansourian & Berrahmouni, 2021).

Land Degradation in Africa

In many regions of Africa, land degradation is a major issue. This is exacerbated by both natural and human factors. The expansion of the Sahara Desert, the world's largest hot desert, means that the surrounding region, the Sahel, is particularly prone to degradation and desertification. At least 65% of the African population is thought to be affected by land degradation, and more than 494 million hectares are thought to be degraded, with another 732 million hectares deeply degraded, historically desert or otherwise unusable for agriculture. Poverty, continual exploitation of agricultural land, and the legacies of colonialism all also contribute to the ongoing degradation of land throughout the continent (Mansourian & Berrahmouni, 2021).

The map below, depicted land degradation and susceptibility across the African continent.

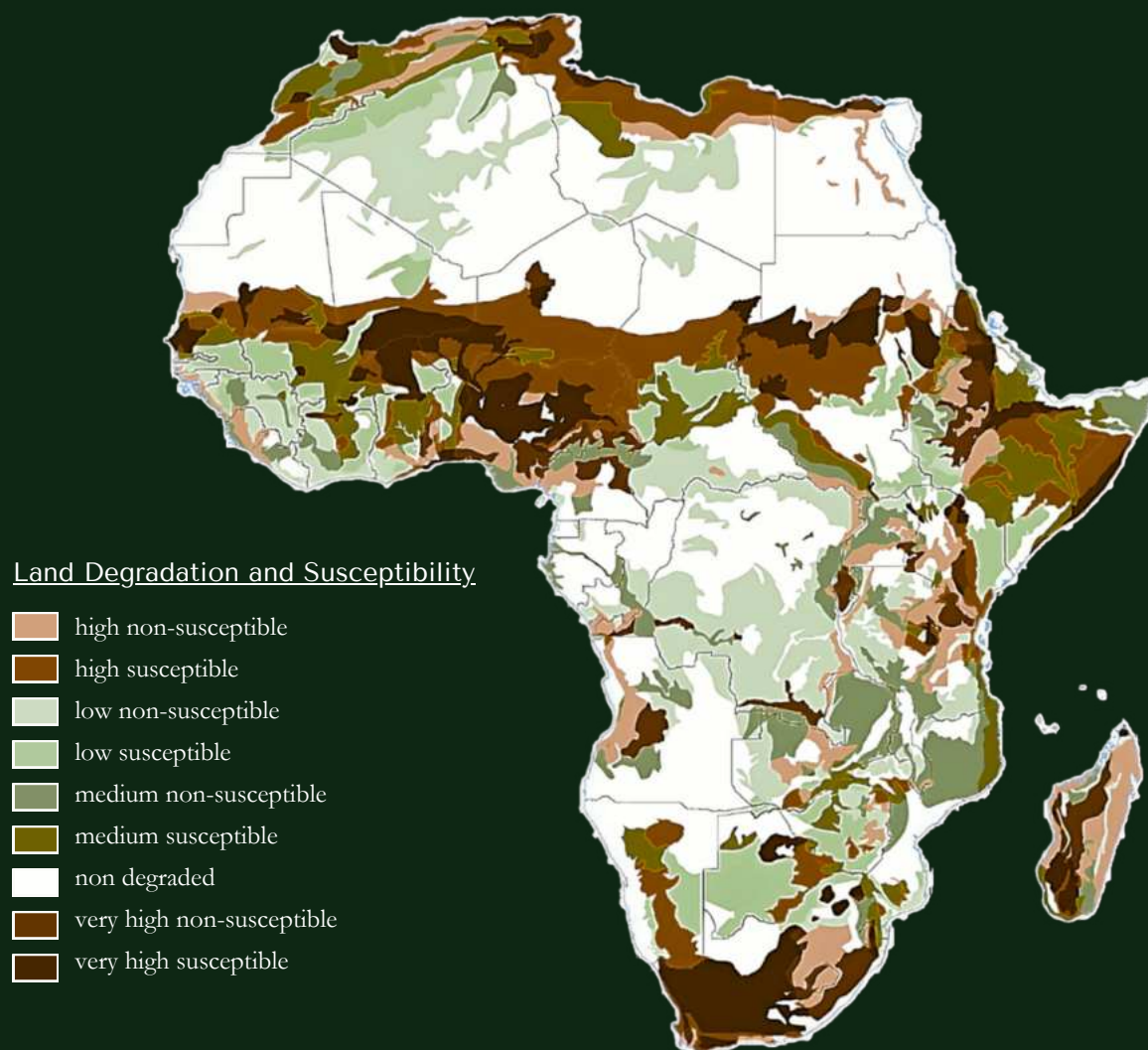


Figure 1: Land Degradation Severity in African Regions (Source: UNEP 2015)

Background

The types of soils, rainfall patterns, and governing temperatures in an area all contribute to the severity of land degradation that occurs there. Drylands in particular are highly prone to degradation, with about 2/3 suffering some form of degradation. (UNEP 2015.).

Socioeconomic factors, including international incentives for commodity production and local poverty, can drive unsustainable cultivation practices that damage land. Unequal distribution of land and poorly formalized land tenure systems also complicate the picture. Deforestation, which is also driven by the above mentioned factors, can also contribute to land degradation, as deforested soils are more prone to erosion, nutrient loss, and decay (Mansourian & Berrahmouni, 2021).

The ecological, economic and social impacts of land degradation are as diverse as its causes. It can exacerbate poverty, create migration pressures as lands become less arable, which in turn puts pressure on other lands and causes further degradation. Degraded land becomes less able to support robust ecosystems of plants and animals, which can also have cascading social and economic consequences. Addressing land degradation has become a priority for ensuring a stable future for African agriculture and ecosystems (Mansourian & Berrahmouni, 2021). Land degradation can also exacerbate existing social inequality and threaten development goals (Mani et al., 2021).

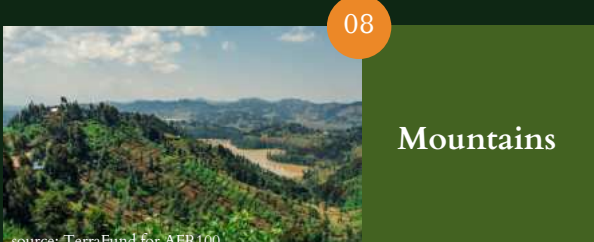
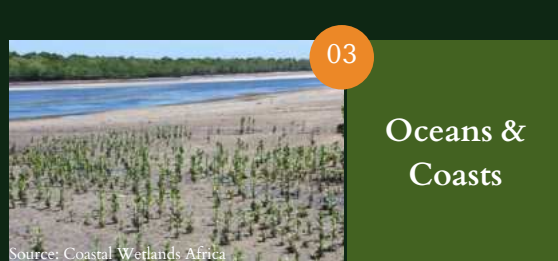
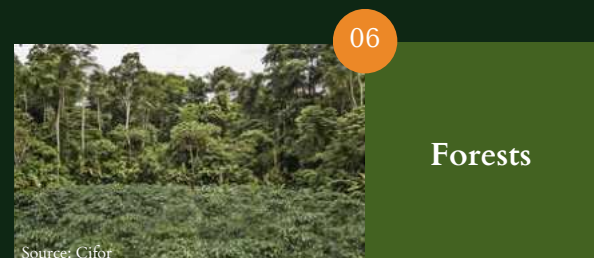
A 2015 UN estimates that soil erosion is likely to cause economic damages of over 127 billion USD each year until 2030 in 42 surveyed countries in Africa from depletion of soil nutrients alone, about 10% of those countries GDP. On top of this, further degradation induced by poverty associated factors causes an additional 11.3 billion USD of damages each year.

However the same study showed that taking action against erosion and poverty related degradation would only cost about 35.6 billion USD yearly, and yield 62.4 billion USD each year, nearly double the cost. Funding and implementing these solutions however, will be a major challenge, as funding is not currently available at nearly the amount required, in Africa or globally. (UNEP 2015).

Land Restoration as a Solution to Degradation and Associated Problems

Ecosystem restoration is a field as varied as the ecosystems that are targeted by restoration practices. Restoration projects can have different aims, with some focused on improving agricultural function or building up degraded soil, while others focus on restoring ecosystems that have been removed, such as mangrove forests or peat swamps.

The UN Decade of Ecosystem Restoration divides ecosystem restoration projects into 8 broad types:



Ecosystem Restoration Types

Ecosystem restoration techniques can vary widely depending on the type of restoration being executed. Those included in this report are:

- **Agroforestry:** the integration of native vegetation into crop or pasture systems (United States Department of Agriculture, n.d.)
- **Applied Nucleation/Tree Island:** the planting of trees in clusters to act as a "nuclei" for other vegetation to naturally establish around (Wilson, et al., 2021)
- **Assisted Natural Regeneration:** the removal of barriers to growth that allows for vegetation to naturally regenerate (Chazdon, et al., 2022)
- **Enrichment Planting:** the planting of native vegetation to increase the biodiversity and/or density of a vegetated area (Elliot, et al., 2008)
- **Mangrove Tree Restoration:** the regeneration of mangrove ecosystems, defined as tropical areas with vegetation that is periodically submerged in salt water (STOWA, n.d.)
- **Reforestation:** the replanting of previously existing forests (One Tree Planted, n.d.)



Soil Restoration Efforts in Niger (Image Source: World Economic Forum)

Background

- **Riparian Restoration:** the regeneration of riparian-zone ecosystems, defined as land along the edges of water bodies (West Virginia Department of Environmental Protection, 2023)
- **Seed Dispersal:** the spread of seeds through the movement of wind, water, animals, or other natural events (Wehncke, 2010)
- **Direct Seeding:** the planting of seeds in a habitat, rather than the planting of saplings (Northern and Yorke Natural Resources Management Board, n.d.)
- **Silvopasture:** the integration of native vegetation and livestock grazing (United States Department of Agriculture: National Agroforestry Center, n.d.)

These restoration types are also outlined in the glossary attached to this report.

The defined restoration techniques can all be highly successful, and restoration ecology as a field has taken amazing strides in recent years when it comes to long term planning and implementation of ecosystem restoration projects. However, these projects need funding if they are going to be successful, and thus far, that funding has been woefully inadequate globally, as well as in Africa (Mansourian & Berrahmouni, 2021).



Image Source: WRI

Targets in Africa and Progress

There have been numerous promised restoration initiatives in Africa, with ambitious targets set for restoration in a variety of different regions and ecosystems. Three major initiatives together account for 400 million pledged hectares of targeted restoration:

- AFR100 (supported by WRI): 100 million HA by 2030 across Africa
- Great Green Wall Initiative: 100 million HA in the Sahel by 2030
- Pan African Agenda on ECR for resilience: 200 million as part of Africa 2063

If successful, these initiatives could restore more than half of the 720 million hectares that are currently deemed suitable for restoration on the continent (Mansourian, S., & Berrahmouni, N. 2021, p 16). However, ensuring success is a large, complicated task, and the first step, financing, has not occurred at anything near the level required to ensure success. Globally, USD 300–400 billion yearly is estimated to be required to restore natural ecosystems, but only USD 52 billion has been regularly provided (WWF, 2020). Additionally, of the average USD 632 Billion yearly provided in climate finance, only 14 Billion on average goes to land use related issues, a massive gap from the funds needed to address landscape degradation.

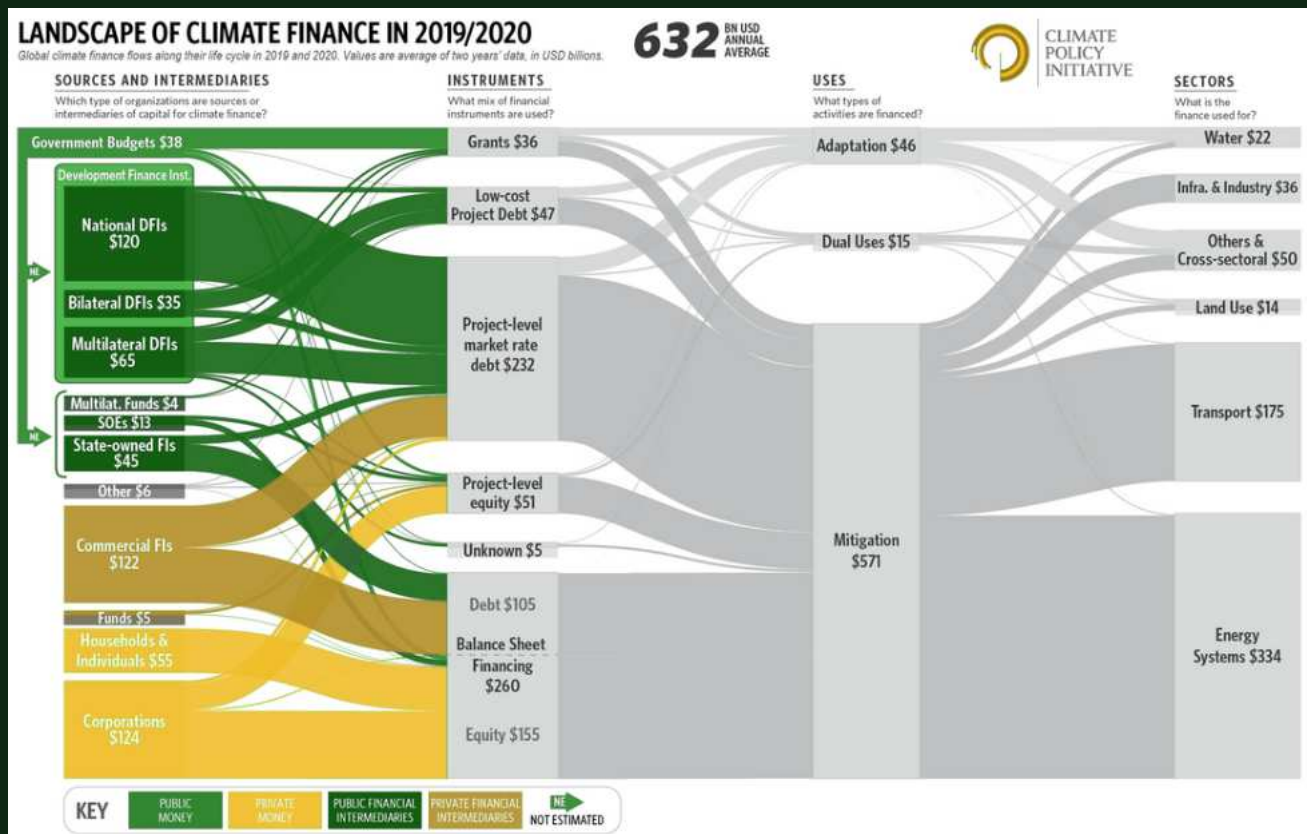


Figure 2: Financing for Landscape Restoration in 2019/2020,
(Reprint from: Climate Policy Initiative)

The AFR100 Initiative

The African Forest Landscape Restoration Initiative (AFR100), launched in 2015, is a country-led restoration initiative across 32 African nations. The central goal of the initiative is to begin restoration activities on 100 million hectares of land by the year 2030. Subsequent pledges have expanded this goal. AFR100 includes restoration across multiple types of landscapes, from forests to mangroves and wetlands to grasslands. It also employs multiple types of restoration activities, such as the active planting of seedlings or natural regeneration (promoting the growth of seedlings and saplings produced by existing on-site trees) (AFR100, 2019).

AFR100 was developed in response to increased global attention to the important role of restoration in climate mitigation and adaptation. The 2011 Bonn Challenge encouraged countries to commit to bring 150 million hectares of land globally under restoration by the year 2020 (*About the Challenge*, n.d.). This goal was later expanded to 350 million hectares of land by the year 2030 through the New York Declaration on Forests (*What is the New York Declaration on Forests?*, 2022). Of the 61 countries involved in the Bonn Challenge, 31 are located in Africa, and AFR100 acts as a part of Africa's strategy to meet these international commitments.

- Phase 1 of AFR100, focused on securing restoration commitments, and it successfully garnered commitments from 32 nations to collectively restore 128 million hectares of land.
- Phase 2, which began in 2022, targets the procurement and deployment of funding to implement restoration activities (*RELEASE: AFR100 Issues COP27 Challenge to Mobilize \$2 Billion for Africa's Locally Led Land Restoration Movement*, 2021).



Image Source: World Agroforestry

The TerraFund Project Portfolio

Managed by the World Resources Institute, One Tree Planted, and Realize Impact, TerraFund for AFR100 is a consortium that mobilizes the first concrete investment into the second phase of AFR100. Funders involved in TerraFund include, but are not limited to, Bezos Earth Fund, Facebook, Good Energies Foundation, Lyda Hill Philanthropies, DOEN Foundation, AKO Foundation, GiveOne, and Caterpillar Foundation (One Tree Planted, 2022). TerraFund supports AFR100, one of the most ambitious land restoration projects in Africa, and the world's history.

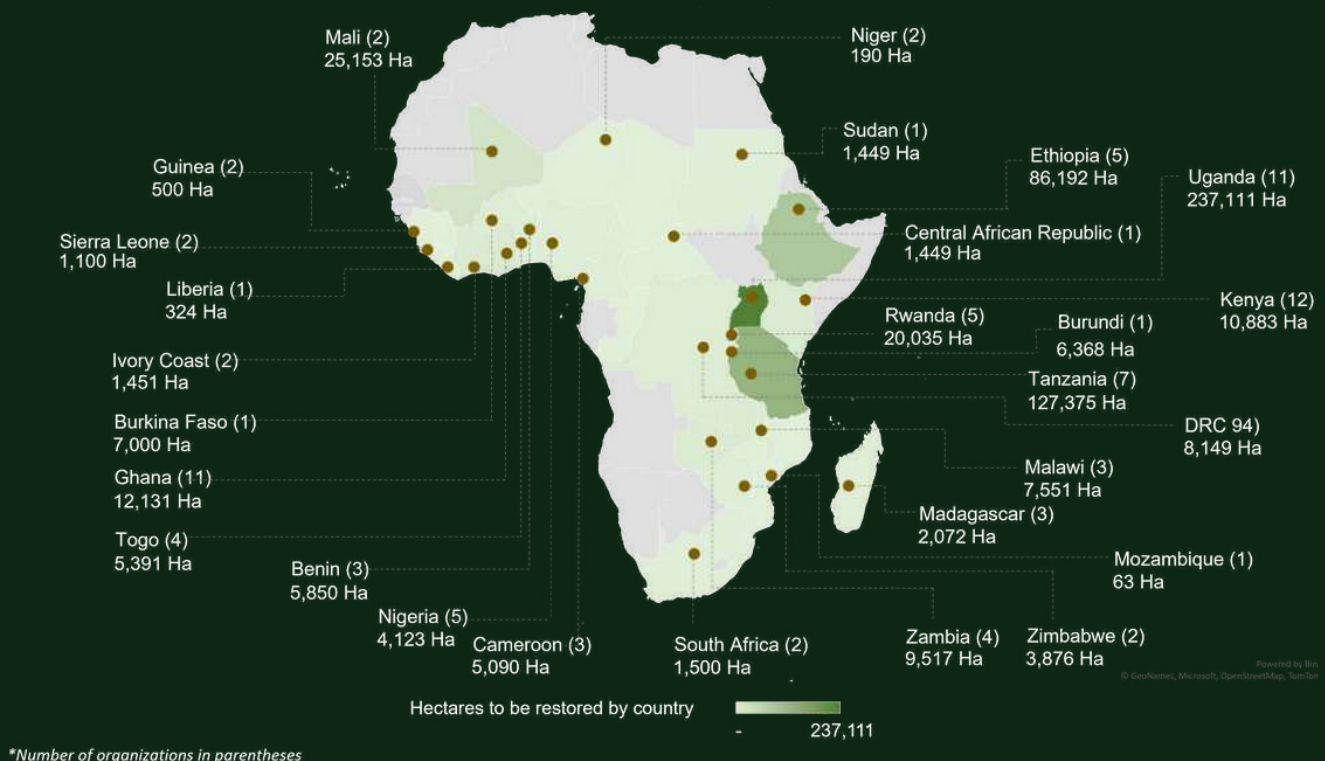


Figure 3: TerraFund Restoration Targets by Country

Through TerraFund for AFR100, a first cohort of 100 nonprofit organizations and for-profit businesses representing 28 countries have been selected to receive direct investments that range from \$50,000 to \$500,000 in the form of grants and loans. In the first 2 weeks after opening up applications, the process attracted over 3,200 applicants from 31 countries (Figure 1.0) (WRI, 2021).

The restoration projects proposed employ a wide variety of tree-based restoration techniques, such as agroforestry (integrating trees and other vegetation with agricultural production to improve food security, soil integrity, and biodiversity) and assisted natural regeneration (TerraMatch, n.d.). This movement and inspiration at the local level is vital because communities manage nearly 70% of African land — and they have first-hand knowledge of what is needed in their communities. The complicated nature of land tenure agreements in many areas of Africa also makes local engagement especially crucial.

TerraFund Selection Process

WRI developed a robust selection process — built from five years’ experience collaborating on WRI’s Land Accelerator entrepreneur training program. Key questions that were asked during the selection process include (WRI, 2022):



01

Organization

Is the organization and project well run?

Image Source: Canva



04

Environmental Impact

How will it improve soil, water, carbon storage, and biodiversity?

Image Source: Canva



02

Scalability

Can it expand with more funding and reach economies of scale?

Image Source: Canva



05

Social Impact

How will it improve the livelihoods of local communities and marginalized people?

Image Source: Canva



03

Replicability

Can its model/approach apply to other landscapes?

Image Source: Canva



06

Profitability

Is the business model viable?

Image Source: Canva

Each application received was reviewed and scored on a scale of 1-5 on the following categories: the organization’s management capacity, past stability and prospects for growth, and record of environmental and social impact (including whether they were growing native species), along with the proposed project’s use of funding and level of community engagement (WRI, 2022). Furthermore, WRI also assessed each enterprise’s ability to use and repay loans (WRI, 2022).

