

# Resource Recovery and Reuse in Refugee Settlements in Ethiopia, Kenya and Uganda

Enhancing food and water security, access to energy and ecosystem and livelihood resilience in refugee-hosting landscapes through gender responsive and circular bio-economy innovations.

## /// Context ///

In Sub-Saharan Africa, refugees are located in fragile arid areas. Despite many challenges, there are opportunities to shift from a 'land degradation' narrative to one based on 'land restoration and resilience', by enhancing the knowledge and skills of both refugee and host communities in a range of gender-responsive, regenerative and circular bioeconomy innovations, adapted to the local context. These innovations include, for example: to cultivate small home gardens irrigated with greywater; grow fruit and shade trees in their compounds; make briquettes from organic residues and soil; and build more efficient stoves from local clay – all of which reduce the impact on the local fragile landscapes caused by dense settlements. In the capacity-building process, newcomers and the host community are transformed from a social justice perspective, as agents of change, transforming ecological challenges and becoming active landscape restoration participants. The "Resource Recovery and Reuse in Refugee Settlements in Africa" project was carried out in 2019-2023 in six refugee camps and settlements and their surrounding host communities in Ethiopia, Kenya and Uganda. To date, it involved over 3,600 households



Home garden irrigated with household grey water and protected with tree branches in refugee settlement in Uganda | Author: Photo: Okoth E/ICRAF | © Photo: Okoth E/ICRAF

and reached over 200,000 people indirectly in Kenya and Uganda. Due to conflict, no actions were implemented in Ethiopia. The evidence-based findings from this work are applicable to other fragile landscapes likely to experience massive arrivals of migrants and refugees in the future.

## /// Solution for a Resilient Future ///

IWMI and ICRAF, in partnership with CIAT, Penn State University (PSU) and the Danish Refugee Council (DRC), UNHCR and UN Habitat, using a gender-inclusive approach, conducted a series of hands-on capacity-building activities in refugee camps and settlements and their surrounding host communities.

The innovative aspect of our approach involves integrating gender-responsive and context-specific adaptations of various technologies and innovations developed by various CGIAR research centers and universities while closely collaborating with key stakeholders in the humanitarian sector (e.g.

authorities in charge of refugee camp settlements, UN agencies, NGOs as well as refugees and host communities). Regenerative and circular bioeconomy approaches foster synergies and help close carbon, soil nutrient and water loops. They thus enhance food and nutrition security, as well as access to cooking energy, and other ecosystem services provided by trees at the household level (Figure 1).

These capacity building activities were achieved through the Training of Trainers, applying a peer-to-peer capacity development model (Figure 2). Working with Training of Trainers or community facilitators, ensures the equitable participation of men, women and youth in project implementation as well as in enhancing capacity and the transfer of knowledge and skills at local level. As there is a need to reach multiple households for enhanced impact at the landscape level, the success of this project was measured by the number of households trained or indirectly reached, rather than by the area cultivated or the

