Unidos Social Innovation Center in Collaboration with UNHCR's Refugee-led Innovation Fund- 2024
End of project report

Organization's name: Unidos Social Innovation Center
Project title: Regenerate the soil (Regesoil)
Reporting period: *March– December 2024*
Place of project implementation: Nakivale Refugee Settlement/ Uganda

The number of community members engaged, directly and indirectly, disaggregated by gender and age.

Group Type	***Directly***	***Indirectly***
Women	*350*	*814*
Men	*151*	*358*
Total	*501*	*1172*

1. About the project

This project addresses the challenges of infertile soil, environmentally harmful techniques, and the resulting long-term soil degradation in the Nakivale refugee settlements. Through a holistic approach, the project involves producing organic fertilizer from food waste using vermicomposting, establishing 4 demonstration food forests adapted to the local climate in different villages and zones around the Nakivale Refugee settlement, and providing comprehensive training to over 501 refugee and host community farmers.
A food forest, also called a forest garden, is a diverse planting of edible plants that mimics the ecosystems and patterns found in nature - with different layers and harvest times. This initiative promotes sustainable organic food production, restores biodiversity, and transforms refugee settlements into regenerative communities, reducing dependence on humanitarian aid.

- **Main objectives:**
  Restoring Soil Health and Fertility:
  The initiative focused on regenerating soil by creating high-quality organic fertilizer from recycled food waste and be decomposed in the Vermicompost. This process enriches the soil with essential nutrients, revitalizes its natural fertility, and fosters sustainable agricultural practices.
  Promoting Regenerative Agriculture:
  By establishing micro-food forests, we aim to enhance organic food production while addressing food security challenges. These systems integrate sustainable practices,

creating self-sufficient ecosystems that support local communities and reduce dependency on external food sources.

Enhancing Biodiversity:

Through diverse planting within food forests and the adoption of ecological techniques, we contribute to the restoration of local biodiversity. This approach nurtures ecosystems, providing habitats for various species and strengthening natural resilience.

Building Climate Resilience:

To address climate-related challenges, the project incorporates improved agricultural techniques and water retention landscaping. These strategies mitigate the impacts of climate change, improve resource efficiency, and ensure sustainable agricultural growth.

- ***Activities Conducted:***

  Organic Fertilizer Production through Vermicomposting:

  The initiative processes 800 kg to 1 ton of food waste weekly using vermicomposting techniques. By leveraging worms to produce high-quality compost, the project not only reduces waste but also creates nutrient-rich organic fertilizer to rejuvenate soil health. This compost is distributed to local farmers, enhancing soil fertility and improving crop yields, fostering sustainable agricultural practices.

  Establishing Food Forest Demonstration Sites:

  The project designs and implements three demonstration food forests tailored to the local climate. These food forests serve as educational hubs and examples of sustainable agriculture, created collaboratively with the community. They showcase agroecological methods that promote organic food production while supporting biodiversity and ecological balance.

  Community Training and Resource Distribution:

  A comprehensive two-week training program equips over 501 participants with the skills to replicate and maintain food forests. The participants include 70% of newly arrived refugees and 30% from the host communities, fostering social integration and collaboration. To support implementation, the initiative provides resources such as seeds, seedlings, tools like hoes, watering cans for irrigation, and guidance on seed conservation. Participants are grouped to encourage teamwork and shared responsibility in developing sustainable agricultural systems for their farms.

2. Actual progress achieved toward planned outcomes and outputs

Regarding soil quality, the water drainage rate improved by nearly 40%, from 10 cm/hour to 8 cm/hour, reflecting enhanced soil health through regenerative practices. Farmer knowledge also saw substantial growth, with 340 farmers adopting regenerative techniques, including 90 who excelled in permaculture and food forest design.

Farming productivity improved notably, with 270 farmers increasing yields by up to 5% and 50 achieving productivity gains of up to 15%. These results highlight the effectiveness of integrating diverse crops and sustainable practices in micro-food forests.

