

# Realizing Farmers' Rights through Community Seed Banks in Uganda: Experiences and Policy Issues

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## Abstract

The paper interrogates the role of community seed banks (CSBs) and related initiatives in the realization of farmers' rights in Uganda and the policy and legislative space for the functioning of CSBs. The study finds that although community seed banks are a relatively new phenomenon in Uganda, there have been community based seed banking initiatives that have been instrumental in the realization of farmers' rights to save and exchange seed and information; and especially providing a wide range of diversity of seed to farmers and improving access to good quality seed. Through partnerships with local Non-Governmental Organizations (NGOs), research and government institutions, CSBs have received technical and financial support for conservation and seed production activities, thus enabling them to participate in seed value-chains through production of quality declared seed (QDS) and participate in decision making. Although the policy and legal environment for the functioning of CSBs is not well defined, various pieces of draft legislation provide positively for ways through which CSBs can be recognized and supported for the benefit of farmers. The study recommends that CSBs activities should be rolled-out to other parts of the country through a government financing mechanism that is suggested in the draft national policy on plant genetic resources for food and agriculture. The development of a policy and legal environment that includes an act that has provisions for the recognition of CSBs and the protection of farmers' rights is important. Secondary information, interviews with key informants and Focus Group discussions (FGDs) are the primary sources of data used.

**Keywords:** community seed banks, farmer's rights, policy

## 1. Introduction

Farmers' rights were first developed in the 1980's primarily to secure recognition of their role in the conservation and continuing development of local plant varieties; and to protect their rights to these varieties i.e. to save, sell and exchange seeds from their harvest (farmers' privilege) (ACIPA 2014). Ultimately, they were developed as a means to minimize the impact of plant breeder's rights on local farmers. These rights are enshrined in a variety of legal instruments regulating access to and use of genetic resources and traditional knowledge. The recognition of the rights of farmers is important not only to their local seed varieties but also to their lands, resources, traditional knowledge and self-determination. Although the global seed industry has grown exponentially in the last three decades, most farmers in developing countries still rely on farm saved seeds accounting for about 70-80 percent of all seed used by farmers (Louwaars & de Boef 2012). The availability, accessibility and reliability of farm saved seed is therefore crucial for poor farmers to be able to attain food and nutrition security. Community seed banks and other local seed initiatives provide a robust system both in terms of locally-adapted seeds, diversity of crops and strengthened local institutions that ensure accessibility of seed by poor farmers (Development Fund, 2011).

A study of community seed banks in Honduras, India, Zimbabwe, Costa Rica, Ethiopia, Nepal, and Zambia found that although community seed banks are crucial for seed and food security, most of the community seed banks are local initiatives operating within the domain of informal seed systems and hence not linked to or supported by governments. Community seed banking faces challenges including lack of legal frameworks and institutional support as well as the presence of restrictive seed laws (Development Fund, 2011). The international treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) allows governments, gene banks and

agricultural research centers to pool their genetic resources and share the benefits arising from their use e.g through breeding. This enhances the protection and use of genetic material; and giving fair recognition and benefits to local farmers who hold and conserve local genetic material. However, in most countries the treaty is not yet implemented and there are no legal or policy frameworks through which CSBs and other local initiatives can function (FAO, 2014).

Like most African countries, the seed industry in Uganda consists of two distinct systems: the informal sector and the formal sector. The informal sector broadly refers to the system where farmers produce, obtain, maintain, develop and distribute seed resources, from one growing season to the next. It is also diverse with many local indigenous varieties managed by farmers (Louwaars & de Boef, 2012). Majority of smallholder farmers in Uganda lack a sustainable and reliable seed supply system to ensure quality agricultural production and productivity (The African Seed Access Index (TASAI), 2015). 80 per cent of seed used by Ugandan farmers is obtained locally through own saved seed; exchange with neighbours; community seed banks; custodian farmers; and from the local markets (Otieno et al, 2016). Local seed systems therefore play an important role in providing diverse seed to farmers.

