FOREST GARDEN FARMING FOR PEOPLE AND THE PLANET
BIANNUAL REPORT January-December 2024

Contents

Aim of the report

This report documents all planned and implemented activities starting from January to 30th December 2024. It elaborates project outcome/objectives and specific activities which have been carried out in each objective within the year, with challenges and recommendations also documented. This report was written by Project officers Yahaya Jumanne and Julius Mariki with Intern and Assistant facilitator Gladness Kaaya contributing sections for internship, chili fences, and focus group discussions for mid-term evaluation. In addition, project staff have written Section 2 to this report that documents technical details of each activity, and lessons learned.

Targeted project outcomes

1. **Increased diversity of nutrient-rich foods throughout the year.**
   - Indicators: Diversity of food consumed; months of food sufficiency
2. **Diverse farm products provide more to sell.**
   - Indicators: Number of farm product sold; Farmers report contribution of farm produce to household income
3. **Improved landscapes by increased trees, improved water cycle and microclimates.**
   - Indicators: Area under trees and shrubs; number of species added; visible signs of erosion; farmers report on change in farm environment
4. **Farmers are more knowledgeable, enthusiastic and socially empowered and they have adequate employment and livelihood.**
   - Indicators: Farmers report increased enthusiasm for farming; Farmers report benefits of working in a group
5. **Local NGOs have participated to raise their capacity in FGs.**
   - Indicators: Requests to train and/or give seminars; increase capacity and function to communicate

Expected results outputs include:

- Output 1. Government officers and villagers engaged
- Output 2. Revised: Forest Garden groups functioning (as many groups as needed to reach the minimum target number of farmers, 350)
- Output 3. Revised: Representative of each group, and minimum of 4 extension officers trained
- Output 4. Revised: Members trained in selected training sites (group member's farms as joint training sites for trainings)
- Output 5. Individual farmers forest gardens established
- Output 6. Savings and loans function started, marketing associations established
- Output 7. Local NGOs have participated to raise their capacity in FGs.

Background information

The "Forest Garden Farming for People and the Planet" project introduces the Forest Gardens (FG) Approach in Northern Tanzania, aiming to address challenges faced by small-scale farmers while promoting sustainability. Traditional farming methods yield low outputs, contributing to food insecurity, soil degradation, and limited economic opportunities.

The Forest Garden for People and the Planet project is implemented in Mwanga district lowlands. It started from Kituri and Kifaru villages in year 2023 and expanded to Kwanyange, Kisangara, Ngulu and Kwakoa villages during second year 2024. Expansion to the latter villages added 314 new beneficiaries, 162 females and 152 males. In this report we call these two sets of groups and farmers as old groups or old farmers and new groups or new farmers.

The project offers a solution by establishing multi-layered agroforestry systems that mimic natural forests, enhancing biodiversity, food security, and resilience to environmental changes. The project targets marginalized groups from small scale farming, including women, youth, persons with disabilities and PLHAs.

By integrating trees, vines, herbs, perennial vegetables, shrubs, and other crops Forest Gardens provide diverse products and services, improve livelihoods, and mitigate climate change impacts. Through companion planting and indigenous tree species, FGs enhance soil fertility, water cycles, and landscape aesthetics. The project's objectives encompass sustainable livelihoods, environmental protection, and empowerment of marginalized communities, aligning with sectors such as agriculture, environmental protection, and women's equality.
The project is funded by the Ministry for Foreign Affairs of Finland and coordinated by Liana organization from Finland, partnering with Kiwamwaku Foundation, spanning four years from 2023 to 2026.

Project outcomes

Outcome 1. Increased diversity of nutrient-rich foods throughout the year

What activities have contributed towards this outcome?

Papaya

Figure 1. Malkia F1 papaya seeds and young Papaya trees

We provided new farmer group with high-yield papaya seeds, the MALKIA F1 hybrid variety known for its early fruiting capabilities. A total of 314 new farmers were equipped with 137 packets of 25 seeds each purchased by Yahaya and Neema for 1,303,500tsh from Rafiki Kilimo, Moshi, ensuring that each farmer received 15 seeds for cultivation. These

seeds were planted in polythene bags within tree nurseries and seedlings outplanted in April, 2024. A fruit renowned for its nutritional richness and rapid growth, one stem bear more than 40 fruits at once, we lay the foundation for year-round access to vital nutrients.
At the end of the year, we conducted a focus group discussion with old groups, farmers shared their experiences and highlighted key benefits including successfully harvested their first yields, providing their households with a consistent supply of fresh, nutrient-rich papaya fruits. Papayas were a welcomed addition to daily diets, boosting health and well-being. Many farmers began selling surplus papayas in local markets. On average, they reported earning between 20,000tsh to 50,000tsh per harvest, with some reporting repeat two sales seasons within the year. This additional income helped cover essential household expenses and reinvestments into farming activities. However, we also learned that some farmers experience serious issues with their papaya trees. It is yet to be determined what causes the premature aging of the trees. It is expected that Malkia F1 should yield good harvests for about three years. These farmers noted a severe drop in production after 1.5 years only. Is it the saltiness of the soil due to repeated flooding over decades or lack of right nutrients and watering, we do not yet know.

Other fruit trees: Passion Fruit, lemon, mango and avocado


Figure 2 Passion fruit

Our initiative facilitated the propagation of passion fruit to every farmer. Through successful sowing of seeds and transplanting of seedlings to the polythene bags, we ensured that farmers had access to these nutrient diverse fruits.

The youth groups involved in the project grew about 1,200 seedlings, including 1,050 passion, 100 lemons, and 50 avocados. Despite their efforts to sell these seedlings in open markets only few were sold, and the solution was for the project to organise the new farmers to purchase 715 seedlings and the remaining seedling were shared by the youth themselves to plant in their home sites. The price of the seedlings was shared with the new farmers and the project. Each farmer received 3 to 5 seedlings, with farmers paying 500tsh per seedling (total of 357,500tsh for 715 seedlings). The project contributed 742,500tsh to 1,100,000tsh ensure 11 youth members each received 100,000tsh. Thus, the approach not only supported the youth financially but also helped distribute the seedlings to new farmers to increase diversity of nutrient-rich food.

