

AFR100 PULSE

HARNESSING AFRICA'S FLR SPIRIT

THE AFR100 INITIATIVE :

**A NATURE-BASED
SOLUTIONS**

**TO CONTRIBUTE TO THE TRANSFORMATION
OF THE AFRICAN FOOD SYSTEMS**

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We support the



BY

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I. INTRODUCTION

The AFR100 Initiative was launched in December 2015 to address the environmental, social and economic challenges that affect the sustainable management of natural resources in Africa. It is a Pan-African initiative implemented at the national level by 34 African countries⁵ in collaboration with 39 technical partners and 13 financial partners. Its main objective is to restore 100 million hectares of degraded forests and lands by 2030. Currently the 34 countries have committed to restore 129.5 million hectares, which means that the initial commitment has been exceeded by 29.5 million hectares. Forest Landscape Restoration (FLR) is the long-term process of regaining ecological functionality and enhancing human-well being across deforested and degraded landscapes.⁶ At the regional level, the AFR100 initiative contributes to the African Initiative of Resilient Landscapes (ARLI); the African Union Agenda 2063; the Action Plan for African Landscape (ALAP); the African Great Green Wall Initiative (GGWI). At the international level, the AFR100 initiative contributes to the Bonn Challenge; the Paris Agreement on Climate; the New York Declaration on Forests; the United Nations Decade on Ecosystem Restoration; the United Nations Convention to Combat Desertification (UNCCD) Land Degradation Neutrality (LDN); and the Sustainable Development Goals (SDGs), especially SDG 1, 2, 3, 6, 8, 11, 12, 13, 15, 17.

It is important to note that the AFR100 initiative is multi-sectoral including agriculture, livestock, forests and environment, town planning and housing, water and sanitation, energy, tourism, land use planning, etc... Fortunately, the African food systems are also multi-sectoral including crop and vegetable production, animal production, fishery and aquaculture, forestry and agroforestry etc... This implies that both the AFR100 initiative and the African food systems are multi or inter-sectoral and therefore are complementary. Furthermore, the landscape approach promoted by the AFR100 initiative offers a very good opportunity to increase food supply and improve livelihood in a sustainable manner.

The objective of this information note is to show that the AFR100 initiative as a nature-based solutions, can contribute to the transformation of the African food systems through forest landscape restoration (FLR).

The specific objectives are to:

- a) discuss the challenges faced by the African food systems;
- b) discuss opportunities of the AFR100 initiative to contribute to the transformation of the African food systems through restoration;
- c) Provide a few concluding remarks.



2. CHALLENGES FACED BY THE AFRICAN FOOD SYSTEMS

2.1. Africa has a significant percentage of global arable land but is still a net food importer

2.1.1. Africa has a significant percentage of the world arable land

Africa has 65 % of the world arable land but is still a net importer of food. Food imports amount to 60 billion US dollars per year.⁷ Part of the increase in the value of imports is due to the conflict between Russia and Ukraine which raised international food and fuel prices. African food imports could reach 110 billion US dollars by 2030.⁸

2.1.2. Food security is central in government policies but it has not been achieved despite very important investments. In addition, the access to food is very crucial which depends on having a purchasing power or an access to land to grow food. World production of food can double and even triple, but if poverty and access to land are not resolved, several people will still be food insecure.

2.2. The majority of African farmers are smallholders without significant financial means or land that can be used as collateral through banks to get loans for investments

In Africa, smallholder farmers are the majority in each country. They do not have enough financial resources at their disposal to invest in agriculture. Furthermore, they do not have land titles which they can use to get loans from banks which is a major setback to modernize African agriculture. Countries like Rwanda are making a huge effort but it has to be scaled up in the continent. The new government of Senegal in office since April 2, 2024 would like to give long-term lease or land titles to smallholder farmers in order to facilitate their access to loans from banks and other financial institutions.

2.3. The rate of population growth is more than the rate of growth of food production

In Several countries in Africa, the rate of growth of the national population is higher than the rate of growth in food production leading to growing food imports. Therefore, there is a need to reverse the situation. This is possible because Africa has an important youth population who can contribute to increasing food production significantly and sustainably.

2.4. Weak utilization of high quality seeds and high dependency on annual rainfall

2.4.1. Weak utilization of high quality seeds

High quality seeds allow fast and good germination and vigorous growth which facilitates higher crop yields and production. The symptoms of poor quality seeds are low germination, mixed varieties, low plant vigor, prevalence of plant diseases and introduction of weeds.⁹ African countries need to produce their own high quality seeds by conserving what is available instead of purchasing seeds from abroad. Seed production and use must be endogenous and under the responsibility of African governments. Therefore, African countries must equip themselves with seed control and certification mechanisms and services capable of fulfilling this mission.