Community seed banks and other local seed production initiatives have recently emerged in Uganda as a means of providing smallholders with a wide range of diversity and improving access to seed. 13 local community initiatives have been identified in various parts of the country. Most of them are performing the function of conserving local genetic resources and providing diversity in local seed systems. Additionally, some CSBs have also become seed production enterprises, they produce quality declared seed (QDS) for sale within the local communities. They are also serving to preserve indigenous knowledge and contributing to the realization of farmers' rights.

### *1.1 CSBs in Uganda*

CSBs operate within the domain of informal seed systems which are unregulated and unsupported by any government programmes or policies. They govern themselves through informal by-laws and are mostly supported by local NGOs. Furthermore, the contribution of community seed banks to the realization of farmers' rights is not properly understood or documented in Uganda and this contributes to their lack of support or recognition.

This paper answers three pertinent questions with regard to the role of community seed banks in the protection and promotion of farmers' rights. First the paper interrogates the practical ways that community seed banks in Uganda contribute to the implementation of farmers' rights while identifying gaps and constraints in their functioning. The paper then interrogates the policy and regulatory environment for the functioning of community seed banks which include access to and benefit sharing, seed laws and plant variety protection. Finally, the paper identifies the public policy interventions that are supporting the operations of community seed banks and the policy instruments that *could* be put in place, to create incentives for community seed banks to maintain crop diversity and to remain viable.

This paper relies on primary and secondary data obtained through FGDs, key informant interviews and literature. A review of related literature on community seed banks and farmers' rights provides the contextual framework for the paper; an overview of CSBs in Uganda provides an understanding of their evolution and functioning within the system. Further, this paper analyses the primary data collected in the course of the last two years working with various community seed banks. And finally, this The paper also reviews policies, laws and regulations in the agricultural sector to determine whether there are provisions that promote CSBs and protect farmers' rights and related local indigenous knowledge.

## **2. Literature Review**

### *2.1 Community Seed Banks and Their Role in the Management of PGRFA*

Community seed banks range from a single farm family seed bank to a community level seed bank. They could deal with local landraces, introduced landraces or improved cultivars (Lewis and Mulvany 1997; Lipper et al. 2010; the Development Fund 2011). CSBs are defined as a community driven and community-owned effort to conserve and use both local and improved varieties for food security and to improve the livelihoods of farmers (Sthapit, 2015; Vernooy et al, 2015).

Three types of community seed banks can be identified: i) community gene bank (solely conservation of local varieties as PGR in small quantities), ii) community seed bank (solely concerned with access and availability of cultivars) and iii) community gene cum seed bank (carries out functions of both (i) and (ii)) (Sthapit, 2015). Seed banks can be used as a platform for community institutions to strengthen the roles of the farmer seed systems.

Purposes of community seed banks are not only saving and exchanging local seeds but also keeping them under the control of the farming community for easy access and use and to ensure seed security at the community level. Institutionally, CSBs also perform the roles of consolidating and promoting conservation, sustainable use and improvement of important local genetic resources / traditional knowledge within communities (Sthapit, 2015; Vernooy et al, 2015).

CSBs are supported by a community-led seed management approach that includes production, collection, processing, storage, distribution (exchange, loan, grant, selling); and marketing of local as well as improved varieties. Sthapit et al. (2008b) defined a community seed bank as a community managed ex situ collection designed to enhance access to local varieties and associated knowledge for the benefits of the community. In other words, a community-operated seed bank provides farmers access to seeds of local crop varieties and performs the function of community level backup of genetic resources, a repository of associated knowledge, and an institution to organize, mobilize and represent farmers' interests.

## 2.2 Farmers' Rights and Community Seed Banks

Article 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) recognizes the important contribution of farmers in the management, development and conservation of genetic diversity in-situ and their contribution in global food production. Article 9 recognizes that realizing farmers' rights is a means for halting genetic erosion and ensuring present and future and nutrition food security but also ensuring that farmers accrue benefits from the resources which they continue to maintain. The contracting parties agree that the responsibility for realizing farmers' rights as they relate to PGRFA rests with national governments and in accordance with their needs and priorities.