As a parallel initiative, older group members grew passion seedlings themselves in April 2024 and outplanted them in May 2024. The seeds for this effort were provided by the project, which sourced ripe fruits from local markets in Moshi and Arusha, every farmer managed to raise about 10 to 30 seedlings. Passion were planted under big trees and others in a row of 5m spacing with poles and ropes to make climbing support.

By the end of the year 2024, farmers who successfully planted passion fruit seedlings in May saw them begin to bear fruit. These fruits will add a steady source of nutrition for their households and become a valuable product for sale in local markets, contributing to their economic stability.

While the growth rate of non-grafted lemons and avocados has been slow, some farmers successfully established these trees on their farms, ensuring a future supply of diverse fruits.

Figure 3 Grafting session with a farmer group

In Majengo, Mgigili, and Kwa Lutu, new groups Yahaya initiated avocado and mango grafting training sessions. About 50 grafted seedlings are expected to be ready for outplanting during the next rainy season. Farmers had collected their own seedlings and planted in sacks. This strategy ensured a continuous supply of quality seedlings for planting, thereby enhancing the sustainability and productivity of the agricultural endeavours. By learning to graft, farmers can ensure faster and more productive growth of fruit trees, helping them meet both nutritional and economic needs.

Figure 4 Young guava

Guava

Farmers have sown guava seeds about one bucket of 10 litre and grown about five seedlings each except for Kisangara and Kwanyange groups, with a total of 1,500 seedlings to be planted from August to November 2024 during short rain season.

By the end of the year 2024, farmers achieved significant progress in their efforts, despite the challenges posed by limited water availability causing high mortality rate. Some farmers successfully outplanted healthy guava seedlings during the dry season and by watering the seedlings, they ensured their survival and growth. The majority of farmers outplanted 2 to 4 guava seedlings during the November short rains. This ensured optimal conditions for establishment and growth, maximizing the chances of successful growth. With a total of 800 seedlings planted across various farms, the initiative has significantly contributed to increasing the diversity of nutrient-rich fruits available within the ecosystem. In the Focus group discussion and on farm visits farmers expressed enthusiasm about the potential of guava to improve both household nutrition and farm productivity in the coming years.

Figure 5 Cassava distribution

Cassava

Cassava cuttings were procured from Lushoto in early April (6th April). A total of 12 bags weighing 100 kg, containing about 5,505 cuttings, were purchased by Michael Kimaro (Extension Officer) for 1,468,000tsh (200Tshs/cutting plus transport), and we were able to distribute them to all the farmers. 369 farmers in total in old groups and new groups received 15 cuttings each for propagation.

The performance of cassava has been inconsistent among farmer groups, largely due to drought conditions affecting most areas. However, in groups with access to abundant water, such as Kasangara and Kituri, cassava performed well because of irrigation practices.

These groups have managed to sustain growth despite the dry conditions, setting a positive example for climate-resilient farming. Harvesting is expected to begin in late April 2025

Sweet Potatoes

Figure 6 Sweet potato fields inside live fence

Our ongoing efforts to explore the possibility of increasing nutritional diversity, incorporating sweet potatoes underscore our commitment to continuously enhance nutritional diversity. As the best time for planting sweet potatoes is right after the rainy season (sweet potatoes do not withstand too much moisture), Julius and Kimaro obtained the vines from Siha-Kilimanjaro in early June. 53 farmers (old groups only) received four different varieties, and after group trainings led by Julius, they implemented the planting themselves.

A total of 24 bags weighing 100 kg, containing about 5,285 vines, were purchased by Michael Kimaro and Julius for 480,000tsh (plus 40,000 labour for cutting them, and 150,000 transportation), each farmer received about 80 vines.

The harvest of fresh sweet potatoes began in mid-November, with all four varieties of fresh sweet potatoes they performing exceptionally well. The harvested tubers varied in size from small to large, with the majority of the orange varieties yielding larger tubers, while the pink varieties produced smaller ones. This performance highlights the potential of orange sweet potatoes for both yield and quality. Farmers are encouraged to replant healthy tubers immediately after harvesting to ensure the sustainability of the varieties and maintain a steady supply for future planting seasons.

Most of the harvested sweet potatoes are used as a source of food for home consumption, contributing significantly to household nutrition. The orange varieties, rich in vitamin A, provide added nutritional value, addressing vitamin deficiencies and improving overall health in the community. This dual role of sweet potatoes as both a staple food and a nutritional resource underlines their importance in food security and diet diversification. Farmers are further advised to adopt proper harvesting, replanting, and storage practices to maximize the benefits of these crops.

Pigeon peas

Recognizing the nutritional value of protein, we purchased 350 kilograms of early variety *Pigeon pea* seeds from Trees for the Future farmers in Singida, the price was 1000 Tsh per kilogram so it cost 3,500,00 Tsh per 350 kilograms. All new farmers received one kilogram, enabling them to plant at least an acre, incorporating crop rotation and intercropping with maize.

Due to the challenge of procurement outside the best season for pigeon pea seeds, we received the seeds late (once the rains had already started and farmers had planted maize) and with about 50% insect damage. However, based on our estimates, each farmer received at least half a kilogram of quality seeds. We utilized this challenge to train farmers on proper seed preservation methods against destructive insects, such as using ash, pepper, or neem

seeds. The *Pigeon pea* started flowering two months after being planted (old groups' pigeon pea that was planted last year, grew very large, and they started flowering in May, 2024.)

We trained farmers to plant intercropping systems effectively by planting pigeon pea with maize. For this system, pigeon pea rows or marejea planted 10 meters apart, which ensures adequate space for both crops to grow. Due to water scarcity, most farmers in the Kwanyange, Ngulu and Kwakoa groups were unable to plant pigeon pea and maize this season. They are planning to plant in November 2024 during the short rainy season

The performance of pigeon pea has been excellent, thanks to the use of a short-season variety that matures quickly. Farmers began harvesting in mid-August, making it a reliable crop even in areas with shorter growing periods. Most of the harvest is utilized for home consumption, providing a valuable source of nutrition and serving as a staple ingredient in household meals. This adaptability and nutritional benefit underscore the importance of pigeon pea in enhancing food security.