2.4.2. High dependency on annual rainfall

“Doubling productivity and creating a resilient food system on the continent intrinsically depend on greater use of irrigation and other solutions for managing agricultural water resources, considering the unpredictability of rainfall in terms of duration and intensity due to climate change.” **2024 Biennial review report of the Continent’s Comprehensive Africa Agricultural Development Program**¹⁰

African agriculture depends mostly on annual rainfall. For that reason, there is a need to promote irrigated agriculture, especially small-scale irrigation, to allow continuous production of food products and fodder production in Africa instead of relying solely on the three months of rainfall. If Senegal and other African countries emphasize the use of groundwater while ensuring the artificial recharge of water tables to increase the sustainability of sources, agricultural production could increase significantly. In each African country, the quantity of rain that is available should be collected, decanted and filtered before being reinjected into groundwater. This would make the availability of water in groundwater to last longer and will create an opportunity for smallholder farmers to cultivate all year around and contribute much more to national food security and nutrition. Another inspiration could be obtained from France. In fact, on December 28, 2023, France authorized the irrigation of agricultural crops using wastewater treated in wastewater treatment plants. This practice offers an ecological and economical way of facing the negative impacts of climate change.¹¹ It could be an interesting alternative for Africa because other countries like Israel, Spain, and Australia are using this practice successfully.¹²

2.5. Weak use of agro-ecology and traditional knowledge to increase agricultural production

It is estimated that in Africa 750 million hectares of land are degraded. In this situation, the use of agro-ecology could be very helpful. Therefore, there is a need to rely on agro-ecological practices that have proven themselves in the past in order to better use the traditional knowledge of rural communities and also combine them with the production of compost with mixed organic manure and legumes such as crotalaria, mucuna etc. These agro-ecological practices have been used in Africa for several years. In addition, burial techniques (enfouissement or mulching) were used more than 40 years ago in the Senegal Agricultural Research Institute [(Institut Sénégalais de Recherches Agricoles (ISRA)] Sine Saloum experimental units to improve soil fertility. Just to emphasize that the use of agro-ecological practices is not new in Africa.

2.6. Insufficient involvement of women and youth in Agriculture

In Africa, women and youth are the majority of the population. This demographic dividend should be used as an opportunity for improving agriculture and rural development. If used strategically and trained, this labor force can allow Africa to cut drastically on food imports and even allow the continent to become a net food exporter.

2.7. Overvalued currency for countries that use the CFA Franc

Many former French colonies in West (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo) and Central Africa (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon) use the CFA Franc which has a fixed parity with Euro, guaranteed by France. The fixed parity between the CFA Franc and Euro leads to an overvalued exchange of the CFA Franc. This means that domestic prices in CFA Franc countries are higher than international prices which lowers the real exchange rate of the CFA Franc vis-à-vis Euro. As a result, foreign goods become cheaper than domestic goods, meaning that imports are cheaper than exports which implies a deterioration of the trade balance because imports are much higher than exports. This is the situation that prevails in CFA Franc countries of Africa. Furthermore, with the fixed parity between the CFA Franc and the Euro, France through the European Union decides on the monetary policy of the CFA Franc countries. This means that the Central Bank of West African States (BCEAO) and the Central Bank of Central African States (BEAC) cannot print banknotes to absorb the budgetary deficits or the trade balance deficits of the CFA Franc countries. To absorb any budgetary or trade deficits, CFA Franc countries are obliged to sell securities (treasury bonds for example) which are at their disposal or to contract loans and increase their level of debt.¹³

2.8. Important post-harvest losses

Post-harvest losses are very important in Africa. In East Africa¹⁴, they are estimated at 30 percent for cereals, 50 percent for roots and tubers and up to 70 percent for fruits and vegetables. In Senegal, annual post-harvest losses is estimated at 12 billion CFA Francs (18292683 Euros) counting only losses from vegetable production and excluding the post-production part.¹⁵ This can reach 100 billion CFA Francs if all vegetable and animal production are considered, including other food losses and losses from transport. In Africa, post-harvest losses are caused by several factors:

- a) Lack of access to effective storage facilities. In Africa, many storage facilities are in poor conditions, contaminated or infested with pests, or their capacity is inadequate to meet local production.¹⁶
- b) Use of inadequate harvesting methods. These are mostly rough handling and untimely handling.
- c) Absence of proper packing and packaging technologies.¹⁷
- d) Lack of efficient transportation system.
- e) Unstable climate conditions: climate factors such as heat, humidity and altitude increase substantially post-harvest losses in Africa.¹⁸

Thus reducing post-harvest losses should be a major priority in Africa by setting up short, medium and long term targets with close monitoring and reporting of progress and future actions needed in each African country.