Starting with the highest scoring applications, the WRI team conducted extensive interviews, asking representatives from shortlisted organizations a series of questions on their history, seedling and tree-growing strategies, monitoring and evaluation capacity, financial health, and relationships with local communities and government (WRI, 2022). For for-profit businesses, the team also inquired about the organization’s business plan and past profitability (WRI, 2022). WRI then held more than 30 selection meetings, where the interviewers presented each project and their budget to the wider selection team, recommended by consensus whether to include the organization in the cohort, and allocated a proposed budget to each (WRI, 2022).

Global Outlook on Land Restoration Financing

According to the WRI, every USD 1 invested in land restoration initiatives creates up to USD 30 in economic benefits (WRI, n.d.). For instance, restoration can bring USD 1,140 per hectare in extra revenue for local landholders (WRI, n.d.). Another report by the New Climate Economy noted that restoring just 12% of degraded agricultural lands in the world could feed an additional 200 million people by 2030, while providing significant environmental benefits. Understanding these benefits, 31 countries have made commitments through the Bonn Challenge, a global initiative to restore 150 million hectares of degraded land by 2020 and 350 million hectares by 2030. Subsequently, new regional initiatives have also emerged: the African Resilient Landscape Initiative and AFR100, each of which has differentiated but overlapping commitments to restore Africa's forests.

Realizing these hefty targets set by these commitments and deriving these large socio-environmental benefits requires that projects be backed by significant financial capital. On a global average, the cost of restoring one hectare of land is ~USD 1,500 (USD 607 per acre) (Faruqi, 2016). Hence, the mobilization of financial resources remains one of the main constraints for the effective implementation of large-scale restoration projects and programs. The endeavor requires an urgent effort from existing public financial institutions, climate financing bodies, the private sector, and non-governmental organizations.

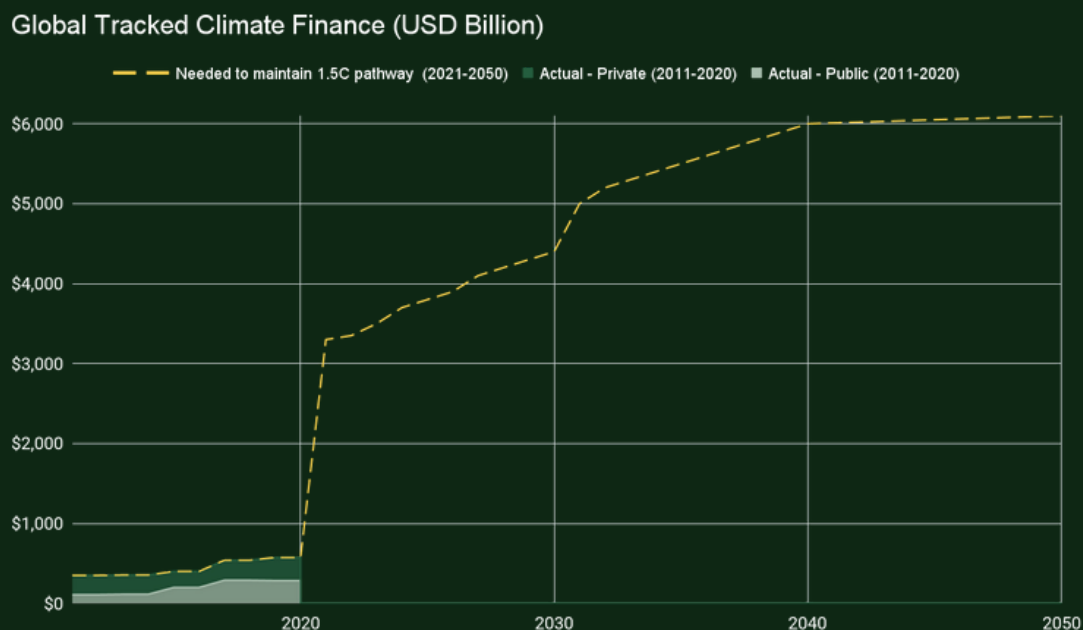


Figure 4: Current and Required Ecosystem Restoration Investments

Background

The world is currently investing around USD 133 billion annually in Nature-based Solutions (NbS) to environmental problems, including climate change and ecosystem degradation. The largest proportion of NbS investment, USD 113 billion or 86% of total investment, is carried out by domestic government bodies to protect biodiversity and landscapes, mixed with activities such as sustainable forestry (UNEP, 2021). The private sector contributes approximately an additional USD 18 billion per year (14% of total investment), mostly through investments in sustainable supply chains and

The world is
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in NbS

environmental offsets (UNEP, 2021). Public Overseas Development Assistance (ODA) and other types of investment amount to approximately USD 2 billion annually, a large proportion of which is climate finance (UNEP, 2021).

In order to meet future climate, biodiversity, and land degradation targets, public and private actors will need to scale up their annual investments by at least four times over the next three decades. Overall, according to UNEP's State of Finance for Nature report, it is estimated that a total investment in nature of USD 8.1 trillion is needed between now and 2050 (requiring annual investment to reach USD 536 billion annually by 2050) in order to successfully tackle the interlinked climate, biodiversity, and land degradation crises (UNEP, 2021).



Figure 5: Funding Values and Classification of NbS Funding (Source: UNEP)

Gender and Restoration Initiatives

Transformative land restoration that overcomes gender biases, promotes women's empowerment and fosters inclusive and equal opportunities to leverage and gain co-benefits for women is critical and could also accelerate progress toward reaching multiple Sustainable Development Goals (SDGs), in particular those on advancing gender equality—a situation in which access to rights or opportunities is unaffected by gender.

As global investment in reforestation and restoration projects increases in the coming years, it is important for financing to promote gender equality. However, approximately 80% of climate change philanthropy and land restoration funding goes to NGOs led by men according to a report by the Philanthropic Initiative for Racial Equity (Selibas, 2022). Restoration finance is currently distributed inequitably along gender lines, with the majority of funding directed towards male smallholders or male-led organizations. This not only reduces women's financial power and ability to contribute to decision-making in their communities, but it also leads to weaker conservation outcomes.

This is in part because men and women often engage with forests in different ways. Women often act as the main collectors of forest products, such as for food, fuelwood, livestock fodder, and medication, and they are more likely than men to engage in subsistence activities. According to the FAO, "Women produce between 60 and 80 percent of the food in most developing countries and are responsible for half of the world's food production, yet their key role as food producers and providers and their critical contribution to household food security is only recently becoming recognised." (*Women: The Key to Food Security*, n.d.) Men are more likely than women to be involved in commercial activities, and they often are engaged in planting and harvesting trees. These diverging forest activities result in men and women having different knowledge about forest resources and management (*Women in Forestry: Challenges and Opportunities*, n.d.).



Women engaging in Land Restoration Activities in AFR 100 member country
Source: One Tree Planted)

Background

The recognition of women as land managers and ecological knowledge holders within restoration initiatives can enhance the recognition and social standing they hold within their communities. An explicit gender lens in restoration initiatives can help women's agency and reduce their vulnerability by enhancing their socio-economic empowerment. However, women have been historically underrepresented in forest management groups and forest associations, in addition to their exclusion from restoration finance (Women in Forestry: Challenges and Opportunities, n.d.). This means that women's unique knowledge of forest ecology and resources is not included in forest management decision-making, resulting in weaker management practices.

Increased involvement of women in restoration activities is proven to lead to improved forest outcomes. If women smallholders were afforded equal access to productive resources, it is estimated that farm yields would increase by 20-30% (Chaplin, 2022) (Smallholders and Family Farmers, 2012). By increasing farm yields, the amount of land necessary to produce the same amount of food is decreased, and that land can instead be restored to natural forest habitats. As land conversion for agriculture accounts for 80% of total global deforestation, it is crucial to increase farm yield and decouple this relationship (Chaplin, 2022). In addition, creating equality of access to resources is estimated to increase total agricultural output in low-income countries by 2.5-4%, and the number of undernourished individuals globally would be reduced by 12-17% (Chaplin, 2022).

Moving forwards, it is clear that restoration finance must prioritize gender equality in order to improve conservation outcomes. Restoration finance should be directed towards women-led and managed organizations, providing the opportunity for women's forest knowledge, skills, and values to be adequately included in forest management plans and practices.

Women engaging planting trees in AFR100 member country (Source: Jeff Bezos Earth Fund)



Local Management and Restoration Initiatives



Women engaging planting trees in AFR100 member country (Source: Jeff Bezos Earth Fund)

Initiatives focused on ecosystem restoration and conservation have a long and unfortunate history of being led from outside the countries and communities that they are conducted in. Approximately 90% of philanthropic funding for climate change and land restoration funding goes to organizations led by white people (Selibas, 2022). Like the related field of ecosystem conservation, there have been many historical issues with land grabbing and the exclusion of traditional owners from restored lands. When ecological restoration projects are entirely designed and led by organizations headquartered in wealthier Global North countries, it can often inadvertently result in what is termed “ecological imperialism,” where ecologies are designed according to the priorities of funders and experts from wealthier, usually western countries, rather than the needs and preferences of local communities. (Gibbs et al., 2021) Even well-intentioned projects can have unintended consequences when local organizations are not viewed as the primary stakeholders of a project.

Restoration projects also have had a history of insisting on a top-down, homogenized approach that does not take into account traditional ecological knowledge or the livelihoods of the communities that live in restored areas (Elias et al., 2021). Conversely, local direction of projects can ensure that project benefits are tailored to local needs and the restoration that occurs helps to ensure vital ecosystem services.

Background

As the world begins to fund ecosystem restoration at scale, it runs the risk of exacerbating existing inequalities and reinforcing inequalities between the Global North and the Global South. While successful ecological and land restoration projects can help empower local communities and improve their environmental and economic outcomes, it also has the potential to repeat the worst inequities of prior “fortress conservation” techniques, and force communities in Global South countries to conform to the ecological desires of conservationists in the Global North (Elias et al., 2021).

Beyond the primary issue of ensuring justice in restoration outcomes, local input and control of restoration projects is also crucial to long-term project success. Local communities and organizations have knowledge of ecosystem patterns that non-local subject matter experts lack (Santini & Miquelajauregui, 2022). Ensuring that restored areas remain under local control can be helpful in maintaining their long term stability. In many parts of the world, including Africa, indigenously managed lands have a 26% lower rate of deforestation, and are generally better managed for ecosystem function, than comparable non-indigenously managed land (Santini & Miquelajauregui, 2022). Other studies have shown that locally lead and managed projects can be up to 20 times as likely to achieve long term success as projects led from outside the project country (Mathai, 2023).

Taking into account these issues, having a clear understanding of what kinds of funding flow to local organizations, and how this funding may be impeded by a lack of local representation in international funding bodies, will be crucial to advancing ecosystem restoration in Africa and ensuring that benefits flow to local communities.



A Landscape Restoration Project in Ethiopia (Image Source: WRI)



Methodology

Methodology

The methodology section of this paper provides a detailed overview of the research design, framework, and procedures used to collect and analyze the data obtained from a variety of sources. The methodology is crucial to this research, ensuring that the processes that results obtained are replicable, reliable, and valid.

WRI's Theory of Change

In the long run, WRI hopes to prove a central hypothesis or ‘theory of change’: organizations that received funding from WRI’s TerraFund are empowered to be self-sustaining and generate positive cash flows from their land restoration endeavors in the long-term. This means that organizations need to be able to balance their financial viability with social and environmental responsibility. While the MPA-ESP team is not mandated to prove WRI’s theory of change, the team is engaged to design a framework to compare existing funding streams of the 100 TerraFund projects and identify trends in funding distribution, sources, and equity. This involves creating a pre-TerraFund funding baseline that would enable WRI in conducting further research into the success of the TerraFund initiative.

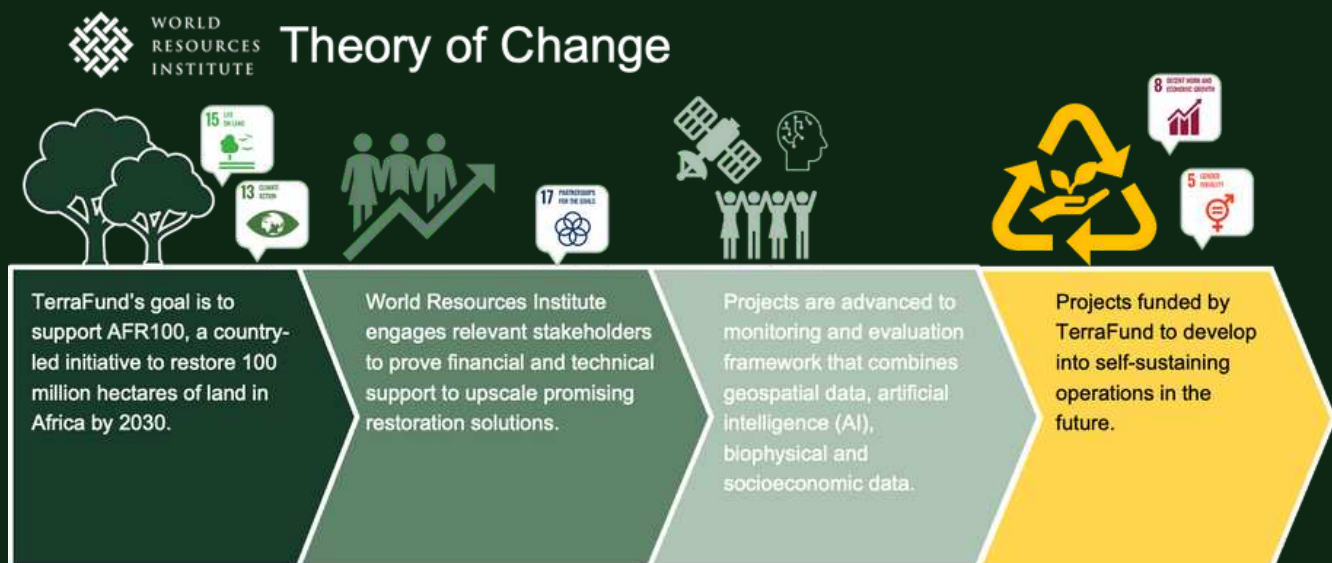


Figure 6: WRI's Theory of Change

Analysis Framework

3 main topics were examined within the report research, namely distribution and nature of organization, funding, and social equity:

Topics	Sub-Topics	Analysis	Variables
Distribution & Nature of Organizations	Distribution of Projects	The team analyzed the distribution and scope of projects within the TerraFund Portfolio.	• Per country restoration commitments • Average funding per hectare • Types of restoration projects engaged in
	Organization Type	The team analyzed the structure of each organization.	• Restoration efficiency by project type (nonprofit vs for-profit organizations)
Funding	Funding Baseline	The team analyzed where the pre-TerraFund funding comes from, what types of organizations are favored by different funding sources, and how funding source relates to performance.	• Funding breakdown by source for for-profit and nonprofit organizations. • Further analyses based on other parameters such as restoration type and organizational size
Social Equity	Gender	The team analyzed whether funding favors organizations with female ownership.	• Proportion of female ownership by funding source
	Country National or Foreign Control	The team explicitly analyzed whether funding (baseline or WRI) favors organizations with foreigners or nationals involved in management.	• Proportion of country national ownership by funding source

Funding Baseline Framework

After receiving the survey data, the team will verify and categorize the funding values received in 2020 and 2021 based on the funding baseline framework outlined below. The funding baseline framework pools different funding sources (i.e., government, multilateral, offtaker, private bank, equity investor, private sector CSR, and foundations) into three different funding categories: public sector, hybrid and private sector.

The government and multilateral organizations are critical sources of public sector funding. An "offtaker" is a party that agrees to purchase the output of a particular project, such as electricity or water. Offtakers can be both public and private sources of funding, depending on the nature of the project and the parties involved. Furthermore, funding sources that are categorized as private sector is private bank, equity investor, private sector CSR, and foundations.

Overall, the funding baseline framework is a valuable tool for analyzing the financial resources that are available to WRI's partner organizations or projects prior to receiving TerraFund funding. By examining funding sources and funding trends, we can gain a comprehensive understanding of the financial health and sustainability of a project or organization, and develop strategies to ensuring long-term success and financial sustainability.

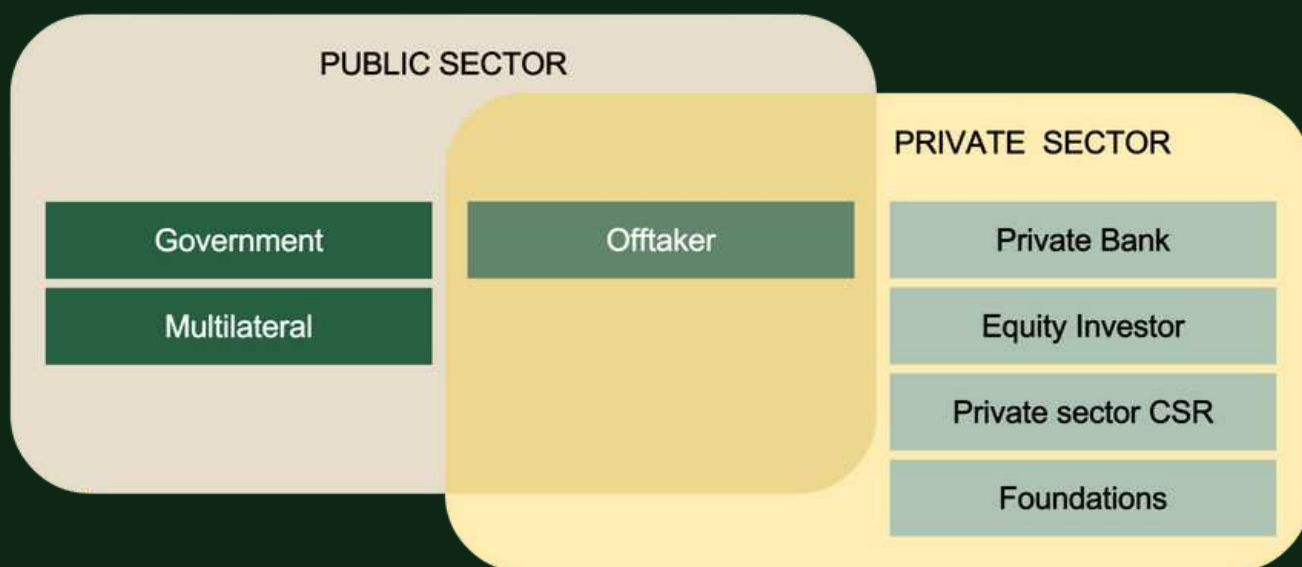
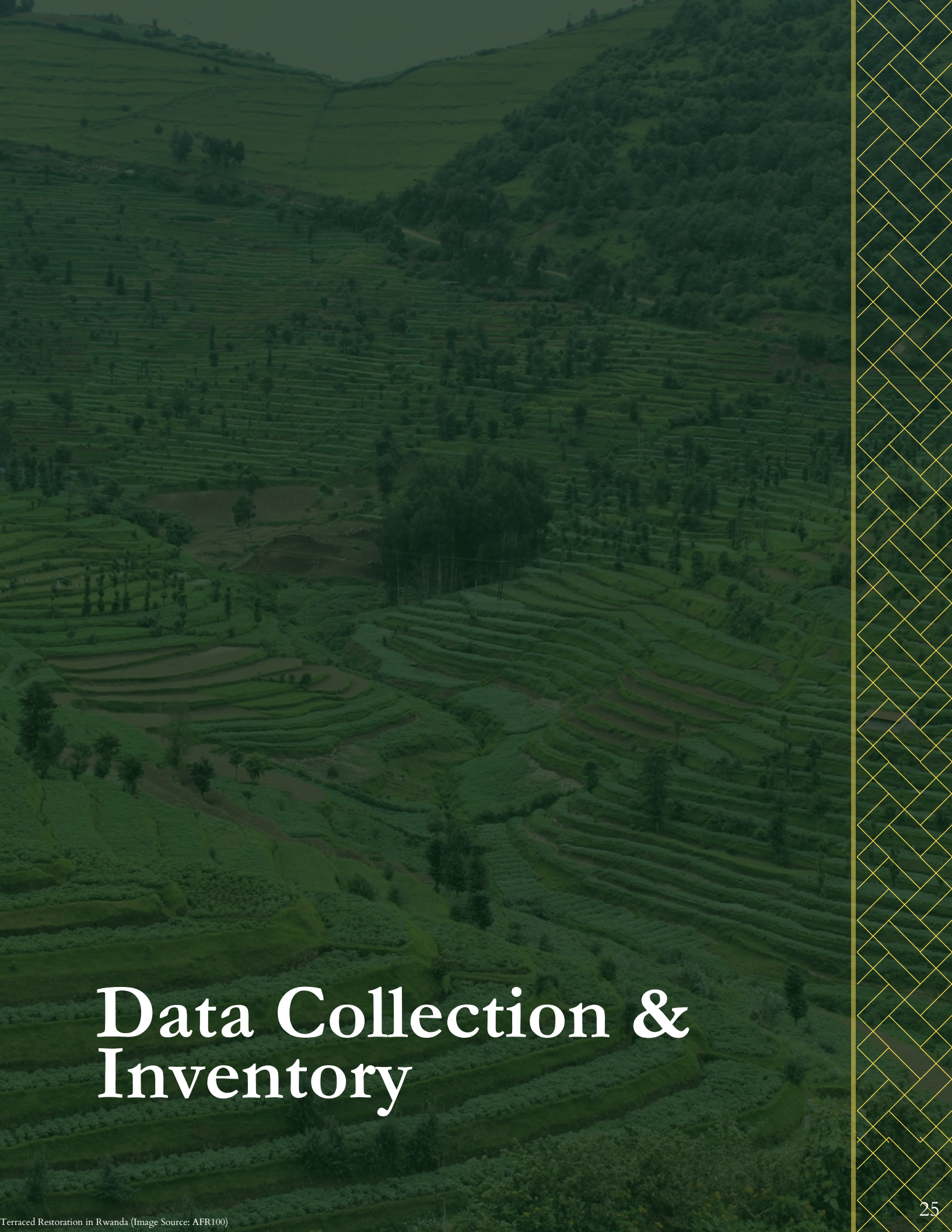


Figure: 7: Breakdown of Funding Sources by Sector

The background of the page is a dark, green-tinted aerial photograph of terraced hills in Rwanda. The terraces are carved into the slopes of the hills, creating a series of horizontal steps. The hills are covered in lush green vegetation, and there are some small trees and shrubs scattered across the landscape. On the right side of the page, there is a vertical decorative border consisting of a repeating geometric pattern of gold-colored lines forming a series of interlocking squares and diamonds.

