FIELD GUIDE FOR COMMUNITY SEED BANKS MODEL

lutale first seed fair. Photo: Ronnie Vernooy

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INTRODUCTION:

Community seed banks are mainly informal institutions, locally governed and managed, whose core function is to preserve seeds for local use.

And improving local seed systems, especially, but not solely, focused on local varieties. They are known by a variety of names: community genebank,

The community seed bank involved women and men farmers who run community seed banks to handle major crops, minor crops, and neglected and underutilized species, sometimes in small quantities of a few hundred grams per accession, sometimes storing hundreds of kilograms. Community seed banks are trying to regain, maintain, and increase control over seeds by farmers and local communities and to strengthen or establish dynamic forms of cooperation among and between farmers and others involved in the conservation and sustainable use of agricultural biodiversity, such as researchers, extension agents, genebank staff, and development workers. Increasingly, a community seed bank is seen as the place to obtain seeds of local crops and varieties, as well as commercial seed of stocked by seed companies

This Field Guide module has been developed drawing from a wide range of sources and experiences, from various other organizations and has benefited from the longstanding efforts of Bio-diversity International in this field. The Guide is intended to be used in the context of farmer field schools. The guide involving a series of seed bank topics development and management, and you may opt which topic to make use of.

FARMERS SEED SYSTEM MODELS

Farmers' seed systems models describe the ways in which crop seeds are developed, produced, stored, and exchanged or sold. They also describe which actors are involved and which roles they play.

Three different types of seed systems Modules are often distinguished:

INFORMAL FARMERS SEEDS SYSTEM (TRADITIONAL MODEL):

The oldest system is the farmers' seed system, also called the informal seed system. Worldwide, farmers provide most seed until today. Approximately 80 to 90 % of the world's seed stocks are provided through these "informal" systems. They are locally organized and based on the ways farmers produce, disseminate, and procure seeds through on-farm saving and exchange with other farmers. This seed system is integrated in the local food system and food culture, where many farmer-selected species and varieties being developed and used in fields, gardens, and households. Local seed supplies are crucial. Seeds are related to food, culture, religion, and local traditions. Taking care of quality seeds has always been a core task for farmers and farmers are constantly on the outlook for seeds that will give them the best harvest. Many farmers particularly in developing countries still maintain seed diversity on their farms, where seeds may have been selected and conserved through generations, depending on individual farmers' skills. In many cultures, women play a prominent role in seed management. In addition to the farmers' seed system, in the previous century a formal seed system developed.

FORMAL SEED SYSTEM (MODERN MODEL):

The formal seed system involves a chain of activities leading to genetically improved products: certified seed of registered varieties. The chain starts with plant breeding or a variety development program that includes a formal release and maintenance system. Both public sector breeding institutions and private sector breeding companies form part of the formal sector. The private sector tends to focus on a few profitable seed crops such as calorie-rich cereals and vegetable seed, leaving most legumes, including beans, largely by the wayside. More recently, an integrated seed system has been coined out of the realization, that the farmers' seed system and the formal system co-exist and cannot be separated. Farmers may usually produce and maintain their own seeds, but for some crops and in some years decide to buy formally released seeds

COMMUNITY SEED BANKS SYSTEM MODELE (FFSMODEL):

Community seed banks are mainly informal institutions, locally governed and managed, whose core function is to preserve seeds for local use. The women and men farmers who run community seed banks handle major crops, minor crops, and neglected and underutilized species, sometimes in small quantities of a few hundred grams per accession, sometimes storing hundreds of kilograms. Community seed banks are trying to regain, maintain, and increase control over seeds by farmers and local communities and to strengthen or establish dynamic forms of cooperation among and between farmers and others involved in the conservation and sustainable use of agricultural biodiversity, such as researchers, extension agents, genebank staff, and development workers (Vernooy et al. 2015). Increasingly, a community seed bank is seen as the place to obtain seeds of local crops and varieties, as well as stocking the commercial seed from certified companies, and private dealers who are marketing only modern varieties and hybrids of a limited number of crops is to preserve seeds for local use.

