

Multi-purpose nursery (William Akwanyi)

Promotion of different trees for agroforestry (Kenya)

DESCRIPTION

Promoting the values of different trees and their benefits in agroforestry contributes to increased adoption by farmers.

Agroforestry involves the integration of trees and/ or shrubs in a farming system on the same land where crops or pastures are grown. It offers significant environmental, economic, and social benefits. Agroforestry also enables farmers to diversify their on-farm income. Furthermore, it contributes to climate change adaptation and mitigation and improves the environment within the farm, especially soils. However, not every farmer is willing to adopt agroforestry. Trees and shrubs take up space that would have been dedicated to crops or pasture: this is a primary reason why farmers are not willing to plant trees and/ or shrubs on their farms. Similarly, many farmers do not clearly understand the values of some trees and shrubs. It is, therefore, essential to overcome the barriers to adopting agroforestry among farmers.

The ProSoil project has created awareness among farmers in Kakamega, Bungoma, and Siaya Counties about the more efficient and profitable tree and shrub-based value chains to attract farmers to agroforestry and pave the way for greater uptake. The farmers were targeted through their groups. Each group consisting of about 25 farmers, and with at least 30% women. Farmers are introduced to trees and/ or shrubs that blend well with their farming system. In addition, farmers choose trees and/ or shrubs based on the sizes of their farming land and their respective benefits. Farmers can plant trees and shrubs as single stands or integrate them into farming land. They can also plant agroforestry trees around their homesteads. A single stand can have, for example, mangos, avocados, and/or other trees. The project advocates for a more sustainable win-win approach where farmers and the environment benefit from an agroforestry system. Some of the benefits of trees and shrubs, as highlighted by the project, include the following:

a) Soil erosion control: trees and shrubs are planted on across slopes to slow down runoff and trap sediment (consequently, accumulating soil – this can form terraces after several years). Their roots hold the soil in place and reduce the impact of moving water.

b) Stabilising stream banks and gullies (e.g., Leucaena leucocephala, Sesbania grandiflora, Moringa oleifera, etc.): help to reduce soil erosion along streams and gullies when planted at the medium- to high-level watermark. Their roots hold the soil in place and reduce the impact of moving water.

c) Green manure (e.g., Sesbania sesban, Tithonia sp., etc.): from foliage and twigs.

d) Live fences (e.g., Tithonia sp.): used as boundaries to provide privacy and protection from browsing animals.

e) Windbreakers (e.g., Casuarina equisetifolia, Grevillea robusta, Leucaena leucocephala, etc.): planted in one or two rows/ lines closely together along the edges of the farm and perpendicular to winds to protect crops, soils, and structures from the detrimental effects of wind.

f) Fodder (e.g., Grevillea robusta, Sesbania sesban, Leucaena leucocephala, etc.): foliage is food for livestock.

LOCATION



Location: Nyagudha village, South Sakwa Ward, Bondo Sub-county, Siaya County, Nyanza Region, Kenya

Geo-reference of selected sites34.23007, -0.21317

Initiation date: 2019

Year of termination: n.a.

Type of Approach

- traditional/ indigenous recent local initiative/ innovative project/ programme based
- Both traditional practice and project based: farmers have been growing trees and shrubs on their farms but the ProSoil project introduced them to more beneficial trees and better ways of producing the trees e.g., through grafting.

g) Food (e.g., mangoes, avocadoes, etc.): a human food source.
 h) Carbon sequestration (all trees and shrubs): they act as carbon sinks by capturing carbon dioxide from the atmosphere.





A mango stand (William Onura)

APPROACH AIMS AND ENABLING ENVIRONMENT

Main aims / objectives of the approach

Aim: To promote the adoption of agroforestry.

Objectives:

1) To introduce farmers to the diverse benefits of trees in farming.

2) To encourage farmers to incorporate trees and/ or shrubs in their farming.

Conditions enabling the implementation of the Technology/ ies applied under the Approach

- Social/ cultural/ religious norms and values: Trees play a central role in the socio-cultural lives of people and are used for a wide range of cultural practices.
- **Collaboration/ coordination of actors**: Other institutions such as the county governments pass agroforestry information to farmers through the public agricultural extension officers. County governments are important collaborators in the ProSoil project.
- **Policies**: Kenya's 10 Percent Tree Cover Strategy includes the component of promoting farm forestry through various platforms e.g., radio and TV.
- Knowledge about SLM, access to technical support: ProSoil project has supported the dissemination of information about the importance of agroforestry as an SLM technology and how to propagate trees e.g., through grafting. As a result, some farmers have established trees nurseries.
- Markets (to purchase inputs, sell products) and prices: The increasing awareness about the benefits of many trees has led to an increase in the demand for the different products from the trees e.g., fruits, honey, medicines, etc. This potential of trees to generate income encourages farmers to plant trees.

