Regreening Africa

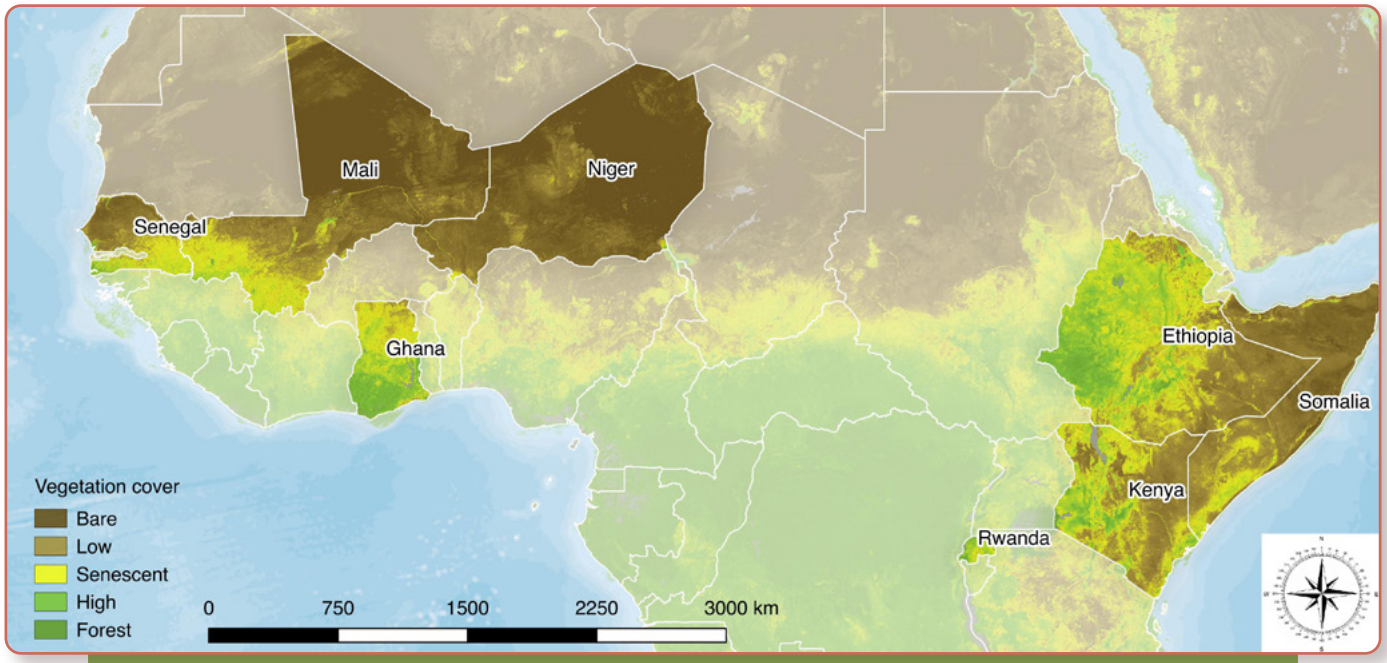
REGREENING AFRICA

ETHIOPIA Country Overview

Funded by European Union

Regreening Africa Program Overview

Regreening Africa is an ambitious five-and-a-half-year program (2017-2023) that seeks to directly reverse land degradation across eight countries in sub-Saharan Africa by integrating trees into agricultural systems while improving the livelihoods, food security, and climate change resilience of smallholder farmers. The program's vision is to spur regreening among 500,000 households across one million hectares in Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal, and Somalia, thereby catalyzing a much larger scaling effort to regreen tens of millions of hectares of degraded land across the continent.