There are four key tenets of article 9 namely:

**Art 9.2a**, protection of *traditional knowledge* relevant to plant genetic resources for food and agriculture;

**Art 9.2b**, the right to equitably participate in *sharing benefits* arising from the utilization of plant genetic resources for food and agriculture;

**Art 9.2c**, the right to participate in *making decisions*, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture;

**Art 9.3**, right to *save, use, exchange and sell* farm-saved seed/propagating material.

And additionally, the role of farmer's organizations and civil society in realizing farmers' rights.

In Uganda indigenous knowledge has been passed down from generation to generation among culturally diverse ethnic groups consisting of over 52 ethnic groups with diverse indigenous knowledge systems which have been applied in the careful selection, development and conservation of PGRFA. These generations fostered relationships with other groups, creating a complex web of high levels of cooperation, exchange and support that are essential for sustainability of PGRFA. Their fast erosion due to internal and external factors poses a serious threat to PGRFA in the region. Furthermore, indigenous knowledge used in the management of PGRFA is mostly held by women. Protecting this indigenous knowledge is paramount to realizing not only the rights of farmers but also the rights of women.

In the past few years the relevance and importance of CSBs has gained international recognition. A community seed bank is part of a system of community managed genetic resources. The seed bank is at the center of the seed network and offers various community services such as seed security (storage), seed distribution and exchange, germplasm restoration and introduction (Regasa Feyisa, 2000). CSBs are both ex-situ and in-situ initiatives combining on site management of genetic resources in a gene bank and on farm restoration and maintenance of biodiversity (Vernooy et al, 2015). CSBs play a key role in the development promotion and conservation of farmers' agro-biodiversity; providing access to seeds for farmers and maintaining genetic diversity in farmers' fields (Regasa Feyisa, 2000). In-situ conservation of local varieties held by CSBs that have undergone years of adaptation could have a positive impact on adaptation to climate change in communities and subsequently on food security and livelihoods (FAO, 2010). Furthermore, many species are still being managed by local communities that use traditional indigenous knowledge (passed on from generation to generation) in the selection, preservation and management of these seeds. This knowledge requires protection (Vernooy et al, 2015).

Farmers' rights have been endorsed as rights originating from the past, present and future contributions of farmers to conserving, developing and making available plant genetic resources for food and agriculture and therefore recognizing their need to benefit fully from the natural resources they have continued to conserve

(Santili, 2012). Article 9 of the ITPGRFA recognizes that responsibility for undertaking farmers' rights rests with the national governments and calls on contracting parties to 'take appropriate measures' to protect and promote farmers' rights. In this context the scope<sup>1</sup> of farmers' rights include the protection of traditional knowledge relevant to PGRFA; the rights to equitable sharing of resources accruing from the use of PGRFA and the right for participation in decisions regarding the sustainable use, management and conservation of their PGRFA, but with a requirement that national governments ensure that farmers' rights are protected through appropriate legislation.

Community seed banks ensure farmers' rights are protected through their function of providing access to a variety of diverse seed to farmers; through protecting their local indigenous knowledge which is often un-documented. Through seed fairs and other community level interventions CSBs are also able to provide information on a portfolio of varieties and crops they have (Clancy et al, 2016). By ensuring that materials they have are conserved and adapted to the impact of climate change, CSBs also help to ensure that farmers have access to suitably adaptable material that they can use to tackle climate change. Other ways of ensuring farmers' rights are protected are through Participatory Plant Breeding (PPBs) where some CSBs partner with breeder to do grassroots breeding or participatory varietal selection (PVS) and participatory varietal evaluation (PVE) (Clancy et al, 2016). These provide access to diverse seed; it also ensures that farmers participate in decisions that affect them at the community level.