1. WHAT IS COMMUNITY SEED BANKS SYSTEM

- Community seed banks are usually small-scale local organizations that store seed on a short-term basis and serve the needs of individual communities or several communities in the area.
- Seed bank system have multiples effect on farming community includes partnerships and engage in networking with multiple actors and share information and seeds with others in the informal and formal seed systems.
- small community seed banks can, thus, sometimes become larger ones; or a network of community seed banks with considerable scope and depth that can emerge, with each partner responding to needs and interests.

  however, the process of establishing and supporting a community seed bank involves a logical sequence of several major steps that will allow careful matching of community interests and needs with the principles and practices of the seed bank. This logical sequence is the subject of this guidance

COMMUMITY SEED BANKS MAY FULFIL ANY OF THE FOLLOWING ROLES, TO:

i. Conserve local varieties (food, fodder, herbs and medicines, religious uses)
ii. Restore "lost" varieties (for example, due to natural disasters) o
iii. Provide crisis/disaster/shortage responsiveness and insurance
iv. Improve accessibility of seeds at the community level (traditional and modern varieties) to secure storage of seeds in areas affected by unrest
v. Offer seeds at low(er) costs (than the commercial sector)
vi. Facilitate seed swaps to Guarantee seed sovereignty to Help groups to obtain seeds
vii. Ensure seed multiplication, including participatory collection and storing of local breed varieties to Share in agricultural biodiversity knowledge and expertise
viii. Create a platform for community-based biodiversity sustainably and mutual learning
ix. Contribute to green ecological agriculture, and food sovereignty movement

2. COMMUNITY SEED BANKS MODULS ESTABLISHMENT AND MANAGEMEN:

2.1. ESTABLISHING AND MANAGING THE COMMUNITY SEED BANKS

2.2. STEP1: MAPPING CROPS AND VARITIES (DIAGNOSIS)

Conduction Mapping local crop varieties and food crops diversity within entire community farming system is first exercise in the diagnostic phase devoted stir discussion on current crop and variety diversity available in the community. This can be undertaken in the form of the Diversity Wheel exercise. Farmers who participated in a Farmer Field School on Participatory Ways may have undertaken such exercise already. For them, this is a repeat benchmark activity, be it will explicitly include attention to cultivated field crops as well as smaller home garden crops and collected food plants (semi-domesticated and wild plants). The Community Seed Bank may contain all these types of crops and other food plants. Note that the exercise has a dual nature: first it is performed at the crop level, and subsequently at the variety level as well.

3.1.2. STEP2: SETTING THE TARGET FOR UPTAKE OF SEED LOTS

In the community, the members of the FFS model of Community Seed Banks will be asked to set targets for the development of the Community Seed Bank. This may also take the form of a virtual seed bank, in which the various seed lots are stored in farmers' properties, in case a new facility is developed and will be populated with seed lots, the information gathered in the first step suffices in case seed lots have already been stored.

3. STEP3: DESIGING OPTIMAL COMMUNITY SEED BANK FACILITY

3.1. SEED BANK STORAGE FACILITY (STORE)

In general, community seed bank facilities have taken many sizes and designs, depending on local needs, opportunities and available finance and materials. an overview of the current deposits will be needed.

3.1.1. SEED BANK STORE SIZE: The surface size of the community seed bank depends on estimated seed demands, financial options, and location. Most community seed banks range in size from 25 to 100 square meters.

Below Examples shows existing SOS Sahel- seed bank lay-outs at South Kordofan state

3.1.2. SEED BANKS STORS SUDIVISION: Most community seed banks provide subdivisions. Some Seed banks have separate rooms for short term (season-to-season) and longer term (several seasons) storage, or for small sample and larger sample seed lots, as well as for seed that is owned by the community seed banks or seed lots that are still owned by the providers, who in fact hire safe storing space. Many facilities contain a room for the community seed bank managers, and many contain space or shelter for community member meetings, either connected to the community seed bank activities or not. Furthermore, the premises may also allow for other community seed distribution activities and programs like seed sales and seed fairs if the opportunities allow.