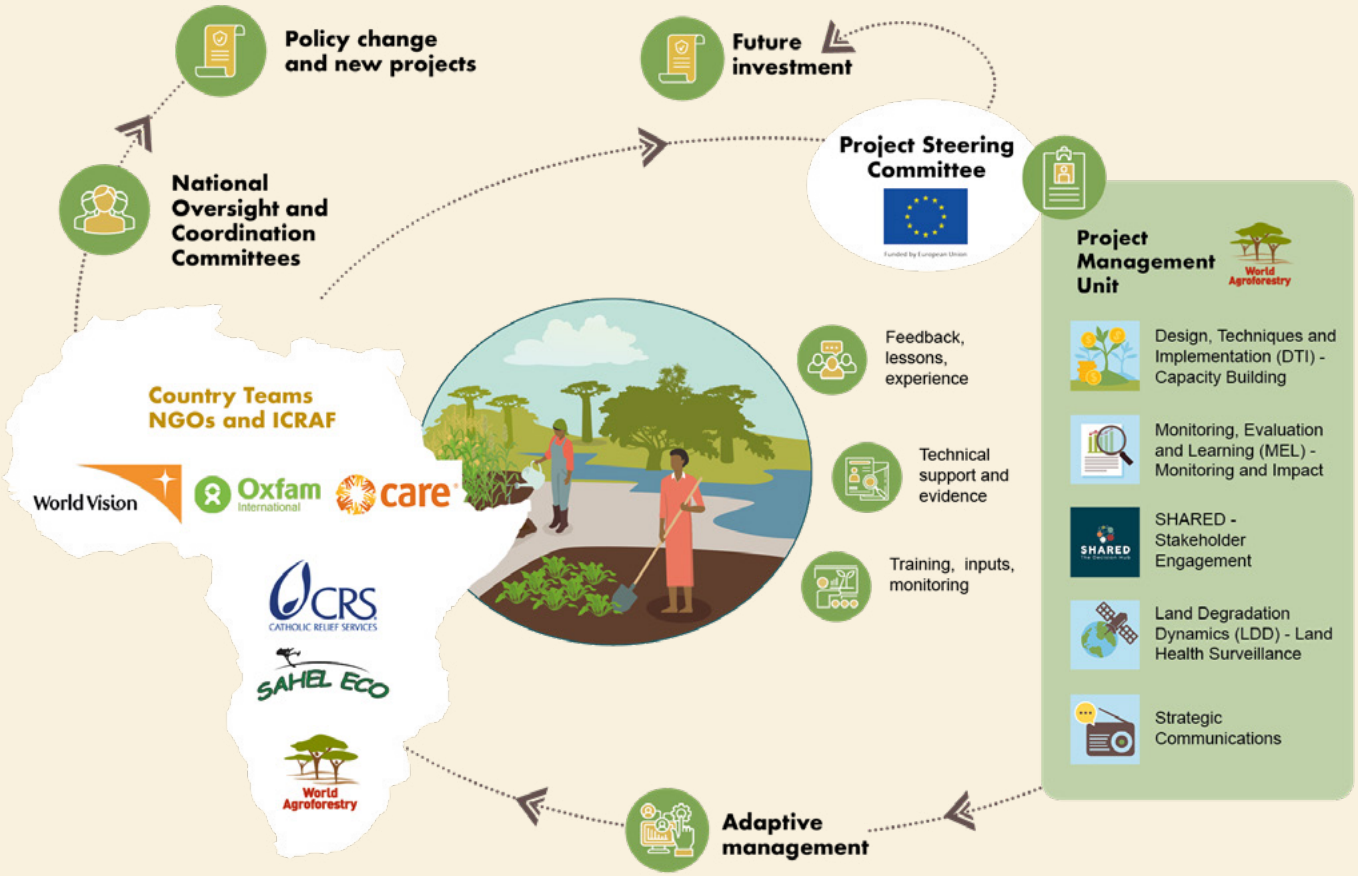


To achieve this, Regreening Africa has mobilized and worked with diverse partners to scale up evergreen agriculture, using locally appropriate techniques such as Farmer-Managed Natural Regeneration (FMNR), Assisted Natural Regeneration (ANR), tree planting, and other forms of agroforestry and sustainable land management interventions.

500,000 households, across 1 million hectares in eight countries in Sub-Saharan Africa.

By incorporating trees into croplands, communal lands and pastoral areas, regreening efforts make it possible to restore Africa's degraded landscapes.

The program's unique engagement approach, partnership model, and advisory capacity aim to sustain the land restoration movement on local and country level beyond the five-year program. Thus, Regreening Africa engages in strategic decision-making for scaling, working across the eight countries to collect and apply evidence in multi-stakeholder engagement and policy processes. The program promotes proven land restoration techniques adapted to suit the needs of farmers and pastoralists under varying socio-ecological contexts. While adapting to diverse circumstances, the program prioritizes gender, youth empowerment, and food security as outcomes of implementation. The program operates as a consortium of research partners (ICRAF) and implementing NGOs (World Vision, CRS, Care, Sahel Eco, Oxfam) with local governments and communities. Through the use of monitoring tools like the Regreening Africa app developed by ICRAF, citizen scientists are empowered to take charge of monitoring the initiative's progress and giving stakeholders a more holistic picture of local realities.



Context for Addressing Land Degradation in Ethiopia

Land degradation is a pressing issue. Land restoration is a crucial investment.

Land degradation poses serious threats to Ethiopia. Approximately 80% of the country's population lives in rural settings and rely directly on the land and its services for their livelihoods. However, land degradation and declining soil fertility across the country has been severely impacting agricultural productivity and food security.[1]

Land degradation in Ethiopia is most commonly a result of soil erosion by water, nutrient depletion by agricultural soil mismanagement, and overgrazing by livestock.