Figure 7 Pigeon pea in bloom

Comfrey Experiment

With the leadership of Yayaha, we conducted a comfrey propagation experiment at two demonstration sites: Eliya Farm (2 propagations) and Mkongea (3 propagations). Aim of this trial is to assess the adaptability of comfrey in these environments and to produce seeds for distribution to other farmers. So far, the progress has been promising, showing strong potential for growth and resilience. Based on these positive results, we plan to begin wider propagation next year, sharing comfrey plants with more farmers. Comfrey serves multiple purposes, including as a nutritious vegetable, a valuable source of animal feed and as an effective liquid fertilizer, making it a versatile addition to forest garden. This initiative will help farmers diversify their resources, improve soil health and enhance farm productivity.

Vegetable growing

Approximately 723,000 Tsh was spent on purchasing a total of 11 vegetable varieties including collard, black nightshade, Chinese cabbage, spinach, Leshuu, eggplant, okra, onion,

Figure 8 Vegetable gardens thriving

chili pepper, carrot, and field pumpkin. The selection of vegetable varieties for our training program was carefully tailored to the water availability in different areas (see more below). This approach aimed to maximize productivity while ensuring that farming practices remained sustainable and adapted to local environmental conditions.

The selection process was a collaborative effort between farmers and project staff, emphasizing participatory decision-making. Together, we discussed how various vegetable varieties respond to different water conditions, leveraging both scientific knowledge and farmers' experiences. This dialogue not only ensured that the selected crops were suitable for each region but also fostered a sense of ownership and empowerment among the farmers. By aligning vegetable choices with water availability, we laid the foundation for successful vegetable production and long-term agricultural resilience.

Following the discussions, a tailored selection of vegetable varieties was finalized for each area based on water availability. In water-scarce villages like Kwanyange and Ngulu Kwakoa, the chosen vegetables included collard, kale, black nightshade, okra, onion, and chili pepper, which are well-suited to thrive with minimal water. Meanwhile, for water-abundant villages such as Kisangara, Kituri, and Kitopeni, the selected crops included spinach, Leshuu, Chinese cabbage, eggplant, field pumpkin, carrot, onion, and chili pepper. This strategic selection ensures optimal productivity while addressing the specific water conditions of each region, fostering sustainable farming practices.

Direct sowing or nurseries for pre-growing?

Okra, carrot, and field pumpkin were directly sown in the main field, while the remaining leafy vegetables and fruit vegetables, such as eggplant and chili pepper, were first started in the nursery. This approach ensured proper germination and growth conditions for each crop type before transplanting or direct cultivation.

Bed preparation

Two types of beds were used: raised beds measuring 1 meter by 10 meters for drip irrigation, where eggplant, onion, and chili pepper were planted, and sunken beds measuring 2 meters by 5 meters for manual irrigation using watering cans, which were dedicated to all leafy vegetables. This arrangement optimized water use and crop growth based on the irrigation method and crop requirements.

Vegetable production in groups and on individual farms

Vegetable production was organized into two types which are individual and group production. In individual production, each farmer was responsible for taking seedlings and cultivating them at their home areas, managing their vegetables independently. In contrast, group production involved a collective effort where the vegetable plot was jointly managed by the entire group, with all members sharing equal responsibility for the cultivation and care of the vegetables. This structure allowed for flexibility and collaboration, catering to the needs and capacities of the farmers.

The choice of production system was influenced by factors such as the distance from the farmer's home to the nursery, water availability, and the farmers' flexibility to participate in group activities. For instance, in Kisangara village, all groups opted for group-based vegetable production due to the abundant water supply, which facilitated easier management and assessment of production. In contrast, in Ngulu Kwakoa, farmers practiced individual production because water scarcity made group management less practical, prompting them to cultivate vegetables independently.

Figure 9 Seedlings transferred to the drip irrigated bed

In total 90 drip irrigation kits were purchased for this activity (@15,000Tshs), 40 of them for training use and collective growing, and another 50 were ordered by farmers for their own use. The latter was subsidized so that farmers paid 5000Tshs and acquired the buckets or jerrycans themselves.

Pest and disease control

One representative from each group, all project staff and extension officers received training in basic organic farming at SAT, which included pest and disease management. We used this knowledge, e.g. various pest control methods were applied, including the use of botanical pesticides like neem to control Aphids, proper fertilization, efficient irrigation, intercropping with onions and chili peppers, regular weeding, and selecting resistant vegetable varieties. These integrated practices ensured effective and sustainable pest management

Achievement

During vegetable training and production, farmers gained valuable knowledge on key practices such as nursery establishment, sowing, transplanting, and managing pests, particularly aphids. This knowledge enables them to enhance their vegetable farming techniques, resulting in improved yields. Additionally, the vegetables produced not only contribute to better household nutrition through home consumption but also generate income from sales, improving the farmers' overall livelihoods.

Outcome 2: Diverse farm products provide more to sell

What activities have contributed towards this outcome?

Initially, farmers embarked on crop diversification efforts, prioritizing cultivation for home consumption. However, both old and new farmers have already manged to sell something. This was made possible by the large papaya harvest that resulted only about 9 months after outplanting the papaya seedlings and by vegetable growing. There was plenty for both home consumption and for sale, demonstrating the tangible benefits of diversified farming practices. On average, farmers reported earning between 20,000tsh to 50,000tsh per papaya harvest, with some reporting repeat two sales seasons within the year.

Vegetable production has become a vital source of income for farmers, as they sell their produce in local markets. The earnings from these sales are used to meet household needs, such as purchasing food and other essentials, while a portion of the income is set aside as

savings. This practice not only improves the farmers' livelihoods but also promotes financial stability and resilience within their communities

Outcome 3: Improved landscapes by increased trees, better soils and improved water cycle

What activities have contributed towards this outcome?

Both new and old farmer's first activity in 2024 was to establish tree seedling nurseries. This started in early February 2024 and seedlings were transplanted starting in late March 2024.

Live fence

Establishment of the live fence around a Forest Garden is the first step in targeting this outcome. Farmers grew three tree species, *Acacia polycantha, Gliricidia sepium* and *Leucaena leucocephala* for live fence. Seedling need is counted with 30cm planting interval for two outer rings and 50cm planting interval for the innermost Gliricidia-only line.