Community engagement remained a strong focus of the targeted 300 farmers, 282 actively practiced regenerative agriculture, achieving 94% of the goal. Additionally, an awareness campaign on climate risks exceeded expectations, engaging 555 individuals 11% above the target.
These outcomes demonstrate the project's success in promoting sustainable farming, enhancing productivity, and fostering community-driven environmental stewardship.

Indicator type	Description	Baseline	Target	Actual progress achieved by year-end
Outcome level indicators	Improved soil quality through worm castings to enhance regenerative agricultural practices in Nakivale refugee camp	The current status of the drainage capacity is More than 10Cm/Hour, which is too fast for the soil to retain water (Poor water holding capacity in the soil)	We envision improving the Drainage rate per hour increase up to 2.5-7.5 Cm/Hour, which will ensure that the soil is good for growing vegetables and the PH is balanced	the water drainage rate has been only improving around 6.5 cm/hour, a significant reduction from the initial rate of 10 cm/hour, This progress reflects nearly a 40% improvement in the soil's ability to retain and absorb water, achieved through the combined impact of soil amendments, swale designs, and strategic planting. Meanwhile, the growth of cover crops like soybeans, and sweet potatoes that we harvested in 2 farming circles, and nitrogen-fixing trees such as acacias enhances soil aeration through root penetration and contributes organic matter as they decompose. Water-retaining crops like banana stems and papaya trees stabilize soil moisture, further supporting the improved drainage

				rate.
	Improved knowledge of regenerative agricultural techniques among refugees in the Nakivale camp	0	500 farmers demonstrate knowledge on regenerative agricultural techniques.	*340 farmers adopted regenerative practices, within permaculture and food forest design, we only reached 68% based on our Initial target.*
	Increased farming productivity following the adoption of new ways farming techniques	0	*500 Farmers report increased productivity in their gardens by 5%*	*A total of 270 farmers achieved up to a 5% increase in productivity, while 50 farmers improved by up to 15% compared to their previous harvests. Overall, we reached 54% of our target, with 10% of farmers exceeding the 5% productivity increase*
	Increased regenerative agricultural practices among refugee families, contributing to greater food production in an environmentally repairing way	0	*We targeting at least 300 Farmers*	*We reached a total of 282 Farmers which represented only 94% of our target*
Output level indicators	*Enhanced awareness of the risks associated with the use of agrochemicals among refugee farmers*	0	*500 farmers will be sensitized on risks related to the use of agrochemicals.*	*We successfully reached 555 people, exceeding our target by 55 participants. This achievement reflects the strong engagement of farmers, business owners, and local leaders in our*

				campaign to promote sustainable agricultural practices. By surpassing our goal, we expanded the reach of our message, fostering greater awareness of transitioning to organic farming, protecting soil health, and empowering farmers in market decision-making. This surplus participation highlights the growing interest and commitment within the community to adopt environmentally friendly practices and support agricultural sustainability
	Number of farmers actively participating in Permaculture and Food Forest training	0	*500 Farmers*	*501 Farmers*
	Number of people who will benefit from the organic fertilizer produced by UNIDOS	0	*100 Farmers*	*100 Farmers have benefited*
	Number of Food Forest demonstration sites designed/Co-created by Unidos and the	0	*6*	*We only made 4 demonstration sites instead of 6, because getting land in Nakivale is currently a big process due to the influx of new refugees coming*

	Community			*from DR Congo who are also hosted by the Office of the Prime Minister*
	Number of beneficiaries who reported designing their food forests	0	*500 farmers*	*295 Farmers*
	Quantity of vermicompost (Worm castings) harvested yearly	0	*9.6 Tons/Year*	*7.8 tons produced yearly*
	Variety of crops cultivated by refugee farmers	*Beans and Maize (Monoculture)*	*Beans, Maize, Cassava, Groundnut, Green pepper Soja Beans, Sweet Potatoes, Lettuces, Eggs Plants, and Food trees like Mangoes, Jack fruits, Papaya, Avocado and citron (Polyculture)*	*Beans, Maize, Cassava, Groundnuts, Sweet potatoes, green peppers eggplants, Jackfruits, Mangoes, Papaya and Avocado trees, Banana stems*
	Number of trainings on permaculture and food forests conducted	0	*15 Cohorts in which a Maximum of 35 Participants are selected*	*10 Cohorts in which 50 participants have been selected*
	Number of food waste recycled yearly	0	24 Tons /Year	*We only reach 19.54 Tons of food waste this year, which is only 81.4% of our target*

3. Changes and amendments

During the implementation period, several changes and adaptations were made to the original plan due to unforeseen challenges. The project initially aimed to co-create six demonstration sites, but limited land access in Nakivale led to the office of the prime minister allocating only

four locations. To address this, the project supported participant groups in designing their micro-food forests on individual land, ensuring continued engagement and practical application of training.

