



Multi-purpose nursery (William Akwanyi)

## Promotion of different trees for agroforestry (肯尼亚)

### 描述

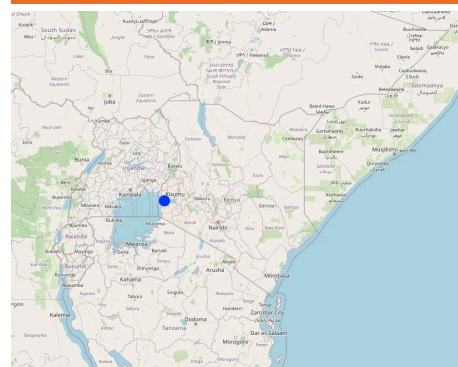
Promoting the values of different trees and their benefits in agroforestry contributes to increased adoption by farmers.

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:

- 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.
- 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.
- Green manure (e.g., *Sesbania sesban*, *Tithonia* sp., etc.): from foliage and twigs.
- Live fences (e.g., *Tithonia* sp.): used as boundaries to provide privacy and protection from browsing animals.
- 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.
- Fodder (e.g., *Grevillea robusta*, *Sesbania sesban*, *Leucaena leucocephala*, etc.): foliage is food for livestock.

### 地点



地点: Nyagudha village, South Sakwa Ward, Bondo Sub-county, Siaya County, Nyanza Region, 肯尼亚

#### 选定地点的地理参考

- 34.23007, -0.21317

启动日期: 2019

终止年份: 不适用

#### 方法的类型

- ☐ 传统/本土
- ☐ 最 的本地倡/创新
- ☐ 基于 方案
- ☒ 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, avocados, 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)



Agroforestry: trees intercropped with maize (Jared Ayien)

## 方法目标和有利环境

### 该方法的主要目的/目标

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.

#### 推动实施本办法所应用技术的条件

- **社会/文化/宗教规范和价值观:** Trees play a central role in the socio-cultural lives of people and are used for a wide range of cultural practices.
- **参与者的协作/协调:** 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.
- **政策:** Kenya's 10 Percent Tree Cover Strategy includes the component of promoting farm forestry through various platforms e.g., radio and TV.
- **了解SLM，获得技术支持:** 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.
- **市场(购买投入，销售产品)和价格:** 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.

#### 阻碍实施本办法所应用技术的条件

- **社会/文化/宗教规范和价值观:** 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.
- **财务资源和服务的可用性/可得性:** Some farmers do not have adequate financial resources to purchase seedling of some tree and shrub seedlings.
- **法律框架 (土地使用权、土地和水使用权) :** 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.
- **土地治理 (决策、实施和执行) :** 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.

## 相关利益相关者的参与和

### 该方法涉及的利益相关者及其职责

该方法涉及哪些利益相关者/执行机构？	指定利益相关者	说明利益相关者的角色
当地土地使用者/当地社区	Farmers, farmer groups (women, youth, and mixed gender)	Recipients of the trainings in agroforestry.
SLM专家/农业	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.
地方政府	County government agriculture and environment departments	Provides technical advice to the farmers and link farmers to markets and tree nurseries.
国际组织	GIZ	Financial support to the technical team and farmers during capacity building.

当地土地使用者/当地社区参与该方法的不同阶段

	无互动	被动支持	外部互动	自我动员
启动/动机 计划	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
实施	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
监测/评估 None	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farmers involved in the training in agroforestry. Farmers consulted on where and when to establish demos of agroforestry tree nurseries. Although farmers are advised which trees are better for their farms, they are the final decision makers on which trees and shrubs to incorporate in their farms. Interviews with implementing farmers.				

流程图

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.

作者  
William Akwanyi

有关SLM技术选择的决策

决策是由.....做出的	决策是基于
<input type="checkbox"/> 仅土地使用者自主	<input checked="" type="checkbox"/> 对充分记录的知识进行评估
<input checked="" type="checkbox"/> 主是土地使用者SLM专家提供支持	<input type="checkbox"/> 研究结果
<input type="checkbox"/> 所有相关参与者作为参与式方法的一部分	<input checked="" type="checkbox"/> 个人经验和意见
<input type="checkbox"/> 主SLM专家咨询土地使用者之后	
<input type="checkbox"/> 仅SLM专家	
<input type="checkbox"/> 政治家和	

技术支持、能力建设、知识和管理

以下活动或服务是该方法的一部分

- ☒ 能力建设/培训
- ☒ 咨询服务
- ☒ 机构强化/组织发展
- ☒ 监测和评估
- ☐ 研究

能力建设/培训

向以下利益相关者提供培训	培训形式	涵盖的主题
<input checked="" type="checkbox"/> 土地使用者	<input type="checkbox"/> 在职	1. Different trees in agroforestry and their benefits
<input type="checkbox"/> 现场工作人员/	<input checked="" type="checkbox"/> 农民对农民示范区域	2. Tree nursery management
	<input type="checkbox"/> 公开会议	3. Grafting
	<input type="checkbox"/> 过程	4. Agroforestry systems
		5. Value addition to agroforestry products and marketing

咨询服务

已提供咨询服务	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.
<input checked="" type="checkbox"/> 在土地使用者的土地上	
<input checked="" type="checkbox"/> 在固定中心	
<input checked="" type="checkbox"/> Specific locations where the farmers interact with the technical officers and at their farms.	