Data Collection & Inventory

Data Collection Process

Funding Component:

In order to create a baseline of funding sources across organizations prior to TerraFund's involvement, the team relied primarily on the survey data. The team first created a framework to categorize the funding that each organization received by type and source. Funding baseline included fundings types such as grants, loans, or payments for ecosystem services, while funding sources included categories such as foundations, governments, or private banks. The team then refined this framework with the WRI team based on the level of granularity that they were interested in receiving.

The WRI team then translated this framework into a survey format, which was sent out to all 100 organizations. The survey asked organizations to specify the funding baseline that they received and the duration of each funding baseline.

For funding baseline, the organizations could choose from a list of the following choices:

1. Grant from Foundation
2. Public Grant from Government
3. Loan/Credit Finance from Private Bank or Investor
4. Equity Finance from Private Investor
5. Product Offtake Contract
6. Carbon Credit Contract
7. Public/Private Payments for Ecosystem Services
8. Other

For funding duration, the organizations could choose from a list of the following choices:

1. Single-Year
2. Multi-Year
3. Other

The organizations were asked to provide this information for both the year 2020 and the year 2021. They were given the time span of 4 weeks to fill out relevant information in the survey to be processed by the MPA-ESP team.

Data Gathering and Inventory

Survey results were received, and the MSP-ESP team reviewed the data and performed 3 critical actions. First, the team recategorized some survey results to reflect the report framework more accurately. For example, some organizations included funding under the “Other” choice that was better categorized under one of the existing funding categories outlined in the framework. Second, the team disaggregated funding sources and funding types. For the funding sources, new categories, such as “multilateral institutions,” were added into the mix to fit the framework better. Many organizations received funding from multilateral institutions such as the Food and Agriculture Organization of the United Nations (FAO) or the World Bank, so the team recategorized funding from institutions such as these into a separate category. Third, the team removed any outliers from the dataset. Outliers include data points that were found to have likely been misreported or too large in comparison to the average values to incorporate in the analyses.

Gender Component:

Expanding gender equity in the management of and benefits from restoration programs will be crucial to ensuring their longevity and maximum positive impact. The team sought to develop an understanding of the role of female leadership across TerraFund100’s supported projects.

While the initial WRI data boards provided information on the percentage of female staffers and the percentage of women farmers engaged, the team felt it was important to create additional metrics to more fully capture the role of women within the partner organizations that are funded by TerraFund.

In order to develop a gender-informed analysis of TerraFund’s chosen projects, the team conducted extensive desktop research on the gender makeup of organization owners for each project. Specifically, the team sought to determine the presence or absence of female founders or owners in each organization. Furthermore, the team also sought to determine the presence or absence of female leaders within each partner organization.

To obtain this data, the team first looked at each organization’s website to collect this information. If it was unavailable on the websites, we then searched on the organization’s social media profiles, such as LinkedIn, Facebook, and Twitter. As a final measure, the team used WRI’s internal interview notes from the TerraFund application process to further verify the gaps in findings. If the gender information was not available from any of these resources, the category was marked as “no_info” and was excluded from the gender analysis. The team was able to establish the gender of owners, co-owners, and/or founders of 59 out of 100 organizations.

Foreign/National Control Component

Similarly, the team sought to understand how funding was distributed across organizations whose leadership includes country nationals versus those led by foreigners. We defined a country national as “an individual who is born in the country/is a citizen of the country where the project takes place or is conducted.” On the other hand, foreign controlled organizations are led/owned/founded by individuals who are born outside the country/ is a citizen of another country where the project does not take place or is conducted.” As with the gender analyses, the team examined each organization to determine the presence or absence of founders or owners who are country nationals. The Team again used the organizations’ websites, social media profiles, and application interview notes to determine the status of each organization’s leadership, and excluded those without this information from this report’s equity analysis. The team was able to establish the nationality makeup of the owners, co-owners, and/or founders of 51 out of 100 organizations.

Decision Tree on Equity Analysis

To ensure the standardization of the data collection process on female leadership/ownership and local leadership/ownership, the MPA-ESP team developed a decision-making framework on publicly available information on equity studies. The above decision tree on equity analysis outlines the step-by-step decisions that is taken to derive values representative of women leadership/ownership (e.g., % of women-owned/founded projects funded by TerraFund) and local leadership/ownership (e.g., % of local-owned/founded projects funded by TerraFund).

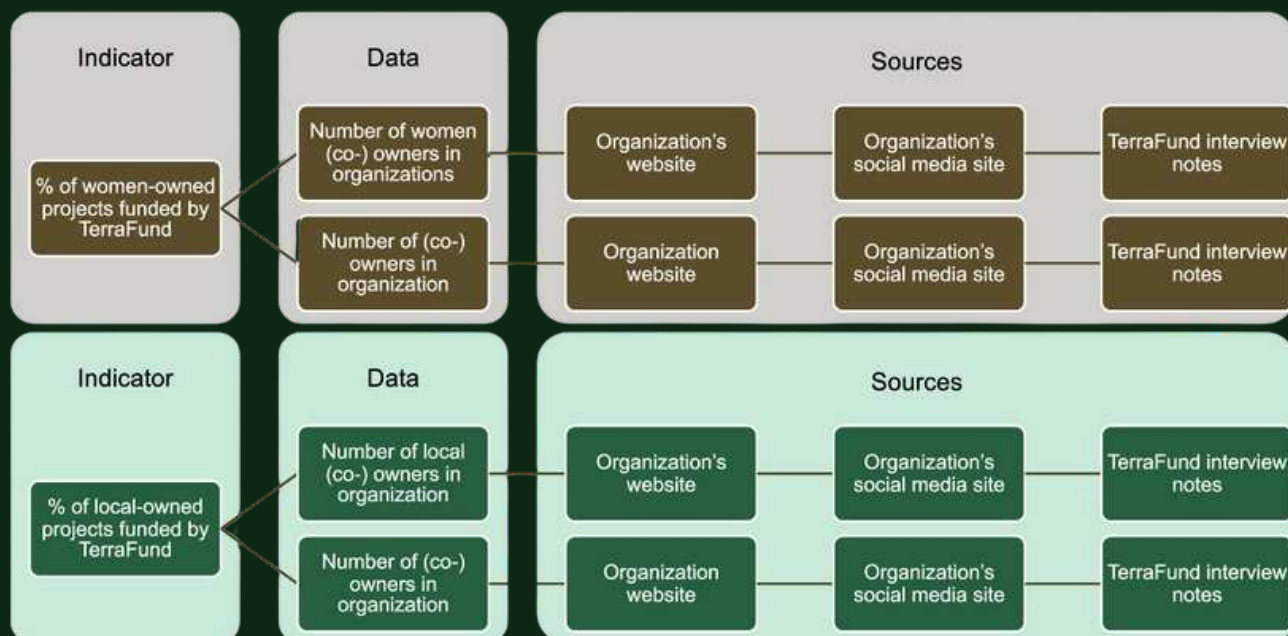


Figure 8: Decision Tree Guide for Equity Analysis

Data Sources

To conduct this analysis, the team drew upon data points and metrics from 4 different sources:

Internal WRI Databases

WRI provided the MPA-ESP team access to 3 different boards/tables on the cloud-based platform and project management software called Monday.com. The boards contain an overview of different information regarding the 100 organizations, including:

- A Nonprofit board that contains the full application for all the nonprofits, arranged into groups by their language and their selection status.
- A For-Profit board contains the full application for all the for-profits, arranged into groups by their language and their selection status.
- A Master board that merges all applications together into one super board to allow for comparison across the cohort.

These boards contained information critical to this report's analysis about each organization, including the total number of staffers; company revenues in fiscal years 2020, 2021, and 2022; organization budget in 2021; and hectares of land restored in the last three years. It is important to note that this data is not available for every organization. For example, only 21 out of 100 organizations provided their company revenue in 2022.

Survey Results

To determine a funding baseline for WRI's diverse project portfolio, a survey was distributed to all for-profit and nonprofit organizations that have been selected to participate in TerraFund. WRI ran a survey to gather responses from organizations regarding their project funding breakdown for the years 2020 and 2021 (prior to the funding received from TerraFund). The survey aimed to gather information regarding funding source type, funding source name, funding amount (in USD) received, and funding duration. In addition, the survey was provided in both French and English to accommodate all of the participating organizations.

Desktop Research

To obtain gender and equity data, the team conducted desktop research. This is the only source of gender and equity data. The team found information on gender and nationality by examining company websites, Facebook and LinkedIn pages, and internal interview notes from the TerraFund application process.

Expert Interviews

The team conducted 10 interviews with subject-matter experts with diverse backgrounds in land restoration or ecological restoration project financing. The subject-matter experts have experience at organizations including but not limited to:



Land Accelerator



Conservation
International



The World Bank



- Sustainable Finance and Investments
- Natural Capital



Columbia
University



IFC Impact



The Greater Lovell
Land Trust



Startup Africa



World Resources Institute

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Data Inventory

From the data collection process undertaken for this report, the team obtained the following sample sizes for the background, local ownership, gender, and survey data, broken down in the table below. Additional data is found in the accompanying excel sheet, but was not used for the analyses contained here.

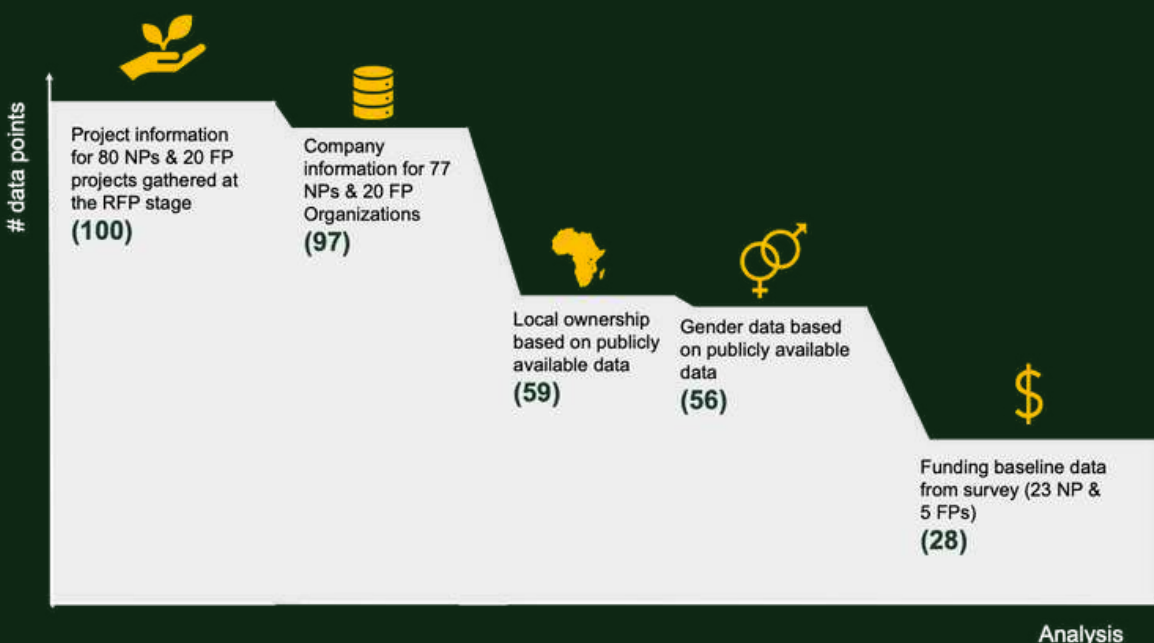


Figure 9: Data collections by number of sources

Project and Organization Distribution

Variable	Sample Size
Project Restoration Type	99
Project Country	99
Organization For or Nonprofit Status	97
Tree Survival Rate by Project	100
Organization Staffing Size	97

Financial

Variable	Sample Size
Revenue (2019)	91
Revenue (2020)	92
Revenue (2021)	21
Budget (2021)	86
Total Funding (2020)	26
Total Funding (2021)	28
Cost per Hectare to be restored (2021)	86
Funding Requested from TerraFund	97

Funding Sources

Variable	Sample Size (2020)	Sample Size (2021)
Grant	20	18
Loan/Credit Finance	2	0
Equity Finance	0	1
Product Offtake Contract	1	1

Data Gathering and Inventory

Carbon Credit Contract	0	0
Public/Private Payments for Ecosystem Services	2	2
Other	8	11

Gender

Variable	Sample Size
Owned or Co-Owned by Women	59
Number of Women Owners & Co-Owners	51
Total Owners & Co-Owners	50
Percentage of Female Owners and Co-Owners	48

Foreign/National Control

Variable	Sample Size
Country National Founder/Owner/Co-Owner	61
Number of National Founders/Owners/Co-Owner	51
Percent National Founders/Owners/Co-Owners	49

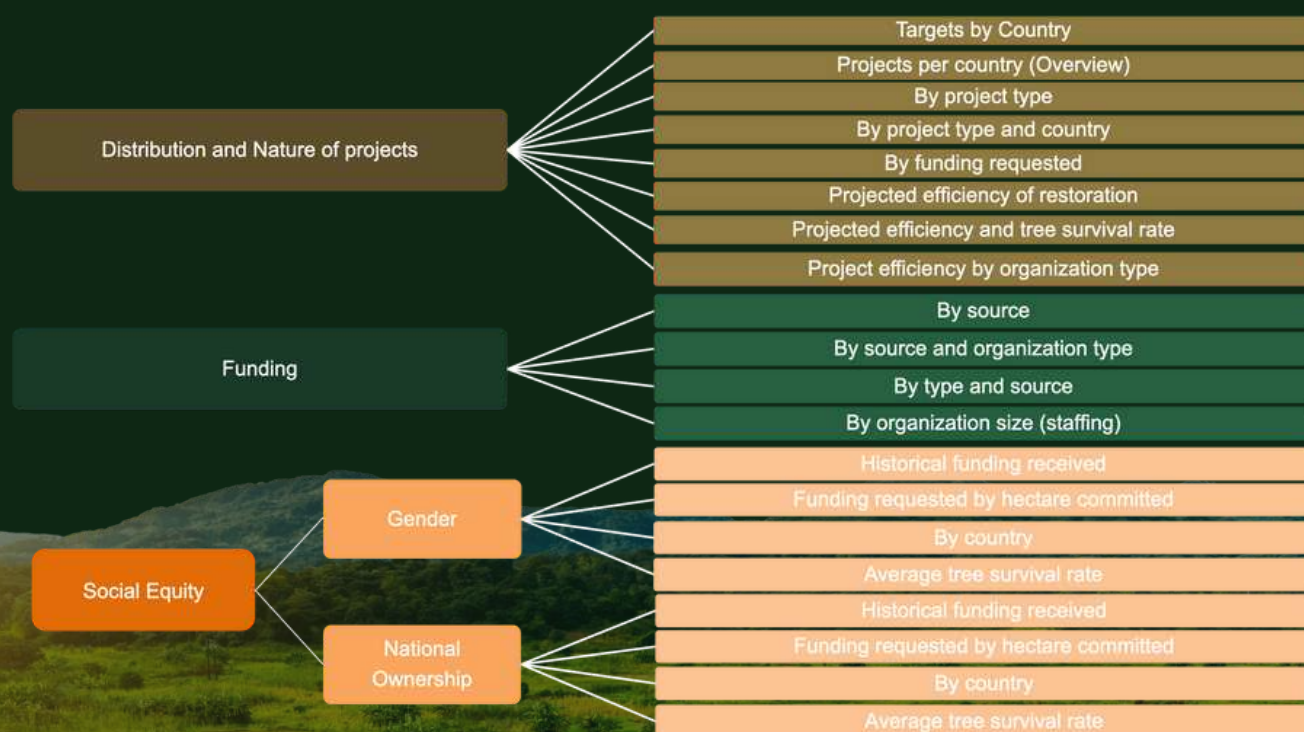
A photograph of a lush green acacia plantation in the Central African Republic, with a dirt path winding through the rows of trees. The image is overlaid with a dark green semi-transparent filter.

Data Findings & Analysis

Data Findings & Analysis

The data analysis section of this paper focuses on the findings and insights derived from the data collected. The analysis aims to provide a comprehensive overview of the trends, patterns, and relationships observed in the data set. The analysis is presented in a clear and concise manner, and it is supported by various visualizations, including tables, charts, and graphs, to enhance the understanding of the TerraFund 2020 funding baseline as well as how gender and local leadership/ownership plays into restoration initiatives in Africa. Through the analysis, the team aims to provide insights and recommendations that can inform WRI's decision-making processes for future action.

The charts and figures on the following pages provide a comprehensive description and explanation of the team's findings from the sources of data outlined in the previous section. The first set of analysis is related to the distribution of projects by country and restoration type. Following the team's findings on the distribution of projects, insight on funding baseline is presented. This includes project efficiency and an overview of the total funding allocated per funding source. Lastly, the team explores the relationship between gender, local ownership, and funding access as well as diversity.



1. Findings on Distribution

TerraFund Land Restoration Commitments by Country

TerraFund has partnered with 97 organizations in 27 different African countries. These organizations represented in WRIs portfolio plan to restore **605,057 hectares**—a value that accounts for 0.61% of the 100 million total hectares committed by the 34 African member countries involved in the AFR100 partnership.¹² of these partner organizations are located in Kenya, the largest number of organizations in any country, and they plan to collectively restore 10,863 hectares of land. The largest land restoration commitment comes from Uganda, where 11 projects plan to restore 237,111 hectares, representing 9% of Uganda's AFR100 restoration commitment of 2.5 million hectares, with national priority interventions that include agroforestry, woodlots, and natural regeneration. Ghana also contains 11 partner organizations, with plans to restore 12,131 hectares, the sixth largest commitment across the African nations represented.

These findings suggest that organizations in Kenya plan to restore a much greater amount of land per organization than those in other African nations. This may be caused by a variety of factors, such as cost-efficiency of the organizations, type of restoration activity, or social and political indices that affect project viability and success.

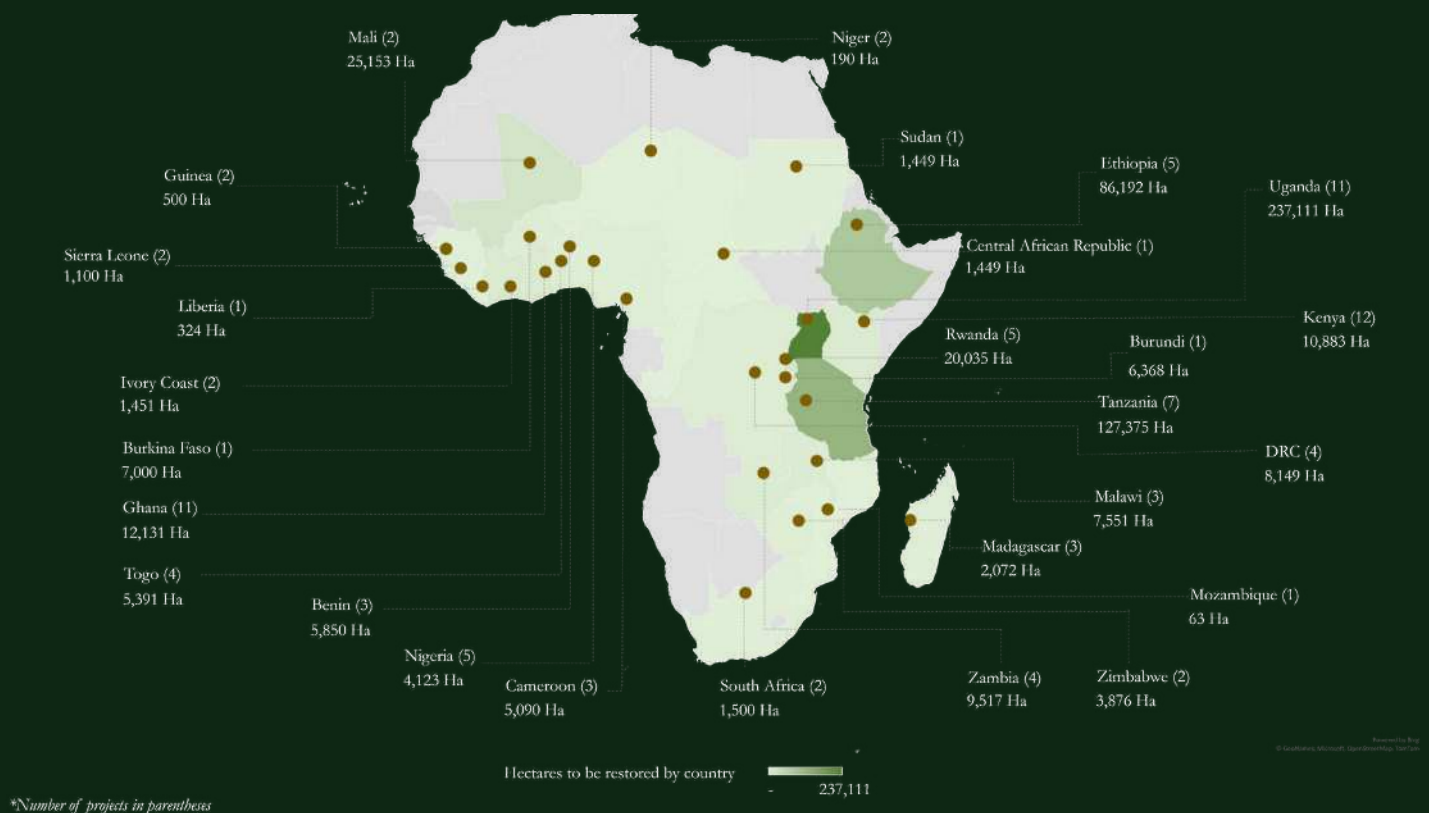


Figure 10: Restoration Commitments Pledged by TerraFund Partners

TerraFund Projects by Country

These 97 organizations represent 100 projects that TerraFund has provided funding for. Unsurprisingly, the number of projects in each country roughly follows the number of organizations. Kenya again represents the largest number of projects, followed by Ghana and Uganda, and then Tanzania. Ethiopia, Nigeria, Rwanda, and Togo each represent 5 projects.