A study conducted by the Economics of Land Degradation (ELD) shows that from 2003-2013, the average soil NPK (nitrogen, phosphorus, and potassium) depletion was 768,000t/year (or ~60kg/ha/year). Additionally, 781,000t/year (or 61kg/ha/year) NPK was lost through erosion, gaseous exchange, and leaching.[2]

Based on the assessment conducted by the Environment, Forest and Climate Change Commission, 73% of Ethiopia's land area was identified as having potential for tree-based landscape restoration.[3] ELD estimates Ethiopia has the potential to increase agricultural productivity from 1.89 to 9.92t/ha/year by investing in sustainable land management (SLM), ultimately reversing land degradation, creating rural job opportunities, reducing poverty and food insecurity, and growing the national economy.

"Before the beginning of the regreening practice, this place was like a desert."

Mr Sultan Haji, FMNR Group Member

[1] Report for the Economics of Land Degradation Initiative in the framework of the "Reversing Land Degradation in Africa by Scaling-up Evergreen Agriculture" project. Tilahun, M. (2020). The Economics of Land Degradation Neutrality in Ethiopia: Empirical Analyses and Policy Implications for the Sustainable Development Goals.

[2] Same report as footnote 1

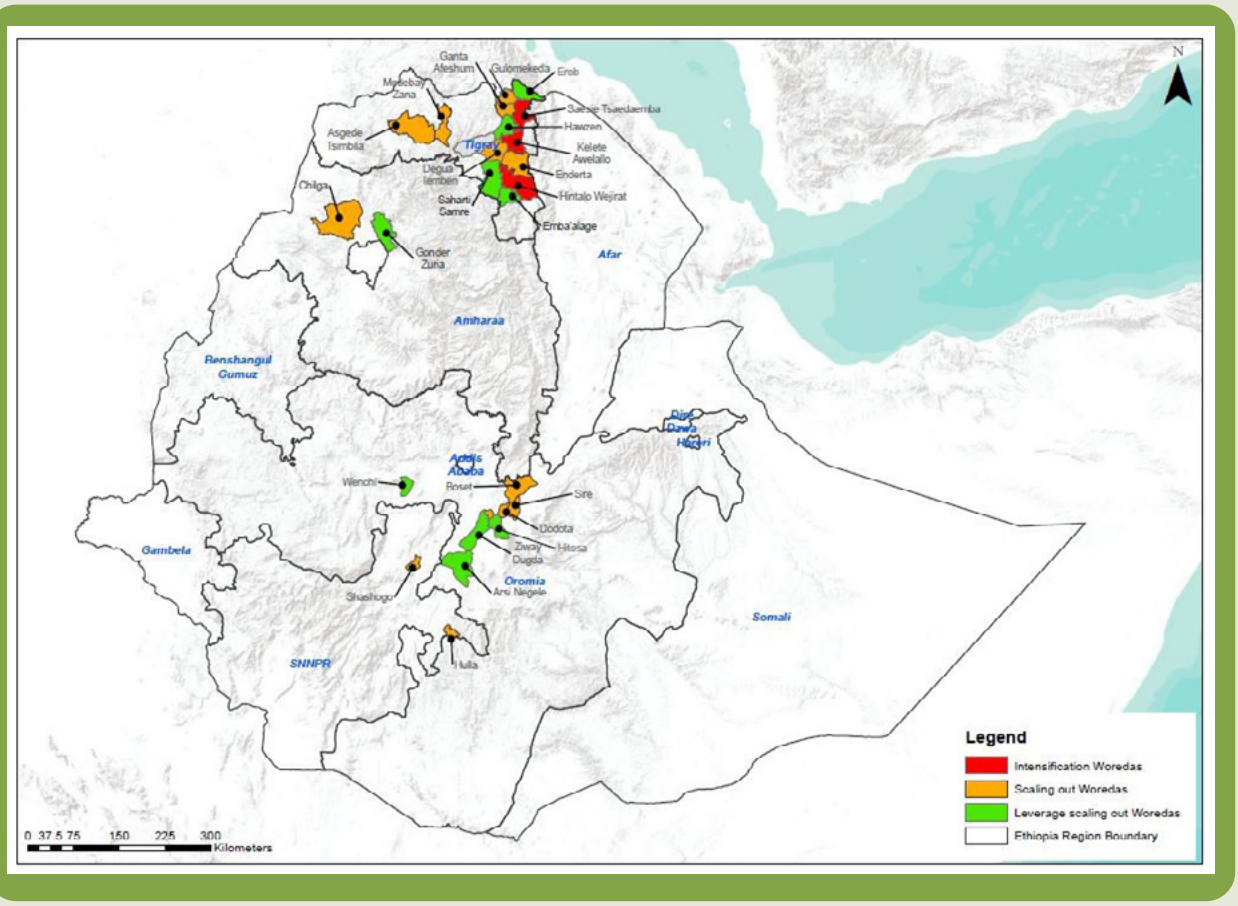
[3] Ministry of Environment, Forest and Climate Change (MEFCC). 2018. National Potential and Priority Maps for Tree Based Landscape Restoration in Ethiopia (version 0.0): Technical Report. Addis Ababa: Ministry of Environment, Forest and Climate Change.