We set our objectives for each new farmer for the 2024 nursery season as:

- Acacias for all 4 sides of 1 acre, 840 seedlings
- Gliricidia 462 seedlings enough for two sides (middle line 60cm apart with alternate Leucaena, inner line 50cm apart alone)
- Leucaena 210 seedlings enough for two sides middle line alternate with Gliricidia 60cm apart.
  TOTAL of 1,512 seedlings.

During the latter half of the year, tree planting activities continued. A total of 25 kg of Acacia seeds was procured from Miti Mingi for 750,000tsh. Each farmer group received approximately 1 kg of hot water treated Acacia seeds, which were sown in polythene tubes in September. The seedlings were then outplanted in November during the short rains. The shift in nursery and outplanting timing was a response to farmers' requests to outplant during vuli.

All new farmers have now planted parts of the live fence, and most of old farmers have finished the task during the rainy season late March 2024 (the second planting by old farmers). In the same season with the live fence seedlings, papaya seedlings were grown and outplanted.

Other tree species

Our commitment to increasing biodiversity Yahaya has taken lead in the selecting potential species for various timber trees, fruit trees, and perennial vegetables for some farmers for simple experimenting. We have introduced *Cordia africana*, a valuable timber tree (Grevillea experiment failed at early stage, the seeds have not germinated), alongside fruit trees such as guava and avocado in trial phases. Additionally, we have incorporated *Morus alba* (mulberry) and passion fruit to diversify their crops. To enhance their vegetable yield, we are trialing *Telfairia pedata* (Oyster nut), perennial vegetables like cassava leaves, *Moringa oleifera*, and comfrey. These initiatives aim to enrich the agricultural landscape and provide a sustainable source of nutrition and income for the farmers. These species are grown in small numbers, as the activity is as much piloting as targeting the fulfilment of the outcome for the beneficiaries.

1.5 kg of Cordia seeds was sourced locally from Arusha for 25,000tsh. Each farmer received 20 seeds, which were directly sown into polythene tubes. Some of these seedlings were also

outplanted during November short rains while other late germinated seeds will be outplanted in April during long rain of 2025.

1 kg of Markhamia seeds was procured from TFS Lushoto for 12,500tsh. The seeds were initially sown in open beds to encourage germination and later transplanted into polythene tubes. Due to poor germination rates, some farmers managed to grow 3 to 5 seedlings while others left with no seedlings, highlighting the need for improved sowing techniques in future initiatives.

The addition of *Cordia africana* and *Markhamia lutea* enriched the diversity of tree species available to farmers. These efforts contributed to ecological stability, soil improvement, microclimate regulation, and carbon sequestration, laying the groundwork for resilient agricultural systems.

Figure 10. Moringa, Cordia, Oystenut, Comfrey, Morus and Avocados

Soil improvement through mulching and composting

Farmers in the older groups have embraced sustainable practices to enhance soil fertility and structure. They have started using Gliricidia and Leucaena branches to cover exposed soil, effectively reducing erosion, conserving moisture, and regulating soil temperature. Additionally, remnants of the previous season's pigeon pea plants were repurposed for mulching and incorporated into composting. These organic materials improved soil organic matter and fostered healthier microbial activity.

Some farmers report early benefits, including better moisture retention during dry spells and enhanced growth of newly planted crops, demonstrating the effectiveness of these practices in creating resilient and productive agricultural systems.

Outcome 4: Farmers (including youth) are more knowledgeable, enthusiastic and socially empowered

What activities have contributed towards this outcome?

By June 2024, farmers have gained the following knowledge through project activities:

- General knowledge of Forest gardens (design and structure, environmental and human benefits) through weekly facilitation by field staff and extension officers to all farmers.
- Nursery establishment and managements includes cutting seedbags, seed collection, potting mix and preparation by hot water treatment (Acacia and Leucaena, Gliricidia direct sowing), sowing seeds in seedbags, weeding and watering.
- Growing fruit and timber trees (old groups)
- Growing cassava and sweet potatoes
- Understanding basics of the importance of nutritional diversification (several colours needed)
- Outplanting seedlings with specific patterns including live fence, fruit and timber trees.
- Maize planting technique, with Pigeon pea as pure crop or marejea (alleys).
- Organising collective activities including careful transportation of seedlings by wheelbarrow, car and oxen carts, and outplanting together, and timely meeting schedules.
- Facilitating youth groups in their efforts to cultivate fruit seedlings, empowering them to access free markets through the use of posters, and enabling participation in national torch exhibitions, the remaining seedling distributed to the new farmers with subsidized price and the project add another money to empower them.
- Each farmer group selected a member to attend the one-week Organic Agriculture Basic course. These were a total of 20 members.

By December 2024, farmers have additionally gained the following knowledge through project activities:

- Before the vegetable trainings started each group sent their representative to take part in the Sustainable agriculture Tanzania Organic Agriculture Basic course. 20 farmers were trained.
- On-site vegetable trainings from August onwards provided a solid knowledge base to farmers in many aspects of growing a large variety of vegetables. This was a very popular activity as it provided an immediate source of additional nutritional variety. (see more under Outcome 1)
- Other practical trainings delivered in farmer groups have included organic pesticides made of Neem and boosters we use manure tea and plant tea.
- An additional activity was designed in response to elephants invading farmers cultivations in one village Kwanyange. After a short brainstorming and searching for information on differing methods to deter elephants, training and experimentation by using chili fences was selected. These fences leverage elephants' highly sensitive sense of smell, using the pungent smell of chili powder as an effective and non-invasive deterrent. In September, four fields were protected using chili fences. Materials needed for chili fences are: used engine oil, crushed chili, pieces of cloth, sisal string and poles. Feedback from farmers highlighted the effectiveness of these fences. Elephants passed near the

chili-fenced areas but did not enter, demonstrating that chili fences can significantly reduce elephant crop-raiding incidents. This approach has proven to offer strong protection for both crops and Forest Garden areas, fostering better coexistence between wildlife and farming communities.