Collectively, these 8 nations make up 61 of the 100 projects. This means that the TerraFund project portfolio is heavily concentrated in eastern central Africa (Kenya, Uganda, Tanzania, Ethiopia, Nigeria, and Rwanda) and southern West Africa (Ghana and Togo), while the rest of the continent is underrepresented. In an interview the team conducted with Amanda Gant, a restoration specialist with WRI, she highlighted the existing capacity and clear pathways that countries like Kenya, Uganda and Tanzania have for managing and implementing conservation and restoration projects, which may help explain why the focus is on these nations.

Number of Projects by Country



Figure 11: Funding Per Hectare in TerraFund Partner Countries

Types of Restoration Projects Engaged In:

TerraFund projects were divided into the following restoration type categories, with some projects engaging in multiple types of restoration. This data was derived from WRI's internal metrics.

Restoration Type	Total Projects	# of For-Profits Engaged	% of For-Profits Engaged	# of Nonprofits Engaged	% of Nonprofits Engaged
Total Sample:	100	20	100%	77	100%
Agroforestry	82	18	90%	64	83%
Applied Nucleation	1	0	0%	1	1%
Assisted Natural Regeneration	45	4	20%	40	52%
Enrichment Planting	36	6	30%	26	34%
Mangrove Tree Restoration	9	0	0%	7	9%
Reforestation	66	11	55%	51	66%
Riparian Restoration	24	3	15%	19	25%
Seed Dispersal	13	0	0%	13	17%
Silvopasture	8	2	10%	6	8%
Other	15	1	5%	14	18%

Data Findings & Analysis

Projects managed by for-profit organizations were on average more likely to engage in agroforestry and silvopasture, however never by more than 10%. Projects managed by nonprofits were more likely to engage in all other forms of restoration. These trends should not necessarily be extrapolated to other organizations outside of the sample, but the preponderance of agroforestry and reforestation as methods indicates that these models are accessible and implementable over a wide area with distinct ecological conditions. The diversity of restoration types undertaken by the nonprofit organizations may indicate that they have a level of flexibility that is not available to for-profit organizations.

This visual representation displays what percentage of all 100 projects engages with each restoration type.

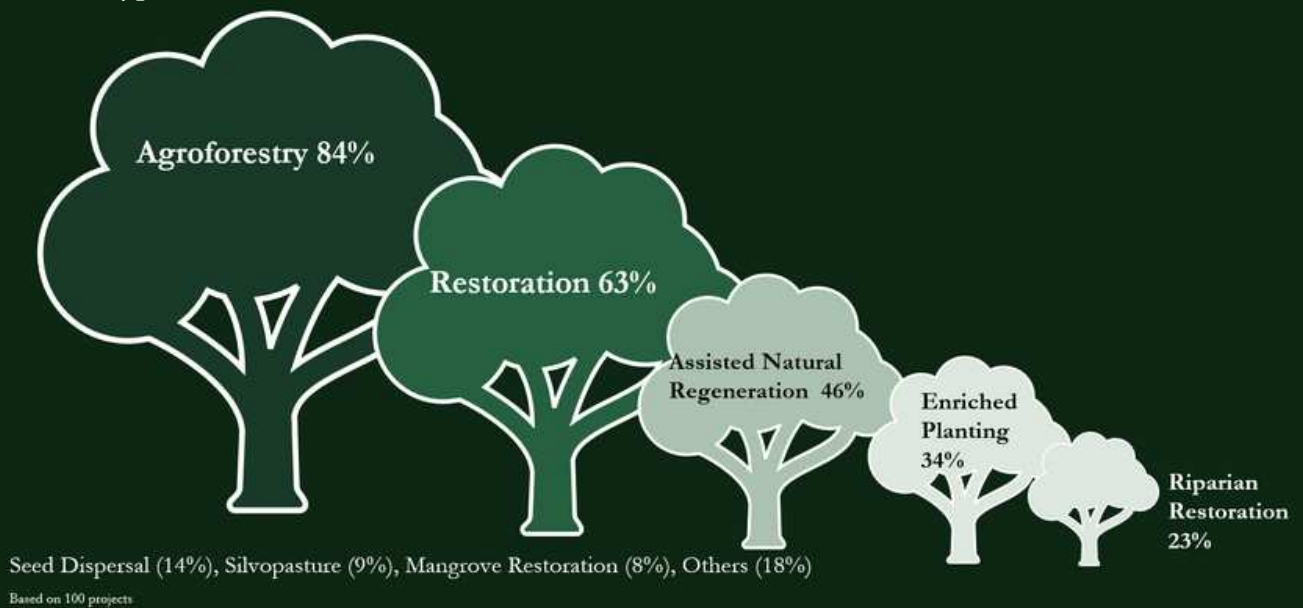


Figure 12: Percentage of Projects Engaged in Different Restoration Types

Understanding the characteristics of organizations involved in different restoration typologies is important, as it allows project funders and developers to gain insight on which organizations may be most likely to successfully carry out these projects. Further analyses of these factors provides a deeper understanding of how organizational size correlates with project type, and which project types are prevalent in different areas.

Average Size of Restoration Organizations by type:

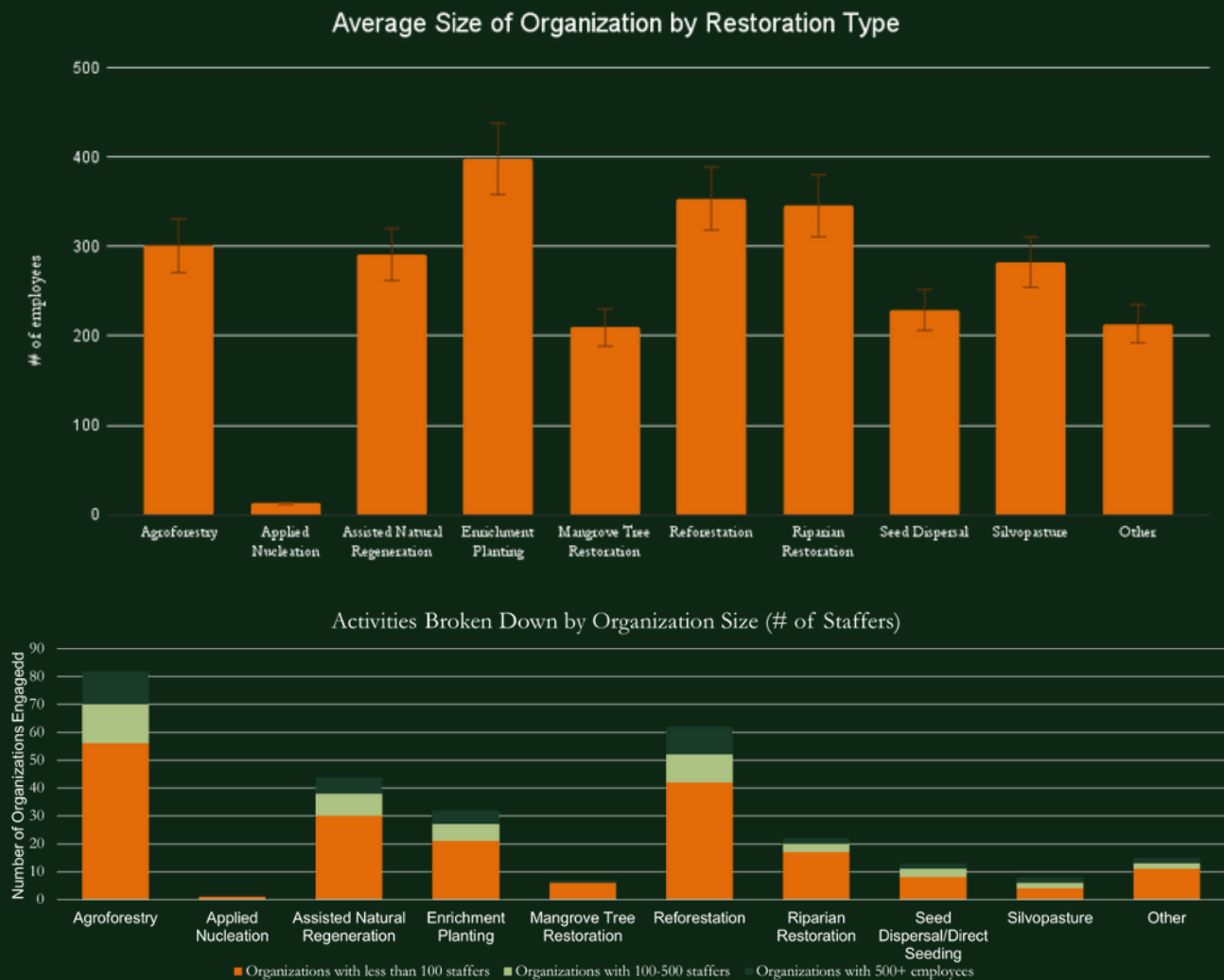


Figure 13: Average Size of Staffing for Organizations Participating in Each Restoration Type & Restoration Type Participation Broken Down by Organizational Size

Analysis of organizational staff sizes demonstrates the following averages and numbers of organizations in each category:

- Average organizational size: 273 Staffers
- # of organizations with <100 Staffers: 64
- # of organizations with >100 and <500 Staffers: 19
- # of organizations with >500 Staffers: 14

Agroforestry, applied natural regeneration, and silvopasture, each have an average relatively close to the 273 all organizational average, but enrichment planting, reforestation, and riparian restoration are generally carried out by larger organizations, with applied nucleation, mangrove tree plantation, seed dispersal, and others, tending to be led by smaller organizations.

Restoration Type by Country

Africa represents the largest opportunity for forest landscape restoration. While the impacts of degradation in Africa have been extensive and steep, they are also ecologically recent. Almost all of the landscape degradation in Africa has occurred in the past 100 years and the most extensive harm to landscapes primarily took place over the past 30 years. With a continental population expected to almost double to 2.5 billion people by 2050 and reach 4.4 billion by the end of the century, the pressure on landscapes to deliver the services on which people rely will only increase in the coming decades (UN DESA, 2017).

The restoration project type makeup of the TerraFund portfolio is highly heterogeneous. The 100 TerraFund projects are attached to a single or multiple restoration types: Agroforestry, Applied Nucleation, Silvopasture, Mangrove Restoration, Seed Dispersal, Assisted Natural Regeneration, Enrichment Planting, Reforestation, Riparian Restoration, and Other.

By mapping the 100 TerraFund projects by restoration types and by country, it is apparent that different restoration types are more prominent in different African regions.

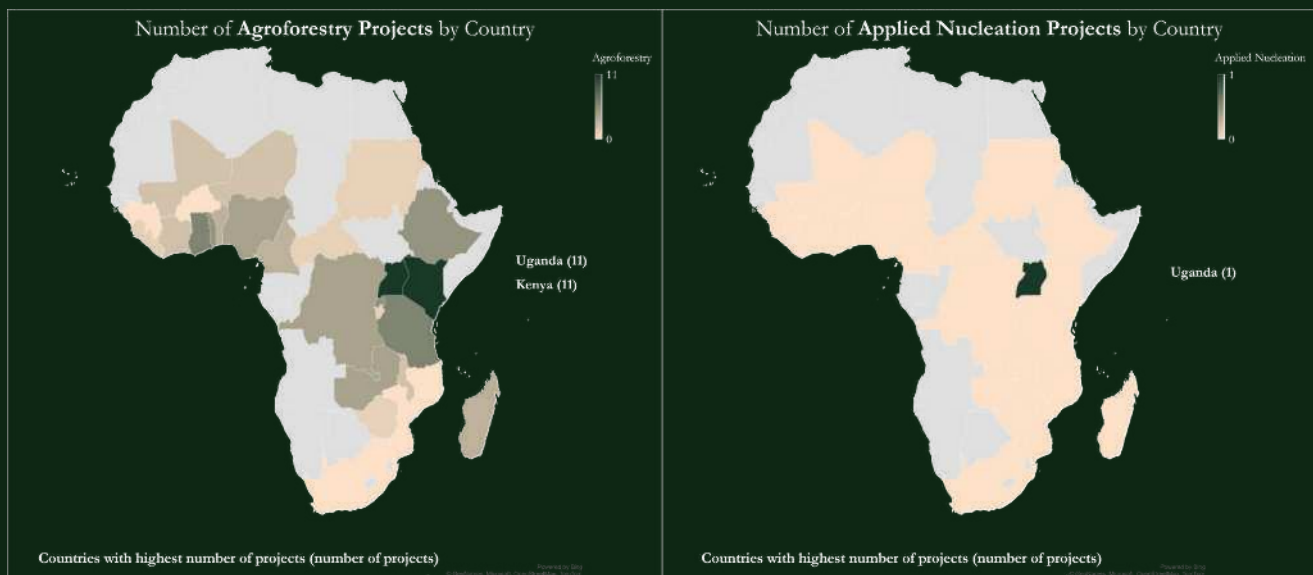


Figure 14: Agroforestry Projects per Country

Agroforestry projects represent the majority of restoration projects and are found to be more evenly distributed in TerraFund project countries as compared to the other types of restoration projects. This is because agroforestry projects allow land managers to integrate productivity and profitability with environmental stewardship that will contribute to healthy and sustainable landscapes. Uganda and Kenya have the highest number of agroforestry projects of any country represented in the TerraFund portfolio with 11 agroforestry projects each.

Applied Nucleation projects are not commonly represented in the TerraFund portfolio as compared to other types of restoration projects. Applied nucleation (AN) is a restoration technique that integrates tree planting and natural succession to restore and regrow forests. Currently, in the TerraFund Portfolio, the only organization that is implementing this type of restoration is Kikandwa Environmental Association operating in Uganda.

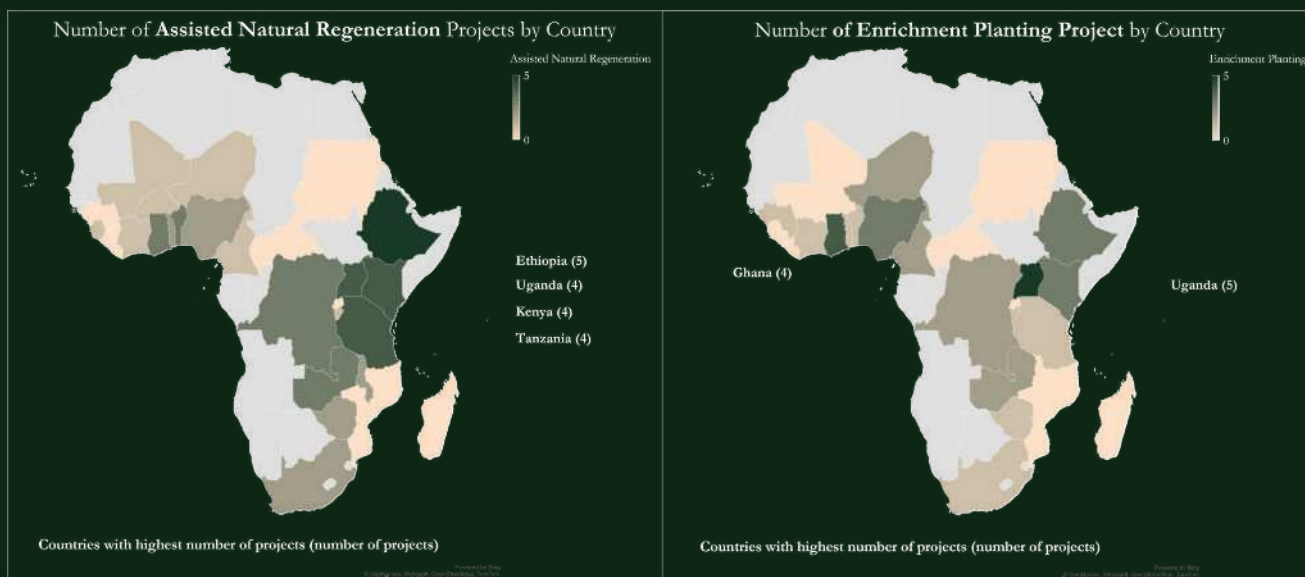


Figure 15: Assisted Natural Regeneration Projects per Country

Assisted natural regeneration projects are highly concentrated in east Africa in countries such as Ethiopia, Uganda, Kenya, and Tanzania with some projects in central and West Africa. According to WRI, assisted natural regeneration is a blend of active planting and passive restoration, where people intervene to help trees and native vegetation naturally recover by eliminating barriers and threats to their growth (Chazdon, et al, 2022). ANR can restore land more broadly and economically than active planting, as it requires very little human intervention. Recently published research found that letting forests regrow naturally can absorb 23% of the world's CO2 emissions every year — an estimate that is 32% higher globally than the Intergovernmental Panel on Climate Change (IPCC)'s latest numbers (Chazdon, et al, 2022). Hence, ANR offers relatively quick environmental results and represents a popular restoration type among TerraFund.

Enrichment Planting projects are generally distributed evenly in west, central, and east Africa. 5 enrichment planting projects are located in Uganda and 4 enrichment planting projects are located in Ghana. Enrichment planting involves the planting of native vegetation within existing, though degraded, forests to increase biodiversity and density. Enrichment planting projects may also focus on planting economically-valuable species, such as fruit trees or timber species that can then act as a sustainably-harvested resource and create a new revenue stream.

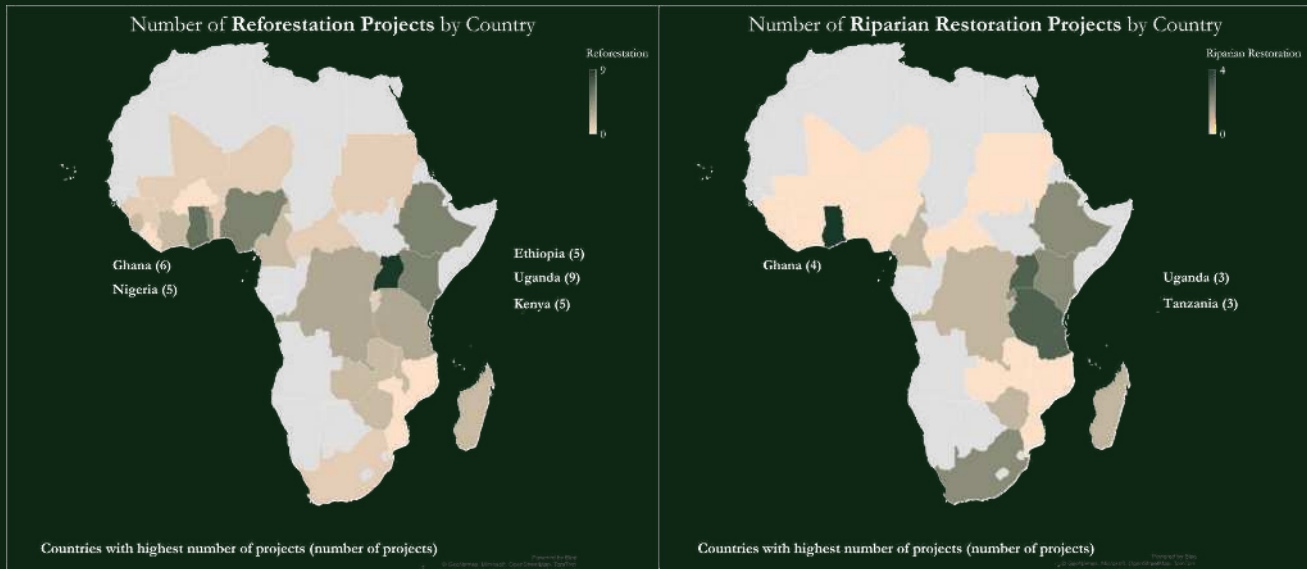


Figure 16: Reforestation Projects per Country

Reforestation projects are highly distributed in countries that are along and slightly north or south of the equator. These countries include Ghana, Nigeria, Ethiopia, Uganda, and Kenya. Reforestation includes the planting of trees and allowing them to regrow on land that had recently been covered with forest. Reforestation has numerous advantages: trees from restoration activities tackle soil erosion thereby reducing the risk of floods and landslides, provide protection against rainfall, serve as an anchor for soil, and contribute to increasing the fertility of soil.

Riparian restoration projects are generally distributed in countries with dominant riparian ecosystems such as in Tanzania. Riparian zones refer to the rich, biodiverse habitat between rivers and land that experience frequent flooding, have rich productive soils, and provide many ecosystem benefits. 3 organizations have been restoring Tanzanian riparian ecosystems including Germark Holdings.