Ethiopia Operational Overview

The ultimate aim of the Regreening Africa Program in Ethiopia is to foster a massive, sustained landscape restoration movement with nationwide uptake. The project has built on the successes of existing restoration programs, providing a solid basis for nationwide scale-up.

The project has been implemented in 25 woredas (districts) across four regional states	The primary partners active in Ethiopia
• Tigray (for years 1-3 only) • Oromia • Southern Nations Nationalities and People's Region (SNNPR) • Amhara	Catholic Relief Services and partners (Ethiopian Catholic Church Social and Development Commission of Adigrat, Ethiopian Catholic Church Social and Development Commission Mekele Branch, Ethiopian Catholic Church Social and Development Commission Meki Branch)
Direct expansion has taken place in 15 woredas and the leveraging of practices in 10	• World Vision Ethiopia • ICRAF Ethiopia

Project Invention Map



Ethiopia's Primary Regreening Strategies

Agroforestry – the deliberate and systematic integration of trees with crops, communal areas, and pasture (where appropriate), which is central to the sustainable management of land and maintenance of healthy landscapes. In addition to a multitude of environmental benefits, such as limiting erosion and increasing carbon storage, soil health, and water retention, agroforestry also provides an additional source of food, fuel, and marketable tree products for farmers and pastoralists.

Agroforestry can take many forms. Below are the agroforestry practices that collectively make up the focus of Regreening Africa in Ethiopia:

FMNR (Farmer-Managed Natural Regeneration)

Systematic regeneration and sustainable management of trees and shrubs beginning with tree stumps, roots, and seeds in the soil. FMNR takes place on agricultural lands, commonly smallholder plots. FMNR draws on indigenous techniques of the Sahel and can increase the number and diversity of trees in fields, largely indigenous or local species. Trees cultivated through FMNR have better survival rates as they use pre-existing root structures, and thus face less water stress. FMNR has been prioritized for sites with high water stress.

To accomplish this:

1. Farmers select desired tree shoots, and for each, choose a number of the tallest and straightest stems to leave.
2. Remove the unwanted stems and side branches. Manage any threats to remaining branches, such as those from livestock and fire. Use the cut branches as fuelwood and the leaves as mulch or fodder.
3. Cull emerging stems and prune side branches from time to time.
4. Support emerging saplings with appropriate materials such as sticks, stones, etc. to quicken growth and attain straightness.[4]

> **"We enclosed the degraded land in collaboration with the community to rehabilitate it. We have benefited both in terms of income generation and fodder for our cattle."**
>
> Tilahun Gebru,
> Community Member

ANR (Assisted Natural Regeneration)

ANR takes place on communal lands where protection of mother trees and wildlings is prioritized. In Ethiopia, ANR has primarily taken place in degraded watershed and pastoral systems.

[4] *Rinaudo, T., Muller, A., & Morris, M. (2019). Farmer Managed Natural Regeneration (FMNR) Manual. 204. https://fmnrhub.com.au/fmnr-manual/.*

Nurseries

Controlled spaces where young tree seedlings or other plants are propagated in large quantities for eventual transplant into fields or for sale at markets. Nurseries are especially suitable for areas with less ideal soil conditions and commonly see a higher survival rate of plants compared to traditional tree planting. Regreening Africa supports government nurseries with improved qualities that have high purity and germination capacity.

Tree planting

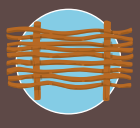
Process of transplanting tree seedlings. Planting high value tree species for fruit and timber production has been promoted. In Ethiopia, trees have most commonly been planted in enclosures, pasture grasslands, woodlots, and home gardens.

