



PART 1: Description and all information of the outcome/impact reported

TITLE

Community Seed Banks Boost Seed, Food and Nutrition Security for Thousands in Kenya and Uganda

Subtitle

2,630 smallholder farmer households and over 10,000 individuals in Kenya (since 2019) and Uganda (since 2010) reaping the benefits

YEAR

2023

OUTCOME IMPACT CASE REPORT

Study #AFR-2301

Stage of Maturity of change reported: **stage 3**

GEOGRAPHIC SCOPE: NATIONAL



Created with mapchart.net

COUNTRIES: Kenya, Uganda

Comments: Since the late 1990s, the Alliance has directly supported the establishment of 80 community seed banks in 22 countries of the global south; the most recent seed bank was inaugurated in September 2023 in Uganda. The Alliance has also supported the strengthening and networking of community seed banks in another eight countries (Bangladesh, China, Ethiopia, Guatemala, India, Mali, Nepal, and South Africa). Since 2010, the Alliance has established and supported eight community seed banks in Uganda (one of which is no longer operational). Since 2019, the Alliance has established and supported four community seed banks in Kenya. There are other community seed banks in both countries, not linked to the Alliance, that have benefitted from Alliance technical know-how about community seed banks (including handbooks – see section 7 of this report). The Participatory Ecological Land Use Management (PELUM) Association in Kenya and Uganda, and the Seed Savers Network of Kenya are among the NGOs that have utilized Alliance methodology.

OUTCOME STORY/IMPACT STATEMENT

Alliance-supported community seed banks in Kenya (since 2019) and Uganda (since 2010) have maintained 72 crop and tree species and more than 600 varieties. Up to September 2023, they distributed 14,100 kg seeds of important food crops, with a value of US\$ 36,870. Total sales of seeds and products derived from these crops/trees was US\$ 98,530. These activities have provided 2,630 farming households and more than 10,000 individuals with adequate, sustained seed security, and more affordable, diverse, and nutritious foods.

Contributing external partners:

- Plant Genetic Resources Centre, National Agricultural Research Organization (PGRC-NARO), Uganda
- Bulindi Zonal Agricultural Research and Development Institute, National Agricultural Research Organization (BuZARDI-NARO), Uganda
- Seed Certification Services Unit, Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Uganda
- Joy Mugisha and Family Farm, Sheema, Uganda
- Genetic Resources Research Institute (GeRRI), Kenya Agriculture and Livestock Research Organization (KALRO), Kenya
- Save Savers Network (SNN), Kenya
- Kisumu and Vihiga county Government Ministries of Agriculture, Kenya
- Participatory Ecological Land Use Management (PELUM) Association, Kenya, Uganda

CGIAR INNOVATION(S) OR FINDINGS THAT HAVE RESULTED IN THIS OUTCOME OR IMPACT

The Alliance has developed a participatory methodology to establish and support community seed banks with technical and organizational backstopping. The methodology was refined over many years and then published in the form of two complementary community seed bank handbooks (one for facilitators and one for farmers), first published in 2018 and updated in 2020, and translated into many languages. The handbooks have been and are still used in Kenya and Uganda to establish and support community seed banks.

- Handbook for farmers (three booklets): Available in 18 languages.
 - How to develop and manage your own community seed bank: Farmers' handbook. [Establishing a community seed bank \(1/3\)](#)
 - [Technical issues \(2/3\)](#)
 - [Management, networking, policies, and a final checklist \(3/3\)](#)
- Handbook for facilitators: Available in English, French, Russian, and Spanish.
 - [Community seed banks: concept and practice. Facilitator's handbook](#)

Since 2012, the Alliance has contributed to (short) international courses for professionals working in agriculture and related fields, co-designed and co-delivered by the Wageningen Centre for Development Innovation of Wageningen University and Research, the Netherlands, and the Alliance. The courses have a module on community seed banks largely drawing on our work and deliverables, including the handbooks referred to above. Course participants, including those from Kenya and Uganda, have introduced the concept and practice of community seed banks in their policy, education, extension, research, and development work. In Kenya and Uganda, Alliance staff have collaborated with national partners to build a supportive policy, legal and institutional framework for community seed banks through policy dialogues and policy advice. This has led to significant positive changes, such as recognition of community seed banks as part of the national conservation system, a leadership role of the national genebanks to collaborate with and support community seed banks, and the support of county governments for community seed banks in Kenya.