Authors (Santili, 2012, Bjonstard 2004) have pointed out contradictions between the recognition of farmers' rights by the ITPGRFA's preamble and the requirement that the responsibility of ensuring farmers' rights rest with national governments, and that the treaty does not establish international parameters by which farmers' rights can be guided and hence no minimum international standards. As a result, achieving a balance between national legislation and international requirements is still a challenge for many countries. Other international legislation such as WTO's TRIPS Agreement which stipulates that countries provide for protection of plant varieties through patents or a "*sui generis*" system or both; and the Plant breeders' rights under UPOV have tended to undermine farmers' rights to save exchange, use and sell farm saved seeds for IP protected plant varieties (Bjorn, 2004). Furthermore, seed laws regulate the production, sale, marketing and distribution of seeds. In some cases, the seed laws may be stringent hence undermining farmers' rights to save exchange and use farm saved seeds. As such, the issue of protecting and promoting farmers' rights is still not adequately confronted by international legal and policy instruments.

### 3. Methodology

The study uses a number of secondary literature to provide the basis and conceptual framework for the analysis of community seed banks and farmers' rights as presented in the preceding section. The study also relies upon a census on community seed banks and community seed initiatives carried out in 2015 in Uganda. The census reveals a total of 13 community seed banks and related initiatives. 13 key informants in the respective CSBs are interviewed to provide information about their roles and activities as related to seed production and dissemination; the number of crops and varieties they conserve or share in their community seed banks; the number of farmers benefiting from the initiatives; and the partnerships they have and whether they receive any support from local NGOs and government.

Policy documents related to farmers' rights, seed policies and plant genetic resource management and conservation are also analyzed to provide insights into the provisions that support the realization of farmers' rights or those that support the development of community seed banks. As such, a number of policies such as access and benefit sharing policies; the draft national seed policy; the draft national plant genetic resources policy; and the plant variety protection bill 2010, and act of 2014 are analyzed. The policy gaps are then identified and recommendations are made.

### 4. Findings

#### 4.1 Landscape of Community Seed Banks and Partnerships in Uganda

A total of 15 farmer groups with seed banking initiatives; five located in south-western, three in northern, five in West Nile region and one from the eastern part of Uganda and one established in the Central region; were inventoried. In South Western Uganda, we interfaced with: Lwengo Community Genebank; Kagyera Bataka Community seed bank; Kiziba Community seed bank and Rubaya Warehouse group. In Northern Uganda: Jing Komi Group; Pagwari Farmers Association and Dok Gangber Group. In west Nile: Kuluba sub-county Mixed Farmers Association; Agremac Ojiebo Womens Group for Development; Watembo Wadelai Group Association; Binagoro Group and Andevuku Mixed Farm Group. Acan Pekun Akadikum Group is in Otuke district of Eastern

<sup>1</sup> The ITPGRFA does not limit any rights that farmers have to save, use and sell farm saved seed subject to national law.

Uganda. And in Central Uganda was the recently established Nakaseke CSB. Of these only six have some kind of full time community seed banking initiatives while others are community based seed production entities that also function as seed banks during periods of surplus seed production (see Appendix 1).

The different initiatives surveyed were established for different purposes. Five of the thirteen groups were established out of the need to conserve different crop varieties and improve seed and food security, and livelihoods improvement. Four of the groups started on their own without any external support while others were established by either; International Non-Government Organizations, a Government Organization in partnership with an International Non-Government Organization and others by a Government Organization (Appendix 1). All groups were established to address issues that are affecting Ugandan farmers such as access to quality seed, timeliness, proximity and affordability of seed; need for a diverse portfolio diverse seed; providing seed that is resilient to climate and diseases; the need to be linked with seed markets; and finally conservation of local indigenous varieties and related traditional knowledge (see Appendix 1).

The seed banks are managed by farmers themselves and are registered as Community based organizations (CBOs). Their operations are based on by-laws developed by beneficiary communities; hence trust and social capital form the core principles of their functioning and sustainability. The gene banks have management committees composed of the gene bank manager, records manager, distribution manager, quality assurance manager and community mobilizers. The management committees operate on a voluntary basis and are elected every two years. There is a lot of intraspecific and interspecific diversity of genetic resources for food and agriculture being held by the community groups ranging from 12 crops within a single CSB to 69 varieties of a single crop being held within a CSB. Appendix 1 summarizes the CSBs, the number of farmers they serve and the partnerships they have. Partnerships are mainly formed to facilitate seed production, conservation or preservation of local indigenous knowledge with national and international NGOs which offer technical and financial support; and with local seed companies which offer markets for the seed produced.