Grafting

Grafting is a horticultural technique where the tissues of two plants are joined so they can continue growing together. The upper part of the combined plant is called the scion, while the lower part is called the rootstock. Trees grafted from healthy rootstock will grow faster, develop quicker, and are more resilient to environmental pressures such as droughts. Used largely for fruit trees, grafting offers the opportunity to improve the quality of the fruits, shorten the fruiting period of trees, and accelerate the returns on investments for slow growing indigenous species. In Ethiopia, grafting was mainly done on mango and avocado fruits, and the practice was technically supported by the Melkasa Research Center, located close to several implementation woredas (Dodota and Sire).

Enrichment planting with water harvesting structures

The process by which trees are planted to increase the population density of existing species or diversity by adding to a degraded forest. The enrichment planting of economically important trees and bee forage in drought-prone areas with high water scarcity, along with water harvesting structures, enhances vegetative growth and provides economic benefits to the community through sustainable harvesting. Enrichment planting is widely practiced in existing and new area enclosures.



Farmer organised area enclosures

Areas protected from destructive human and livestock activities for restoration purposes. These areas are often protected through social fencing and the use of local guards. Some activities, such as grass collection and beekeeping, may be allowed. Sometimes, area enclosures are supported with enrichment planting of relevant tree species to increase the productivity and benefits.

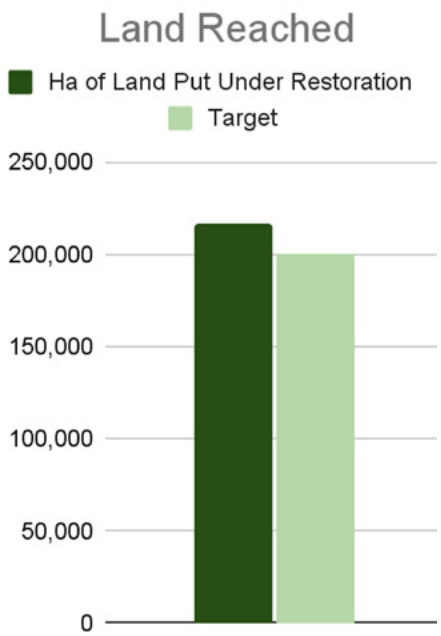
Key Achievements and Impacts

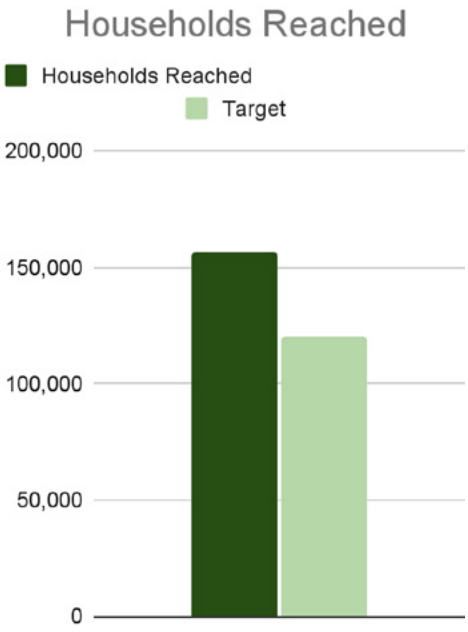
Livelihoods - Creating more sustainable livelihoods

Significant success in advancing agroforestry and SLM has been experienced in Ethiopia over the years of the Regreening Africa Program, despite challenges such as the COVID-19 pandemic and conflicts in the Tigray region.

In Ethiopia, Regreening Africa has utilized volunteer farmer trainers (VFTs) in a cascading outreach and capacity building model. The establishment of Rural Resource Centers (RRCs) and strengthening of tree nurseries have furthered extension services. Furthermore, the Regreening Africa Program has established strong coordination and collaboration with government sectors, especially at woreda level.

In the past five years, CRS and WVE have covered a total of 217,056 hectares (against a target of 200,000ha) and 156,206 households reached (against a target of 120,000).



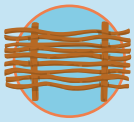


When project and local leaders brought the idea of land restoration on Gamora mountain, I laughed, assuming re-greening this land is impossible and unimaginable. Now, I realize that there is nothing impossible if we are committed to change."

Mr Adem Nuriye, chairman of Gamora watershed

Additional Top Impacts

Nearly 20 million tree seedling were raised and planted with support of the program - this work has been done under the scope of the Green Legacy Initiative.



Over 125,000 ha were put under area enclosures for restoration.

384 FMNR groups were established.

22 government tree nurseries were supported in 8 woredas and 1,124 private nurseries were supported in WVE project sites.

Regreening messages were broadcasted on the radio in local languages and a documentary video on regreening best practices and success was produced and shared on the regional television channels.

Value chains promoted on beehives and bamboo handicrafts generated additional income for targeted households.

