Alliance Bioversity & CIAT


POLICY BRIEF No. 85

# Community seedbanks in protracted crisis situations: potential and challenges

**Authors**

Ronnie Vernooy, Bioversity International, The Netherlands;

Arnab Gupta, Abishkar Subedi, Wageningen Centre for Development Innovation, Wageningen University and Research, The Netherlands;

Deeka Ali Awed, Aidid Hassan Abdi, Mohamed Saleban Jama, Sanaag University, Somaliland;

Yahia Eldie, El Fasher University, Sudan;

Salah Jubarah, University of Juba, South Sudan;

Solomon Swaka Kamilo, Ministry of Agriculture, Environment and Forestry, Central Equatoria State, South Sudan.

**Cereal diversity of Jawoor village, Sudan.** Yahia Eldie.

## HIGHLIGHTS

- Political and military conflicts and civil unrest affect both food and seed security. Seed production, storage and distribution are disrupted temporarily or for longer periods, with fields abandoned or damaged, and harvests compromised or lost. Often, supply chains are interrupted or broken altogether.
- The Horn of Africa is largely a seed-insecure region.
- Effectively functioning community seedbanks can contribute to seed security, even in a protracted crisis situation. There are several examples of community seedbanks that were established as a response to a crisis situation, either man or nature made or a combination of both. Examples are from Ethiopia, Guatemala, Nepal and Uganda.
- Recent initiatives to establish community seedbanks in Somaliland, South Sudan and Sudan, located in the Horn of Africa, have paid special attention to the insecure and unstable social, economic and political circumstances that affect seed and food security.
- Careful consideration should be given to community seedbank site selection, membership and decision-making, and infrastructure and equipment. Decisions about these three elements need to consider the social security situation, minimizing or avoiding the risk of people, storage facility, equipment and seeds becoming the trigger of insecurity and/or conflict.

# Introduction

Food security remains a critical development challenge around the world. In recent times, food insecurity has been aggravated by the impact of the Russian invasion of Ukraine, resulting in cereal- and oil-crop supply shortages, and skyrocketing world market prices. Those countries heavily dependent on cereal and oil crop imports from Russia, Ukraine, and elsewhere are now suffering, especially those in the Horn of Africa. Prolonged drought in some parts of the world, including the Horn of Africa, is exacerbating the crisis (UNHCR, 2023). For the Horn of Africa, the United Nations High Commissioner for Refugees (UNHCR) predicts a sixth consecutive failed rainy season for March-May 2023. Food security partly depends on seed security - the timely access to good quality seed and other planting materials of preferred crops and crop varieties, in adequate quantities and at affordable prices. Political and military conflicts and civil unrest affect both food and seed security, where seed production, storage and distribution are disrupted. Fields are abandoned or damaged, harvests compromised or lost, and supply chains interrupted or broken altogether. The Horn of Africa is largely a seed-insecure region (Kusters et al., 2023).

Community seedbanks are locally managed organizations aiming to conserve and sustainably use crop (and tree) diversity. They mostly, but not exclusively, focus on farmer and farmer-improved varieties. They have been in existence for about 30 years in countries around the world (Vernooy at al., 2015). In recent years, interest in community seedbanks has been growing, with international and national organizations and national governments developing initiatives to establish and support them (Adokorach et al., 2020; Andersen et al., 2018; Song et al., 2021; Vernooy et al., 2018, 2019). In some countries, national plant genetic resources centers (often housing the national genebank) are taking leadership in these initiatives, i.e., Nepal, South Africa, and Uganda. Building on recent interest in the (actual and potential) roles of community seedbanks in emergency contexts (ISSD African and Mercy Corps, 2023), this article documents and reflects on the particularities of community seedbank establishment and management in three countries in the Horn of Africa, Somaliland, South Sudan, and Sudan. It explores how community seedbanks are contributing to the multiple objectives of achieving seed, food and social security, and building peace. It, therefore, considers the following key elements of community seedbanking:

- Site selection
- Membership and decision-making
- Infrastructure and equipment
- Seed management (based/not based on drought-cycle management. The cycle has four stages: alert alarm-emergency-recovery-normal, [Oxfam, 2010]). Key activities include contingency planning and seeds stockpiling during normal times for disaster preparedness.
- Seed quantities
- Technical support, collaboration and networking
- Policy and legal context
- Sustainability

Before zooming in on the three countries, we briefly review past experiences with regard to the roles of community seedbanks in crisis situations.