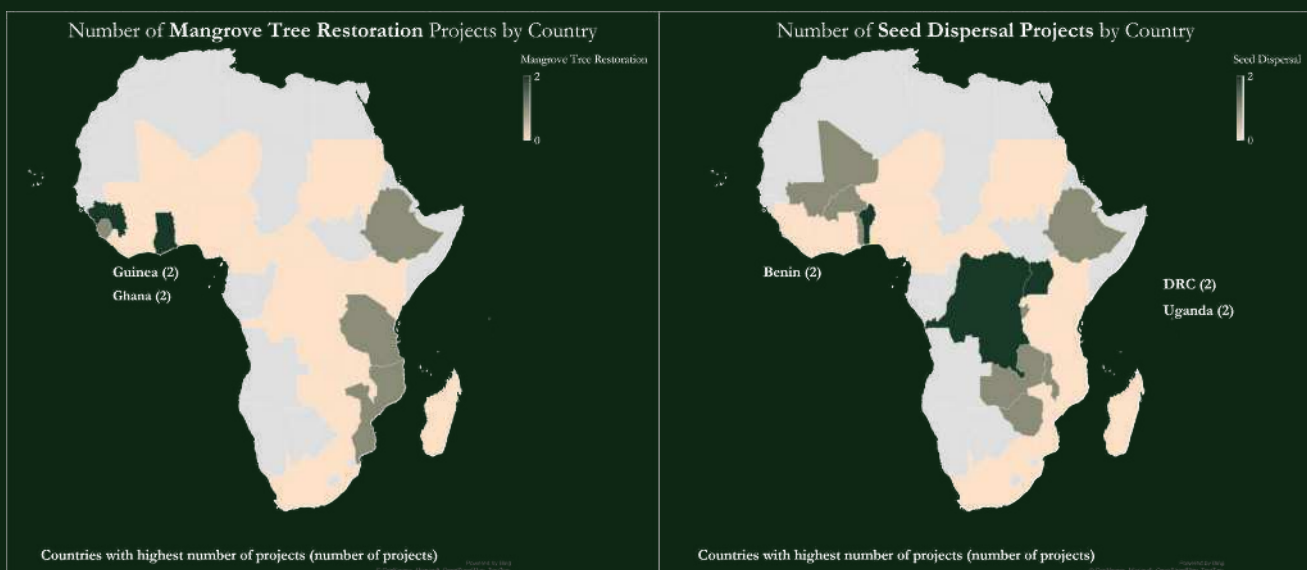


Figure 17: Mangrove Tree Regeneration Projects per Country

Mangrove restoration projects are highly concentrated in coastal countries. Irregular rainfall and rising seawater levels, a consequence of climate change, are threatening the viability of harvests and livelihoods in coastal communities. The ability of mangroves to provide food, shelter and livelihoods, while harboring incredible biodiversity, building coastal resilience, and acting as immense carbon sinks, make mangrove protection and restoration an effective Nature-based Solution.

Seed dispersal projects allow plants to spread through wind, water, or animal movement across a wide area, which reduces competition for resources. The Democratic Republic of Congo, Uganda, and Benin are the TerraFund countries with the largest number of seed dispersal projects.

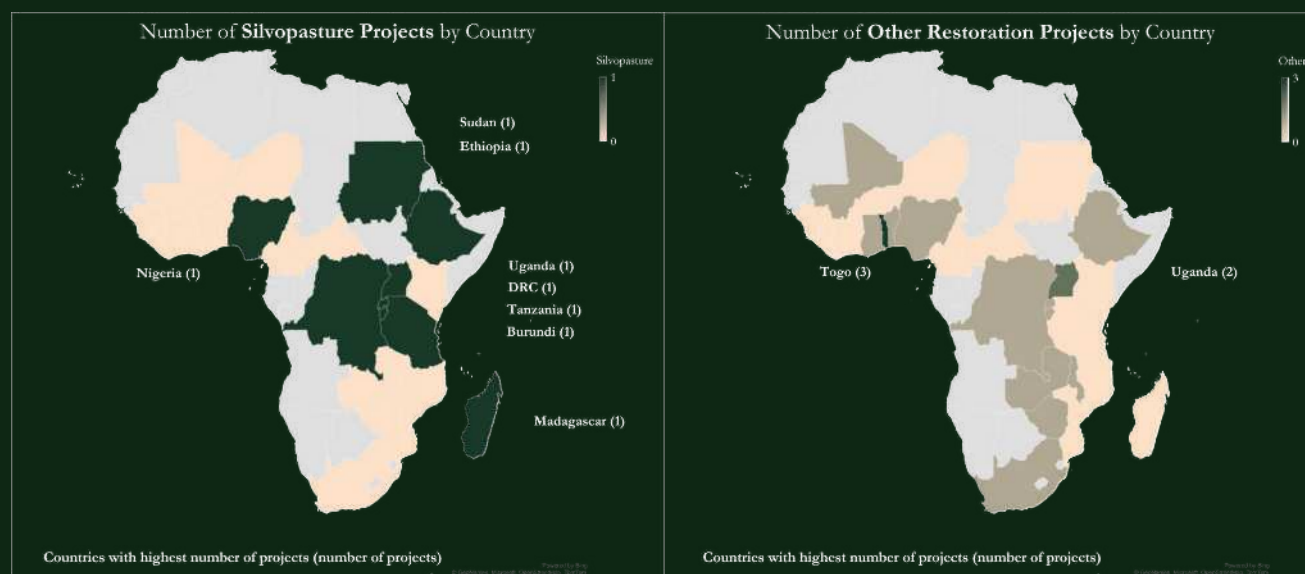


Figure 16: Silvopasture Projects per Country

Silvopasture is the deliberate integration of trees and grazing livestock operations on the same land. These systems provide both short and long-term income sources. Investing in land restoration does not mean divesting from agricultural activities; it also includes supporting low-carbon versions of farming that can provide sustainable returns for the years to come. Silvopasture projects are widely distributed across the TerraFund project countries such as in Sudan, Ethiopia, Nigeria, Uganda, DRC, Tanzania, Burundi, and Madagascar. However, there are only 9 projects under the silvopasture restoration category and, hence, it is not as widely represented as agroforestry, another farming-related restoration type with 22 projects.

Lastly, **other project types** also represent a portion of restoration efforts represented in the TerraFund portfolio. The “Other” category includes any restoration types that cannot be categorized into any of the 9 restoration type categories mentioned above.

Average of Cost per Hectare (Funding Requested over Project Scale)

Funding requested per hectare of land restored by country is calculated by dividing aggregated TerraFund funding requested by organizations in each country by the aggregated hectare of land restored per country. The distribution of TerraFund funding requested across different countries represented in the portfolio was highly variable. The range of the funding requested per hectare across countries is **USD 3,141**, from an average of **USD 25** per hectare in Sudan and **USD 3,166** in Mozambique. The average across all projects was **USD 54**.

There are a number of reasons why the average cost per hectare may be so variable across countries. Different restoration types have different associated costs, so countries with organizations that utilize low-cost methods such as ANR may have a lower cost per hectare restored. It is also possible that country-level or local nuances impact the heterogeneity of funding per hectare. Because of these many confounding factors, it is difficult to conclude if any one factor is the main driver.

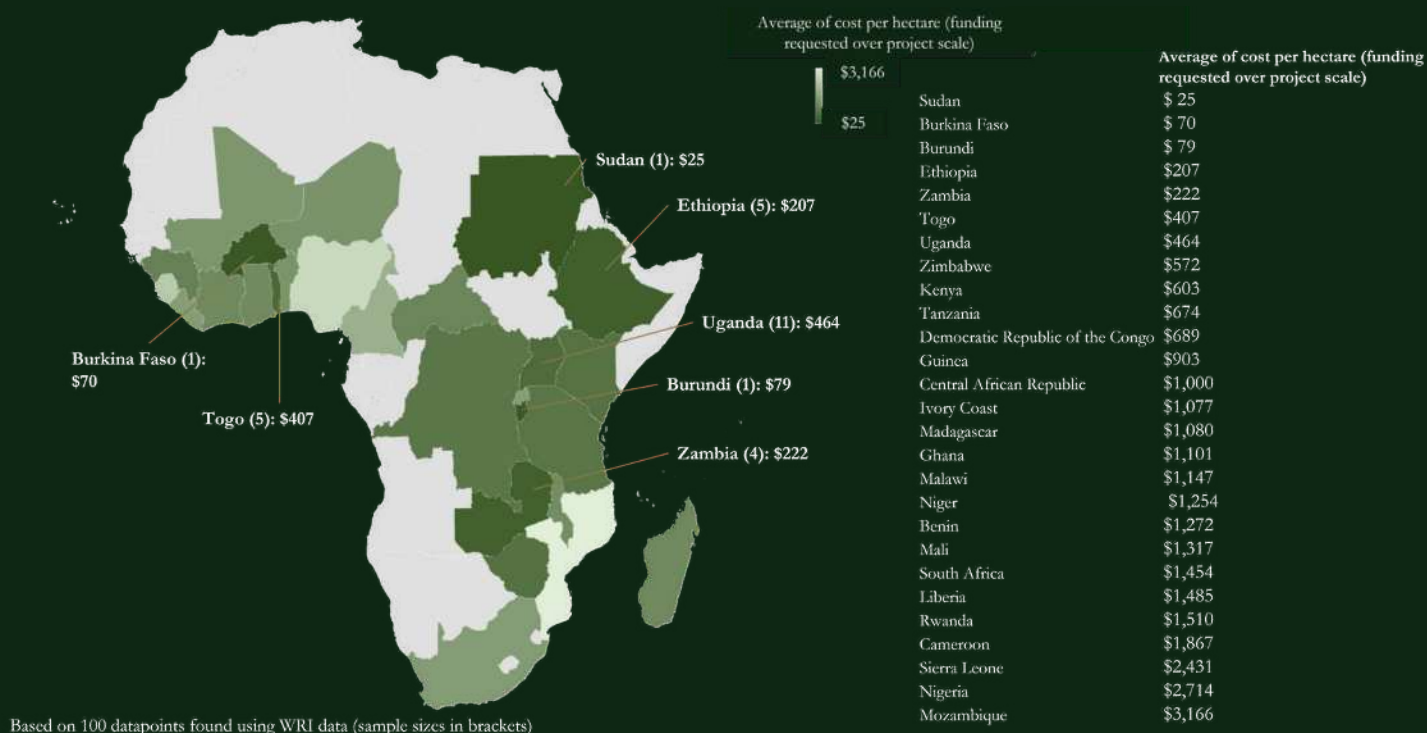


Figure 19: Average Cost per Hectare per Country

Projected Efficiency of Restoration Practices

Analyzing the cost per hectare of different forms of restoration provided an interesting contrast with the kinds of restoration frequently undertaken. Projects such as applied nucleation or seed dispersal, which have a high return for low cost, could represent an area for expansion for future partners. Agroforestry, which is slightly more expensive than the median project type, was the most common, followed by the more expensive reforestation, which could indicate that cost is not the most important factor that organizations consider when planning which restoration intervention to make.

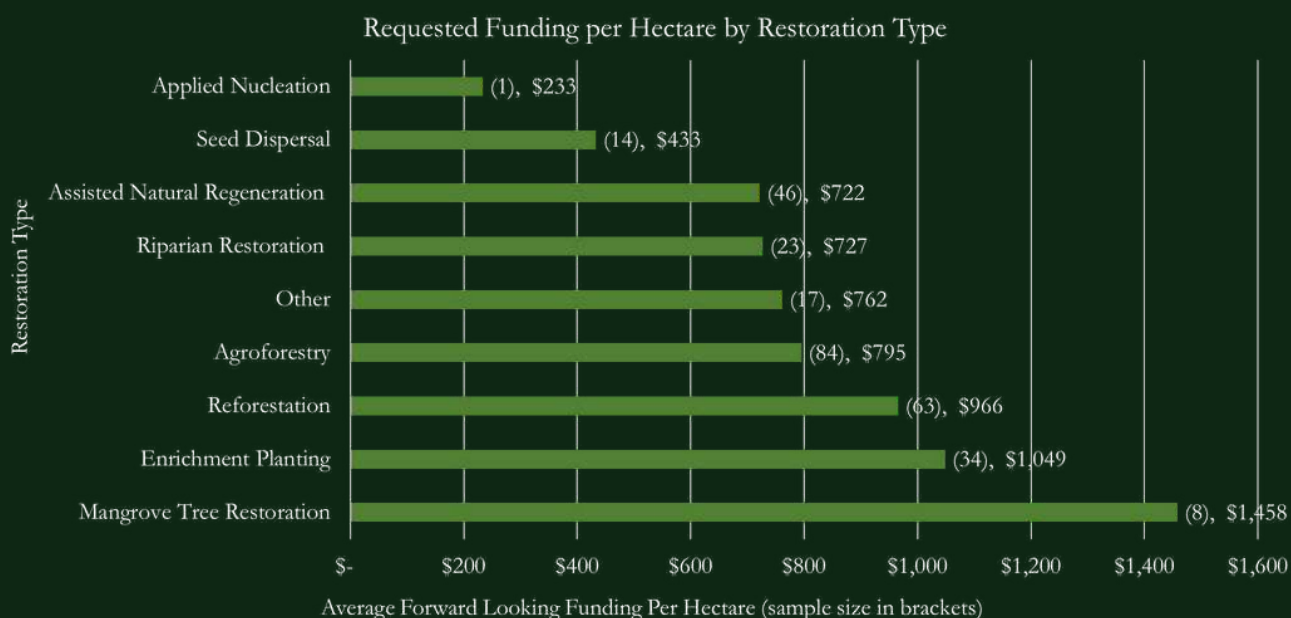


Figure 20: Projected Funding Per Hectare of Restoration Practices by Type

It should be noted that a high level of expenditure per hectare is not necessarily negative from the perspective of ecosystem restoration. It may indicate that a project is particularly ambitious, or attempting to prepare an area for longer-term restoration. Mangrove restoration, for example, can be a highly efficacious intervention in coastal ecosystems, and help support a form of ecosystem that is under threat throughout the African continent. Its high cost per hectare should not necessarily preclude it from receiving support. The proper intervention for a given area will be highly dependent on its geography and the capabilities of the organization carrying out a given restoration, but developing a deeper understanding of how costly restoration interventions tend to be will be helpful in targeting future TerraFund cohorts to be most effective.

Forward-looking cost per hectare compared to tree survival rate

Understanding if high rates of investment per hectare have the desired effect of on land restoration is also important when undertaking future projects. An analysis of forward looking efficiency (cost/hectare) shows that tree survival rate is positively correlated with requested funding, though the correlation is weak. If future requests include information on the total budget expected to be needed to execute a project beyond just the amount requested, this data can be further enriched in future analyses.

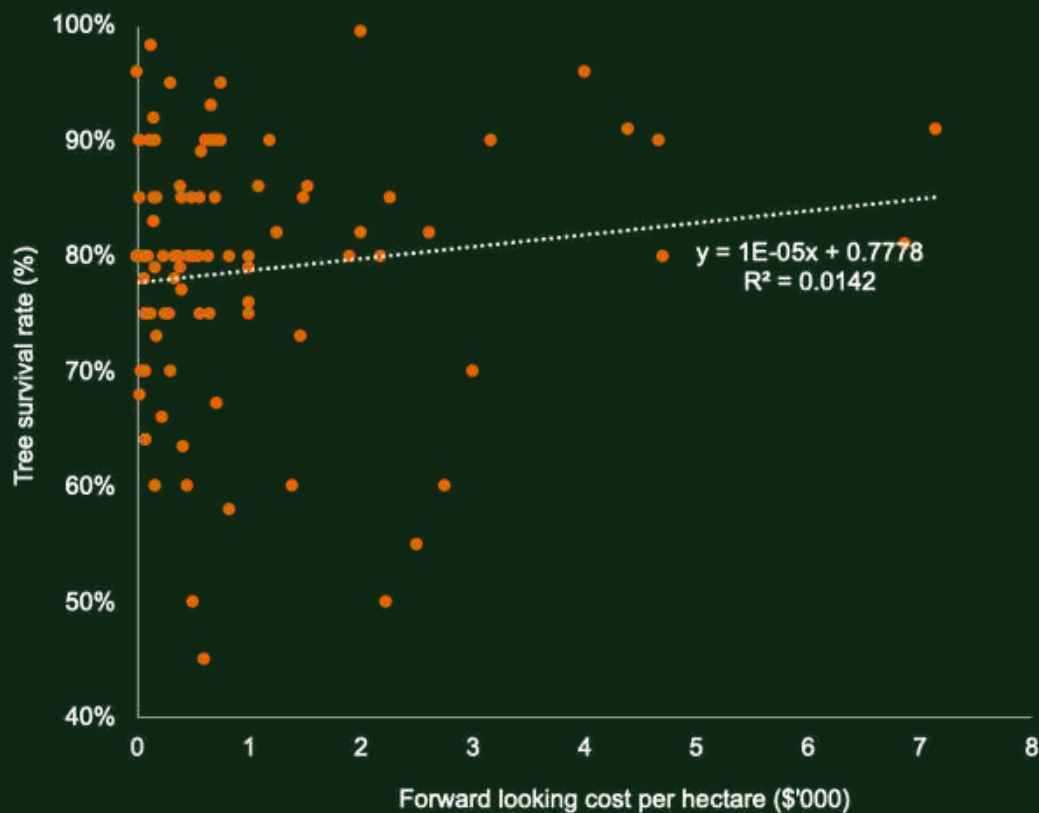


Figure 21: Weak Positive Relationship Between Cost of Restoration and Tree Survival Rates

It should be noted that tree survival rates are a somewhat unreliable indicator, as they rely on a large amount of self-reporting, and different organizations may utilize different metrics for tree survival rates. To gather better data, more consistent monitoring systems may need to be implemented.

Restoration Efficiency by Organization Type

In addition to the types of restoration conducted by different organizations, it is important to understand the differences in funding sources and restoration efficiency between the for-profit and nonprofit organizations that were part of TerraFund. The below chart shows the restoration efficiency of for-profit and nonprofit organizations, expressed in terms of budget per hectare pledged to restore, for the 84 organizations with available budgetary and restoration targeting initiatives.

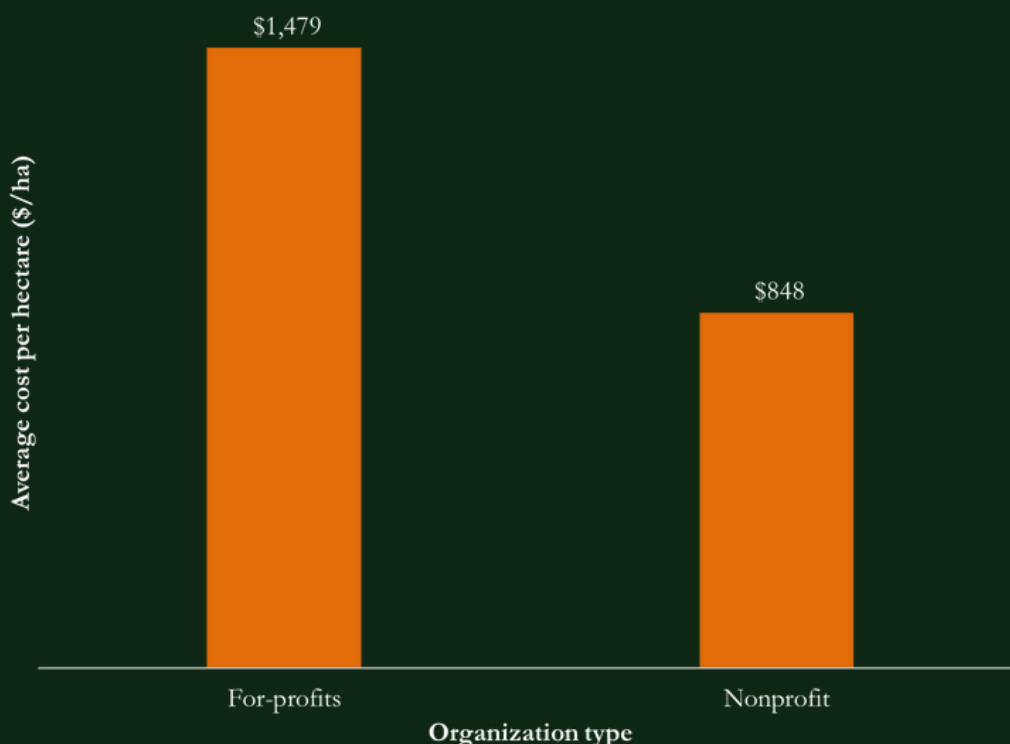


Figure 22: Average Efficiency of Restoration Projects by Organization Type (in \$ per hectare)

For-profit organizations had a much lower reported projected efficiency rate, though this picture is more complicated than it initially appears. While for profits requested an average of 1.74 times as much funding per hectare as their nonprofit counterparts, it is impossible to conclusively say that their projects are less efficient, as the total amount required to finish them is not known, as noted in the data concerns section. But it is notable that nonprofits request less, and plan to restore more, while also having a slightly higher reported average rate of tree survival at 76% vs 75% for for-profit organizations. A difference this small is not by itself a major distinction between organization types, especially given the data concerns related to tree survival. But the fact that for-profit organizations request almost 2 times as much funding for projects with a similar track record is a valuable data point when making future funding decisions.

2. Findings on Funding

The survey conducted by WRI for this report provided information on different funding sources that were utilized by the selected TerraFund organizations. 26 organizations in total completed the survey and provided their FY2020 funding information, of which 5 were for-profit organizations and 21 were nonprofit organizations. This represents approximately 20% of each sample. 28 organizations provided their FY2021 funding information, of which 4 were for-profit organizations and 24 were nonprofit organizations. NP73, Programme d'Aide pour le Développement Économique et Social (Aid Program for Economic and Social Development) in Togo, was excluded from the funding analysis because it was identified to be an outlier.