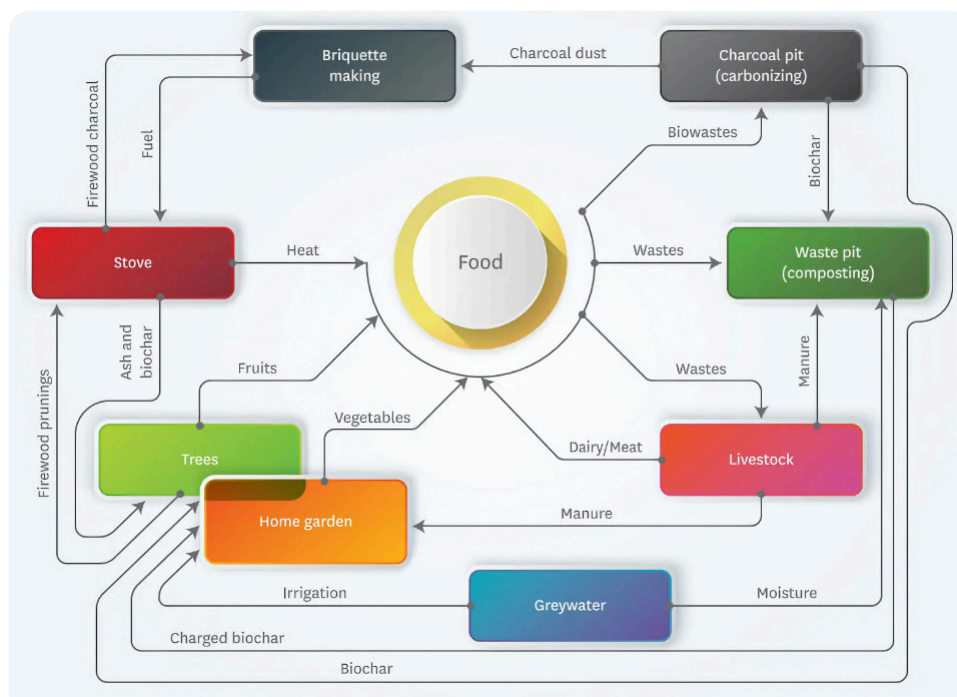


Figure 1. Synergies of carbon, nutrients and water flows between regenerative activities at the household level  
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kilograms of vegetables produced. Over 3,600 households (approximately over 18,000 people) implemented the home gardening, agroforestry and cooking energy innovations and over 200,000 people were reached indirectly.

Importantly, our approach is designed to be practical for women who already bear significant caregiving responsibilities. Gender integration and transformation was included from the initial conception of the project to implementation with reflective iterative learning that allowed ongoing self-correcting feedback as actions were modified to suit the needs of participants and the context for those individuals and communities as it became clearer (Figure 3). Training the project team on gender, having a gender researcher, budget and integration approach throughout the project life and management cycle is critical as it enhances common understanding and approaches and includes target end users' perception to meet their needs and aspirations.

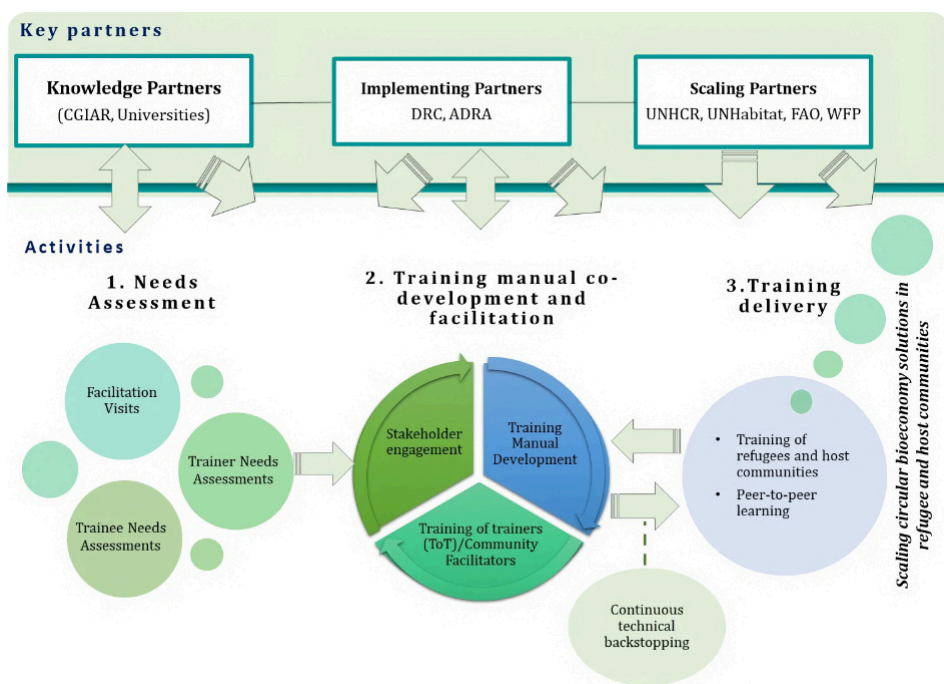


Figure 2. Capacity building and scaling framework  
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### /// Always Moving Forward ///