**The community seedbank of Gumbu, South Africa.**
Bioversity International/R. Vernooy.

# Proven capacity of community seedbanks to respond to crisis situations

There are several examples of community seedbanks that were established as a response to a crisis situation, either natural or anthropogenic, or in combination (see Vernooy et al., 2015, for more details). Examples are from the Horn of Africa, sub-Saharan Africa, South-east Asia and Central America.

**Ethiopia**: The origin of community seedbanking can be found in Ethiopia, where the community seedbank concept was put into practice as a response to devastating famine that aimed to avoid or minimize future seed and food insecurity. Throughout the country, community seedbanks were established and stocked with enough seed of preferred crop varieties.

In **Guatemala**, seed reserves were created in response to the impact of recurring hurricanes which destroyed many homesteads and swept away stored seeds. The example of Guatemala inspired Nicaragua where, under the leadership of the National Union of Farmers and Livestock Producers (UNAG), family seedbanks were first established, some of which later evolved into community seedbanks or which were complemented by community seedbanks. They have proved effective in providing emergency seed supply of preferred-crop varieties when Nicaragua has been hit by hurricanes, which happens regularly.

In **Nepal**, building on already organized farmer groups, community seedbanks were first established to set up a seed-supply system in response to civil unrest and armed conflicts. More recently, community seedbanks rescued communities that had lost their seeds in a series of earthquakes. Community seedbanks in the non-affected terai (lowland) region organized seed distribution for communities in the affected mountain areas when others, including the government and international agencies, could not respond timely and effectively.

In **Uganda**, some community seedbanks were established with the support of the Eastern and Southern Africa Small-scale Farmers' Forum (ESAFF) as an at-scale response to combined armed conflict and climate vagaries. In Zimbabwe, community seedbanks were first established (from 1996 onwards), with the support of the NGO Community Technology Development Trust (CTDT), to strengthen seed availability in response to recurring droughts in the country. Since then, the number of community seedbanks supported by CTDT has increased to 14, with most of them well-stocked with local crop varieties, and some of them engaged in large-scale seed production and distribution.

# Community seedbanking in the conflict- and disaster-prone Horn of Africa

The security situation in the Horn of Africa is fragile, characterized by outbreaks of conflict, enduring tensions, and a very large number of displaced persons, internally and across borders. Somalia, as an example, has about 2.9 million displaced persons inside the country, according to UNHCR (data of 6 April 2023, https://data.unhcr.org/en/situations/rbehagl).

Tensions and conflicts (leading to displacement) can create uncertainty about farming in the short run (what, when and how much to plant), but most likely will also adversely affect farming in the long run. Planning each growing cycle in advance and obtaining the required seeds are difficult tasks when there is no peace, markets are not functioning well, and general mobility is compromised or unfeasible.

Tensions and conflicts can also adversely affect household and community social capital. For example, they may reduce motivation to assemble for meetings, celebrations, trainings, (food and seed) fairs, and/or to engage in collective action. This may include community-based activities such as cleaning or maintaining public facilities, community gardening or community seedbanking. Due to distrust, fear of misappropriation and/or retaliation, people may refrain from initiating or maintaining collective action. Collective actions require a common understanding of purpose, agreed governance and management rules and regulations, and free and reliable communications.

Tensions and conflicts also pose a threat to economic capital including seeds, tools and

equipment; and infrastructure, such as storage spaces for produce, fodder, firewood and seeds. Fear of theft, damage or destruction may lead to reluctance to store large quantities of anything over a longer period, in a single place. As a response, farmers could safeguard seeds and other goods in smaller amounts, spread over several places and/or hidden (e.g., buried under the ground).

Crisis situations can be further aggravated by severe climate events or longer-term climate-change impacts, leading to disruptions or complete breakdowns of seed and food supplies.

We now look at three countries in the Horn of Africa, where new community seedbanks have been established, or are being established under the umbrella of food security-seed security-peacebuilding initiatives supported by the international community.

## Somaliland

### A pilot community seedbank in Seeraha Erigavo, Sanaag region, supported by Sanaag University

**Seeraha farmers attend the community seed bank mobilization meeting.**
Sanaag University.

Somaliland faces many challenges, in particular the impact of prolonged drought. The last two years (2021 and 2022) were the driest years in Somaliland, which has diminished crop and livestock production across the entire country. Communities continue to have to travel long distances to look for water and pasture, including in remote areas. This is very time and labor intensive and heavily impacts people's health and wellbeing. Besides the direct impact of the drought, there was a clear diversion of resources from developmental programs to emergency and humanitarian programs, making it difficult to meet farmers or train communities. The over-reliance on external aid is contributing to very scattered, weak, and dependent communities, limiting local initiative.