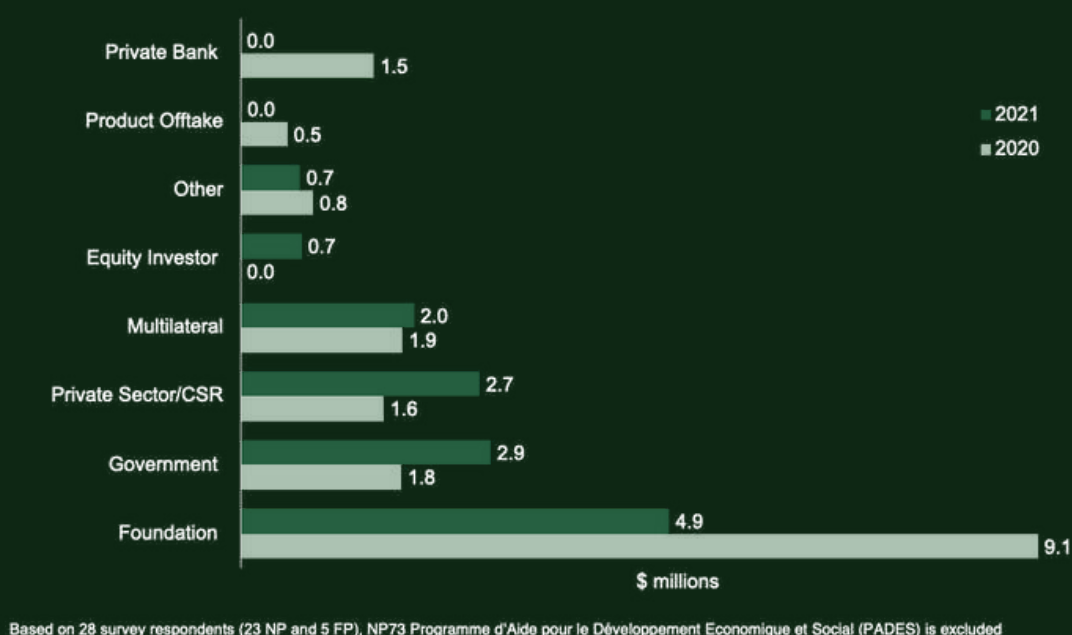


Figure 23: Sources of Funding for Survey Respondents

In both 2020 and 2021, foundations were the largest source of total funding. This is followed by government, private sector/CSR, and multilateral institutions. In 2020, no funding was received from equity investors, and in 2021, no funding was received from product offtake or private banks. Total funding reported was equal to \$17,312 in 2020, while it was only 13,849,992 in 2021, despite 2 more organizations reporting funding that year. This decrease in total funding is likely due to the COVID-19 pandemic.

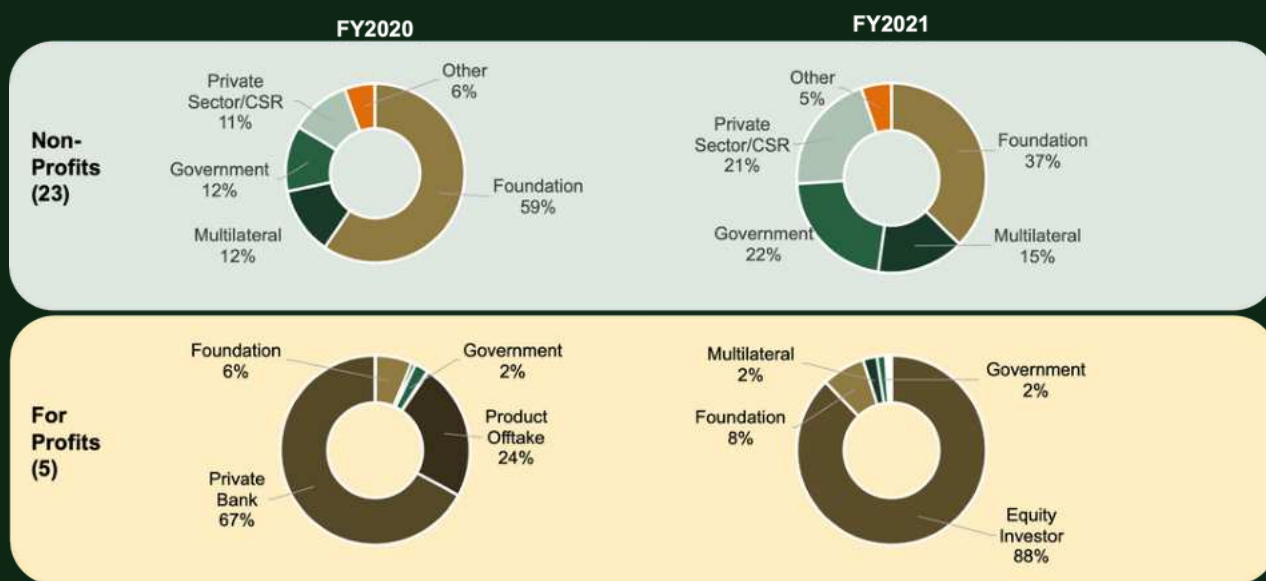
Data Findings & Analysis

In Fiscal Year 2020 (FY2020), nonprofit organizations were primarily funded by foundations, making up 59% of funding. Another 35% was funded in approximately equal parts by multilateral institutions, government, and private sector/Corporate Social Responsibility (CSR), while the final 6% was funded by other sources. In Fiscal Year 2021 (FY2021), foundations, multilateral institutions, government, and private sector/CSR again made up the majority of nonprofit funding, though distributed somewhat more evenly across the 4 types.

In FY2020, for-profit organizations were predominantly funded by private banks, who provided 67% of total for-profit funding. Product offtake made up another 24% of funding, while foundations and government provided 6% and 2%, respectively. However, funding in FY2021 was very different: 88% of funding for for-profit organizations came from equity investors. Foundations made up 8% of funding, while multilateral institutions and government provided 2% each.

This dramatic switch from predominantly private banks and product offtake in FY2020 to equity investors in FY2021 is certainly worth further analysis beyond this report. One suggestion that may explain this finding is the COVID-19 pandemic. It is possible that pandemic had an impact on the sources of funding available to private restoration organizations in FY2021. However, it is also important to recall that these results are based on only 4-5 for-profit organizations, so the results may not be accurate across a larger sample size.

It is also clear that for-profit and nonprofit organizations rely on very different funding streams. This indicates that attempts to diversify funding streams will need to differ between private and nonprofit organizations. This idea is crucial to proving WRI's theory of change that TerraFund financing can assist organizations in becoming self-sustaining, as the financing environment is extremely variable between private and nonprofit organizations.



Based on 28 survey respondents (23 NP and 5 FP), NP73 Programme d'Aide pour le Développement Economique et Social (PADES) is excluded

Figure 24: Sources of Funding from Survey Respondents

Funding by Restoration Type

Since Agroforestry projects made up the majority of all projects, it was important to understand what set them apart in terms of funding from other project types.

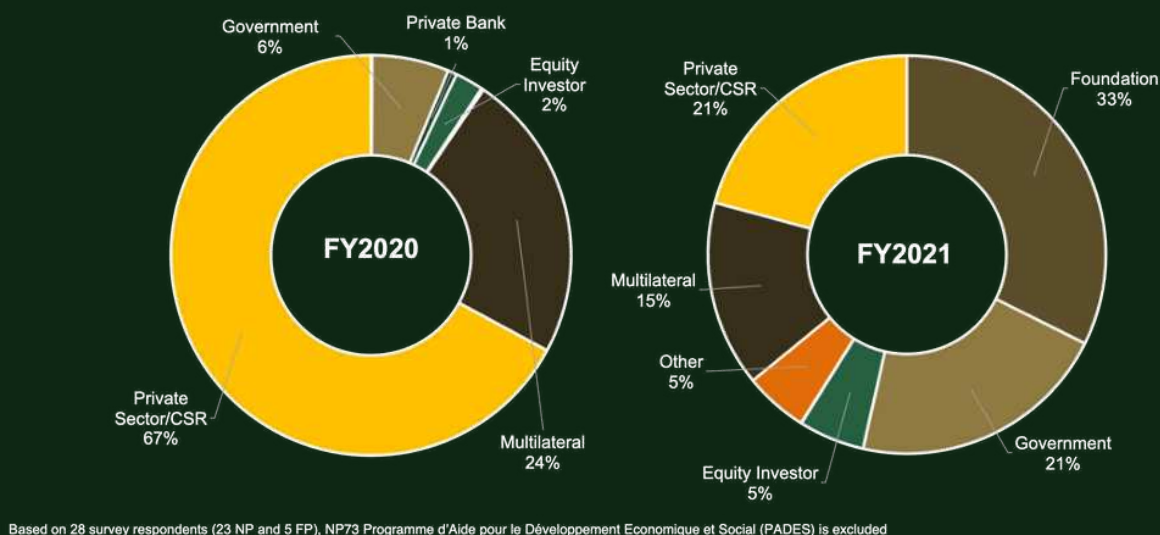
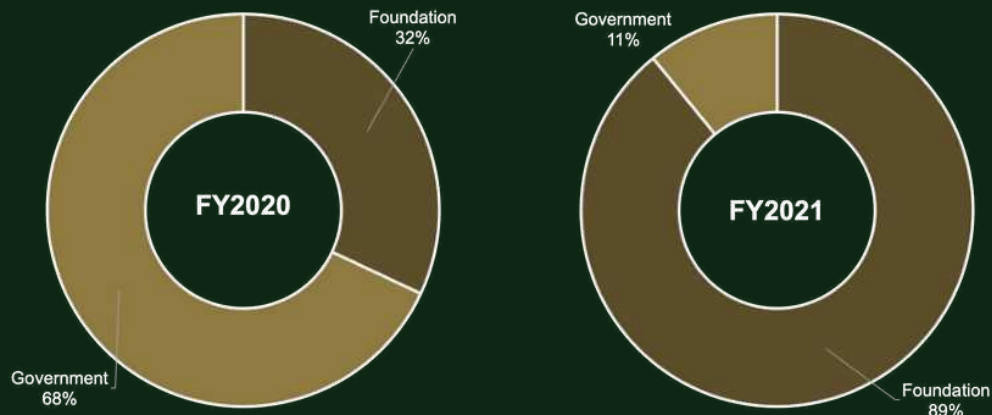


Figure 25: Total Funding by Source for For Profit Survey Respondents

Agroforestry projects attract a diverse range of funding sources. This analysis is based on all 100 projects. In FY2020, the majority of funding came from the private sector/CSR, followed by multilateral institutions. In FY2021, the majority of funding came from foundations, followed by government, and the private sector/CSR. Again, this difference is likely due to the impact of the COVID-19 pandemic on financing for restoration projects.

Data Findings & Analysis



Based on 28 survey respondents (23 NP and 5 FP), NP73 Programme d'Aide pour le Développement Economique et Social (PADES) is excluded

Figure 26: Total Funding by Source for For Profit Survey Respondents (Non Agroforestry)

Once agroforestry projects are removed from the analysis, the remaining restoration activities receive funding from much less diverse sources. In both years, governments and foundations are the only sources of funding.

There is a clear disparity in funding source diversity between agroforestry and non-agroforestry projects. This may be because agroforestry projects have a revenue stream, and therefore they are seen as less risky and more profitable by investors. Agroforestry projects may be more attractive when looking to fund projects that can be self sustaining long term because of this difference.

Counts of Funding Sources by Organization Size

Organization staffing sizes can be divided into three categories: small, or under 100 staffers, medium, between 100 and 500 staffers, and large, or more than 500 staffers. Analyzing this information for both 2020 and 2021 provides an understanding of how the size of an organization's staffing was correlated with different access to different fundings sources.

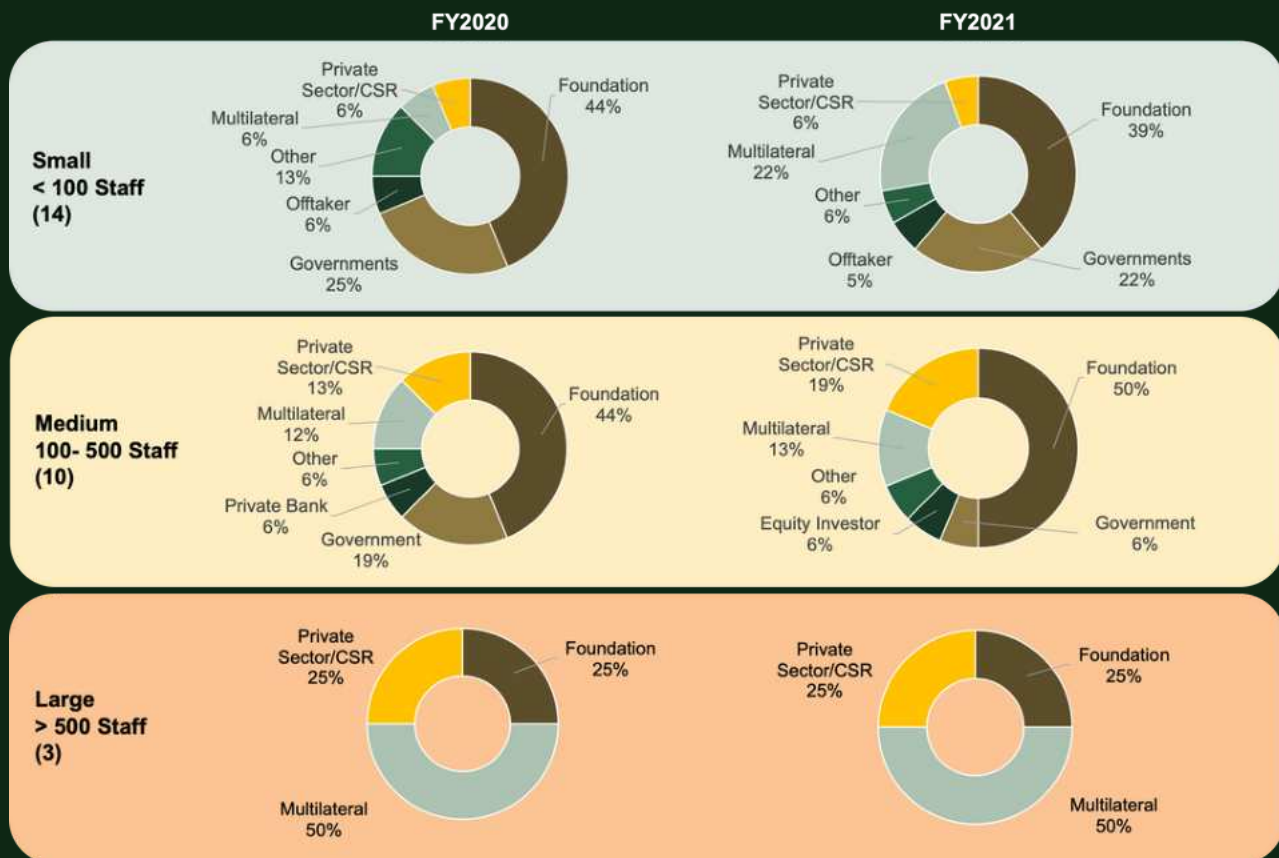


Figure 27: Count of Funding Sources for Organizations by Size Measured in Number of Staffers in 2020 and 2021

For organizations with less than 100 staffers, it can be observed that instances of funding from foundations were the plurality in both years, with governments providing funding at a similar level each year, between 22% and 25%. One major change from year to year is the increase of funding from multilateral organizations, which grew from 6% to 22%.

Data Findings & Analysis

For organizations with between 100 and 500 staffers, foundations were the plurality in both years, and increased as funding sources in 2021 while governments pulled back, with foundations providing 44% of instances of funding in 2020 and 50% in 2021. Multilaterals made up the third largest share in both years.

The variety of Funding sources for organizations with more than 500 staffers was consistent from year to year, with multilateral organizations making up half of all funders in both years.

Foundations were a major source of funding for all sizes of organizational staffing, providing between 25% and 50% of funding instances in all cases. The ability of foundations to provide consistent instances of funding across the breadth of organizational size signals their importance in the field of landscape restoration. The similarities in instances of funding from small and medium staffed organizations indicates that there may not be a major difference in the eyes of funders when making decisions about when to provide an instance of funding for an organization, however the small sample size means that no conclusion of this kind can be conclusively drawn.



A Dryland Restoration Project in Sudan (Image Source AFR100)

3. Findings on Equity: Gender and National Ownership

Gender

Out of 59 organizations for which gender data was available, 18 were identified as majority female-owned/founded organizations and 41 as majority non-female-owned led.

- Majority female-owned/founded organizations are defined as those for which a majority owners (for for-profit organizations) or founders (for nonprofit organizations) were identified as female,
- Majority non-female-owned/founded organizations are defined as those for which a majority owners (for for-profit organizations) or founders (for nonprofit organizations) were identified as female.

Any organizations for which the gender of owners and founders was unknown were excluded from the analysis. Out of this sample, funding source information was available for 6 of the 18 majority female-owned/founded organizations and 10 of the 41 majority non-female-owned/founded organizations.

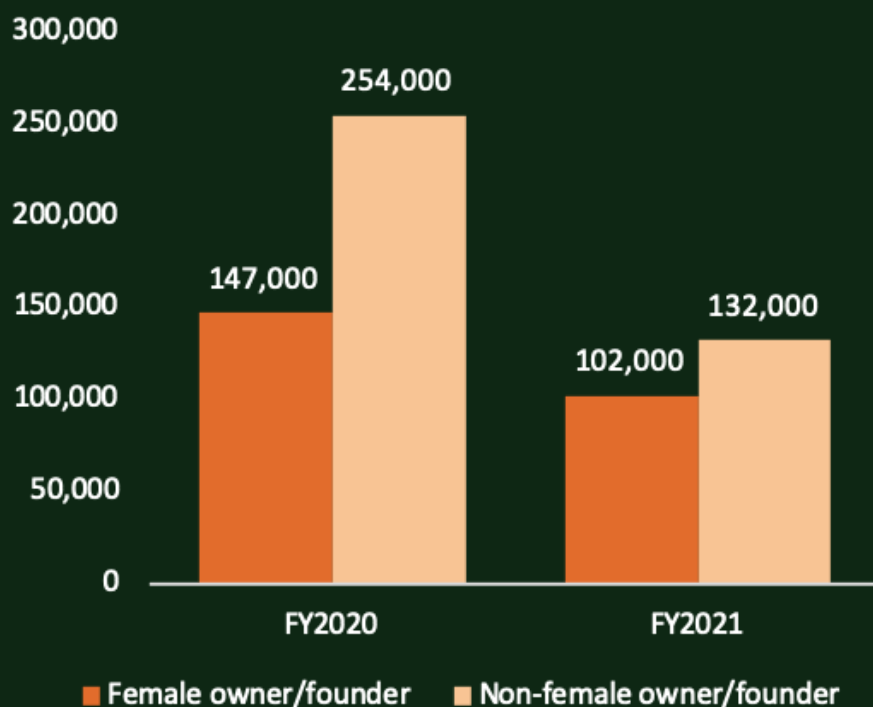


Figure 28: Average Funding Reported by Female and Non-female Owned/Founded Organizations

Data Findings & Analysis

On average, projects managed by female-owned/founded organizations received less funding than projects managed by non-female-owned/founded organizations. In FY2020, female-owned/founded projects on average received **USD 147,000**, while non-female-owned/founded projects received **USD 254,000**. In FY2021, female-owned/founded projects on average received **USD 102,000**, while non-female-owned/founded projects received **USD 132,000**. This inequity in funding distribution raises important concerns for restoration, as research shows that female-owned/founded restoration practices differ from non-female-owned/founded practices and may be more efficient and effective.



Figure 29: Funding Requested in the TerraFund RFP by Hectare Pledged to be Restored for Projects Managed by Female-Owned/Founded and Non-Female-Owned/Founded organizations

This discrepancy in historical funding is also reflected in the funding requests that majority female-owned/founded and non-female-owned/founded organizations made in their TerraFund Request for Proposals (RFPs). On average, projects managed by female-owned/founded organizations requested USD 400 per hectare of land restored, while non-female-owned/founded organizations requested USD 900 per hectare.

These two results may imply that projects managed by female-owned/founded organizations are underfunded in comparison to non-female-owned/founded organizations. In addition, it may imply that female-owned/founded organizations are more efficient than non-female-owned/founded organizations and require less funding to produce the same results or that female-owned/founded organizations are more likely to engage in less expensive restoration activities.

Data Findings & Analysis

In addition, non-female-owned/founded organizations have more diverse funding portfolios as compared to female-owned/founded organizations. Non-female-owned/founded organizations that responded to our survey reported funding from 7 different funding sources:

- Foundation,
- Private Sector/CSR,
- Private Bank,
- Institution,
- Government,
- Offtake, and
- Other,

Female-owned/founded organizations reported funding from only five funding sources:

- Foundations,
- Private Sector/CSR,
- Private Bank,
- Equity Investor, and
- Government.

Governments do not make up a considerable amount of female-owned/founded organizations' funding, providing only 0.4% of total funding. This may suggest that non-female-owned/founded organizations have greater flexibility in how they are funded and could potentially navigate changing economic circumstances that impact funding availability more smoothly than female-owned/founded organizations. They may also have an easier time accessing and acquiring government contracts. However, it is important to note that the sample size for both non-female- and female-owned/founded organizations is very small, and the sample size of non-female-owned/founded organizations is nearly double of that of female-owned/founded organizations.

The analysis also found that foundations are the primary funding source for both female-owned/founded and non-female-owned/founded organizations, accounting for 59.8% of funding for female-owned/founded organizations and 49% for non-female-owned/founded.

Country Gender Equality Index (GEI) and Female-Owned/Founded Organizations

Pre-colonial Africa had a long and rich history of matriarchal social organization in which women held greater decision-making power. However, according to the Global Gender Gap Index (thereafter known as “Gender Equality Index” or GEI, where a higher score equates to higher equality) developed by the World Economic Forum to quantify gender equality along the dimensions of Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment, sub-Saharan Africa as a region falls below the Global Average (0.685) at 0.680. As the four dimensions are given equal weight in the index, the economic development and education attainment put downward pressure on the region and African nations’ score. That being said, possibly owing to its matriarchal roots, sub-Saharan Africa (0.211) scored higher than North America (0.184) for Political Empowerment (*Global Gender Gap Report, 2022*).