## 机构强化

### 机构已强化/建立

☐ 否 ☒ 是 ☐ 少 ☐ 度 ☐ 是 ☐ 常

### 在下列层面上

☒ 本地 ☐ 区域 ☐ 国家

### 描述机构、角色和职责、成员等。

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.

### 支持类型

☐ 务 ☒ 力建 ☒ 培 ☐ 备

### 进一步细节

Trainings in agroforestry, markets, tree propagation, etc. Nursery materials and equipment including water tanks, seeds and grafting tools

## 监测和评估

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

## 和外部支持

### SLM组成部分的年度预算，以美元计算

☐ < 2,000 ☐ 2,000-10,000 ☒ 10,000-100,000 ☐ 100,000-1,000,000 ☐ > 1,000,000  
Precise annual budget: 不 用

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.

### 已向土地使用者提供以下服务或激励

☒ 为土地使用者提供 政 支持 ☐ 特定投入的 ☐ 信用 ☒ 其它激励或手段

## 为土地使用者提供财政/物质支援

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

## 其它激励或手段

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.

## 影响分析和结论

### 方法的影响

	否	是	是	是	支持力度很大
方法是否有助于当地土地使用者 提 利益相关者的参与度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Farmers were empowered with skill on how to propagate trees. Stakeholder participation was enhanced through collaboration with other actors such as the county government.					
种方法是否有助于基于 据的决策	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Farmers were motivated to plant some trees and shrubs on their farms after benchmarking farms which had established and benefited from similar trees.					
方法是否帮助土地使用者实施和维护M技术	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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.					
方法是否提 了土地使用者实施土地管理的知 和 力	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.					
方法是否缓 了冲突	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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					
方法是否改善了粮 改善了 养	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Some of the agroforestry trees promoted under the different technologies and for which this approach sought to create awareness about are sources of food.					
方法是否改善了市场准入	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The trainings include linking farmers to market for some of the agroforestry products.					



☐ 方法是否提升了土地使用者应对极端情况和减少气候相关灾害的能力 ☐ ☐ ☒

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.

☐ 方法是否会带来就业、收入机会 ☐ ☐ ☒

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

土地使用者实施SLM的主要动机

- ☒ 增加生产
- ☒ 增加利润 ☐ 力 ☐ 提 ☐ 成本效益比
- ☒ 减少土地退化
- ☒ 降低灾害 ☐
- ☐ 减少工作 ☐
- ☐ 支付/ ☐
- ☐ 规章制度 ☐ 罚款
- ☐ 声望、社会压力/社会凝聚
- ☐ 加入 ☐ 运动 ☐ 团体/网络
- ☒ 环境意识
- ☐ 习俗和信仰 ☐ 道德
- ☒ 提高SLM知识和技术
- ☒ 美学改变
- ☐ 冲突缓解

方法活动的可持续性

土地使用者 ☐ 否 ☐ 维持 ☐ ☐ 方法实施的措施 ☐ 无外 ☐ 支持的情况下 ☐

- ☐ 否
- ☒ 是
- ☐ 不确定

Farmers have established group tree nurseries as sources of seedlings and income. Some of the trees promoted under this approach can easily be propagated by farmers.

结论和吸取的教训

长处: 土地使用者的观点

- 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.

长处: 编制者或其他关键资源人员的观点

- 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.

弱点/缺点/风险: 土地使用者的观点如何克服

- Tree seedlings require a lot of manure and proper care to protect them from animals. Farmers to make their own compost at the farm.
- Some seedlings are expensive. Increase awareness among farmers about seed preparation and tree nursery management.

弱点/缺点/风险: 编制者或其他关键资源人员的观点如何克服

- Trees can take up land that would have been used for food production. Proper planning of the farm.

参考文献

编制者

William Akwanyi

Editors

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

审查者

William Critchley  
Rima Mekdaschi Studer  
Sally Bunning

实施日期: March 20, 2023

上次更新: April 30, 2024

资源人

Charles Abok Omolo (charlesabok88@gmail.com) - 土地使用者  
JARED AYIENA (jared.ayien@welthungerhilfe.de) - SLM专业人员  
Innocent Faith (faith.innocent@giz.de) - SLM专业人员

WOCAT数据库中的完整描述

[https://qcat.wocat.net/zh/wocat/approaches/view/approaches\\_6706/](https://qcat.wocat.net/zh/wocat/approaches/view/approaches_6706/)

链接的SLM数据

Technologies: Vegetative cross-slope barriers [https://qcat.wocat.net/zh/wocat/technologies/view/technologies\\_6705/](https://qcat.wocat.net/zh/wocat/technologies/view/technologies_6705/)

文件编制者

机构

- Alliance Bioversity and International Center for Tropical Agriculture (Alliance Bioversity-CIAT) - 肯尼亚
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- 项目
- Soil protection and rehabilitation for food security (ProSo(i))

主要参考文献

- Extension Approaches to Promote Effective Adoption of Agroforestry Practices: Lessons Learned from Indonesia: Free download at <http://apps.worldagroforestry.org/downloads/Publications/PDFS/PO19073.pdf>

链接到网络上可用的相关信息

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