Conditions hindering the implementation of the Technology/ ies applied under the Approach

- Social/ cultural/ religious norms and values: Cultural beliefs: e.g., women are not supposed to plant (some) trees as this is considered a male role. This hinders women from full participation in agroforestry activities.
- Availability/ access to financial resources and services: Some farmers do not have adequate financial resources to purchase seedling of some tree and shrub seedlings.
- Legal framework (land tenure, land and water use rights): Trees and/ or shrubs take several years to mature. This is closely linked to land tenure since most people would prefer to establish trees only on their farms.
- Land governance (decision-making, implementation and enforcement): Women and youth have little or no control over land in most communities. Hence, they cannot make decisions to plant (some) trees on the family land.

PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED

Stakeholders involved in the Approach and their roles

stakenolders involved in the Approach and their roles					
What stakeholders / implementing bodies were involved in the Approach?	Specify stakeholders	Describe roles of stakeholders			
local land users/ local communities	Farmers, farmer groups (women, youth, and mixed gender)	Recipients of the trainings in agroforestry.			
SLM specialists/ agricultural advisers	GIZ ProSoil project SLM specialists; specialists from the implementing partner, Welthungerhilfe; and county SLM specialists from the departments of agriculture and environment.	Provides technical advice to the farmers and link farmers to markets and tree nurseries.			

Agroforestry: trees intercropped with maize (Jared Ayien)

local government	County government agriculture and environment departments	Provides technical advice to the farmers and link farmers to markets and tree nurseries.
international organization	GIZ	Financial support to the technical team and farmers during capacity building.
Lead agency		

GIZ

Involvement of local land users/ local communities in the different phases of the Approach



Flow chart

The ProSoil project (GIZ and WHH) provides financial (transport reimbursement) and material (seedlings) support to farmers through their groups (Ndati Development Self-Help Group). The project also facilitates the county departments of Agriculture and Environment to train farmers in agroforestry and increase their awareness about the socio-economic and ecological benefits of different trees. at the farm.

Decision-making on the selection of SLM Technology

Decisions were taken by

- land users alone (self-initiative)
- mainly land users, supported by SLM specialists
- all relevant actors, as part of a participatory approach mainly SLM specialists, following consultation with land users
 - SLM specialists alone politicians/ leaders

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

The following activities or services have been part of the approach

Form of training

on-the-job

farmer-to-farmer

public meetings courses

demonstration areas

- Capacity building/ training 1
- Advisory service 1
- Institution strengthening (organizational development) 1
- Monitoring and evaluation 1
- Research

Capacity building/ training

Training was provided to the following stakeholders

land users field staff/ advisers

Advisory service

Advisory service was provided

1

on land users' fields at permanent centres Specific locations where the 1 farmers interact with the technical officers and at their farms.

Farmers were trained in their groups at specific venues during sessions organized by the ProSoil project/ WHH. Other farmers are learning from the trained farmers. These specialists also advice farmers during farm visits.

Decisions were made based on

- evaluation of well-documented SLM knowledge (evidence-based decision-making)
 - research findings
- personal experience and opinions (undocumented)

- Subjects covered
 - 1. Different trees in agroforestry and their benefits
 - 2. Tree nursery management
 - 3. Grafting
 - 4. Agroforestry systems
 - 5. Value addition to agroforestry products and marketing

Author:

William

Akwanvi

Institution strengthening

Institutions have been strengthened / established no yes, a little yes, moderately yes, greatly	at the following level local regional national	Describe institution, roles and responsibilities, members, etc. Farmers have formed groups such as Ndati Development Self-Help Group e.g., to run tree nurseries. The groups consist of several men and women of diverse ages. Farmers develop funding and other support proposals through the groups.
Type of support financial capacity building/ training equipment		Further details Trainings in agroforestry, markets, tree propagation, etc. Nursery materials and equipment including water tanks, seeds and grafting tools

Monitoring and evaluation

GIZ and Welthungerhilfe regularly follows up with farmers to check on the implementation of technologies promoted under this approach.

FINANCING AND EXTERNAL MATERIAL SUPPORT

Annual budget in USD for the SLM component

< 2,000 2,000-10,000 ✓ 10,000-100,000 100,000-1,000,000 > 1,000,000 Precise annual budget: n.a. M component ProSoil project facilitated trainings on the SLM technologies under this approach, including transport reimbursement to farmers and trainers and remuneration to trainers during trainings. Farmers meet the costs of land preparation, acquiring seeds and seedlings, planting trees, and managing the trees. The stated budget is for training one farmer group of about 25 farmers.

The following services or incentives have been provided to land users

- Financial/ material support provided to land users
 Subsidies for specific inputs
 Credit
- Other incentives or instruments

Financial/ material support provided to land users

The ProSoil project through Welthungerhilfe supported the farmers (through their group) with trainings and setting up demo plots.

Other incentives or instruments

Linkage to markets for the tree and shrub products. GIZ, WHH, and the county department of agriculture and environmental invite farmers to field days where the farmer can link up with potential markets.