ELABORATION OF OUTCOME/IMPACT STATEMENT

Community seed banks are farmer-managed organizations that conserve and sustainably manage local crop and tree diversity (Figure 1 in Annex 1) [1, 2]. As of September 2023, the Alliance has directly supported the establishment of 80 community seed banks in 22 countries. It has provided technical and financial support to already established community seed banks in 14 countries. It has also initiated or strengthened regional or national networks of community seed banks in 10 countries, in Africa, Asian and Latin America [3]. The Alliance trained and continues to train national partner organizations and farmers in community seed banking using handbooks developed for the purpose [4-7]. National partners and lead-farmers have trained hundreds of technical staff and other farmers. In Kenya and Uganda, the Alliance has directly established and supported 12 community seed banks, of which 11 are active (four in Kenya, seven in Uganda). The methodology used and data collected of the outcomes-impact study carried out for this report can be found in [8].



Kabudi-Agoro community seed bank Kenya - Bioversity International/R.Vernooy

Since the start of the operations (2010 in Uganda and 2019 in Kenya), the community seed banks in both countries improved seed and food security, and nutrition diversity of 2,630 smallholder households through conservation, distribution, and value addition of 72 crop and tree species and 641 varieties (some of which are likely duplicates), benefitting more than 10,000 individuals. At the start of operations, the numbers were 21 species and 385 varieties respectively. Between 2010 and 2023, the seven surveyed community seed banks distributed 14,100 kg of diverse, quality seed of major food crops (banana, cassava, cow pea, finger millet, groundnut, maize, sorghum, sweetpotato) and minor food crops (African leafy vegetables, and other types of vegetables) with an estimated market value of US\$ 36,870 (based on September 2023 seed prices). The total sales of seeds and products derived from the crop conserved by the community seed banks during this period amounts to US\$ 98,530 [8].

Beyond the core functions of crop/tree conservation and seed distribution, the community seed banks also i) facilitate the sharing of agricultural knowledge and skills [9]; ii) raise awareness about and research and the links between crops, health, and nutrition [10]; iii) train other farmers in farm, seed, and natural resource management; iv) collaborate with the national genebanks and plant breeders on crop improvement and climate-change adaptation [11, 12, 13]; v) serve as platform for community action, social development, and women's empowerment; vi) offer credit; vii) produce and market seeds [14]; viii) manufacture and sell value-added products [15, 16]; and ix) act as representative body for farmers' views and interests at community, district, and national levels. The operations and results of the community seed banks also contribute to more peaceful and secure communities, as explained during our focus group discussions with community seed bank management teams [8].



Joy Mugisha in the Joy and Family farm community seed bank Uganda - Bioversity International/R.Vernooy

Women play key (leadership) roles in many community seed banks; some have a 100% female membership base, such as the Kabudi-Agoro community seed bank in Kenya. [8] Between 2010 (Uganda), respectively 2019 (Kenya) and 2023, the seven surveyed community seed banks have received a total of 5,740 visitors. They also organized numerous food and seed fairs altogether attended by thousands of farmers, where they displayed (part of) their collections and presented their activities and results. Through all these activities, the estimated total number of farmer households reached in this period is more than 30,000. [8]

GENDER, YOUTH, CAPACITY DEVELOPMENT AND CLIMATE CHANGE

Gender relevance: 1 - Significant. Roles of women as seed custodians and managers are carefully considered when establishing a community seed bank. Women play very active roles in many community seed banks. The Kabudi-Agoro community seed bank in Kenya is 100% women run. Involvement in the community seed bank has led to greater participation of women in responsible positions, in seed-related activities, and in farming-related activities (findings of our evaluation study). Women are empowered through their involvement in the community seed bank.