Photos shows subdivision of seed storage in Seed banks at Dar-Alsalam locality North Darfur state

3.1.3. SEED BANK PROTECTION MEASURES: The Seed banks should be constructed in way that considering the seed protection measures against water, high temperatures, birds, and pests Community seed banks need to offer safe and secured space. Seeds in storage need to be protected to keep good germination rates and seed health. Major threats come from moist and from high temperatures, as well as from fungi and animals. Therefore, roofs need to be sturdy and to resist high winds, and only brick walls protect against high temperature and can protect the seed against the entry of rats, mice, and birds. Small openings between the walls and the roof need to be closed. High trees may protect against high temperatures and may be planted if not around. The site should also be safe against flooding.

3.1.4. SEED BANKS LOCATION: The availability of proper locations will depend on conditions of land ownership in the community. A community seed bank might be established on communal land or on land that is private property but is being made available on a permanent basis for the purpose. Since the Community Seed Bank facility is a long-term investment, make sure that no disputes about the use of the site can develop. Within this context, the location of the community seed bank facility should be carefully chosen, taking into consideration that the site and facility might fulfil other purposes, such as trainings, seed markets and food fairs, which may contribute to the sustainability of the community seed bank. Proximity to other social hubs might increase the numbers of visitors and help to remind the members of the community of the community seed bank. Safety against theft may also factored in.

3.1.5. TYPE OF SEED FURNITUE AND CONTAINERS:

Many community seed banks contain wooden or metal racks on which the containers can be placed. Containers can be manifold. Many community seed banks store the seed in glass jars, plastic containers, plastic, or gunny sacks for big amount of seeds storage, as well as metal tins that can be firmly closed, for example with rubber rings on the lids. Zeolite beads can be used to keep moisture levels low. Most important is that the jars can be well sealed to avoid repeated exposure to oxygen and to keep humidity low. All containers should have proper labels to identify the contents of the jar. In the management space, tables, and an office locker for storing the seed books and other relevant information may be important.

4. COMMUNITY SEED BANKS MANAGEMENT:

community seed bank, by terminology itself, is a community-managed approach that expands and transfers local practices from the household seed store to the community level through collective actions. The value of the community seed bank is that the system is governed by local people and locally developed rules and regulations. It facilitates to build social assets through mobilization of the local community, leading to community empowerment, and creates a platform of community-based management of agricultural biodiversity through use and conservation i.e., to properly store seeds given in stock and to hand out seeds of appropriate crops and varieties as well as local food plants to farmers. Objectives To agree on the management of the community seed bank, including its membership, Committees structure,

4.1. EESTABLISHINING MEMBERSHIP OF SEED BANK:

All farmers in the community or communities served by the community seed bank can become members of the community seed bank. In promoting membership, the participation of women and youth should be promoted. Members are supposed to provide seed lots to the community seed bank at a regular and agreed basis, for example each growing season a certain number of seed of specified varieties. In the box you find an example of the rules by which the community seed bank membership may operate, *stemming from ASOCUCH in Guatemala.*

Box 1: below shows seed management aspects at community level

4.2 SEED MANAGEMENT AT COMMUNITY LEVEL:

- Potential farmer members or seed suppliers whose land offers high seed variability and quality, preferably obtained through a stratified mass selection process, are identified.
- The seed must meet such quality standards as: well cleaned grain, germination above 85-90%, high vigor, uniform grain size, and stored at no higher than 13% humidity.
- The seed must be renewed each production cycle in a way that provides a high availability year after year, ensuring adequate family supply and safeguarding sufficient seeds for emergency situations.
- When seeds enter the bank, they will preferably be treated with organic products (ash, lime, insecticidal plants, medicinal plants, etc.) to prevent the spread of warehouse pests i.e., seed dressing, store fumigation etc.
- There will be a record of the materials entered into the bank, which will provide such basic information as: owner's name, place of origin of the seed and unique characteristics of each material.
- The seeds will be stored under controlled humidity and temperature conditions that will be appropriate to type and verities characteristics of seeds
- Seed bank store should be regularly cleaned, and seed examined to ensure free from pest and diseases