A pilot community seedbank was established in Seeraha Erigavo, originally involving 80 farmers, 27 of whom became community seedbank members (12 women and 15 men). Farmers were introduced to the concept of a community seedbank and trained in its establishment and management (conservation of seeds). Additional training topics included good agricultural practices, and harvest and post-harvest management. A new storage facility with some basic equipment (shelves, containers, zeolite beads) is being built and the first collection of seeds was assembled (cereals and beans). Seed quality was assessed through a germination test. The group discussed community seedbank rules and regulations, and drafted bylaws and a code of conduct (in the absence of any guidance from the government). Perhaps in the future, the community seedbank can be registered as a cooperative, which will create legal recognition and protection, allowing formal reception of technical and financial support, and facilitating seed commercialization.

After discussion among the farmers and the university team, it was decided to establish the community seedbank at the university compound, considering central accessibility, availability of land and water, easiness of seed distribution, labor availability (university staff), presence of a nearby shop (to buy refreshments for meetings and activities), and security.

The community seedbank is expected to contribute to peacebuilding in the area because it functions as a platform for interaction and discussion among farmers, and for transferring knowledge and skills, while working on a common goal for the community seedbank and the larger community, thus contributing to community integration. To reduce tension and/or conflict with regards to the community seedbank, it will be important to maintain healthy seeds and planting materials, and properly register all seeds deposited in the community seedbank (name of crop/variety, name of farmer, name of community, and date of donation).

# South Sudan

## A new community seedbank of Ladu Payam, supported by the Ministry of Agriculture, Environment and Forestry, Central Equatoria State

Considering the national security situation, a community seedbank needs to be located close to people's homes or nearby a community building (church, health center, school), close to the road and not in the remote bush; with year-round accessibility.

Transport is a challenge in South Sudan, which means that farmers from more remote areas will have difficulty becoming involved.

Membership should be based on common interests, with members preferably from the same area, village or boma (district), agreeing on rules and regulations, and with a good leadership structure in place. The group could start with 25 to 30 members and must be willing to cooperate with other groups for reciprocal learning. Over time, more members could join.

A solid, stone or concrete facility is required (but it does not have to be expensive), well-ventilated, with no access by animals (rats). The facility should be maintained by the members with guidance from the local leader and the government or NGO staff involved.

Crops to be conserved depend on the area but must cater for the major local food crops, such as cereals, legumes, and ground nuts. Initially, seed volumes can be small, but over time can become larger, and larger still if the community seedbank enters the local seed market.

In South Sudan, there is no specific policy regarding community seedbanks, but the government is cooperative in creating space for seed enterprises. Seed-sector collaboration will be important for community-seedbank sustainability. The government should offer technical support.

The proposal to establish a pilot community seedbank was disseminated to 250 farmers within Ladu Payam, in five different villages (150 men, 100 women), where the security situation is good. All farmers were trained in community-seedbank management with the help of the community-seedbank manual translated into the local language, Bari. It was decided that 50 farmers will be responsible for the village community seedbank of Nyuwa Boma, where a new facility will be built. The initial seed collection of local varieties for the community seedbank was made in various locations. Farmers agreed to regenerate and multiply seeds annually on their own land. While collecting seeds, farmers realized that over the years they have lost several crop varieties, which perhaps the community seedbank could have conserved.

Establishing the community seedbank brought farmers together to communicate and collaborate, but now more time and resources are needed to strengthen the group and activities. The village community seedbank beneficiaries in Ladu Payam have experienced peaceful co-existence during their interactions over the short community-seedbank implementation period. Previously, the two neighboring villages to Nyuwa were involved in a conflict among themselves, making exchange of seeds and information very difficult. During the training about community seedbanking, awareness was created about collecting seeds for the community seedbank. The importance of bringing seeds to one place was stressed in order to safeguard local seed genetic resources and varieties. Women members returned home with a message for their husbands that it is important for communities to share information and seeds, including (restoring) varieties that have disappeared from their villages.

Activities were initiated without reference to the (seed) policy environment in the country. Farmers are not aware and educated about this. Seed-sector actors do not interact much, and operate individually.


**Nyuwa Boma farmers participate in a training about seed management.**
Solomon Swaka Kamilo.

The Ministry of Agriculture Environment and Forestry and World Vision supported the farmers to start community seedbanking and will continue to do so.

Given the insecure situation that still exists in South Sudan, it will not be easy to extend community seedbanks to many areas.