Cap Dev relevance: 1 - Significant. The management teams of all community seed banks are trained by the Alliance and/or national partners in key aspects related to a community seed bank. Training is an essential component of community seed banking. Experienced members in turn train other farmers.

Climate change relevance: 1 - Significant. Community seed banks usually conserve well adapted crop varieties and/or engage in research to adapt varieties (through participatory variety selection) with Alliance staff and/or national partners. Climate change has become a key issue addressed by community seed banks.



Vihiga nutrition and community seed bank Kenya - Bioversity International/R.Vernooy

PART 2: Mapping to Alliance strategy and structure

KEY CONTRIBUTOR AND STRATEGIC OUTCOMES



Lever 4: Biodiversity for Food and Agriculture

SECONDARY CONTRIBUTORS

Lever 3: Climate Action

Lever 6: Crops for Nutrition and Health
Gender, Youth and Inclusion

- National programs and communities in priority countries characterize and use diverse genebank and local material and crop wild relatives to address resilience, climate change, and nutrition through integrated selection and breeding approaches.
- Inclusive formal, intermediate, and informal seed systems deliver forages, trees, and crops adapted to local conditions to improve food security and sustainability of production systems.
- National governments adopt policies and practices recommended for genetic resources management.
- Value-chain stakeholders integrate a greater diversity of crops for greater resilience and healthier diets.

SDG TARGETS



- **1.4** - By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.
- **2.5** - By 2020, maintain the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.



Composite flour Lower Nyando community seed bank
Kenya - Bioversity International/R.Vernooy



Adding zeolite beads to seeds Hoima community seed bank
Uganda - Bioversity International/R.Vernooy

PART 3: One CGIAR Alignment

LINK TO IMPACT AREAS AND GLOBAL TARGETS



- **Impact Area 1: Nutrition, Health, and Food Security** – End hunger for all and enable affordable healthy diets for the 3 billion people who do not currently have access to safe and nutritious food.



- **Impact Area 2: Poverty Reduction, Livelihoods, and Jobs** [indirect] – Reduce by at least half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions.



- **Impact Area 3: Gender Equality, Youth, and Social Inclusion** [indirect] – Close the gender gap in rights to economic resources, access to ownership, and control over land and natural resources for over 500 million women who work in food, land, and water systems.



- **Impact Area 4: Climate Adaptation and Mitigation** – Equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.



- **Impact Area 5: Environmental Health and Biodiversity** – Maintain the genetic diversity of seeds, cultivated plants, farmed, and domesticated animals and their related wild species, including through soundly managed genebanks at the national, regional, and international levels.

PART 4: References and COM material

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- Vernooy, R., Otieno, G., Adokorach, J., Fusire, M., Munkombwe, G., Matei, D., Kimani, D., 2023. [Adding value to neglected and underutilized crop species: experiences from Kenya, Uganda, Zambia and Zimbabwe](#). Bioversity International, Rome, Italy.

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The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) delivers research-based solutions that harness agricultural biodiversity and sustainably transform food systems to improve people's lives. Alliance solutions address the global crises of malnutrition, climate change, biodiversity loss, and environmental degradation.