2.9.0. Maputo declaration on agriculture still not fully respected

The Maputo declaration on agriculture in 2003 which committed each African country member of the African Union to allocate at least 10 percent of national budget to agriculture and rural development has not been fully respected.¹⁹ Only around 10 to 12 countries out of 55 African Union members have managed to reach the target of investing 10 percent of their national budgets in agriculture²⁰

2.9.1. Weak involvement of the private sector in the Agricultural sector

Many countries in Africa do not fully involve their national private sector in agricultural development. There is a need to sensitize the private sector on the profitability of agricultural and rural development enterprises with acceptable rate of return on investments. Under the AFR100 initiative, the private sector should be sensitized regularly on the profitability of forest landscape restoration (FLR) to motivate them to invest. Furthermore, win-win business models that provide environmental, social, economic and livelihood benefits should be suggested to the private sector to give them more options on in which activities to invest.



Nature-
based
solutions



3. OPPORTUNITIES OF THE AFR100 INITIATIVE TO TRANSFORM THE AFRICAN FOOD SYSTEMS THROUGH RESTORATION

“AUDA–NEPAD places emphasis on the urgent need for policy and investment choices that will transform local capacities and build resilient and inclusive food systems. These choices must be made and requires a consolidated African Food Security and nutrition programme.” Her Excellency Mrs. Nardos Bekele–Thomas, CEO, AUDA–NEPAD²¹

The AFR100 initiative focuses on restoring degraded forests and lands. Currently, 34 African countries have committed to restoring 129.5 million hectares of degraded forests and lands by 2030. This provides a good opportunity to use Forest Landscape Restoration in order to contribute to the transformation of the African food systems. The food system is concerned with several value chains and each of them can be traced from input suppliers to farmers to consumers. Furthermore each value chain includes numerous actors and marketing functions²². Several opportunities are discussed below.

3.1. Increase in agricultural, agroforest and forest products through restoration

3.1.1. Increase in agricultural, agroforest and forest products through restoration by shifting the overall supply curve upward and to the right is a necessary condition to improve food security and nutrition in Africa

Shifting the supply curve of agricultural, agroforest and forest products can be achieved through the following supply shifters:

- i) Prices of agricultural, agroforest and forest products;
- ii) Prices of factor of production: quality seed, seedling, organic fertilizer etc...;
- iii) Number of smallholder farmers involved in agricultural, agroforest and forest products, including women and youth who represent the highest percentage of the African population ;
- iv) Improved technology which allows to produce at lower costs;
- v) Natural even such as drought, good and well distributed rainfall;
- vi) Government policies through taxes, regulation, subsidies.

3.1.2. Agricultural production can also be increased by improving soil fertility using agroforestry and agroecology techniques

A GIZ project in the Far North Region of Cameroon has restored the fertility of degraded lands that were no longer productive, and which were abandoned by local communities. In collaboration with the Ministry of Forest and Wildlife (MINFOF) and the Ministry of Environment, Nature Protection and Sustainable Development (MINEPDED) of Cameroon, GIZ helped local communities restore those unproductive lands in 2 years by using traditional techniques and producing compost with organic manure mixed with *Crotalaria retusa*, *Bracharia* spp and *Mucuna pruriens*. As a result, rural communities were able to increase agricultural production in those formerly unproductive lands. In addition, tree planting had been initiated through the GIZ project to enable local communities protect watersheds, get fuelwood for cooking and non-timber forest products such as Gum arabic (*Acacia* spp.), neem (*Azadirachta indica*) and cashew (*Anacardium occidentale*) to enhance soil fertility and increase their revenues²³. AUDA-NEPAD and the government of Norway launched a transformative partnership aimed at enhancing soil health for sustainable food systems across Africa²⁴. Restoration will have major role to play in this partnership.

3.1.3. Agricultural production can also be increased through the production of drought resistant varieties that increase crop yield

In AFR100 countries, national research institutes are developing new varieties of seeds that increase agricultural production and allow smallholder farmers to become more resilient. These varieties need to be multiplied and disseminated widely at national level. Countries such as Kenya, Malawi, Zambia, Nigeria, Senegal, Niger, Sudan, South Africa, Namibia, Zimbabwe and Tanzania²⁵; among others, are doing a good job in that direction.