#### *4.2 Community Seed Banks Facilitating Exchange of Seed and Information*

Community seed banks in Uganda often hold seed fairs where they showcase their varieties. National Agricultural Research Organization's Plant Genetic Resources Centre (NARO-PGRC) which also hosts the national gene bank organizes seed fairs and exchange visits between farmer communities where they share, save and exchange seed and also share knowledge on seed production practices. In the past 5 years, 4 seed fairs have been held with 4 farmer communities from 4 agro-ecological zones exchanging good quality seed and knowledge for over 54 common bean (*Phaseolus vulgaris* L.) varieties, and other crops such as millet, maize, groundnuts and sorghum, all of which contribute immensely to food and nutrition security. NARO-PGRC has also helped the CSBs develop community biodiversity registers and bean catalogues which have been published and distributed to other farmers during the seed fairs. The catalogues specifically contain the description of the varieties of beans held by the CSBs, the local name, the colour and appearance, the morphological characteristics, and the uses within the community. Through diversity fairs, farmers have ably communicated to a wider range of stakeholders on the importance of crop intra-specific diversity to food security, agricultural research and development for resilient seed systems.

Community seed banks are also invited to the annual world food day where the International community and National governments reflect on issues of food security, hunger, malnutrition, climate change and poverty. In Uganda three community seed banks from Nakaseke, Rubaya and Sheema districts have for the past three years participated and show-cased their varieties and catalogues for beans to a wide range of stakeholders which comprise of Ministry of agriculture, National Agricultural Research Organization (NARO), FAO, international and local NGOs, members of the diplomatic corps, academia and the media among others. This opportunity has not only been an avenue for creating awareness on community seed banks but also to share information and allow farmers to participate in important decisions that affect seed and food security.

#### *4.3 Institutional and Technical Support for CSBs in Uganda*

The 3 CSBs in Nakaseke, Sheema and Rubaya, have partnerships with NARO-PGRC and Bioversity International which have supported them financially through the construction of the structures for the seed banks; and have also provided technical support for the management of the CSBs and the production of good quality seed. Recently the CSB in Sheema has also been trained by seed inspectors from the seed Inspection and Verification department of the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to produce quality declared seed (QDS) of 7 popular varieties of beans which they are now selling within the district of Sheema. The NARO-PGRC's gene bank also acts as a repository where farmers deposit local varieties which they hold in their CSBs for safe keeping in duplicates. This material is only made available through informed

consent by communities for inclusion as voluntary contributions to the multilateral system (MLS). NARO-PGRC has also provided 'lost' varieties from the national gene bank for restoration and re-introduction to the communities. So far 23 varieties of beans were re-introduced to the CSB in Sheema in 2010, 12 varieties to Nakaseke in 2014 and 11 varieties to Rubaya CSB in 2015.

There are also a number of NGOs working with community seed banks to provide technical, financial and social support not only for their establishment but also for their sustainability. For example, 6 community seed bank initiatives namely Lwengo group, Watembo group, Andevuku group, Rubaya group and Dok ganger have been supported financially by local NGOs for their establishment and other technical issues regarding their management.

The National Agricultural Advisory Services (NAADS) which is a government agency responsible for extension and outreach to farmers has also supported the establishment of two community seed initiatives namely Pagwari group and Binagoro group whose main objective was initially to have seed multiplication within the communities, but have now become quasi community seed banks where farmers can access good quality seed. To this end, NAADS has provided financial support and trained farmers in production of good quality seed and distributed improved seed to farmers in those communities. This has had positive outcome of achieving seed and food security; improving incomes and livelihoods of farmers; and enhancing access to improved and diverse seed varieties.