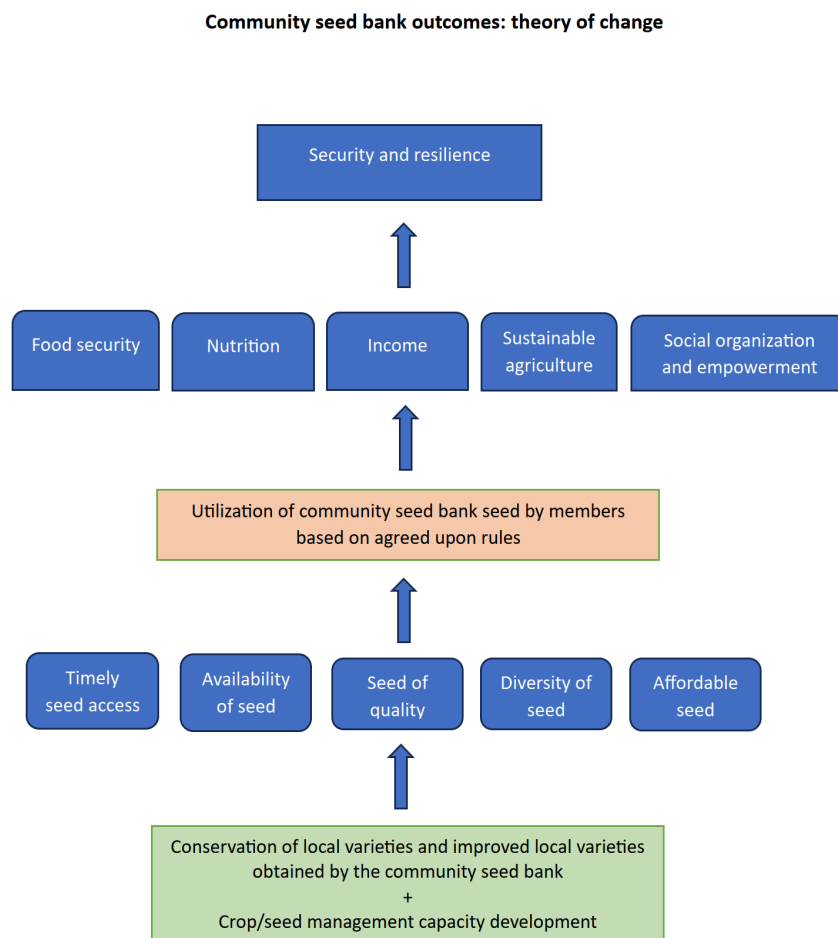
The Alliance is part of CGIAR, a global research partnership for a food-secure future.

<http://alliancebioversityciat.org>

www.cgiar.org

Annexes

Annex 1. Figure 1. Community seed banks theory of change



Annex 2. Results of the self-assessments by the community seed banks

Apart from collecting quantitative data, we collected qualitative data about the outcomes and impact of the community seed banks through focus group discussions and an assessment tool, addressing five outcome areas: 1. Seeds; 2. Agriculture; 3. Livelihoods; 4. Social organization and empowerment; 5. Security and resilience. For each outcome area, several indicators were included (total: 35 indicators). Outcome areas and indicators were based on the scientific literature about community seed banks and 30 years of field experience of working with community seed banks, including very recent work in countries with protracted crisis situations, notably the Horn of Africa. Indicators are scored using values from minus 10 to plus 10, based on group discussion among a selected group of members of the community seed bank taking women and men representation into account. The total average scores of the indicators by outcome area are graphically presented by a spider-diagram (also called radar chart). The use of the spider-diagram was field-tested by farmers and proven effective. The following tables (1-5) and Figure 2 present the average scoring results of the focus group discussions held with the management teams of the seven community seed banks.

Table 1. Seeds

Indicator	Average score	Range of scores	Farmer observations
Access	9.6	7.5-10	We have our community seed bank (CSB). People know how to produce and conserve seeds. We no longer have to search for seeds and travel here and there. "Seeds are very accessible, even for non-members." We now have various crops and varieties. There is no more struggle to get seeds.
Availability	8.4	5-10	Seeds are available in good amounts for CSB members. "Now we have many kilos of seed." We used to have more seed, but quantities have dwindled recently."
Diversity	8.4	6.5-10	We now have more crops and varieties than before.
Quality	9.4	5.5-10	We have received many seed training and seed quality has improved enormously. "We produce clean seeds."
Preferred crops and varieties	9.3	4-10	You can choose the variety you want. "Crops are locally adapted." Varieties are resistant. We have short season varieties. And we have seed of neglected and underutilized crop species.
Timeliness (when needed)	9.3	7-10	The CSB is open Monday to Friday.
Affordability	8	8-10	The CSB does not charge for seeds. This is a great advantage. "The CSB is not far so we do not have to make costs to travel to town to buy seeds."
Knowledge about seeds (management)	9.4	6-10	We have gained much knowledge through training, exchanges, and visits. "We are able to identify crop diseases."