Several areas of improvement and further work have been identified. First, there is an urgent need for high-quality seeds. Community-based seed saving can help and there was some evidence of such activity. However, the next step would be to develop a local seed enhancement and replication effort for vegetables, fruits trees and other multipurpose trees to reduce the need to import seeds from outside the region. Second, the

provision of continuous extension services from the community-based facilitators in both the refugee camps and host communities could bring greater impact. Due to budget limitation, only a small proportion of the households was reached and hence there is need for scaling to many more people, upscaling and adapting technologies and generating evidence on impacts for enhanced access to water and cooking energy and resilient landscapes and informed planning and programming. These resource recovery and reuse (RRR) innovations can be replicated and contextualised in the Mediterranean context as financial limitations affect humanitarian support and the need for refugees to be part of the solution for environmental and livelihoods resilience.

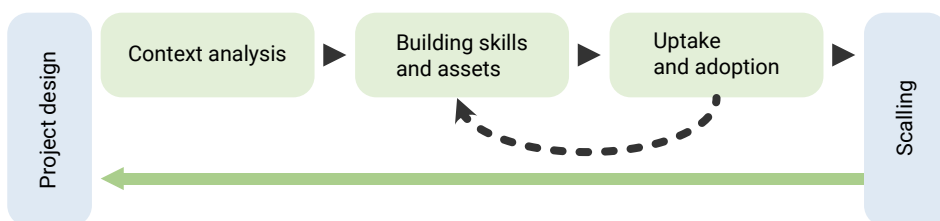


Figure 3 Gender integration in the co-designing and co-implementation of the CBE interventions  
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#### Further information

- Adam-Bradford A, Mendum R, Njenga M, Woldetsadik D, Acanakwo EF, Gebrezgabher S. 2022. Circular bio-economy innovations for resilient refugee and host communities in East Africa. Resource Recovery and Reuse (RRR) in Refugee Settlements in Africa. Project Brief Series No.3. Published: October 2022. International Water Management Institute (IWMI), Colombo, Sri Lanka. 12p. <https://hdl.handle.net/10568/122008>
- Gebrezgabher S, Gitau JK, Kinyua M, Acanakwo EF, Adam-Bradford A, Mendum R, Njenga M. 2024. Scaling circular bio-economy solutions in a refugee context: A peer-to-peer capacity building approach. Resource Recovery and Reuse (RRR) in Refugee Settlements in Africa. Project Brief Series No. 4. Published: April 2024. International Water Management Institute (IWMI), Colombo, Sri Lanka. In press.
- Mendum R, Gebrezgabher S, Njenga M. 2022. Gender integration strategy: approaches for research and development in a refugee context and other settings in Africa. Resource Recovery and Reuse (RRR) in Refugee Settlements in Africa: Project Brief Series No.2. International Water Management Institute (IWMI), Colombo, Sri Lanka. 12p. <https://hdl.handle.net/10568/119930>
- World Agroforestry (ICRAF). Projects. Gender-responsive innovations for soil rehabilitation, alternative fuel and agriculture for resilient refugee and host community settlements in East Africa. <https://worldagroforestry.org/project/gender-responsive-innovations-soil-rehabilitation-alternative-fuel-and-agriculture> (Accessed 10 April 2024)
- Resource recovery and reuse (RRR) in refuge settlements in Africa. <http://rrr-refugee.iwmi.org> (Accessed 10 April 2024)

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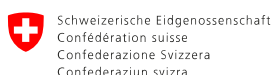
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