Since women may have more opportunity to lead restoration organizations in countries with a higher GEI, it is possible that the first round of TerraFund was more likely to fund majority female-owned/founded organizations in countries with higher than average GEIs. However, based on a side-by-side analysis, there is very weak correlation between the two. Nigeria, Mali, Zambia, and Mozambique contained the highest percentage of projects managed by majority female-owned/founded organizations, while the countries with the highest GEI are Rwanda and South Africa. Based on this analysis, it is unlikely that the distribution of projects managed by majority female-owned/founded organizations is related to the gender equality of the country that the project takes place in. This is in line with the TerraFund project selection process where gender is considered a secondary criteria that only influences decision making when there are two projects of similar attributes and potential based on the primary selection criteria.



Data Findings & Analysis

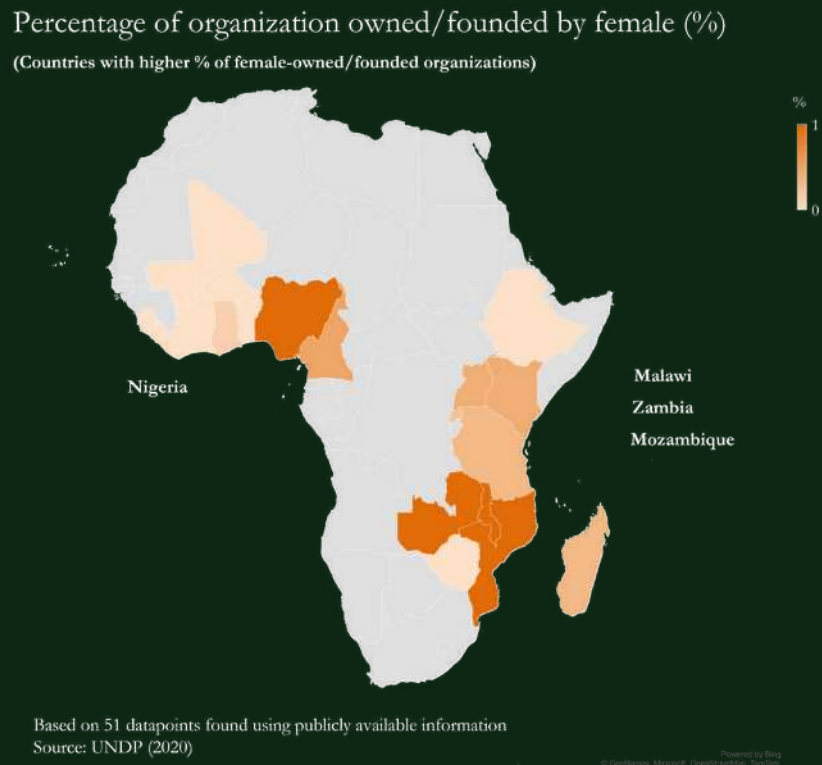


Figure 30: Percentage of Organizations that are Majority Female-Owned/Founded by Country

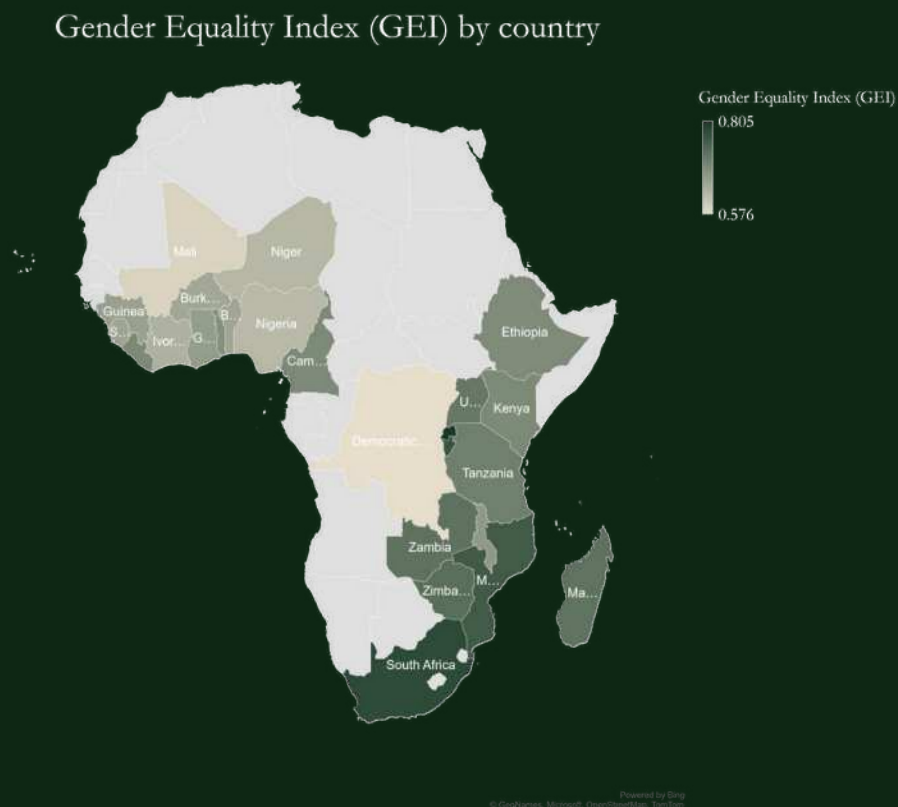


Figure 31: Gender Equality Index (GEI) by country

Female-Owned/Founded Tree Survival Rate

Female-owned/founded organizations have a lower tree survival rate than non-female-owned/founded organizations. However, the difference is small, and the margin of error is large enough to render this 5% average distance statistically insignificant. One reason for this small difference may be that, as demonstrated elsewhere in this report, female-owned organizations are underfunded and attempt to restore more hectare per USD requested. Therefore, they may be unable to finance more effective restoration strategies and tree maintenance.

As some studies have found that female inclusion in restoration project planning and management, leads to more effective implementation and better long term outcomes (Mwaura, 2021), it is possible that female-owned/founded organizations may need increased funding in order to perform more effectively. Further research may be needed to more fully understand the relationship between the gender of an organization's owner and its tree survival rate. WRI may want to monitor this for future cohorts when they have more robust gender and national ownership data.

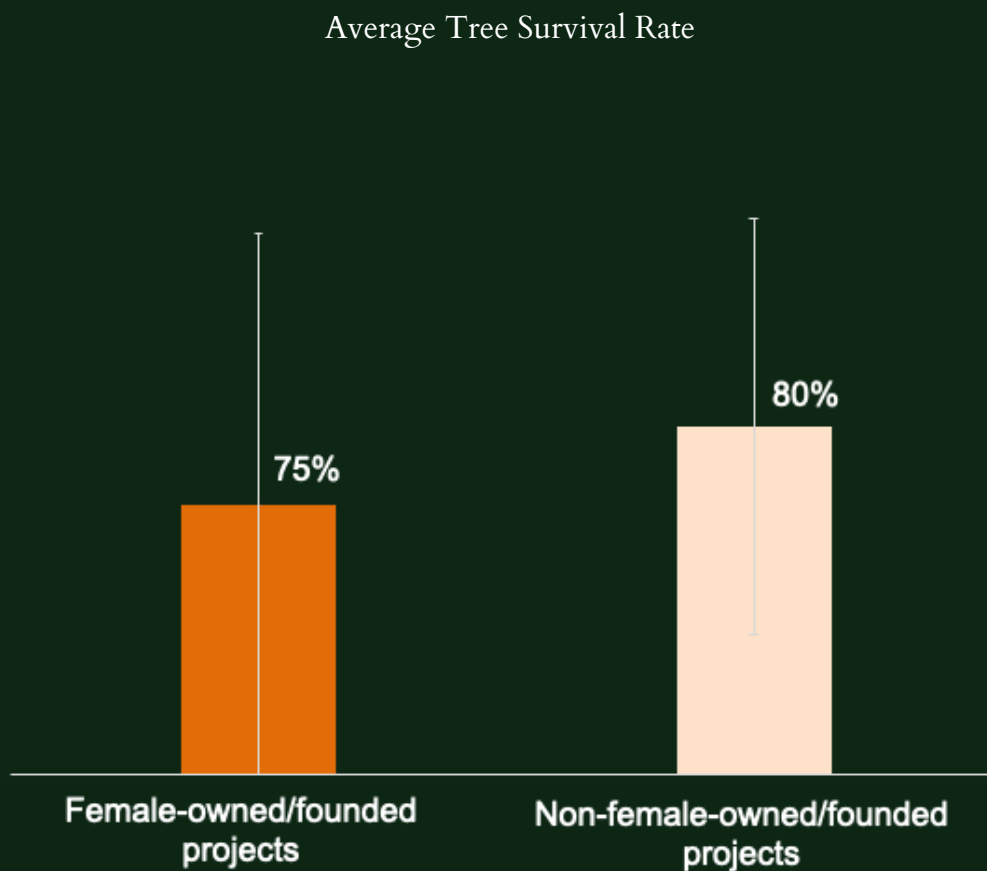


Figure 32: Average tree survival rate for Female-Owned/Founded and Non-Female-Owned/Founded Organizations

National Leadership

It is also important to understand the difference in funding between projects managed by local-majority-owned/founded organizations and non-local-majority-owned/founded organizations. The history of colonialism in Africa, and the between African countries and founders in foreign nations, raises the importance of ensuring that locally led organizations are able to thrive and make their own decisions when it comes to restoring landscapes in their countries and communities (Joshi & Dick, 2021).

Local-majority-owned/founded organizations are defined as those for which a majority of owners (for for-profit organization) or founders (for nonprofit organizations) were identified as being a country national in the country in which the project takes place. Non-local-majority-owned/founded organizations are defined as those for which a majority of owners (for for-profit organization) or founders (for nonprofit organizations) were identified as being a country national of a country other than the one in which the project takes place. Any organization for which the team was unable to determine the nationality of owners or founders was excluded from this analysis. 45 organizations were identified as local-majority-owned/founded organizations, while 16 were identified as non-local-majority-owned/founded organizations. Out of this sample, funding source information was available for 14 of the 45 local-majority-owned/founded organizations and 4 of the 16 non-local-majority-owned/founded organizations.

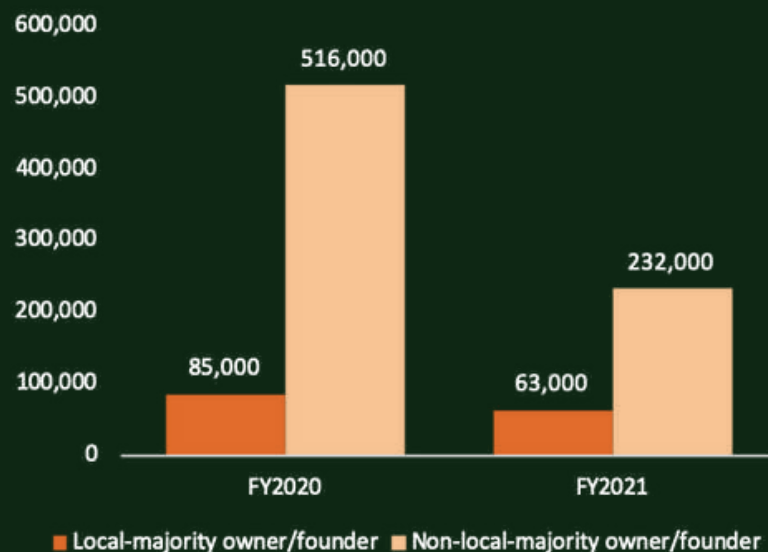


Figure 33: Average Funding per Project for Local-Majority-Owned/Founded Organizations in Fiscal Year 2020 and 2021

Local-majority-owned/founded organizations that reported their funding are on average likely to receive less than non-local-majority-owned/founded organizations. This disparity was especially pronounced in 2020, and less pronounced, but still prominent, in 2021. This indicates that a consistent funding gap exists between local-majority-owned/founded organizations and non-local-majority-owned/founded organizations that is not being addressed adequately.

Funding requested per hectare committed by project scale



Figure 34. Funding Requested in the TerraFund RFP by Hectare Pledged to be Restored for Projects Managed by Local-Majority-Owned/Founded and Non-Local-Majority-Owned/Founded Organizations

As for the funding that projects managed by non-local-majority-owned/founded and local-majority-owned/founded organizations requested from TerraFund, locally-owned/founded projects requested more funding per hectare than non-locally-owned/founded projects. Projects executed by non-local-majority-owned/founded organizations requested on average USD 1000 per hectare, while projects led by local-majority-owned/founded organizations requested on average USD 1100 per hectare. This difference is not significant enough to point to any important differences in the way that projects are managed or funded depending on local leadership.

The funding sources for local-majority-owned/founded organizations were much more diverse than that of non-local-majority-owned/founded organizations. Local-majority-owned/founded organizations reported funding from 7 different funding sources:

- Foundation,
- Private Sector/CSR,
- Private Bank,
- Multilateral Institution,
- Government,
- Offtake,
- Other.

Non-local-majority-owned/founded organizations reported funding from only two funding sources:

- Private Bank, and
- Multilateral Institution.

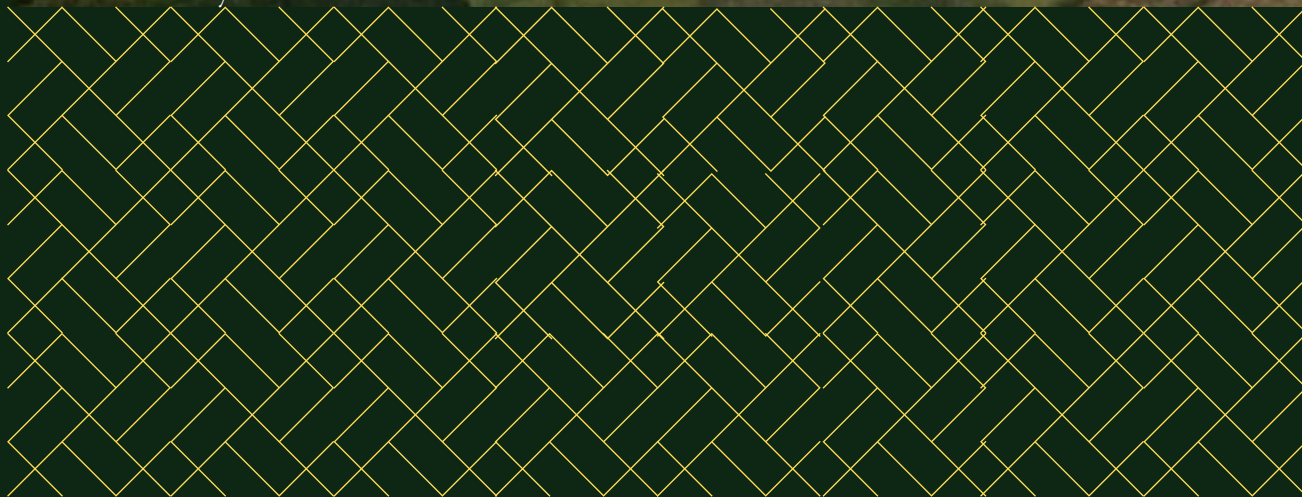
This may demonstrate a preference for investing in local-majority-owned/founded organizations, whether for social equity or potential differences in restoration outcomes. However, the sample size is too small to make definitive conclusions.

Local Ownership and National GNI

Africa has a diverse economic development across nations, with 2021 gross national income (GNI) per capita ranging from \$4,681 to \$14,928, according to International Monetary Fund in terms of 2021 purchasing power parity dollars (PPP\$) (IMF, 2023). Based on our observation, we see that local-majority-owned/founded organization tend to be located in countries **below the 50th percentile** of Africa's continental GNI per capita, with the exception of Ghana and the Ivory Coast, which are large exporters of cocoa beans and above the 50th percentile of GNI per capita. This may be a testament to TerraFund for AFR100's commitment to be financially inclusive when disbursing grants to locally-owned/founded restoration efforts.



Source: FAO Yasuyoshi Chiba



Local Ownership and National GNI

Percentage of organization owned/founded by country nationals (%)

(Countries with higher % of local-majority owned/founded organizations)

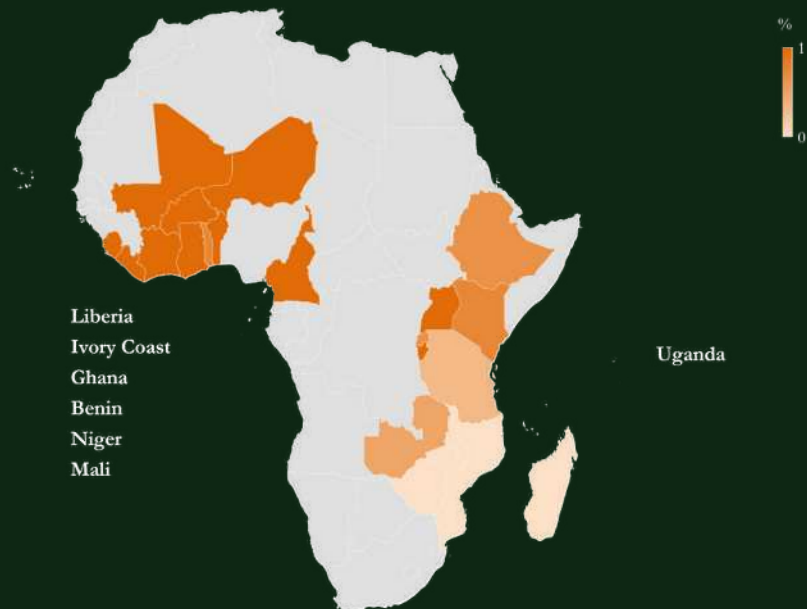


Figure 34: Percentage of Organizations Owned/Founded by Country Nationals

GNI per capita by country in \$ (2020)



Figure 35: GNI per Capita by Country

Local-Owned/Founded Organization's Tree Survival Rate

The average tree survival rate for local-majority-owned/founded organizations is higher than that of non-local-majority-owned/founded organizations. This could imply that local-majority-owned/founded organizations perform restoration activities that have a greater long-term impact, possibly due to their knowledge of local conditions. However, the difference in tree survival rate between the two groups is only 5%, and the margin of error is quite large. For these reasons, it is difficult to draw any major conclusions, but it represents an interesting direction of inquiry for future research, and lines up with the literature on the effectiveness of locally led efforts.

Average Tree Survival Rate

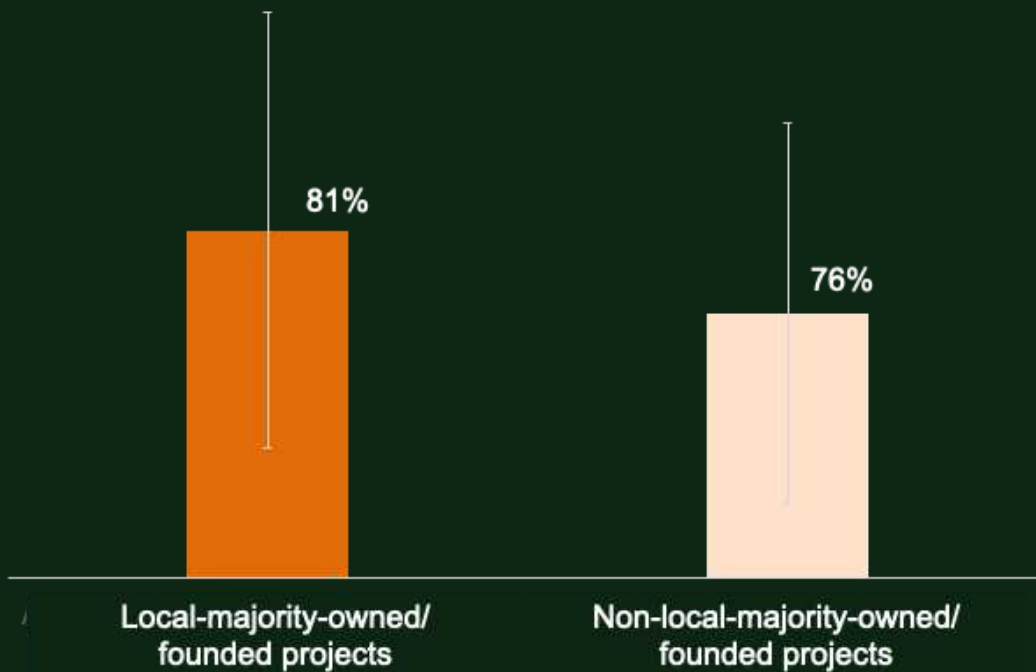


Figure 35: Average Tree Survival Rate for Local Majority-Owned/Founded and Non-Local-Majority-Owned/Founded Organizations

4. Findings From Interviews

The subject matter experts that the team interviewed had a variety of perspectives on important factors to consider when evaluating and funding ecosystem restoration projects. Several threads emerged from the interviews that are worth considering for future initiatives, with the importance of ensuring monitoring and evaluation and de-risking future private sector investments coming up prominently in multiple interviews.

One of our first interviews was with the Executive Director of the Greater Lovell Land Trust, a community land trust in Lovell, Maine. She said that monitoring and evaluation is a complex process that requires the quantification of multiple hard-to-measure variables, such as the return of endangered species to the area or soil quality and composition, which is perhaps the most important indicator of restoration. Because of this complexity, she noted that, in her experience, monitoring and evaluation often does not happen unless funding is specifically earmarked for it. Unfortunately, monitoring and evaluation is often left by the wayside.

However, when done properly, she observed that monitoring and evaluation operations can provide a steady stream of funding to the surrounding communities in the shape of local jobs.