Skills about seeds (management)	7.9	7-10	We have improved our skills through training and exposure. "We are able to differentiate varieties."
Average score:	8.9	4-10	

Table 2. Agriculture

Indicator	Average score	Range of scores	Farmer observations
Water use	6.1	3-8	We continue to be dependent on rain-fed farming. "We only have a few varieties now that are more drought resistant, notably finger millet and sorghum."
Soil fertility	7.9	5-10	We now use leguminous crops, such as beans, and trees to improve our soil. We have many bean varieties in the CSB. "We use organic manure."
Pest occurrence	7.1	6-9	We are still having pests like before. "Birds remain a problem."
Disease occurrence	5.5	3-9	We are still having diseases like before. For example, bean rot.
Weed occurrence	5.4	-5-10	We have learned new practices to handle weeds, such as crop rotation. "We have weeds in our fields, likely due to climate change."
Agronomic practices	9.1	5-10	We have learned several organic farming practices, such as composting, and organic pesticide production. "We now plant in lines which was not done before." "Because of all the trainings we have become better farmers."
Labor input	-3	-10-10	We are now investing more time in farming. "Because of the CSB our labor input has doubled."
Average score:	5.4	-10-10	

Table 3. Livelihood

Indicator	Average score	Range of scores	Farmer observations
Food quantity throughout the year	8.7	5-10	"We now have crops that mature throughout the year. There are no more gaps." We now have high-yielding crops. "We now have food throughout the year." We have more and more varied food.
Food availability throughout the year	8.6	5-10	We have no more major food gaps, but the month of April is still hard for some households.
Nutritional quality of food consumed	9.4	8-10	We have done door-to-door nutrition education. We now grow and consume several African leafy vegetables, which are highly nutritious.

Indicator	Average score	Range of scores	Farmer observations
			"High quality seeds give high quality yields of crops with high levels of calcium, iron, and protein, such as cereals and beans." Crops are more nutritious, and some have medicinal value too.
Health	8.3	8-10	More and better food has improved our health. "We are no longer malnourished. We are less exposed to chemicals. We are on the way to produce 100% organic."
Income generation	7.3	3-10	Some activities have been started such as the sale of seeds, fresh vegetables, and composite flour. "We have a start, but it is challenging."
New employment	5.9	0-10	Some new activities are taking place, such as value addition. "We have expanded activities." We have earned some income from the sale of beans and cassava. We obtained the beans from the CSB.
Access to affordable credit	1.6	0-8.5	Although we do have a credit system, there are some challenges. There is dissatisfaction about the functioning of the system. "The CSB offers loans, which are used to buy tools and equipment, pay school fees, hire occasional labor."
Average score:	7.1	0-10	

Table 4. Social organization and empowerment average scores

Indicator	Average score	Range of scores	Farmer observations
Making your voice heard	8.4	7-10	We talk to many people nowadays about seeds. We receive encouragement and we are encouraging others. "We have a website. We have been on radio and TV and in newspapers." For us women, we have learned to speak out."
Participate in community seed bank related decisions	8.9	7-10	We all have our say! "Everybody participates."
Representing the community seed bank	9.4	8-10	"Members do this very well." We train other farmers and visit many places. "We travel in Uganda and outside Uganda."
Engagement with other seed actors	9.2	2-10	We meet with many organizations. "The door has opened for us! We visit other CSBs, NARO, meet with the Alliance staff." We have many meetings, with the county government, NGOs, the ministry of agriculture."

Indicator	Average score	Range of scores	Farmer observations
Participate in household decisions	8.8	7-10	Women: "Husbands see what we do and agree." Men: "We are doing things together in the household." "Women are able to decide what needs to be done in the household." There has been a big change. Women have become stronger, and something is happening in the house. "There has been positive change for women. Women exchange their experiences when together."
Participate in community decisions	8.2	6-9	This has improved. The community seed bank has impact in the community. "We have become (women) leaders in our community."
Average score:	8.8	2-10	