3.1.4. Agricultural production can increase through compliance with technical itineraries and respect of the agricultural calendar

Technical itineraries describe all steps needed in order to get adequate and sustainable production. Furthermore, compliance with periods when to sow, plow and carry out other technical duties helps to increase agricultural yield and production. African countries need to bring back agricultural extension services to enable smallholder farmers to contribute more to food security and nutrition.

3.2. Develop the value chains of agricultural, agroforest, forest, animal and aquaculture products coming from restored degraded forests and lands

"Food systems are about production, nutrition, roads and infrastructure, markets and trade. It is about connecting farmers to markets, about education and entrepreneurship, enabling small-scale farmers to become micro and small entrepreneurs. It is about agribusiness". His Excellency Dr. Ibrahim Mayaki, former CEO, AUDA-NEPAD²⁶.

The development of the value chains of agricultural, agroforest, forest, animal and aquaculture products from restored degraded forests and lands contributes to the rural development of AFR100 member countries, through the increased number of stakeholders (especially women and youth) engaged in AFR100 implementation (temporary and permanent green jobs and business opportunities). The economic activities generated will create wealth which will increase the contribution of agricultural, agroforest and forest products value chains from restored degraded forests and lands to the Gross Domestic Product (GDP) and to national economic growth. This information will enable policymakers to better understand the value added of FLR in national economies and in the diversification of African economies. The growing recognition of the importance of FLR will allow governments to allocate a larger share of national budgets to restoration and AFR100 implementation²⁷.

Increasing the involvement of women, youth, disabled people, indigenous people (pygmies) and displaced people through the development of the value chains of agricultural, agroforest, forest, animal and aquaculture products from restored degraded forest and lands make it possible to create direct and indirect green jobs in those value chains. It is recognized that in Africa, women are more involved in the trade of agricultural, agroforest, forest and aquaculture products than men. This is why increasing their involvement in FLR activities will give them more autonomy and will strengthen their decision-making power in the households. The problem of youth employment is a very important concern in Africa in general. The development of agricultural, agroforest, forest, animal and aquaculture products value chains from restored degraded forests and lands will help curb rural exodus and illegal emigration to Europe, which continue to cause great harm to the African populations. This prevents Africa from capitalizing its demographic dividend.

The incomes obtained by stakeholders through the development of agricultural, agroforest, forest, animal and aquaculture products value chains from restored degraded forests and lands will enable them to meet their basic needs and gradually be lifted out of poverty. These revenues need to be compared with those obtained from other sectors. For example, the average incomes obtained by women and youth involved in FLR and in agricultural, agroforest, forest, animal and aquaculture products value chains need to be compared with the incomes obtained by those engaged in the public sector. All this information needs to be used to inform AFR100 governments and technical and financial partners of the AFR100 initiative.

The development of agricultural, agroforest, forest, animal and aquaculture products value chains from restored degraded forests and lands improves the food security and nutrition of the rural and urban populations in Africa. For example, the chemical analysis of agricultural, agroforest, forest, animal and aquaculture products coming from restored degraded forests and lands to determine their nutritional and medicinal values makes it possible to use this information in the packaging of these products (product labeling indicating the nutritional values and medicinal values of AFR100 products) to raise awareness and inform urban and rural consumers that these products come from restored degraded forests and lands.

The processing of agricultural, agroforest, forest, animal and aquaculture products coming from restored degraded forests and lands will add more value to these products and create more employment at the national level. Thus the restoration of degraded forests and lands will contribute to national and continental efforts of agro-industrial processing of agricultural, agroforest, forest, animal and aquaculture products to enhance African competitiveness and volume of intra-african trade through the African Continental Free Trade Area (AfCFTA). A very important strategy is to create food processing industries in situ, i.e., located in the vicinity of the production zones of these products to facilitate the supply of raw materials (to the processing industries) by linking private investors with smallholder farmers through forward contractual arrangements that guarantee stable market outlets for producers and a reliable source of domestic supply for private investors. Other thematic areas that could be addressed are related to quality standards, efficient and safe handling, conservation and storage of agricultural, agroforest, forest, animal and aquaculture products.

Detailed studies on the consumption of agricultural, agroforest, forest, animal and aquaculture products value chains from restored degraded forests and lands by urban and rural households, can help quantify the contribution of these products to food security and nutrition in Africa. This information is important at a time when undernourishment and food and nutrition insecurity continue to increase in Africa²⁸.

Climate change being a major threat in Africa, the inclusion of participatory domestication (by involving vulnerable and most exposed people, in particular indigenous communities or pygmy minorities, and disabled people) and the development of tree nurseries value chains to encourage massive production of seedlings and their planting, will make it possible to accelerate the restoration of degraded forests and lands thereby creating multi-strata agroforestry systems in AFR100 countries.