A nature finance specialist at the World Bank offered a similar assessment, and notes that costs for monitoring and evaluation can often be higher than the costs of restoration, limiting the willingness of organizations to invest.



Image Source: UNDP

An expert in restoration financing at WRI also emphasized the tight turnarounds that are often expected by private funders who seek a return on investment from projects they fund, which can limit the potential for long-term funding and implementation of projects. She noted that funders often look for returns within 3–5 years, which limits the willingness of organizations to fund long-term monitoring and evaluation.

The same expert explained that clear land tenure and well-developed local governance rules make projects particularly attractive for funders, as they reduce the risk of project failure. She stated that carbon markets are rarely able to provide enough capital to finance wide scale restoration initiatives, with loan-based financing, government grants, and other forms of financing needed to scale restoration.

A nature based solutions investment specialist at HSBC observed that current investments in land restoration should focus on creating an environment that ensures stability and viability for future investments. Following this mindset, capital should be deployed now to discover key indicators of success and means of incorporating ecosystem restoration into traditional infrastructure projects.

This expert also pointed out that developing a clearer sense of transition risk among funders is key. The need to prime future investments with current ones was echoed by another expert at a major conservation nonprofit, who saw de-risking equity and debt investments from asset managers and commercial lenders as a major role for the kind of patient capital that WRI provides.

These interviews provided clarity about the current thinking among decision makers in the restoration funding space, as well as the risk, monitoring and consistency issues that potentially threaten long term funding of ecosystem restoration, in Africa and beyond.

Data Concerns

In light of this report's findings, it is important to address potential concerns about the validity and reliability of the data that was used to derive the reports research outcomes.



Self-Reporting of Financial Data Raises Concerns

All financial data is self-reported, which raises concerns that some data may have been misreported, mistyped, or miscategorized. For example, some organizations may have reported their budgets for their full international operations rather than the budget for the project that they requested funding for. The team attempted to identify, flag, check, and adjust any values that appear to be incorrect.



Gender and Equity Data Potentially Not Up to Date

All gender and equity data was gathered by the team from publicly available sources such as organization websites, public documents, and social media. Many organization websites appear to be infrequently updated, or out of date, which may also make accurate data gathering difficult. Facebook pages could often be unclear, as were LinkedIn pages for both organizations and individuals. The team's research process encountered multiple websites that were half finished and no longer active which made data gathering difficult.



Survey Conflated Source and Type of Funding

The survey combined the type of funding and the source of funding, which prevented the team from disaggregating the funding types. Even though it is possible to classify the source of funding easily based on the name of the funder, it is impossible to be sure if the funding type is accurate given that the funding type and funding source are conflated. This implies that the amount of financing is incorrect due to misreporting of types of financing. For example, the survey listed funding options such as “Public Grant from Government”. However, it did not provide a more flexible option for organizations to choose other funding types that may have been provided by the government such as a loan. Therefore, it is possible that respondents either (1) included non-loan/credit funding that they received from government in this category, which would cause the analysis to overrepresent the amount of grant funding received, or (2) excluded non-loan/credit funding that they received from a government, which would cause the analysis to underreport the total amount of funding from foundations. As a consequence, funding types have been removed from the analysis. Instead, the funding analysis focuses only on the funding sources, which the team was able to verify by conducting research on each organization.



Potential Multi-Interpretations of Survey Questions

Without the provision of a standardized glossary that strictly defines different sources of funding and types of funding in accompaniment with the distribution of the survey, the survey questions are open to the interpretations of the local organizations. This has significant repercussions and implications to the accuracy and consistency of survey responses that are received.



Small Sample Size: 29 out of 100 Survey Respondents

We have a relatively small sample size from the survey. 29 organizations responded to the financial data survey, of which 5 were for-profit organizations and 24 were nonprofit organizations. Hence, any analysis based on the survey is limited to a maximum sample size of 29. This means that attempts to extrapolate relationships between data points to the larger funding environment may prove tenuous, and further attempts to group the data points into categories may prove to be too small to be significant.



Budgets are not broken down by project:

We could only gain a superficial understanding of project efficiency and scope from the budgets provided by the organizations executing these projects, as the budgets provided were not broken down in terms of how much had been dedicated to a particular project. Likewise, we had no indication of how much additional funding would be required to complete the proposed projects in addition to the funding requested by the organizations from TerraFund.



Recommendations

Recommendations Overview

WRI's theory of change is that TerraFund financing will provide partner organizations with access to additional funding streams that would enable them to make greater impact and allow them to become self-sustaining in the future. This section provides three sets of recommendations to accompany WRI's evidence-based process towards proving that theory of change.

The first set of recommendations highlights potential considerations that WRI can potentially adapt as it expands its portfolio in future TerraFund cohorts.

1



Recommendations for WRI's Further TerraFund Portfolios

The second set focuses on improving data governance and improving data collection and management procedures, much of which is based on the data challenges encountered while performing the analysis for this report.

2



Recommendations for WRI's Data Governance

The third set of recommendations suggest strategies for monitoring and evaluation to strengthen WRI's efforts in measuring the success and impact of partner projects.

3



Recommendations for Monitoring, Reporting, and Verification

1. Recommendations for WRI's Further TerraFund Portfolios



Expand funding to more projects located diversified AFR100 member countries, landscapes, and underfunded restoration types.

Based on this analysis, the distribution of funding by country across TerraFund partner organizations is highly variable in 2020. The range of the highest average funding per hectare and the lowest average funding per hectare across countries is USD 12,776, which implies that there is still great potential to allocate capital to underfunded land restoration projects in AFR100 member countries, such as Sudan, Burkina Faso and Burundi. Increasing access to funding to organizations from diverse AFR100 member countries can accelerate not only the achievement of country-level land restoration goals but also the facilitation of funding to underfunded restoration types in a greater variety of ecosystems such as mangrove restoration in wetland ecosystems.



Focus efforts on identifying and channeling funding to majority female-led organizations. Shortlist female-led organizations in the next TerraFund RFP process.

The team's desk research and analysis of the data provided by WRI, suggests that supporting female- and locally-led organizations represents both smart investment decisions on the part of WRI and other funders and a means of correcting for existing inequities in ecosystem restoration funding. Our analysis showed that female-led organizations within the TerraFund portfolio were more cost-effective in delivering restoration programs than non-female-led organizations; however, they were still underrepresented in the TerraFund portfolio compared to non-female-led organizations. Aiming for parity in ownership of organizations in the next round of TerraFund projects could provide a means of both improving access for women to restoration funding and raising overall effectiveness. WRI can do this by shortlisting female-led organizations in the RFP process for future cohorts to increase the number of female-led organizations that received TerraFund funding.

Recommendations



Focus efforts on identifying and channeling funding to local-majority-led organizations. Shortlist local-majority-led organizations in the next TerraFund RFP process.

Local-majority-led organizations on average received less funding in 2020 and 2021 than non-local-majority-led organizations. This is a concern because it indicates that funding flowing into Africa for restoration projects is not necessarily remaining in the community, but rather to international organizations. In addition, local individuals are the most familiar with the specific ecosystems and landscapes that have been degraded, and they can use this knowledge to improve the impact of restoration projects. Local-majority-led projects have also demonstrated a slightly higher tree survival rate than non-local-majority-led projects, implying that their restoration efforts may be more successful in the long-run. WRI should shortlist local-majority-led organizations during the RFP process for future cohorts in order to increase the number of local-majority-led organizations that received TerraFund funding.



Diversify TerraFund funding sources by opening access to capacity building activities related to fundraising.

Diversifying funding sources for organizations is important to ensure financial stability and reduce the organization's reliance on a single source of funding. By improving access to capacity-building opportunities for local organizations, managers and organization leaders can develop robust fundraising plans that include multiple strategies to identify funding sources for future new and expansion of existing land restoration projects. WRI can achieve this goal in multiple ways, such as creating easy-to-access digital resources or providing regular trainings for organization leaders that guide TerraFund recipients on how to identify and apply for new sources of funding.



Enhance market access and explore new funding structure for projects with different restoration types.

For example, for projects that are classified as agroforestry, WRI may want to look into helping organizations expand partnership networks. Look at instruments to validate the regional market for potential new products and partner with local consumer brands, food service businesses, and co-ops to ensure long-term offtake of the agroforestry products. This can ensure cash-flow and secure a pipeline of customers for future product uptake. In addition, this provides TerraFund partners the opportunity to engage in multi-year offtake programs, allowing agro-entrepreneurs to budget costs ahead of the growing season and focus on growing rather than identifying buyers or facing the uncertainty of fluctuating commodity prices.



Prepare farms doing agroforestry projects for industry certification on their main produce.

Certification of produce as organic, fair trade or sustainably grown, can help enhance market opportunities for TerraFund partners. For instance, in the Ghana Cocoa Belt (one of the three landscapes eligible for cohort 2 of TerraFund for AFR100), there is high potential for agroforestry projects in existing cocoa growing areas to generate co-benefits by increasing cocoa yield, enhancing soil fertility, providing habitat of predatory species that provide natural forms of pest control, and provide a diversified stream of income for farmers (Nayturiki, 2023). An estimate of approximately 2 million hectares of opportunities to increase tree coverage, according to a study by United Nations Environmental Program – World Conservation Monitoring Centre (UNEP-WCMC) (Nayturiki, 2023). TerraFund should explore working with technical advisors that can prepare the smallholders in obtaining sustainable cocoa certifications such as the Rainforest Alliance Certified Cocoa (merged with UTZ) and Fairtrade International. Certified produce increases market access for smallholders to large multinational buyers such as Barry Callebaut, Nestle etc, securing access to stronger offtakers.

2. Recommendations for WRI's Data Governance

As WRI continues to facilitate funding for organizations in Africa that endeavor to restore degraded land, accurate and reliable data is essential for strengthening evidence-based decision making. Managing data effectively is a complex task that requires ongoing attention and investment. To ensure that data is managed in a consistent, secure, and transparent manner, WRI should bolster its data governance and data standardization practices to smoothen its next round of RFP process that is to begin in May of 2023. WRI should consider the following actions:



Define and implement data standardization processes that ensure consistent data collection formats, definitions, and quality standards.

Given the wide variety of organizations that are funded by WRI TerraFund and the geographic and linguistic boundaries that they fall across throughout Africa, the formats in which publications, websites, and disclosures created by these groups are disseminated will vary. In addition, cultural and linguistic nuances may influence survey results and inflict survey bias—a deviation in feedback based on certain influences by the surveyor and respondents. Survey bias adversely affects the accuracy and reliability of the results obtained.

Therefore, to limit or eliminate inconsistencies in the data gathering process, WRI should develop a well-defined glossary or a common data dictionary that lists key terminologies with their definitions. The relevant terminologies and definitions can be extracted and attached to documents when distributed to the different organizations that WRI works with. This initiative would lead to greater standardization and cause surveys to be a more proper descriptive measure of what it was designed to measure. A preliminary glossary that WRI could use can be found in the Glossary Section, Beginning on page 81.





Disaggregate project type and planting intervention to improve the accuracy of restoration activity data.

WRI currently collects data on the type of restoration activity pursued by TerraFund projects. These types are categorized as agroforestry, applied nucleation/tree island, assisted natural regeneration, enrichment planting, mangrove tree restoration, reforestation, riparian restoration, seed dispersal/direct seeding, and silvopasture. However, this falsely aggregates the type of restoration activity with the planting intervention method. For example, a mangrove tree restoration project could use enrichment planting as a mechanism to restore the mangrove habitat. By separating the type of restoration from the planting mechanism, WRI can improve its data accuracy and better understand how different organizations are undertaking their restoration activities.

Improving Data Governance



Develop a comprehensive data framework that outlines policies, procedures, data requirements and standards for data management and use.

During the analysis, the team found that data on the founders of organizations, especially for non profits, was hard to identify. Similarly, employer rolls and board composition were often unpublished on websites and unavailable online. In order to improve future analyses, the team recommend that WRI set up a comprehensive data framework that outlines the complete set of data needed to inform future analyses and rounds of funding. In the future, the team recommends that WRI ask for information on the following as part of a TerraFund RFPs:

1. Personnel

- An org chart
- Board and management composition including gender, nationality, location, and outside employment
- The identity of founders and owners including gender and nationality
- The gender breakdown of management level positions

2. Revenue and Funding

- An organization's past 3 years of revenue
- Clear delineation of funding amount and operational revenue
- How money was allocated across restoration types
- Clear delineations of funding sources and types
- Conditions for loans
- Repayment rules Interest rates and risk premiums
- Cost of capital before grants
- Conditions for offtake agreements/carbon credit contracts/payment for ecosystem services
- Contract length/timeline
- Expected deliverables
- Pricing structure
- Exclusivity

3. Proposed project execution

- Length of time of proposed project implementation
- Total expected project cost

Recommendations



Implement a data quality management system that includes processes for data collection, validation, cleaning and verification.

After receiving any survey responses or other documentation from TerraFund participants, WRI should identify data errors and outliers. During the validation process, data errors and inconsistencies should be identified. This can include missing data, incorrect data types or data that falls outside acceptable range of values. These errors should be flagged and documented for correction or follow-up with the respective organizations.

By taking these steps, WRI can strengthen its data governance and standardization practices, and ensure that its data is accurate, reliable, and used ethically and responsibly. This, in turn, will enable WRI to make more informed decisions, conduct more robust research, and ultimately advance its mission to “move human society to live in ways that protect Earth’s environment and its capacity to provide for the needs and aspirations of current and future generations” (WRI, n.d.).



Image Source: UNEP

3. Strengthening Monitoring and Reporting, and Verification (MRV)

Monitoring, reporting, and verification (MRV) is essential to any restoration initiative's success. Successful MRV allows WRI to track organizations' progress, facilitate the delivery of their goals, identify areas for improvement, and measure the real-time impact of their land restoration efforts. Bringing coherence to an endeavor led by WRI that is on the verge of channeling billions of dollars to local organizations across Africa requires an MRV process that is "equal parts creativity, scientific expertise, and evidence from the field (Martin, 2023)." The following recommendations can potentially enhance the current system that WRI has in place to monitor the progress of TerraFund projects:



Identify gaps in existing data collection inventory from 2022 bi-annual progress reports and yearly financial reports submitted by organizations.

Based on WRI's MRV process, WRI collects information on ecological data on the number of seedlings of each species grown in each nursery and planted on each site, and socioeconomic data on the number and type of new jobs created and people whose livelihoods were improved broken down into demographic categories like gender and youth. WRI should expand the granularity of the data that is collected from these reports in order to gain as nuanced as possible an understanding of project success.



Specify a portion of grants to be allocated to long term monitoring and evaluation in order to ensure that the resources for this process are available.

As has been discussed, MRV can be an expensive, technical, and time-consuming process, which can reduce its potential for implementation. In order to ensure that MRV is conducted, WRI could include a clause in the TerraFund grants that requires a specific portion of the grant to be allocated to MRV in order to ensure that any organizations that receive TerraFund funding have the financial capacity to undertake reliable MRV.



Conduct a 'performance management training' for key contacts or at partner organizations.

Successful monitoring and evaluation requires a co-operative and collaborative atmosphere between WRI and partner organizations. It is hard to complete a project evaluation without the support and understanding of senior management and other staff on both sides. Hence, the training can further expand partner organizations' information gathering processes, bolster monitoring activities, and address any additional barriers that may be faced. Long term MRV projects can also provide consistent income to the communities that projects take place in, which can further build community involvement and confidence in restoration projects.

Conclusion

Land Restoration is a complex and varied discipline, and requires thoughtful planning and implementation to be successful. For Initiatives like TerraFund for AFR100, understanding the ecological, historical and financial background of the projects funded and areas worked in will be vital. This report has provided a thorough examination of the current state of landscape degradation in Africa, and the regional variations that make land restoration at a wide scale difficult. It provides an in depth background on the AFR100 initiative and the goal of TerraFund, and examines the funding dynamics present among the organizations selected for the first cohort of projects.

While the provisions of this report are specific to the needs of WRI and AFR100 projects, any organization that seeks to understand the landscape of landscape restoration in Africa will find it of interest. The report identifies insights by examining the geographic distribution of projects across the continent, correlations between location and funding, and funding amounts that are available to female and local led organizations. The analysis highlights ongoing issues of sexism and power imbalances between African countries and the Global North, and their influence on who is able to access funding. Finally, the analyses of the efficiency of different forms of restoration projects and organizations found in this report help to provide context for making decisions about what forms of restoration to engage in at different funding levels.

The recommendations contained in this report are centered around effectively scaling restoration at scale in Africa or elsewhere. In particular, earmarking funds for Monitoring and Evaluation and making sure that local communities are informed of and involved in restoration efforts are common sense measures that any restoration project can adopt to improve chances of success. The recommendations for data governance are especially applicable to any project that seeks to develop a clear understanding of their partner organizations in a field where organizational structures can vary from region to region, and linguistic boundaries make reporting difficult.

Restoration project financiers and practitioners who want to build upon the work of this report should consider conducting further research on the role gender and national origin play in accessing restoration funding, and support the development of improved means of measuring project success and efficiency. As the world moves further into the U.N Decade of Ecosystem Restoration, improving the quality and availability of project data will be crucial to effective restoration at scale, in Africa, and beyond.

Glossary

The team has constructed this glossary to help provide context for this report, as well as a baseline definition of terms for future RFPS and analyses of funding by World Resources Institute. The team believes that this glossary will help to prevent issues of nomenclature that inevitably arise when managing projects over as large an area as that covered by TerraFund for AFR100. This glossary provides clear and precise definitions for funding sources and funding types, brief descriptions of different kinds of ecosystem restoration and categories for defining demographic equity within organizations.

This glossary is helpful both in reviewing the recommendations and findings in this report, and for any organization looking to conduct future research of a similar nature.

1. Funding Sources

Term	Definitions
Foundation	Non Profit philanthropic organization supporting charitable activities by providing funding
Government	Governing body of a nation
Private Sector/CSR	Private sector companies engaged in corporate social responsibility supporting other organizations with respect to their environmental initiatives.
Multilateral Organization	International and/or financial institutions owned or operated by multiple countries providing financial and technical assistance to developing countries
Private Bank	Financial institutions providing financial services such as loans
Equity Investor	Investors purchasing shares of a company to achieve a financial gain
Offtaker	Buyer purchasing the product being produced by the project or who uses the services being sold by the project.

2. Funding Types

Term	Definitions
Private Grant	Private donations provided by non-corporate and corporate entities
Public Grant	Public funding provided by a government agency, multilateral or another publicly funded organization.
Equity Finance	Capital raising through the sale of shares
Loan	Debt incurred by a borrowing entity with a lender (can be government, multilateral, private bank) on the basis of a certain set of terms including finance charges, interest, repayment date.
Product Offtake Contract	Arrangement between a producer and a buyer to purchase or sell portions of the producer's upcoming goods.
Private Sector/ Corporate Social Responsibility	Private sector companies engaged in corporate social responsibility supporting other organizations with respect to their environmental initiatives
Carbon Credit Contract	Arrangement between entities who buy and sell carbon credits, i.e. permits/certificates allowing the holder to emit CO ₂ or other GHG into the atmosphere.
Public/Private Payments for Ecosystem Services	Payments for ecosystem services compensating the organization for undertaking actions increasing the provision of ecosystem service.

3. Restoration Types

Term	Definitions
Agroforestry	Agroforestry is the integration of native vegetation into crop or pasture systems (United States Department of Agriculture, n.d.).
Applied Nucleation/Tree Island	Applied nucleation is the planting of trees in clusters to act as a "nuclei" for other vegetation to naturally establish around (Wilson, et al., 2021).
Assisted Natural Regeneration	Assisted natural regeneration is the removal of barriers to growth that allows for vegetation to naturally regenerate (Chazdon, et al., 2022).
Enrichment Planting	Enrichment planting is the planting of native vegetation to increase the biodiversity and/or density of a vegetated area (Ramos, 2008).
Mangrove Tree Restoration	Mangrove tree restoration is the regeneration of mangrove ecosystems, defined as tropical areas with vegetation that is periodically submerged in salt water (STOWA, n.d.).
Reforestation	Reforestation is the replanting of previously existing forests (One Tree Planted, 2023).
Riparian Restoration	Riparian restoration is the regeneration of riparian-zone ecosystems, defined as land along the edges of water bodies (West Virginia Department of Environmental Protection, 2023)
Seed Dispersal/ Direct Seeding	Seed dispersal is the spread of seeds through the movement of wind, water, animals, or other natural events (Wehncke, 2010). Direct seeding is the planting of seeds in a habitat, rather than the planting of saplings (Northern and Yorke Natural Resources Management Board, n.d.).
Silvopasture	Silvopasture is the integration of native vegetation and livestock grazing (United States Department of Agriculture: National Agroforestry Center, n.d.).

4. Equity

Term	Definitions
Ownership	For-profit organizations: Shareholders are the legal owners of a corporation and own full or a portion of the equity of the company. We used ownership as a proxy for high-level leadership position within the for-profit organization.
Founded	Nonprofit organizations: Founders refer to an individual or group of individuals who established the nonprofit organization. We used founders as a proxy for high-level leadership position within the nonprofit organization.
Board	For-profit organizations: A board of directors (B of D) is the governing body of a company, elected by shareholders to set strategy and oversee management. Nonprofit organizations: A board of directors, also known as a nonprofit board, is the governing body of a nonprofit. The members of a nonprofit board focus on the high-level strategy, oversight, and accountability of the organization. This contrasts with staff or managers who oversee the day-to-day operations of the nonprofit.
Managers	Project Manager is hereby referred to as Manager. Managers are responsible for the planning, procurement, execution and completion of land restoration projects. Managers have varied titles, including Supervisor, Project Officer, Team Lead, Manager. Any administration personnel are not counted as "Managers".
Country Nationals	Founders or owners are born in the country or are citizens of the country where the project takes place/is conducted.

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