Figure 11. Tree Nursery establishment, weekly facilitation, transportation of seedlings by organization car, outplanting training, youth nursery training and national torch exhibition.

Outcome 5: Local NGOs capacity has been built in FGs approach and communications

What activities have contributed towards this outcome?

- All Trees for the Future training materials have been given in the use of all staff and extension officers. Sections have been distributed in WhatsApp group and email, relevant chapter at a time for self-study before trainings.
- Team work for planning, implementation and assessment of all activities naturally enhances the professional capacity of everyone involved. Thus, for learning purposes, we openly share ideas, successes and challenges within the whole team (the field staff, extension representative and Liana).
- A small step was taken at the very end of the year 2023 to introduce WordPress to one staff member (Yahaya, Field officer) who (together with Eija) opened up a web address in order to start short blog articles aiming at publicizing useful *practical experience information on techniques and practices* needed in Forest Garden development by organic agriculture principles. This blog has been active since January 2024 and follow trainings offered to the second set of farmer groups in new villages. Both Julius and

Gladness have also contributed articles. See the link for more updates (https://forestgardenstz.blog/).

- February, 2024 Yahaya traveled to Masasi in Southern coastal lowlands of Tanzania for a one-week work trip as part of the networking and capacity-building initiatives of the project. The main aim of this trip was to assist a local organization KIMAS (Kitovu cha Maendeleo Safi) in planning a Forest Garden project. The aim was also to enhance connections with other organisations who are interested in furthering the Forest Garden approach, and providing a platform for knowledge exchange and collaboration on environmental conservation projects. During his visit, he conducted an introductory seminar of Forest Gardens and the work in Mwanga, and subsequently, with local KIMAS staff, assessed the socio-ecological conditions of the project area, farming methods used, and availability of farm produce in local markets, in order to contribute the needed information of the local context to the proposal.
- On 7th of April, we participated in the Uhuru Torch exhibition in Mwanga. The exhibition involved organizations from various sectors, along with government representatives. We had the opportunity to showcase products grown in the forest garden, including papaya fruits from farmer, passion fruit seedlings, avocado, and lemon seedlings from the youth group, represented by Mwajabu, and the farmers' representative Eliya. The staff who participated included Ezekiel, Agness, Julius, and Yahaya, providing explanations of the Forest Garden project to the stakeholders who visited our table.
- In August 2024, the whole project team participated in the Nane Nane Farmers Day Exhibition at Njiro, Arusha, and had the opportunity to be visited by the District Commissioner and representatives from Mwanga District's Agriculture Department. The event featured three days of facilitation by extension officers Kimaro, Asha, Lidya, Gudila, and Buruhani, with Yahaya and Neema joining during the summit day. The team engaged stakeholders, community members, and secondary students from Kaloleni (Moshi), Simanjiro, and Manyara by showcasing the Forest Garden Project's benefits through printed banner, short video clips, and a slideshow with pictures of ongoing activities. This opportunity raised awareness of sustainable agriculture to the engaged community, and inspired youth involvement in agriculture and environmental conservation.
- By the end of the year 2024, facilitators including staff and extension officers, participated in SAT courses covering both basic and intermediate levels. All attendees completed the basic courses; two were absent from the intermediate course due to an emergency. Gladness and Yahaya advanced further by joining the TOT course, enhancing their facilitation skills and enabling them to effectively share the techniques learned with other staff and extension officers.
- On September 17, 2024, Yahaya and Julius participated in the "Greening the African Horizon" conference in Nairobi, Kenya while Gladness joined online. The event provided an invaluable opportunity to engage with experts and stakeholders on key topics shaping the future of sustainable agriculture and environmental conservation.
  Key sessions included discussions on creating a common vision for future landscapes, the use of AI in agriculture, restoring forest landscapes within agricultural systems, and community stewardship in action. We took part in the agroecology debate, exploring pathways to scale food systems in Africa. We also had the privilege of visiting the ICRAF Soil Lab to learn about advanced soil analysis techniques and attended a “Social Juice for Breakfast” networking session, connecting with likeminded individuals from Zimbabwe,

Kenya, Nigeria, South Africa and other countries. On the evening of September 16, we visited the Karura Nature Reserve and enjoyed the natural beauty of Nairobi, inspiring their commitment to urban green space conservation. This participation enriched understanding and reaffirmed our dedication to implementing innovative and sustainable solutions within the organization.

- KIWAMWAKU accountant, Neema actively participated in the NGO capacity building workshop held on October 2-4, 2024, focusing on enhancing her expertise in key areas critical for organizational sustainability and compliance. She gained valuable insights into fundraising techniques, emphasizing the importance of diversifying income streams to support projects beyond donor funding, also learned about the application of IPSAS 23 for proper financial statement preparation and the importance of classifying year end balances as deferred revenue to avoid taxation on funds earmarked for future activities. Additionally, she deepened her understanding of taxation for NGOs, particularly the necessity of withholding taxes on professional services and securing EFD receipts for purchases and training. Finally, Neema explored resource mobilization strategies, highlighting the role of digital platforms in engaging donors and promoting transparency through online contributions and social media visibility, ensuring the organization's sustained growth and compliance.

Figure 12 Training practice in front of the full classroom

Figure 13 On the SAT basic organic agriculture course

Project outputs

Output 1: Government officers and villagers engaged

What demonstrates this?

The project expanded to new villages already at the end of 2023. The full participation of extension officers in all project activities best demonstrates the close collaboration of the project with the local government. Further, local authorities are in close contact with project activities as each group is visited by the project weekly.

Output 2: Revised: Forest Garden groups functioning (as many groups as needed to reach the minimum target number of farmers, 350)

How much has been achieved by now?

Currently, we have a total of 26 active farmer groups with a total of 367 farmers, among whom there are 191 women and 176 men. From this groups, six are old groups, with a total of 53 farmers (Fe 29 and Me 24), and 20 are new groups, with a total of 314 farmers (Fe 162 and Me 152). Additionally, we established two youth groups of 11 members (Fe 5 and Me 6)

where they produced fruit trees including passion fruits, lemons, and avocados. The aim was to have over 50% women in each group, which has been fulfilled.