3.3. Continue to implement the Land Accelerator Program (LAP)

The Land Accelerator Program is coordinated by the World Resources Institute (WRI) in collaboration with AUDA-NEPAD/AFR100 Secretariat and Fledge. The program is funded by Swedish International Development Cooperation Agency (SIDA), Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and Mitsubishi Corporation Fund for Europe and Africa²⁹. It contributes to the AFR100 initiative goal of restoring 100 million hectares of degraded forests and lands by 2030. In 2023, the program selected 103 locally led, market driven green businesses³⁰. The top 16 were selected to receive more mentorship and training from October 16 to 20, 2023 through the Land Accelerator Africa Summit organized in Malawi. Since its launch in 2018, the Land Accelerator Program has a total of 293 graduates³¹ who collectively have placed about 260,000 hectares of lands under restoration. Furthermore, they engaged nearly 449,000 smallholder farmers across Africa³².

The following sections provide information on 4 of the 16 top companies selected in 2023 :

3.3.1. Alfred Gold Limited, Kenya

In Kenya, 70 percent of avocado production is by smallholder farmers. Furthermore, only 23 percent of avocado production is exported³³. Alfred Gold Limited, Kenya, created in 2000, works with small scale avocado farmers, providing them with high quality seedlings and packaging services. The avocados are exported in Europe and the Gulf Region. Smallholder farmers have planted 50000 seedlings of avocados in 2023 which by 2025 will give an annual revenue of 3000000 USD. In 2020, the company generated a revenue of 1300000 USD, 1100000 USD in 2021 and 1600000 USD in 2023³⁴. The company gets 55 percent of its revenue from exports of fresh avocados, 30 percent from exports of avocado oil, 20 percent from pack-house leasing and 5 percent from sales of seedlings³⁵. Avocado trees take 3 to 5 years to reach maturity and produce fruits. Furthermore, once avocado trees start producing fruits, they can continue to produce for up to 40 years³⁶.

Avocado (*Persea americana*) is a medium-sized, evergreen tree in the laurel family (Lauraceae). It is native to the Americas and was first domesticated in Mesoamerica more than 5,000 years ago³⁷. The fruit of domestic varieties have smooth, buttery, golden-green flesh when ripe. Depending on the cultivar, avocados have green, brown, purplish, or black skin, and may be pear-shaped, egg-shaped, or spherical³⁸. According to Tabi Joda, AFR100 Ambassador from Cameroon³⁹, the avocado tree is keeping many families healthy and generating income for livelihood. Furthermore, avocados are a source of vitamins C, E, K, and B6, as well as riboflavin, niacin, folate, pantothenic acid, magnesium, and potassium⁴⁰. They also provide lutein, beta carotene, and omega-3 fatty acids. Avocado oil is an edible oil extracted from the fruit. It is used as an edible oil both raw and for cooking. It is also used for lubrication and in cosmetics⁴¹.

3.3.2. Y and M Regeneration Limited, Ghana

Y and M Regeneration Limited applies agroforestry technology and know-how across farms to promote environmental protection, increase food security and protect livelihoods. While it started with 118 hectares and one nursery site in 2009, the business now manages over 1000 hectares, oversees multiple tree nursery sites, and grows a variety of agricultural products for commercial use, including groundnuts and maize. While they focus on seedling production and timber plantations, Y and M has expanded its business model to include urban greening projects, youth education programs and honey and wax production. Y and M Regeneration Limited future projects will focus on carbon market opportunities and promoting fast-growing timber species for wooden kitchenware, laptop cases and children's toys. Y and M Regeneration Limited expects to sell honey worth 8.5 billion USD to 12 billion USD by 2028 and bee wax worth 530 million USD to 620 million USD by 2028. For maize, Y and M Regeneration Limited expects to sell 140 billion USD to 161.7 billion USD by 2028. For groundnuts the company expects to sell 88 billion USD to 100 billion USD by 2028. For wood products, the company expects to sell 670 billion USD to 750 billion USD in 2024. Sale of carbon credit is expected to amount between 978 billion USD and 2.68 trillion USD by 2028. It is worth mentioning that Y and M Regeneration Limited has 500 hectares of timber production, nurseries of 3 million seedlings capacity, 1000 acres or 450 hectares of maize and groundnuts, 250 beehives and it works with over 2000 smallholder farmers⁴².