## 5. Policy Environment for Farmers' Rights: What's in it for Ugandan CSBs?

### 5.1 Access and Benefit Sharing for CSBs in Uganda

The national regulations on ABS were formulated in March 2005 in line with Article 15 of the CBD on Access to Genetic Resources and as a result, ABS guidelines were published in 2007. These regulations do not apply where the exchanges are among local communities for their own consumption; or if the material is used for local research or breeding purposes by national government operated academic or research centers. Uganda acceded to the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) in 2003. Under the ITPGRFA, the Multilateral System (MLS) of access and benefit sharing allows for the free exchange of materials that are automatically in the MLS which includes a list of 64 crops of materials held by public institutions such as national gene banks and national research centers. Materials held by community seed banks are therefore not automatically in the multilateral system of access and benefit sharing and therefore subject to CBD- Nagoya protocol rules for access. Farmers within the country are however free to access and exchange genetic resources within their communities and among themselves.

Uganda's 2007 guidelines on ABS require that before one is given an Access Permit to access genetic resources held by communities, the person, group or association intending to access the genetic resources must obtain a Prior Informed Consent (PIC) and an Accessory Agreement with the community under Mutually Agreed Terms (MAT). The applicants then need to obtain a valid access permit from the Uganda National Council for Science and Technology (UNCST) which is the competent authority in order to take the materials to Rwanda (Appendix 1 below). In accordance to Ugandan ABS Laws, the MTA must outline the benefits to be shared and include these in the agreement including expected technology transfer. According to article 5.4 of the guideline mechanisms for sharing benefits must be under Mutually Agreed Terms (MAT) and concluded with beneficiaries in advance prior to accessing the genetic resources. The issue is further complicated by UNCST's requirements for an export permit from CITES management authority and an issuance of a certificate of origin by the ministry of Tourism. Experts from NEMA indicate that the average time for this process ranges between 12-18 months and can even go upto 2 years depending on the process of negotiations.

Although the national gene bank (NARO-PGRC) stores farmers' varieties in duplicates, this material is in 'black boxes' and not accessible under the MLS. NARO-PGRC is technical advisory only for PGRFA, and responsible for PGRFA that is in the Multilateral system. In this case the negotiations for accessing the PGRFA from these CSBs are still done through the Nagoya protocol. The country is also in the process of developing guidelines for ABS under the ITPGRFA in harmony with the provisions of the CBD and Nagoya Protocol, a ministerial order was issued and a committee set to provide modalities for harmonizing ABS laws under NP and ITPGRFA and strengthening institutional arrangements for their implementation.

Uganda has also developed a draft national policy on Genetic resources for Food and Agriculture but this still awaits tabling through cabinet and parliament.. Under the Draft National PGRFA policy 2015, Policy statement and strategy 3.6.1, 3.6.4 and 3.6.5 provide for the establishment of CBS, support of Community management of PGR and farmers' rights respectively. The Draft National Biodiversity Strategy and Action Plan 2012, target 4.5, provides for efficient implementation of the MLS through; putting in place mechanisms for sharing the benefits

from access of PGR; documentation of indigenous knowledge, innovations and practices in PGR and support of community based PGR management initiatives in various parts of the country, and these include CSBs.

The Draft National seed policy 2014, section 3.2 provides for conservation of PGR and specially establishment of CBS, Section 3.3 (Objective 2) also provides for increased availability and access to quality seed of preferred varieties to complement those produced under the formal seed system, among others. Currently Uganda does not have a farmers' rights law or any other document addressing farmers' rights however the draft national PGRFA policy and strategy states that as part of the new developments in the establishment of appropriate legislation for the management of PGRFA, a traditional varieties protection act will be developed to provide protection for materials held by CSBs. In providing this protection some core elements of farmers' rights will be protected or realized.