Special attention was also paid to having a minimum of 10% PLHA in groups. With confidential collection of data, we have established that there were 9 such members in the old groups in 2023, and 12 members belonging to this vulnerable group in the new groups in 2024.

Well written rules for groups have been the first step in making groups function and to safeguard good code of conduct. Thus, the new groups were helped to get good constitutions in December 2023 and at the beginning of the year 2024.

So far, we can assess the 'functioning' of groups by

- Counting the number of live trees (under Outcomes for live-fence and other tree growing)
- By monitoring group attendance levels in 'harambee meetings' (scheduled weekly meetings for discussion, organization, training, and collaborative work).
- Retaining rate or drop-out level
- Number of farmers who have the following crops growing in the farms: Papaya trees, Cassava, Pigeon peas, Sweet potatoes, Vegetables, Passions and Timber trees

Table 1 Number of live fence tree seedlings produced by farmers, 2024.

SN	Group Name	No of members	Gliricidia	Leucaena	Acacia	Roller	Total seedlings/group	Seedlings/ farmer
1.	ZINGA	12	1872	1750	3250	2	**6872**	**573**
2.	SOKONI	13	1700	900	2600	2	**5200**	**400**
3.	CHANJALE	26	3000	3000	5000	3	**11000**	**423**
4.	STAND	22	2500	1200	2300	2	**6000**	**273**
5.	MASHINE	16	2100	830	1600	2	**4530**	**283**
6.	MAJENGO MAPYA	18	2626	1139	8184	4	**11949**	**664**
7.	LUTU	12	1300	745	2575	2	**4620**	**385**
8.	KWANYANGE A	15	3800	2500	9700	3	**16000**	**1067**
9.	KWANYANGE B	14	1200	2400	6300	3	**9900**	**707**
10.	KWANYANGE C	14	3400	700	8050	3	**12150**	**868**
11.	KAVAGALA	18	2500	2000	6500	3	**11000**	**611**
12.	MABASHULA	12	500	400	3000	2	**3900**	**325**
13.	MAJENGO	15	2300	4500	7645	3	**14445**	**963**
14.	MKONGEA	15	2800	840	8450	3	**12090**	**806**
15.	KWAKOA	21	1030	745	8300	3	**10075**	**480**
16.	MGIGILI	13	1140	400	7933	3	**9473**	**729**
17.	NYATA	14	700	400	10030	4	**11130**	**795**
18.	KIENDE	14	2000	1500	9000	3	**12500**	**893**
19.	KIRURU IBWAIJEWA	17	940	720	2300	3	**3960**	**233**
20.	MAPAMBANO NEW	13	1500	1300	2500	2	**5300**	**408**
21.	KITURI A	9	810	230	4883	2	**5923**	**658**
22.	KITURI C	8	2626	700	3970	3	**7296**	**912**
23.	KALIMANI	9	500	300	3809	3	**4609**	**512**
24.	JUHUDI	11	4500	2400	10500	4	**17400**	**1582**
25.	MAPAMBANO	8	1300	1500	2500	3	**5300**	**663**
26.	KITOPENI	8	2500	1500	7500	2	**11500**	**1438**
27.	YOUTH GROUP	11				1	**715**	**65**
		378	**51144**	**34599**	**14879**	**73**	**234122**	**620**

Here's an assessment of seedlings per farmer for each group, excluding the Youth Group:

- High Performers: Three Groups like KWANYANGE A (1,067 seedlings/farmer), KITOPENI (1,438 seedlings/farmer) and JUHUDI (1,582 seedlings/farmer) showed higher performer over 1,000 seedlings per farmer.
- Moderate Performers: Most groups, including MAJENGO (963 seedlings/farmer) and MAJENGO MAPYA (664 seedlings/farmer), achieved above average.
- Lower Performers: KIRURU IBWAIJEWA (233 seedlings/farmer) had significantly fewer seedlings per farmer compared to other groups.

Overall, the majority of groups successfully distributed seedlings well that complete two three lines while few completed all four lines, indicating effective participation and management in the seedling distribution.

The old and new groups are both functioning effectively, as shown by the absence of drop-outs in the old groups and high attendance rates across both. Farmers who miss meetings still receive updates from others, ensuring continuous engagement. VICOBA groups are steadily progressing by reinvesting their money through internal loans among members. Furthermore, sweet potato cultivation is flourishing among the old farmers while cassava cultivated by all groups, reflecting consistent growth and success in their agricultural activities.

To further help groups function effectively, we engaged them in sessions clarifying their own group and individual objectives, reviewing and helping them to make small changes in their constitutions, asking them to specify how they would like the project to support them in their endeavours, and encouraging group members and their leaders to ensure everyone adheres to the constitution and the commonly agreed objectives and schedules. This exercise took three weeks with the first session comprising the following three questions:

- How do you see the project approach of weekly visits all year round?
- Is there anything you would like to change in how the project works?
- When/if there are members who would not like to participate (and who do not participate) in these sessions, how do they see they can best establish their forest gardens with the help of the project?

The last session's objective was to complete formulating group objectives. For setting individual objectives, members were divided in to small-groups in which they each compiled a table of objectives with a timeline for the year 2025 with specific species targeted for each nursery seasons and outplanting season, and marking the source of seeds for these (project or self-provided), and a more general plan for 2026.
In conjunction with the training, ethical principles of the project were introduced to the groups and a reporting mechanism put in place.

For a full list of components added so far in the Forest Gardens (demonstrating functioning groups), see below under Output 5.

Output 3: Revised: Representative of each group, and minimum of 4 extension officers trained

How much has been achieved by now?

Facilitators all need to use knowledge and skills gained to raise levels of self-motivation to other farmers to fully participate in project activities as planned. Among the 26 groups, each group has nominated their leaders. These may not be the same as the administrative leaders of the groups (chair, secretary and treasurer). We trained 5 new extension officers (3 female and

2 male) in forest garden techniques using the Trees for the Future manual. We trained them what a forest garden is, how to train farmers to prepare a nursery, care for the nursery, and plant a variety of trees and fruits as preparation for establishing nurseries for each group starting February 2024.