3.3.3. Mont des Oliviers Nemamiah, Côte d'Ivoire

Mont des Oliviers Nemamiah is a company specialized in beekeeping and honey production. The company is based in Côte d'Ivoire and prioritizes environmental protection, biodiversity preservation and community engagement. Mont des Oliviers Nemamiah works with producers to place beehives on farms, improving pollination and thus increasing crop yields by 300–500%, as well as providing supplemental income for farmers. This model ensures that local communities have access to natural honey products, while also diversifying income streams and safeguarding the environment. Mont des Oliviers Nemamiah plans to increase the size of its staff, involve ten new farmers in honey production, and expand its customer base throughout Côte d'Ivoire and into Burkina Faso. In 2021, the company sold honey worth 10000 USD. In 2023, the company sold 36000 USD of honey. The revenue is expected to reach 101000 USD in 2025 and 154000 USD in 2027⁴³.

3.3.4. OncaPlanta, Uganda

OncaPlanta develops products for plant, animal and human health from indigenous Ugandan plants. Its main mission is to be a catalyst for economic transformation in Northern Uganda by developing the value chains for high value perennial seed cosmetic oils. Currently, the main products are Nilotica shea butter, moringa and desert date oils. OncaPlanta promotes agroforestry among local farmers, helping them integrate more trees in their fields and gradually increasing tree cover in the area. In doing so, the company creates synergies to achieve overarching social goals such as combating climate change through tree planting.

The company has established a multifunctional agroforestry farming system in the Ugandan Shea Belt. Furthermore, the company has created 20 permanent jobs and 50 part time jobs. In addition, the company has marketed 120 tonnes of shea nut since 2019, 35 tonnes of moringa seeds since 2020, 15 tonnes of Desert dates (or *Balanites aegyptiaca*) since 2022. In addition, 80000 trees have been planted since 2018⁴⁴.

3.4. Continue to Implement Terra Fund For AFR100 Program

Terra Fund for AFR100 is managed by the World Resources Institute (WRI), One Tree Planted, Realize Impact, and Barka in support of the AFR100 Initiative⁴⁵.

3.4.1. For the first cohort in 2022 ([https://www.africa.terramatch.org/?](https://www.africa.terramatch.org/?utm_medium=mainbanner&utm_source=afr100web&utm_campaign=tf-landscapes)

[utm_medium=mainbanner&utm_source=afr100web&utm_campaign=tf-landscapes](https://www.africa.terramatch.org/?utm_medium=mainbanner&utm_source=afr100web&utm_campaign=tf-landscapes)), Terra Fund for AFR100 provided grants and loans of 50000 USD to 500000 USD to 100 innovators from 27 AFR100 member countries : Kenya, Niger, Nigeria, Sudan, Rwanda, Burkina Faso, Mali, Guinea, Togo, Benin, Cameroon, Côte d'Ivoire, Madagascar, Uganda, Ghana, Democratic Republic of Congo, South Africa, Central African Republic, Ethiopia, Sierra Leone, Tanzania, Burundi, Mozambique, Zambia, Zimbabwe, Liberia, Malawi.

The 100 innovators of this first cohort will plant 27.24 million trees, restore 54181 hectares of degraded forests and lands and create 106686 green jobs.

3.4.2. The second cohort of Terra Fund for AFR100 in 2023 focusses on three landscapes : Kenya's Greter Rift Valley, the lake Kivu and Rusizi River Basin of Burundi, Democratic Republic of Congo and Rwanda, and the Ghana cocoa belt (https://www.africa.terramatch.org/?utm_medium=mainbanner&utm_source=afr100web&utm_campaign=tf-landscapes). 17.8 million USD were allocated to 92 organizations through grants, loans and equity investments. This second cohort will plant 12.7 million trees, restore 47000 hectares of degraded forets and lands, create 52000 jobs and benefit 580000 people.

3.5. Restoration through planting non-timber forest products (NTFP) to improve food security and nutrition

The restoration of degraded forests and lands by planting NTFPs could reduce rural poverty and strengthen food security and nutrition in Africa. NTFPs are defined as goods of biological ⁴⁶origin other than timber, derivec from forests, other wooded land and trees outside forest (FAO, 2000) . Few examples are leaves, seeds, nuts, fruits, mushrooms, roots, stems, bark, vines, saps, honey, etc... They are rich in vitamins (A, B, C, E, K) and minerals (calcium, magnesium, iron, potassium and zinc).