11 Rural Resource Centers (RRC) were promoted.

Project support was critical to the formation of the National Watershed Management and Agroforestry Platform (NWAMP).

Previously, my neighbors and I presumed that trees on farms, especially where there are crops, will take up all the minerals, thus reducing productivity of our source of food. I am glad we were proven wrong, as this notion is not true at all. My family is now assured of nutritional nourishment through the fruits, something I never envisioned, as money was scarce to afford this luxury."

Alemtsahay Gebrehiwet, Farmer, Derishem watershed, Hakifeni Kebele, Medebay Zana district, Tigray Region

Timeline of Key Events, Inventions and Impacts

This section gives an overview of Regreening Africa's major impacts, interventions, and events over the years. The multi-faceted work done through this program falls into the following categories:

Impact Areas

Livelihoods
Creating more sustainable livelihoods

Landscapes
Strengthening resilience to changing climates

Capacity
Growing and mobilizing skills and expertise

Outreach and Advocacy
Turning knowledge into action

Women and Youth
Engaging everyone in change

Policy and Partnerships
Creating change at all levels

Program Governance
Increasing the efficiency of operations

Evidence Learning and Adaptation
Letting evidence inform practice

YEAR 1 (2017-2018)

Project launch - Year 1 was characterized by planning events, assessments, and the identification of relevant project sites and actors

Baseline survey and value chain scoping study were conducted in 6 selected scaling-out woreda (Enderta, Ganta Afeshum, Asgede Tsimbla, Chilga, Sire and Sheshogo).

Project country action plan was developed. The planning team also developed a theory of change as well as gender plans at the country level.

The National Oversight and Coordination Committee (NOCC) was established to oversee project progress and provide guidance.

The Regreening Africa Program created synergy with the LRO (Livelihood Resilience in Oromia) project of CRS. Regreening activities were integrated in the LRO project annual work plan in three leveraging woredas in Oromia.

Program MEAL plan developed, program progress tracking format developed and SMILER coaching conducted.

YEAR 2 (2018-2019)

1,647,452 tree seedlings were planted on 10,138ha of communal land and 82,877 planted on 3,400ha of farmlands. Additionally, 115 kebeles (the lowest administrative unit in Ethiopia) in 14 woredas were reached with regreening interventions.

60,174 households (24,967 women-headed) adopted various regreening practices. Another 1,081 households (259 women-headed) integrated regreening practices through other leverage projects.

+-23,000 farmers, 360 (VFTs, 180 FMNR groups, 253 tree nursery operators, 40 savings groups, and 21 project partner staff members) received technical skills and knowledge on FMNR, agroforestry practices, by-law formulation, nursery tools, and seed cultivation.

27 FMNR groups were established in 8 direct scaling woredas.

A country-level communications strategy was established and participatory community action plans were developed in all sites. Learning and promotional materials, such as leaflets and posters, on FMNR and regreening practices were created in three local languages. Additionally, a restoration best practices video was produced.

Capacity building train the trainer events were held for Development Agents (DAs), woreda sector office experts, and local NGOs and CBOs on FMNR, incorporating sessions on gender equality, gender integration, and gender-based violence (GBV) protection.

A multi-stakeholder workshop and steering committee meeting were held, using SHARED methodology.

Activities to facilitate the development of stakeholders' action plans to strengthen targeted value chains were initiated in Ethiopia.

YEAR 3 (2019-2020)

285 VFTs (45 women) were trained on regreening practices to be able to efficiently provide peer to peer extension services. *Volunteer farmers are playing a pivotal role in their communities as they influence their peers to adopt regreening technologies and provide technical support.*

FMNR/conservation groups (consisting of 1,490 members), 9 CBOs (2,224 members), and 6 saving and internal lending community (SILC) groups received training on FMNR, agroforestry, tree planting, and gender integration in land restoration.

215 nursery operators (100 women) were trained on nursery, seedling, and soil fertility management, composting, and grafting.

77 FMNR groups were established.

21 community action plans were developed for Sire, Dodota, Gulomekada, Ganta Afeshum, Saesie Tsaedaemba, Enderata, Degua-Temben, Hintalo Wajerat, Jeju, Shashogo and Asgede Tsimbla woredas. By-laws were prepared for 10 user groups in Jeju.

10 RRCs were established (2 in Oromia, 2 in SNNPR, and 6 in Tigray).

Reward system was established for outstanding farmers who raise more than 30,000 seedlings, top-performing cooperative, and best woreda sector office. Prizes include certificates, pruning scissors, saws, pickaxes, watering cans, rakes, etc.

Honey producer groups were supported with modern beehives and bee colonies and trained on extracting, packaging, and marketing quality honey and wax.