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

impacts of the Approach	
Did the Approach empower local land users, improve stakeholder participation? Farmers were empowered with skill on how to propagate trees. Stakeholder participation was enhanced through collaboration with other actors such as the county government.	No Yes, little Yes, greatly
Did the Approach enable evidence-based decision-making? Farmers were motivated to plant some trees and shrubs on their farms after benchmarking farms which had established and benefited from similar trees.	
Did the Approach help land users to implement and maintain SLM Technologies? After learning about the importance of different trees, farmers incorporated trees in their farming systems e.g., planting trees and/ or shrubs in vegetative cross slope barriers.	Z
Did the Approach improve knowledge and capacities of land users to implement SLM? The trainings given to farmers included how to plant different trees and areas within a farm setting where such trees are best suited. This knowledge was helpful in the incorporation of trees in the implementation of vegetative cross- slope barriers, green manure cover crops, and retention ditches.	
Did the Approach mitigate conflicts? Planting of quick growing shrubs has provided source of fuel wood at the household level reducing conflicts resulting in neighbouring farmers invading farms for fuel wood	
Did the Approach lead to improved food security/ improved nutrition? Some of the agroforestry trees promoted under the different technologies and for which this approach sought to create awareness about are sources of food.	Z
Did the Approach improve access to markets? The trainings include linking farmers to market for some of the agroforestry products.	✓

Did the Approach improve the capacity of the land users to adapt to climate changes/ extremes and mitigate climate related disasters?

Some of the trees are sources of food during months when there is scarcity of food e.g., mangoes mature mostly during the dry season when there is scarcity of food in the households.

Did the Approach lead to employment, income opportunities?

Some farmers have established tree nurseries. They sell tree seedlings to earn income. Some have employed tree nursery operators.

Key references

 Paving the way for greater uptake of agroforestry farming systems: https://www.niras.com/news/promoting-agroforestry-in-the-developmentcontext/#:~:text=Agroforestry%20involves%20the%20integration%20of,dependent%20on%20a%20single%20crop.

Extension Approaches to Promote Effective Adoption of Agroforestry Practices: Lessons Learned from Indonesia: Free download at

Reviewer

William Critchley Rima Mekdaschi Studer Sally Bunning

Last update: April 30, 2024

Main motivation of land users to implement SLM

increased production 1 increased profit(ability), improved cost-benefit-ratio reduced land degradation reduced risk of disasters reduced workload payments/ subsidies rules and regulations (fines)/ enforcement prestige, social pressure/ social cohesion affiliation to movement/ project/ group/ networks environmental consciousness 1 customs and beliefs, morals

- enhanced SLM knowledge and skills
- aesthetic improvement

conflict mitigation

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view

- Trees contribute to environmental management increase in carbon sequestration (capture of carbon dioxide), control of soil erosion, and conservation of water.
- Trees have multiple products, including food, humus, timber, firewood, etc.
- Most trees do not require costly and tedious maintenance.

Strengths: compiler's or other key resource person's view

- Trees can be planted at the homestead. Hence, an added value of the homestead.
- The benefits of trees go beyond the farm and the farmer e.g., beauty which is enjoyed by anyone who looks at the trees.

REFERENCES

Compiler William Akwanyi

Fditors JARED AYIENA Innocent Faith Noel Templer **JUSTINE OTSYULA** Tabitha Nekesa Ahmadou Gaye Siagbé Golli

Date of documentation: Maart 20, 2023

Resource persons

Charles Abok Omolo (charlesabok88@gmail.com) - land user JARED AYIENA (jared.ayien@welthungerhilfe.de) - SLM specialist Innocent Faith (faith.innocent@giz.de) - SLM specialist

Full description in the WOCAT database

https://qcat.wocat.net/af/wocat/approaches/view/approaches_6706/

Linked SLM data

Technologies: Vegetative cross-slope barriers https://qcat.wocat.net/af/wocat/technologies/view/technologies_6705/

Documentation was faciliated by

Institution

- Alliance Bioversity and International Center for Tropical Agriculture (Alliance Bioversity-CIAT) Kenya
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

http://apps.worldagroforestry.org/downloads/Publications/PDFS/PO19073.pdf

- Project
- Soil protection and rehabilitation for food security (ProSo(i)l)

Links to relevant information which is available online

5/6

Sustainability of Approach activities

Can the land users sustain what hat been implemented through the Approach (without external support)?

and income. Some of the trees promoted under this approach can easily

Weaknesses/ disadvantages/ risks: land user's viewhow to

about seed preparation and tree nursery management.

Weaknesses/ disadvantages/ risks: compiler's or other key

Trees can take up land that would have been used for food

resource person's viewhow to overcome

production. Proper planning of the farm.

• Tree seedlings require a lot of manure and proper care to protect

them from animals. Farmers to make their own compost at the

Some seedlings are expensive. Increase awareness among farmers





be propagated by farmers.

overcome

farm.



1