3.5.1. Non-Timber Forest Products (NTFP) to strengthen the interaction between agriculture and livestock production

NTFPs like Kadd (*Acacia albida*) are used as livestock feed and to improve soil fertility. Win-win business models could be developed in the livestock sector to attract more investments from the private sector and financial institutions. The multifunctional landscape approach is very suitable for the private sector and financial institutions interested in livestock business development. A large area of degraded forests and lands will allow a good integration of agriculture and livestock breeding. The agriculture component could integrate the planting of *Acacia albida* to increase soil fertility and agricultural production. The livestock component could integrate better valorization of *Acacia albida* pods and the production of fodder on more fertile land for livestock feeding and will allow meat and milk production to improve food security and nutrition of the African populations. **This component is in perfect correlation with one major outcome from the promotion of rangelands restoration (see section 36 below).**

3.5.2. Niger experience in Gum Arabic (*Acacia* spp.) through private-public-community partnership⁴⁷

A national private company in Niger created 8000 hectares of *Acacia* plantations in degraded lands in collaboration with 33 local communities. Seedlings of improved *Acacia* were distributed to communities for planting. The national private company provided market outlets to communities by purchasing their Gum Arabic. Furthermore, the national private company collaborated with the Ministry of Environment of Niger to launch a carbon sequestration project in the 8000 hectares restored with *Acacia* spp. The carbon was sold to an international company.

Overall impact of the Niger Arabic gum project

- a) There was much improvement in the livelihood of the communities as 78000 households benefited from the project.
- b) Furthermore, 80 percent of the revenues from the sales of carbon were distributed to communities, especially women. Besides, the Gum Arabic was marketed on a regular basis by communities to get revenues.
- c) In terms of biodiversity improvement, small livestock appeared again as well as diversity of species etc...

3.5.3. Partnership with indigenous communities in NTFP Planting and Capacity Building

Tropical Forest and Rural Development (TFRD), a national NGO in Cameroon is working with indigenous communities. The NGO helps the Baka communities in nursery development and tree planting using trees with environmental, social and economic values such as moabi (*Baillonella toxisperma*), njansang (*Ricinodendron heudelotii*), bush mango (*Irvingia gabonensis* and *Irvingia wombolu*) and the African oil bean (*Pentaclethra macrophylla*). The capacity of communities is strengthened in nursery establishment and development, tree planting, enterprise and value chain development. 15000 trees have been planted in 3 years in 150 hectares of degraded forests and lands. 500 women and youth are involved and more than 600 green jobs have been created. Furthermore, children from 30 schools have been sensitized on the importance of forest landscape restoration and the choice of trees that have environment, social and economic values⁴⁸.

3.6. Promoting rangelands restoration in Africa

“When we cut down a forest, when we see a 100-year-old tree fall, it rightly evokes an emotional response in many of us. The conversion of ancient rangelands, on the other hand, happens in ‘silence’ and generates little public reaction. Sadly, these expansive landscapes and the pastoralists and livestock breeders who depend on them, are usually under-appreciated. Despite numbering an estimated half a billion individuals worldwide, pastoralist communities are frequently overlooked, lack a voice in policy-making that directly affects their livelihoods, marginalised, and even often seen as outsiders in their own lands.” Ibrahim Thiaw, UNCCD Executive Secretary⁴⁹.

Rangelands consist of natural grasslands used for livestock and wild animal grazing and forage. Included are savannas, shrublands, wetlands, tundra and deserts⁵⁰. Rangelands cover 54 percent of all land and 50% of the area is degraded. Furthermore, rangelands provide 17 percent of world food supply and 33% of earth’s carbon⁵¹. The restoration of rangelands will improve Africa food security and nutrition and livelihood by increasing milk and meat production. Indeed, milk and meat production need to be increased in many countries that are members of the AFR100 initiative. For milk production, Rwanda has shown the strategy and the way to follow. From a national milk production of 121400 tons in 2005, national national milk production in Rwanda reached an amount of 1061300 tons in 2023⁵². This shows an increase of 8.7 times in 18 years. For meat production several AFR100 countries like South Africa, Sudan, Ethiopia, Namibia, Kenya, Tanzania, Chad, and Nigeria have a very high potential of supplying the continent.

3.7. Promoting drylands restoration

Dryland ecosystems cover 60 percent of the African continent. They are home to more than 525 million people dependent on the land for their food and livelihoods, largely through farming and pastoralism. It contains some of the continent's most celebrated wildlife and plant species, and produce much of the continent's food⁵³.

Drylands are terrestrial landscapes where the evaporation and transpiration of water into the atmosphere is at least 150 percent greater than the amount of rainfall. Drylands cover more than 40 percent of the world's terrestrial area. Drylands hold one third of all biodiversity hotspots and 44 percent of agricultural land. They are categorized based on their aridity, rising from dry and sub-humid lands such as savannahs and grasslands up to hyper-arid lands like the Sahara⁵⁴.