A fruit crop producer group with 44 members was provided with 800 improved fruit tree seedlings and trained on post-harvest management, quality improvement, and labeling.

Bamboo and firewood value chain groups in Hula and Asgede Tsimbla were supported to generate income of USD 3,514 and USD 938 respectively in the reporting year.

Project facilitated negotiation between value chain actors and government departments, allowing timber, pole, and firewood smallholder producers and traders to obtain permits to harvest products sustainably from eucalyptus plantations.

Regreening messages were broadcasted on radio and television. It is estimated millions were reached. More than 1,200 farmers requested fruit seedlings as a result of these broadcasts.

Regreening messages were disseminated by amplifiers while driving through villages and marketplaces. Awareness raising and community mobilization have also occurred during church gatherings. Additionally, 1,000 manuals/guides on FMNR, seedling survival, and other SLM strategies were produced and distributed.

National Watershed and Agroforestry Multi-Stakeholders Platform (NWAMP) established.

National Agroforestry Development Strategy established.

35 school environmental clubs were established across implementation sites and provided awareness training. A total of 452 students (215 girls) attended these events.

Farmer field days and exchange visits furthered community mobilization across all woredas.

YEAR 4 (2020-2021)

Conflict in Tigray resulted in implementing partners moving their work to other project sites in Oromia for year 4

1,795 persons (374 women) were trained and materially supported on FMNR, area enclosure, natural resource management (NRM), watershed planning, by-law development, water conservation, and tree planting.

Joint reflection and learning mission and annual review and planning mission conducted in August 2021.

The project supported the production and planting of 7,478,884 tree seedlings as part of the national Green Legacy Initiative (GLI).

96 participatory community action plans were developed to adopt regreening practices.

40 of the best regreening VFTs were rewarded with agricultural equipment and solar generators in recognition of their achievements.

2 honey producer groups harvested 247 kg of honey and gained USD 1,884 within the reporting year.

3,119 (673 women) community members were sensitized and mobilized on regreening practices by a government mass mobilization campaign, public events, and community social gatherings.

40 school environmental clubs were established and trained on FMNR, nurseries, tree planting and management.

280 copies of FMNR manuals and 7,460 FMNR brochures, posters, and stickers were printed and distributed in four languages (English, Afan Oromo, Amharic and Tigrigna).

Support to 2 RRCs helped generate USD 6,208 through the sale of fruit and tree seedlings.

150 farmers, VFTs, and government extension agents benefited from experience sharing visits.

The government incorporated FMNR in their development plan as a land restoration technique for arid and semi-arid areas.

Videos of agroforestry and farmer organized enclosures were produced and shared.

Capacity building training on FMNR, incorporating gender equality and gender-based violence prevention sessions, were provided to 204 (45 women) DAs, woreda agricultural office experts, zonal agricultural office experts, religious and opinion leaders, and women beneficiaries.

235 (43 women) nursery operators were trained on nursery management to improve production of high-quality planting materials.

Georeferenced data were collected on 49,125ha of land under restoration.

68 episodes of radio messaging on FMNR and regreening best practices were broadcast at the local and national levels via Fana Broadcasting Network (FBC) and Oromia Broadcasting Network (OBN).

Uptake survey was conducted in March 2021 to track the progress of the program.

YEAR 5 (2021-2022)

Theoretical and practical training on FMNR and agroforestry, in addition to experience sharing visits within the district, were provided to 1,009 VFTs (101 female) in Ziway Dugda, Negele Arsi, Shalla, Shashogo and Hula districts.

823 (58 women) VFTs provided extension services to 8,642 (1,469 women) farmers in their respective villages and neighboring kebeles to practice FMNR and agroforestry on their farmlands, rangelands and homesteads.

125 FMNR groups were established in Ziway Dugda, Negele Arsi, and Shalla districts, consisting of 2,499 farmers (425 women). Existing FMNR and conservation groups were provided with refresher training and technical support.

A total of 71 participatory community action plans were developed in the newly selected kebeles of Ziway Dugda, Negele Arsi, Shalla, Hula, Shashogo and Jeju.

The capacity of 22 government/ public/private nurseries and RRCs was strengthened through the provision of tools, equipment, and quality tree seeds (2,044kg) and fodder seeds (290kg).

Train the trainer events on FMNR and other regreening practices targeted 152 government and project staff in Ziway Dugda, Negele Arsi and Shalla.

447 (81 women) stakeholders participated in start-up workshops organized at the district level in Jeju, Hula and Shashogo.

Training on entrepreneurship, bookkeeping, value addition, and customer handling was provided to 4 bamboo cooperatives in Hula composed of women, youth, and poor households. They were further supported with energy efficient cookstoves.