Table 5. Security and resilience

Indicator	Average score	Range of scores	Farmer observations
Seed security	9	6-10	"There are seeds in the CSB." The scores for Seeds are clear evidence. "We are much more seed secure now."
Food security	8.4	5-10	There has been a positive change. "We are food secure now."
Community peace	8.4	7-10	Conflicts and thefts in the community have diminished. Everybody is busy with planting. "Seeds are sold, and women do not have to beg their husband for money." When we have money, there is peace. "Now that we have more food the situation is better. When people are hungry it leads to anger." "Conflicts arise when farmers do not return seeds to the CSB." We employ the youth in our gardens so there are no problems here.
Communication flow within the community and with others	9.0	8-10	Many new people have joined and are working together. "There is an easy flow of communication."
Capacity to deal with uncertainty and adversity	8.1	8-10	Collaboration in the community seed bank has increased. "People plant diversity, so they do not lose everything if a calamity happens." We have improved our management of pests. "We have the seeds in the CSB and now can plan ahead."
Misappropriation of resources	8.4	7-10	There is less theft now than before. "There are some defaulters who do not return seeds."

Indicator	Average score	Range of scores	Farmer observations
			Because food security has improved, this has reduced.
Average score:	8.6	5-10	

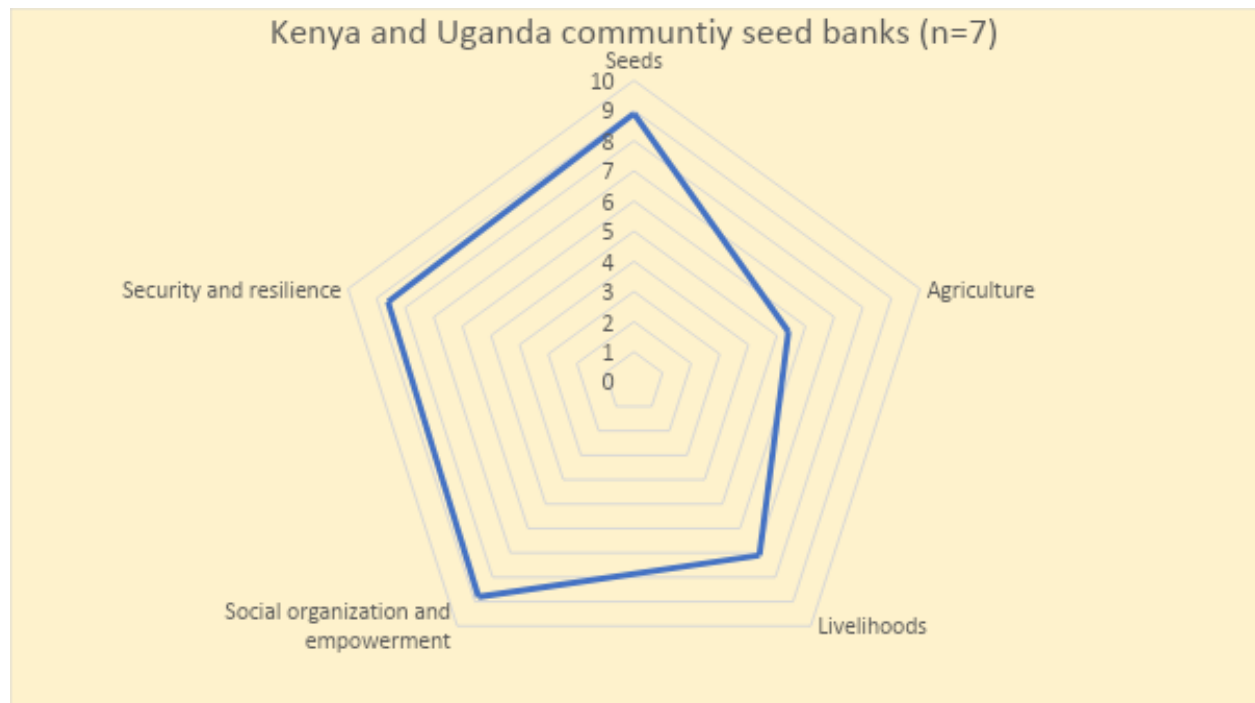


Figure 2. Spider diagram of average outcome area scores