Additionally, the recycling of food waste faced unexpected challenges. The prolonged drought significantly reduced crop yields, leading to lower food production and, consequently, less organic waste available for composting. This situation impacted the project's ability to fully implement its waste recycling component, as food waste generation is closely tied to harvest levels. Despite these setbacks, efforts were made to adapt and continue promoting waste recycling and sustainable practices within the community

4. Stories of change

The most significant change experienced by participants was the adoption of regenerative agriculture practices, leading to improved soil health, increased productivity, and enhanced food security. Farmers gained practical skills in permaculture and food forest designs, with 340 adopting these methods and 50 achieving up to a 15% productivity increase. This change was driven by hands-on training, resource support, and regular follow-ups, enabling participants to implement sustainable practices on their land.

To gather information, tools such as surveys, interviews, and focus groups were used. These methods captured participant feedback, tracked progress, and identified challenges, providing a comprehensive understanding of project outcomes and areas for improvement.

One of the most impactful outcomes was the successful integration of diverse crops in micro-food forests, which improved productivity and climate resilience for smallholder farmers. This was determined by monitoring yield increases, observing improved soil conditions, and hearing stories of community transformation during follow-up visits.

To sustain these changes, the project focuses on community ownership and knowledge-sharing. Regular engagement, capacity-building, and encouraging collaboration among participants ensure continuity. By encouraging shared responsibility for food forest maintenance and scaling the practices through peer learning, the project's impact is expected to endure beyond its conclusion.

There are other personal stories from our participants which you can watch in the videos we shared:

*" **Nyiramigezi Janet**, a farmer from Juru village, shared how the training transformed her understanding of seed diversity. Initially hesitant about planting multiple crop varieties, she found inspiration during the hands-on Permaculture sessions. Through lessons on companion planting and crop rotation, Janet discovered the benefits of integrating different crops into her garden. By the end of the training, she was brimming with excitement, planning a diverse garden featuring onions, spinach, and eggplants. For Janet, each seed now symbolizes a step toward improving food security and creating a more resilient livelihood not only for her family but also for the community."*

*"**Byaombe Muzaliwa**, the chairman of New Kigali village, shared how the training shifted gardening from an individual pursuit to a collaborative community effort. Before the sessions, farmers worked independently, rarely interacting or sharing resources. The Permaculture training*

emphasized the value of community knowledge exchange and collective problem-solving. Inspired by this approach, participants started engaging in seed exchanges, sharing tools, and developing strategies for maintaining gardens together. This newfound collaboration broke down the isolation of their previous working methods, fostering a stronger sense of unity and shared purpose within the community"

5. Measuring change

Funds impact /contribution	Little improvement	Moderate Improvement	Substantial improvement	Comments (please briefly explain your response)
1- Strengthening organization self sufficiency- this includes changes in leadership, governance, and internal processes to enhance the overall efficiency and effectiveness of the organization.		X		
2- Organization empowerment and Innovation - how the Fund has empowered your organization to effectively lead and implement innovative solutions for your communities			X	
3-Communication - Changes in communication strategies, both internal and external, which could lead to better engagement with stakeholders, beneficiaries, and the broader community.		X		
4- Access to funding opportunities - How the participation in the Fund has prepared you to secure additional sources of financial support, whether through grant applications, partnerships, or other means.		X		