Table 2 Number of extension officers attended training at KIWAMWAKU 08th January

NAME	VILLAGE/GROUP
ASHA BORI	KWANYANGE
BONIFACE	BUTU
REHEMA BASHEMELA	KIRURU IBWAIJEWA
BURUHANI	NGULU & KWAKOA
GUDILA	KISANGARA
LYDIA MKENI	KITURI
RAHEL	KIFARU
MICHAEL KIMARO	SENIOR EXTENSION


Figure 14 Extension officers training and implementation of the knowledge to the farmers.

In July 2024, a total of 20 farmers, along with four agricultural extension officers and one project staff, participated in an Organic Basic Training at Sustainable Agriculture Tanzania (SAT), The training focused on introducing participants to the fundamentals of organic farming, covering essential topics such as soil health, natural pest control, and sustainable farming techniques. The agricultural extension officers were key in supporting the farmers during the training, ensuring that the knowledge gained could be effectively applied in their respective communities. This initiative aimed to enhance organic farming practices, contributing to sustainable agricultural development.

Output 4: Revised: Members trained in selected training sites

See all training topics for year 2024 under Outcome 4.

Output 5: 360 individual farmers' Forest Gardens established

How much has been achieved by now?

Currently, we have successfully completed the live fence, all four sides for 53 old members and some new members. Others have planted two or three sides. Within the scope, all members have added basic components including:

- **Live fence** using Acacia, Gliricidia, and Leucaena species.
- **Fruit trees** such as papaya, guava, passion fruit, lemon, and avocado.
- **Timber trees** including *Markhamia lutea* and *Cordia africana,* which have been added by all group farmers.

- **Vegetables** such as *Telfairia pedata*, perennial leafy greens like cassava leaves, comfrey, and *Moringa oleifera*.
- **Food crops** such as cassava, pigeon pea (planted by some in April and others in November using stored seeds), and sweet potatoes (primarily grown by old groups).
- **Composting sites**, established by some members to improve soil fertility.

These achievements can be verified through field facilitator reports and direct visits to the established gardens. While not all components are fully established by every member, the progress demonstrates the collective commitment of the group to building resilient, diverse, and productive Forest Gardens.

Figure 15 Drip irrigated vegetable gardens with young papaya, and young live fence from new group farmer

Output 6: 1080 Neighbouring farmers trained/recruited by group members

How much has been achieved by now?

Group members have not yet started to teach their neighbors. However, as VICOBA trainings attracted more farmers than the farmer group members, it provided an opportunity to open up the farmer groups and the project to more farmers in the initial two villages of Kituri and Kifaru.

This growing interest is also observed in Kisangara and Kwakoa, where some neighbours have expressed a desire to join the groups, particularly to gain access to live fences and vegetables. The introduction of open seedbeds (without seedbags) for tree seedlings next year will be a valuable opportunity to further engage these interested neighbours, fostering community participation and extending the project's impact to a wider network of farmers.

Output 7: Savings and Loans function started, Marketing Associations established

In September 2023, involving participants from six old groups, five VICOBA groups were formed, including Mapambano, Kituri A, Kituri C, Kitopeni and Juhudi, totaling 97 members, of which others are invited outside the Forest Gardens groups. Kalimani group joined neighboring groups due to insufficient members.

The table below shows number of farmers who join the Forest Garden VICOBA group:

SN	GROUP NAME	FEMALE	MALE	TOTAL
1.	MAPAMBANO	16	10	26
2.	KITURI A	06	19	25
3.	KITURI C	16	04	20
4.	KITOPENI	10	10	20
5.	JUHUDI	03	03	06
	TOTAL	51	46	97

Kituri A, Mapambano, and Kituri C groups have demonstrated varying levels of success in their contributions, reflecting differences in meeting frequency, number of members, and individual member savings.

- Kituri A group, with 30 members, contributed a total of 13,000,000 Tsh
- Mapambano group, with 24 members, contributed 5,653,000 Tsh
- Kituri C group, having just 9 members, managed to contribute 2,160,000 Tsh.

These variations arise from number of members, differences in the regularity of group meetings and the financial capacity of members to save. Despite these differences, all groups worked collectively to pool resources effectively.

The funds collected were distributed among members and used for various purposes, primarily to support agricultural activities. Members invested in farm inputs such as seeds, manure, and land rentals for cultivation. Additionally, some of the money was allocated for household needs, including clothing, food, and furniture. After completing the first savings cycle, the groups immediately began a new cycle, aiming to accumulate even larger savings by the end of the next round. This approach enhances financial resilience and empowers members to improve both their agricultural productivity and living standards.

Marketing Associations will be started later, when farmers have produced to sell and need pooling of products in order to sell larger amounts jointly. The need for these will be assessed as we progress.

Output 8: Local NGOs have participated to raise its capacity in FGs

Please see under Outcome 5.

Other activities

Figure 16 From left: William, Sanna, Mwajabu, and farmer representatives during the visit

Donor visit

In June 2024, we were honoured to receive donor representatives from the Embassy of Finland, Sanna Taivalmaa, and her colleague William, who visited our project site. During their visit, they had the opportunity to meet with the Kituri and Kifaru farmer groups and observe key components of our Forest Garden initiative, including the live fences, papaya and other fruit trees, as well as the establishment of sweet potato. The Forest Gardens, a key part of our sustainable

farming efforts, showcase diverse agroforestry practices that promote biodiversity, soil health, and improved crop yields. Sanna and William's visit allowed them to see firsthand the positive impact of these sustainable practices on the local community and environment

The visit took place at Henry's farm, a member of Kituri A group. We introduced the project's brief, achievements, challenges, and future expectations. The session was moderated by Kimaro (Senior Extension Officer), while Sanna engaged with the farmers, asking about the challenges they face and soliciting suggestions for project improvements. William assisted by translating the discussions into Swahili.

Although the visit was shorter than initially planned due to the visitors' late arrival, caused by heavy rainfall, it was still a valuable opportunity. Neema represented the KIWAMWAKU administration, and other participants included representatives from the Mapambano Youth Group, led by their chairperson, Mwajabu, as well as group representatives from Kituri A and Mapambano. All had a chance to contribute to the discussions.