3.7.1. Protection of African Drylands

The protection of natural resources in the drylands of Africa requires to address the drivers of deforestation, and forests and land degradation. This can be done through policy interventions, sensitization, awareness raising, capacity building and finding new sustainable technologies. For example, a) improving harvesting techniques for natural resources; b) finding alternative biomass energies, which reduce cutting trees for firewood and charcoal production; c) better collaboration between the forestry administrations and local communities (co-management; d) giving more voice to community leaders in resource management and to combat opportunistic behavior etc...⁵⁵;

3.7.2. Restoration of African Drylands

The restoration of African drylands provides the following environment and socio-economic benefits: increased forest cover, biological diversity, land fertility and carbon sequestration in order to reduce the negative effects of climate change; furthermore, the restoration of African drylands improves food, nutritional and water security for the populations; it also increases green employment opportunities and incomes for populations, especially women, youth and minorities (indigenous or pygmy populations) and the well-being of households. The role of agroforestry is very important because it allows in the longer term to have multi-strata-agroforestry systems that could be equivalent to secondary forests. This is even more interesting with tree domestication which has reduced the production cycle of many important agroforestry trees while maintaining their characteristics and particularly their consumer preference attributes⁵⁶.

3.8. Promoting nursery development and production of planting materials as a restoration business in Togo

In Togo, with the support of the GIZ's F4F (Forests 4the Future) project, 124 nursery specialists (including 47 women, 35 youth and 42 men adult) in the prefecture of Tchamba (Togo) have been able to improve their incomes by selling forest and agroforestry seedlings for the restoration of degraded land in this prefecture. The table below provides information on the number of plants sold in 2021 and in 2022 along with the overall turnover and revenues obtained by the respective plant producers (nursery specialists or business entrepreneurs) involved in the project.

Items	CFA Francs in 2021	CFA Francs in 2022
Number of plants sold	293,233	429,946
Overall turnover	16,272,000	28,596,000
Total revenues distributed to plant producers (nursery specialists)	7,566,000	15,232,000
Average revenue obtained per household	85,000	146,000
Average revenue obtained per youth	NA	124,000
Average revenue obtained per adult	NA	134,000
Average revenue obtained per woman	NA	112,000

Source : Gatonnou et al. 2023⁵⁷.

As the tableau shows, from 2021 to 2022, the number of forest and agroforestry seedlings sold by nursery specialists increased by 46 percent. The overall turnover increased by 75 percent (from 16,272,000 CFA F to 28,596,000 CFA F or from 24805 Euros to 43591 Euros) which implies that more market outlets were provided to these business entrepreneurs. As a result, the total revenue distributed to nursery specialists (business entrepreneurs) increased by 100 percent. Likewise the average revenue obtained by each household participating increased by 71 percent. This secondary activity for these nursery specialists has provided women and youth with a significant income, as shown in the table.



4. CONCLUSIONS

“Although agriculture remains a mainstay for the majority of Africa's workforce, its growth is yet to match the ambitions of eradicating hunger and malnutrition,” Mrs. Estherine Lisinge- Fotabong, Director of Agriculture, Food Security and Environmental Sustainability, AUDA-NEPAD⁵⁸.

This information note shows that the AFR100 initiative can add significant value to the food systems in Africa through restoration thereby contributing to the ambitions of eradicating hunger and malnutrition in the continent. This can be done through soil fertility improvement to increase agricultural production ; using improved technologies to shift the supply curves of food and forest products upward ; supply of more drought and resistant varieties produced by national agricultural research institutes to increase the resilience of smallholders ; increase in carbon sequestration and biodiversity, mostly through planting indigenous trees that have environmental, social and economic values ; increase in livelihood opportunities and diversified incomes for African smallholder farmers ; and improved access to food through own production and/or purchases.

The information note also shows that there is a good opportunity to develop further the value chains of agricultural, agroforest, forest, animal and aquaculture products coming from the restoration of degraded forests and lands. In addition, women and youth should be engaged more in agricultural, agroforest, forest, animal and aquaculture products restoration businesses that provide environmental (ecological), social and economic benefits in order to increase production, bridge the food import gap, improve food security and nutrition and economic growth in Africa. Furthermore, this information note illustrates that the AFR100 initiative can transform the African food systems through restoration which will increase prosperity and reduce poverty in the continent. For this to materialize, there is a need for a continuous political will and support from African governments.

5. END NOTES

- ¹ Ousseynou Ndoeye, PhD
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- ⁴ Meseret Shiferaw
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- ⁵ Several other Africa Union member countries have expressed an interest to joint the AFR100 initiative. Therefore it is expected that this number will increase over the years.
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