## Sudan

### New community seedbanks in Darfur supported by El Fasher University

**The Berka village community seed bank.** Yahia Eldie.

The situation in Sudan is very challenging, as the recent outburst of military fighting demonstrates. People face different kinds of insecurity, risks and stress, both natural and anthropogenic (in particular, prolonged droughts, rising temperatures and decreasing rainfall). Close to 10 million people face acute food insecurity; more than 2.5 million people are internally displaced, with over a million refugees in the country. People are very worried about security issues, so farmers are unwilling to engage in long-term risk-mitigation processes. Lack of funding and inaccessibility during the rainy season (impassable roads) make it difficult to provide technical support. Yields and productivity are compromised by several factors, including insufficient implementation of laws and policies; poor seed access and availability for smallholder farmers; limited access to markets; low adoption of improved inputs, and limited mechanization.

Many international project interventions (including training) are delivering comprehensive support, especially for introducing mechanisms to resolve the many existing local conflicts (e.g., in the Darfur region). Conflicts concern current and future access to land and water, which require mediation between hostile groups, or between the local administration and displaced communities. Community seedbanks are a very new example of an intervention in Sudan, and concern access to food security and natural resources (crops / varieties, grasses and fodder, and trees). They have the potential to contribute to stability and peace.

Any community seedbank site should be carefully selected depending on the security situation, agricultural activities and trends, crop diversity (loss), land ownership, farmers' eagerness to adopt/adapt new technologies, and previous/ongoing interventions

(e.g., farmer field schools, upon which community seedbanking activities could be built).

Members should join based on their common interests in community seedbanking and motivation to contribute in-kind, agreeing upon rules and regulations, and supported by seed-sector actors (government and civil society). As mentioned for Sudan, initially 25 to 30 farmers could work together. Basic storage facilities and equipment should be provided; and farmers could offer their own land for seed regeneration and multiplication. Major food crops, such as cereal and legumes, vegetables, and ground nuts and sesame, should have priority, with some tree species according to local presence and use.

El Fasher University and the Agricultural Research Council of Sudan are supporting three new community seedbanks in the Darfur region: i) Yawoor village, where the NGO SOS Sahel Sudan already has a presence, and a farmer field school is active (15 women and 15 men belonging to the farmer field school joined the community seedbank); ii) Berka village council in Kurma (10 women and 15 men started the community seedbank), and iii) at El Fasher University for farmers in the immediate university surroundings. El Fasher University was chosen by farmers and technical staff to avoid tensions among farmers from different communities around the university regarding the community seedbank site selection. The advantage is that seeds for the community seedbank can be easily screened at the university. In Yawoor, farmers collected millet, sorghum and groundnut seed to start the community seedbank. In Kurma, about 50 varieties were collected. There is a small facility for storage, but no demonstration farm where seeds could be multiplied. All participating farmers received basic training and expressed willingness to work together, form a cooperative and maintain their community seedbank. There is a need to train more professionals (e.g., extensionists) and farmers in community seedbanking, with special attention paid to seed-business development by farmers (with the technical support and inspection of agricultural extensionists). Unfortunately, there is almost no communication and collaboration among seed-sector actors in the country, where organizations operate in silos.

Community seedbanking could be extended all over Darfur and Sudan, and even to Chad and Central Africa. It should be accompanied by promoting women's organizations, including those representing pastoralist women, to empower them to meaningfully participate in local and state-level peacebuilding platforms. Some key partnerships have been built with the State Universities in El Fasher, Ed Daein, Geneina, Zaliengei and Nyala, particularly with their peace and research centers, which have offered their technical expertise to train community groups in peacebuilding and conflict resolution methods, among other things.

Policy-environment actors have transferred seed management from government to the private sector, but with limited follow-up in terms of monitoring. This shift is hindering the roles of universities and research stations. Sustainability is a challenge in a country where farmers are used to receiving handouts and even payments for participation in program/project activities. Community seedbanks should be maintained by local resources, but farmers' willingness to invest their own time and efforts is limited and thus a major challenge.

## Conclusion: community seedbanks in protracted crisis situations: preparedness to anticipate and agility to respond

The initial efforts to introduce, promote and initiate community seedbanking in Somaliland, South Sudan and Sudan indicate the challenges facing community seedbanks, given the enduring fragile, insecure and conflictive environment in all three countries, and the very bad current situation in Sudan. However, the community seedbank concept has been well-received by professionals and farmers alike, with only a very limited trajectory of community seedbanking to date to build on (e.g., the Beer community seedbank in Somaliland supported by the Development Fund of Norway).