5- Capacity building - How the Fund has contributed to develop the skills, knowledge, and resources within your organization to carry out your mission more effectively and sustainably.			X	
6- Community outreach - How the Fund has expanded your outreach efforts to better serve and connect with your target communities.		X		
7- Innovation and creativity - How new and innovative approaches have supported overcoming challenges within your organization's scope.		X		
8- Sustainability and resilience - How your organization is now better placed to endure and adapt to changes, whether through financial planning (securing diverse funding sources), or other means to ensure long-term viability of the organization.		X		
9- Participation and decision making- How your participation in the Fund has empowered the organization to have a greater influence on policies and decisions that affect the community it serves.			X	

6. Lessons Learned

The project prioritized inclusivity by engaging diverse community members, including refugees and host communities, in learning and co-creating food forest demonstration sites together. Training programs included 70% refugees and 30% locals, fostering collaboration and peace co-existence. Regular follow-ups and decision-making meetings ensured

community decisions and voices were heard, challenges addressed, and shared responsibilities encouraged.
Key learnings from the project include the importance of community ownership in sustaining interventions. Unexpectedly, participants displayed remarkable innovation in adapting permaculture techniques to their specific contexts, such as integrating native plants into food forests and growing mushrooms as a solution to adapt to the local climate.
However, prolonged droughts revealed the need for enhanced water management systems, highlighting the impact of climate variability on project outcomes.
The biggest challenges were funding delays, which disrupted activity timelines, and long droughts that adversely affected crops and tree seedlings. These issues were addressed by adjusting timelines, prioritizing water-efficient practices like mulching, and incorporating drought-resistant plants into food forest designs.
If starting the project today, greater emphasis would be placed on contingency planning, including securing reliable funding timelines and implementing robust water management systems from the outset. Additionally, more time would be allocated for initial community consultations to address land access issues earlier and strengthen partnerships for shared resources. This proactive approach would enhance resilience and project success.

7. Innovation

The project has been innovative in its holistic and sustainable approach to addressing the pressing challenges faced by the Nakivale refugee settlement. Central to this innovation is the transformation of food waste into organic fertilizer through vermicomposting, where worms efficiently decompose waste into high-quality compost. This organic fertilizer is distributed to farmers participating in the recycling initiative to apply in their gardens, in addition, we co-created micro-food forests as a solution to enhance climate resilience, restore degraded land, and promote sustainable agriculture by integrating diverse crops such as bananas, beans, cassava, spinach, and fruit-bearing trees in a single space.

By shifting from monoculture to polyculture farming, the project increases food production while building healthier soils, improving biodiversity, and strengthening food security. This interconnected system from food waste recycling to regenerative farming creates a circular economy that benefits both refugee and host communities. It reduces dependency on humanitarian aid, fosters self-reliance, and lays a foundation for long-term resilience in an environmentally restorative way.

Key stakeholders, including the Office of the Prime Minister and community leaders, were instrumental in implementing these innovative ideas. Their support in securing land access, mobilizing participants, and promoting inclusivity ensured the project's success while setting a precedent for addressing climate challenges in a similar context

8. Next steps and recommendations

As the next steps, the project will focus on scaling its successes by expanding the network of farmers engaged in regenerative agriculture. This includes providing additional training on advanced techniques, supporting the establishment of more micro-food forests, and promoting the adoption of water-efficient systems like drip irrigation to mitigate climate challenges. Continued monitoring and follow-up visits will ensure sustained impact and identify areas for improvement.

For future grantees working on similar projects, we recommend prioritizing community engagement and inclusivity from the outset. Building strong relationships with local stakeholders and tailoring solutions to community needs are crucial for success. It's also vital to incorporate adaptive strategies to address challenges like climate variability and funding delays.

Opportunities for collaboration include forming partnerships with organizations specializing in water management, agroforestry, or renewable energy to enhance the project's impact. Additionally, We need partners ready to work with us in supplying tools and capacity-building, this will enable us to scale and replicate this initiative in other refugee settlements facing the same issue as Nakivale.
Initiatives such as peer learning exchanges between communities could amplify the sharing of best practices.

The Innovation Service's support has been invaluable in enabling this project's achievements. However, we suggest streamlining funding disbursements to avoid delays that can disrupt timelines. Providing additional technical assistance or creating platforms for knowledge sharing among grantees would further enhance project outcomes and foster innovation across initiatives.

Signed:
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Project Lead
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