4.2. FORMATION OF SEED BANK COMMITTEES:

Once a facility has been constructed the community seed bank can start to operate. Operations need the establishment of a community seed bank committee that oversees the activities of the community seed bank and that is responsible for proper entry, storage, return and distribution of the seed stocks, as well as for external communications and relationships, such as with government authorities, local research centers and other breeding organizations, other community seed banks and public sector genebank. The committee is elected from the members of the community seed bank, i.e., all farmers that provide seed stocks to the community seed bank, the seed bank committees members can comprise 7-10 members including women and Youth, after formation the seed banks committees should structure to chairperson, secretary, treasurer, and members

Other management tasks like premises and stocks management and any other tasks can be appointed to selected members or small groups of 2-3 members

4.3. CAPACITY BUILDING AND LEARNING PROCESS AGENDA FOR SEED BAND COMMITTEES:

The table below shows Example Agenda for building capacity of Seed banks committees to enable them to sustain good quality and affordable Agriculture production biodiversity to improve community livelihood and food security, the learning process includes, led farmers, local agriculture extension Agents, and farming community at whole (this just example the community committees and local agriculture extension can add and/or propose other appropriate learning process base on farming community condition and crop production system)

#	Training areas	Methods	facilitation	Remarks
1.	Diagnosis	Conduction practical training sessions on Participatory Mapping, includes collection, sorting and labeling local crops seeds includes vegetables, beans, wild crops, lost forgotten crops seeds, etc. and certified introduced seed tested and adopted by farming community as well as training on proper storing and managing of seed stock collected	Agricultural field staff Extension Agents Researchers if possible	The activity is process and can be done during crops harvesting periods, or from farmers seeds stocks, kept by informal or formal community seed system
2.	Crop Seed selection and multiplication	2-3 days practical training workshop on On-Farm seed selection based on learning from local	Agriculture extension staff	The training should be practical through FFS demo farms

		experience and scientist knowledge on how to select healthy, clean, free from diseases, crops seeds, and training farmers on germination test, seed purity skills Trained seed bank committees, FFS Members and lead farmers on crop seeds multiplication and storages skill.	And agronomy researchers if available	The harvest should be kept properly for other round of cropping and stored as genebank sources, and or revolve through seed bank system Interested lead farmers can also cultivated small extermination plots, to be owned seeds and kept in seed banks
3.	Seed bank management and seed protection	Training workshop for seed bank committees on seed bank management and seed protection from adverse environmental condition and harmful pest and diseases, as well as topics to be presented on bookkeeping and seeds documentation skill, and how to keep up taking, and stocks records, In addition to properly managing Seed banks premises	Extension officers Field staff	The training includes planning and scheduling seeds storing and up taking, and planting and management of demo farm
4.	Seed management	for more information about topic to be presented in this training refer to table I: seed management at community level	Crop protection experts' consultants Agricultural agronomist experts	This training should be practical and logistical delivery should be considered, identified, and provided i.e., provision of chemicals, materials and protection cloths and other required devises etc.

4.4. SEED BANK COMMITTEES' ROLES AND RESPONSIBLITIES:

In the subchapters below further specific activities under the control of the community seed bank are singled out to discuss in some more detail by seed banks committees and members and agree upon.

4.4. SEED BANKS OPTIONAL PRINCIPLES

AND SEED BANK COMMITTEES' ROLES AND RESPONSIBLITIES

• Members of the seed committee at the community seed banks level must participate in trainings and attend meetings regarding seed bank operations.

• The seed bank committee must link together and coordinate activities for the sustainability and operation of the bank, while partnering with organizations of producers, NGOs, local development councils, and municipalities.

• The committee will keep a record book containing each product's entrance and exit for the purpose of controlling renewal dates for each seed during planting season.

• The bank's partners and beneficiaries will be responsible for renewing the seeds in each production cycle,

- The seed bank committee will check the status of the bank once a month, or as otherwise required, to keep track of environmental conditions (temperature and humidity), guaranteeing conservation of the seed.
- If a threat arises due to natural phenomena that may affect grain production, the bank partners can withdraw 75% of the stored seed, leaving a 25% bank behind for future planting.
- If a seed shortage occurs outside the bank's jurisdiction, the committee and partners will agree to the conditions of sale or donation of seed with local leaders, local development councils or government counterpart

4.4. DOCUMENATION:

The seed banks committees should keep data records to be documented and presented in the committees and Community meetings and Seed Bank seed book should be kept properly. Below example are shown in a simple format that can be easily reproduced in Excel or a similar software application, but a hard copy is fine as well. Make sure that you can always identify which entry corresponds to which container(s). If you wish you can add columns that register when, by whom and how much seed has been removed after entry of the seed (this may be part of the total amount stored and be done for multiple purposes, e.g., for return to the owner, for distribution to third persons, for seed testing etc..).