44 school environmental clubs were established and strengthened and 132 (41 girls) students and teachers from 21 schools were trained on regreening practices.

Training on nursery management was provided to 87 (47 women) members of government and public nurseries and RRCs. 11 government and public nurseries were strengthened through the provision of tools and fodder seeds.

80 awareness creation campaigns were held and 29,745 (6,300 women headed) households were reached.

Technical support on formulation and revision of by-laws was provided to cooperative members in Jeju, Hula and Shashogo in collaboration with district justice, police, environment, forest and climate change offices and Kebele leaders.

11,975 (1,680 women) households were mobilized and delineated 23,183ha of degraded land to regreen in Jeju, Hula, and Shashogo districts.

9,000 brochures and posters and 50 FMNR manuals were designed in Afan Oromo, Amharic and English and are being printed and distributed to stakeholders at the national, regional and local level.

Stakeholder workshop was held in June, providing a platform for establishing synergies and sharing lessons.

Highlighted Success

Working for a Better Future
- the Communal Benefits of Enclosures

In 2019, through the efforts of WVE, farmers of the Alage kebele in Shashogo District of the Southern Nations and Nationalities and Peoples' Region agreed to enclose a 7 hectare plot of communal land that had been severely degraded by overgrazing and erosion. Despite the poor condition of this land, this agreement still did not come easily. Ultimately, backing from elders and local opinion and religious leaders swayed the community in support of the effort.

"Humans destroyed nature due to lack of knowledge on how to care of it while still meeting their immediate needs. We're now learning how to first heal from our selfish acts to then heal nature. This is what Regreening Africa is doing in our area."

Daniel Mirkeno, Farmer, Musagesa shiro Kebele, Shashogo district, SNNPR region

The implementation approach to establishing enclosures

- Awareness raising and community mobilization.
- Community organization into groups/cooperatives.
- Site delineation and capacity building on FMNR, tree management, and silvicultural practices.
- By-law, management plan, and business plan development in consultation with communities.

This land, now protected from destructive activities, has begun to restore rapidly. Just 1.5 years after enclosure, the land was covered with grass, shrubs, and trees. Farmers can now sustainably profit from the land by cutting and selling grass to other farmers. The farmers have organized themselves into an association and plan to collectively save gross profits.

Enclosures lead to increased vegetation cover, enhanced species diversity, reduced erosion, regeneration of lost species, and job creation. Additionally, throughout program operations, it was observed that restoration activities strengthened community cohesion, unity, and peace.

When managed in a participatory manner, enclosures can provide notable environment and economic benefits.

A blog on this enclosure can be found on ICRAF's website

Photo: World Agroforestry/Eyob Getahun

Lessons Learned

Best practices and bottlenecks for scaling up regreening practices

What worked well?

- FMNR was particularly well received in dry areas due to its ease of adoption, low cost, and high success rate.
- The VFT approach proved to be an effective and cost efficient way to promote regreening practices.
- Grafted high value fruit trees were highly accepted by the community and this approach increases the livelihood of households - integrating livelihood options/income generating activities motivated beneficiaries to adopt FMNR and other regreening options.
- Matching practices to the local context resulted in better acceptance by the community and government, increasing the adoption of regreening practices.
- Conducting regular joint monitoring visits and review meetings with stakeholders created ownership of the project.
- Conducting Data Quality Assessments (DQAs), reflecting on the findings and sharing results with partners greatly improved the quality of data flow and accuracy.

What are the best practices for gender and youth inclusion in the regreening movement?

- By adopting FMNR, the amount of time spent collecting fuelwood for household cooking, a task commonly performed by women and youth, can be greatly reduced.
- Home gardens are particularly effective in improving the livelihoods of women and youth through the boosting family nutrition, providing additional income, and creating jobs in processing and marketing.
- RRCs provide job opportunities, thereby improving the income of unemployed youth and women.
- School environmental clubs are one of great opportunities to include youth in the regreening movement.

What were the main challenges?

- The conflict in Tigray and the COVID-19 pandemic.
- Uncontrolled grazing greatly affects seedling survival rate and hinders natural regeneration.
- Shortage of quality germplasm and high prices of grafted fruit seedlings hinder the adoption of regreening practices.
- Concerns among farmers surrounding the shading effects of trees on their crops and their lack of awareness and technical skills regarding best tree management practices.
- Lack of meaningful income and livelihood options in area enclosures, except selling grass.
- Lack of participatory management plans, ineffective by-laws, and weak local governance/management of closures (often disadvantaging the poorest families) led to degradation.

Regreening Africa

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ELD The Economics of Land Degradation