Figure 17 Gladness sowing seed with a group member

Internship

Gladness joined the Forest Garden Project team as an intern, taking on the role of an Assistant Field Facilitator for a four-month period from August 26, 2024, to December 25, 2024. The primary aim of this internship was to equip her with the necessary knowledge and skills related to the "Forest Garden for People and the Planet" project, preparing her for a fixed-term employment position for a new project, which will commence in January 2025 in Masasi, Mtwara region. The position was funded by Liana using funds outside the Forest Garden project, and was a secondment from KIMAS who officially recruited her. KIMAS is the future Liana partner organization for the Masasi project.

During her internship, Gladness actively facilitated weekly group meetings with farmers, where she guided discussions, provided support, and ensured effective communication of project goals and progress. Additionally, she joined the team's Friday meetings**,** contributing to weekly reports and collaborating in planning activities for the following week**.** Gladness also played a leading role in conducting mid-term evaluations using the Outcome Harvesting method (see more under Other activities), and writing sections for this annual report.

Figure 18 Ric visiting farms

Liana visit

In early November, we hosted Ric from the Liana board, who visited various farmer groups in Kituri, Kitopeni, and the newly formed groups in Ngulu Kwako. His visit focused on evaluating the performance of fences and vegetable production, as well as engaging in short discussions with farmers about their progress and the challenges they face in implementing the project. Ric also collaborated with the farmers to create a short film showcasing how they have benefited from the project. These

interactions provided valuable insights into the practical outcomes and hurdles encountered during the project's implementation.

On the final day of his visit, Ric met with project staff and extension officers to review the project's progress. The discussion was interactive, with all participants actively contributing their ideas and perspectives. In the evening, he visited the KIWAMWAKU Foundation office, where he held a brief meeting with the DKA project coordinator to further discuss the project's impact. After concluding this productive engagement, Ric departed from Mwanga, leaving behind valuable feedback and encouragement for the project's future.

Figure 19 Gladness took the lead in focus group discussions for mid-term evaluation

Focus group discussion for mid-term evaluation

The mid-term evaluation applied the Outcome Harvesting approach to capture key insights on the progress and impact of the project. This method was implemented through focus group discussions involving established groups that have been part of the project for two years. The groups included Kitopeni, Mapambano, Kalimani, Juhudi, Kituri A, and Kituri C.

The discussions began with facilitators prompting open-ended question to allow participants to share their experiences freely. This phase aimed to capture unprompted outcomes, offering an authentic view of the changes achieved through the project. Responses were recorded systematically to ensure all shared perspectives were documented.

After this initial phase, facilitators introduced prepared questions to guide the discussions further. These questions ensured that feedback covered all relevant sectors of the project, including agricultural practices, environmental conservation, economic benefits, and community engagement. This structured approach helped address any gaps in the data and provided a comprehensive understanding of the project's impact.

The discussions were generally engaging and productive, with participants showing a strong willingness to share their experiences. Attendance was good, with active participation from both men and women in most groups. While some groups readily shared detailed examples of outcomes, others required additional probing to elicit specific responses. Facilitators used follow-up questions effectively to encourage meaningful contributions, particularly in cases where participants were initially hesitant. Despite minor variations in participation, the focus group discussions yielded rich and valuable data, providing a detailed understanding of the project's outcomes over the past two years.

Figure 20 Lilian, Julius, Eliya and Gladness

New staff for Masasi Forest Garden project visited the Mwanga project

In early December Lilian was recruited to work in the new Forest Garden project in Masasi. The project will start in January and is also funded by the Ministry for Foreign Affairs of Finland through Liana. Lilian, and experienced community development worker, spent two days in Mwanga familiarising herself with the ongoing Forest Garden activities in Mwanga.

Financial Report of 2024

Forest Garden farming for people and the planet			
ANNUAL FINANCIAL REPORT 2024			
Accounts & Balance sheet	**01.01.2024- 31.12.2024**		
Profit and loss account			
Expenditure (Tsh):	Revenue	Expenses	**Total**
Labour cost		-40 621 737,68 TZS	**-40 621 737,68 TZS**
External experts, volunteers		-545 000,00 TZS	**-545 000,00 TZS**
Extension officers (enter total per month)		-17 053 000,00 TZS	**-17 053 000,00 TZS**
Study trips (Kifaru, Kituri 2023)			
SAT course		-12 566 000,00 TZS	**-12 566 000,00 TZS**
Materials for farmers (Workbooks, cans, seeds, seedbag		-25 632 300,00 TZS	**-25 632 300,00 TZS**
KWMW networking (seminars, courses, happenings, outr		-1 482 000,00 TZS	**-1 482 000,00 TZS**
Fuel (July-Dec: fill trip form & provide fuel receipts); pub		-9 926 720,00 TZS	**-9 926 720,00 TZS**
Phones, Internet, bank fees (see x)		-5 911 947,50 TZS	**-5 911 947,50 TZS**
Drip irrigation materials	250 000,00 TZS	-1 510 000,00 TZS	**-1 260 000,00 TZS**
Office costs (eg printing, tissue, soap, dispenser, office maintenance) budgeted 660,000 July-Dec		-279 000,00 TZS	**-279 000,00 TZS**
Car maintenance (used as available in mileage fund)		-1 618 000,00 TZS	**-1 618 000,00 TZS**
Program expenditure total	250 000,00 TZS	-115 527 705,18 TZS	**-116 895 705,18 TZS**
Income (Ths):	Revenue	Expenses	Total
Funds from Liana	118 210 480,00 TZS		118 210 480,00 TZS
-			
Funds received total	118 210 480,00 TZS		**118 210 480,00 TZS**
Balance of the accounting period			1 314 774,82 TZS
	Balance sheet		
Assets:			
Bank account (Tsh)	3 023 661,47 TZS		
Cash supply (Tsh)	87 000,00 TZS		
Total assets	**3 110 661,47 TZS**		
Liabilities:			
Capital 01.01.2024	1 796 191,74 TZS		
balance of the accounting period	1 314 774,82 TZS		
Capital 31.12.2024	3 110 966,56 TZS		
Total liabilities	**3 110 966,56 TZS**		
Moshi, 31.12.2024			
Submitted to Liana			
Neema Moshi- Accountant			