Table1 2: SHOWS SAMPLE OF SEED STORAGE RECORDS:

Entry number	Crop Name	Variety	Provider	Date of entry	owner	Weight of 1st entry	Germination rate	Date and amount of distribution	Remarks

4.5. FORMALIZATION OF SEED BANKS:

It may be needed to agree with the authorities about the status of the community seed bank and about the fact that the community seed bank committee can act on behalf of all members of the community seed bank. Such agreement can take the form of any legal document recognized by national legislation. For example, it may involve a decision by the community council, or a written recognition by the government representative for the region in which the community is situated. Formal recognition may also add to the status of the community seed bank and may be instrumental in seeking support from government counterparts, and or interested NGOs, or UN EGENCCIES.

4.6. UPTAK AND DISTRIBUTION OF SEED LOTS:

It is important to clearly define the rights and responsibilities of the community seed bank membership, and to agree on written and singed regulation documents:

- How much seed of which crops and varieties, and when, will or may be provided for storage by the bank members • who has the ownership of the seed lots in storage
- To whom and when the seeds stored are returned
- Under which conditions part of the seed stocks can be used to provide seed in case of emergencies (like when no seed for sowing because of drought, midharvest, destroyed fields) to either the members of the community seed bank, or other community members or even neighboring communities
- Under which conditions part of the seed stocks can be sold and to whom
- Under which conditions part of the seed stocks can be provided to or exchanged with other community seed banks
- If seed stored for conservation purposes needs a safety deposit in another community seed bank or in a national genebank.

Answering these questions can be addressed in the same FFS session in which the establishment of the community seed bank committee is discussed, or in a follow-up session. Or structure offices for the community seed bank

Photo shows distribution of crops seeds by seed bank committees at Rashad locality of South Kordofan State-2024

5. OTHER FUNCTION OF COMMUNITY SEED BANK FACILITY:

Nowadays, in many countries community seed banks have been established. The functioning of these community seed banks differs from country to country, between communities within a country and between cultures. Proper functioning of the community seed bank is essential for its long-term survival, i.e., its sustainability. Proper functioning means that the community seed banks fulfil a lasting function to the farmers in the community, that farmers recognize this function, and that they are willing to invest time in its functioning and to provide seeds for storage in the facility. An empty facility that is no longer used is a waste for all. A seed bank is not a stand-alone operation. A seed bank can only be meaningful to the farmers engaged and sustainable in a particular community if it is integrated into other community activities to which it contributes, such as farmer field schools on participatory plant breeding and on nutrition and local food plants, local food and seed fairs, regular seed markets, community trainings, etc. The Community Seed Bank should be integrated in such community activities. The participants in the FFS are invited to consider the situation in their own community and to evaluate how the community seed bank operations can best be integrated to enhance the community seed bank's success and sustainability.

5.1. COMMUNITY MEETINGS AND TRAININGS

If feasible the community seed bank facility may encompass a meeting room, where for example community meetings of various kinds and farmer field school trainings can take place. This is another way by which the community seed bank can develop into a social hub in the community. The community seed bank could be utilized for conducting different types of trainings not only related to seed storage and management, but for example also to agronomic practices and healthy diets. The community seed bank site could be a place for knowledge exchange, i.e., where intergenerational knowledge exchange dialogues occur as a way of including and motivating youth to stay or become involved in agriculture. When linked to the objective of improving nutrition, the community seed bank could be a place where information on traditional and new training-of-trainers-manual/ documented and shared, and such activities could be linked to cooking and food preservation demonstrations (if facilities allow). Seed exchange networks the community seed bank may also be integrated into a network of different communities.