As the brief experiences of the new community seedbanks described in this article demonstrate, the protracted crisis situations in the Horn of Africa require special attention for the key elements of community seedbanking. This is especially true for community seedbank site selection, membership and decision-making, and infrastructure and equipment. Decisions

about these three elements need to carefully consider the social security situation. Initiatives should mitigate any risk of people, facility, equipment and seeds becoming a trigger for insecurity and/or conflict. Housing seed collections at institutions, such as universities and research stations, offers some degree of protection and (financial and technical) support, but also distances the storage facility from the rural communities. It remains to be seen how this will affect the sense of farmers' community seedbank ownership. Regarding seed management, initial activities are focusing on building up a core collection of crops important to farmers, with the intention of gradually adopting a drought-cycle-management approach, based on contingency planning and the stockpiling of seeds. Given the general regional precariousness, this will take considerable time and effort.

During the initial stages of establishing the new community seedbanks, farmers from different localities came together to discuss the topics of seed security, status and loss of agrobiodiversity, and the need for local action. Through the facilitated interactions, they developed a common understanding of the seed situation in their communities, and agreed to work together in resolving some of the challenges through establishing a community seedbank. These initial activities are small contributions to greater social stability, which could be further strengthened in the near future through more interaction and collaboration.

In recent years, several institutions and organizations in the three countries have been trained in community seedbanking, creating an initial technical support base for community seedbank establishment, stronger collaboration with farmers, and networking among seed-sector actors. In South Sudan, the University of Juba has taken leadership to promote community seedbanks throughout the country in collaboration with the Ministry of Agriculture and Food Security, and other partner organizations. The community seedbank handbook for farmers developed by Bioversity International (Vernooy et al., 2020a, b, c) has been translated into ten national languages, to be used to train farmers in all agro-ecological regions. In Somaliland and Sudan, such an initiative has not (yet) been undertaken.

Current policy and legal contexts in the three countries do not seem to hamper community seedbank establishment, although some concerns exist about privatizing the seed sector in Sudan. South Sudan is working to develop a more enabling environment in which community seedbanks will be explicitly recognized and supported. This is evidenced by i) the elaboration of a recent policy brief and call to action on "Ten pathways to a robust, inclusive and resilient seed sector in South Sudan" (Van Uffelen et al., 2022a, b; two of the ten pathways refer to community seedbanks) and ii) the adoption of the South Sudan Seed Hub, a multi-stakeholder platform that brings together seed actors to share information, learn together, and work on policy development (ibid). It is encouraging that South Sudan has taken on board lessons learned from seed-sector (policy) development in other countries, for example, Uganda, in particular concerning farmer-managed seed systems.

It is too early to address the sustainability of the community seedbanks.

**Crop diversity of the Yawoor community.** Yahia Eldie.

# Recommendations

Given the enduring fragile, insecure and conflictive environment in large parts of the Horn of Africa, community seedbanking efforts must pay special attention to the key elements/steps, in particular site selection, membership and decision-making, and infrastructure and equipment. Decisions about these three elements need to carefully consider the social security situation, mitigating the risk of people, and lack of facility, equipment and seeds becoming a trigger for insecurity or conflict, or both.

Housing seed collections at institutions, such as universities and research stations, offers some degree of protection and (financial and technical) support, but also distances the storage facility from rural communities. It remains to be seen how this will affect the sense of farmers' community seedbank ownership.

Creating a supportive policy and legal environment through national strategy development, as in South Sudan, can strengthen local initiatives to establish and support community seedbanks, building trust, encouraging collaboration, and thus easing tensions and helping resolve conflicts.

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**The methodology used in the Horn of Africa is based on the Community seedbank handbook for farmers (booklet 1 of 3).** (Vernooy et al., 2020a).
Bioversity International/R. Vernooy.


## Acknowledgements

We acknowledge the support of the Food and Nutrition Security Resilience Programme (FNS-REPRO) South Sudan for the preparation of this brief. We thank Cinzia Russo and Diego Murillo of the Alliance of Bioversity International and CIAT for administrative and design support. We also acknowledge the editorial support of Vincent Johnson, consultant editor for the Alliance of Bioversity and CIAT Science Writing Team.


## Citation


Vernooy R; Gupta A; Subedi A; Ali Awed D; Hassan Abdi A; Saleban Jama M; Eldie Y; Jubarah S; Swaka Kamilo S. 2023. Community seedbanks in protracted crisis situations: potential and challenges. Policy Brief No. 85. Wageningen Centre for Development Innovation, Wageningen, the Netherlands; Bioversity International, Rome, Italy. ISBN: 978-92-9255-289-3.



CONTACT

**Ronnie Vernooy**
r.vernooy@cgiar.org


WAGENINGEN UNIVERSITY & RESEARCH

UNIVERSITY OF JUBA

Alliance Bioversity & CIAT
alliancebioversityciat.org

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July 2023