### *5.2 Uganda's Plant Protection Bill, 2014 and Farmers' Rights*

Enacted in 2010, the bill seeks to recognize and protect the rights of breeders over plant varieties protected by them. It also promotes the use of appropriate mechanisms for fair and equitable sharing of benefits arising from use of plant varieties, knowledge and technologies and institutions for the protection of breeders' rights. However, the bill does not have any clauses protecting farmers' rights, indigenous knowledge, or the rights to save, exchange use and sell farm-saved seed, it is also silent on communities' rights. In fact, the bill specifically states that "the act does not affect the traditional methods of access, use or exchange of knowledge, technologies and plant varieties by local and between local communities". Thus by only granting IPRs to breeders, efforts by CSBs is diminished especially with respect to increasing access to seed and sharing benefits arising from PGRFA. There are certain exemptions in the plant breeders' rights which allow for the exchange of seed among farmers only for purposes other than commercial, such as for food production. Farmers are not allowed to sell farm saved seed. This limits the freedom of CSBs to exchange and sell seed. And recently, stakeholders have suggested the development of another act to protect the rights of farmers' and their traditional knowledge, this is still under development.

## **6. Conclusions and Policy Recommendations**

This paper purposed to explore: the role of community seed banks in the realization of and promotion of farmers' rights in Uganda and to interrogate the policy environment for CSBs to operate in Uganda. The study results indicate that although community seed banks are a relatively new phenomenon in the country, they are helping to realize farmers' rights in many ways. CSBs in Uganda are helping communities to conserve and manage their genetic resources while at the same time exchanging seed and sharing the diversity and information they have among Ugandan farmers. CSBs have contributed to the documentation and protection of local indigenous knowledge. Through the support of research and local NGOs the CSBs have enabled farmers to participate in decision making specifically with respect to the way their genetic resources are conserved in situ and at the national genebank and the way these materials are availed to the communities when they need them. In the face of climate change CSBs have also played a critical role in facilitating participatory varietal selection, conserving and making available genetic resources that are adapted to climate change thus contributing immensely towards the communities' productivity and food security.

An analysis of policy space reveals that community seed banking is not well provided for in most national laws and policies relating to the conservation and sustainable use of plant genetic diversity, or access and benefit sharing. However, key draft National policies and laws relating to Seed, PGR conservation and Utilization, Plant variety Protection and interim provisions for streamlining access and benefit sharing of PGRFA in Uganda do create some space for their recognition and protection; and for documentation of indigenous knowledge. benefit CSBs. The Draft National PGRFA policy recognizes the important role that CSBs play in-situ conservation strategies and proposes the support of CSBs technically and financially through a fund. Furthermore, the PVP act 2014 also provides for gazetting PGR centres and establishment of a Gene fund that can also be used to support conservation and PGR management initiatives done by CSBs.

The above mentioned draft instruments fully recognize farmers' rights to good quality diverse seeds for food security and livelihood improvement. They also acknowledge community seed banking as an effectively functioning linkage to provide for the implementation of the laws and policy provisions on farmers' rights. Once approved and fully implemented, community seed banking will be a nodal link to foster, farmers' rights advocacy, recognition and protection. The draft national PGRFA policy specifically proposes that a fund be set up to support in-situ conservation activities and this will ensure the sustainability of the CSBs. NARO-PGRC and other partners are using this platform to ensure National support for CBS is institutionalized and funded.

Finally, as a way forward; more community seed banks should be established and existing ones supported as part

of the process of realizing farmers' rights in Uganda and fulfilling obligations of the plant treaty specifically with respect to access and benefit sharing and realization of farmers' rights. The community seed banks' activities should also be integrated in wider programmes and activities related to conservation and variety development i.e by linking to the national gene bank for in-situ ex situ complementarities in conservation; or linked to breeding programmes for development of new varieties through participatory varietal development. Community seed banks also need to be included in climate change adaptation programmes as they are able to help communities build their resilience by providing suitably adapted seed and contribute largely to food security. The development of the traditional varieties act which is on-going should include substantial elements of farmers' rights and the recognition and support ie technical and financial of CSBs towards realizing these rights.

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Appendix 1: Landscape of CSBs and their roles in Uganda

Purpose / reason for formation	Lwengo group	Kapya Baka	Nalsake CSB	Rubya CSB	Kiriba CSB	Jug Kori group	Pygwari group	Wembo group	Kuhba group	Bungoro group	Anderlu group	Acu Paku	Agramak group	Rubya warehouse	Dok Ganga
Improve access to seed / planting materials (Seed security & availability)															
Improve food security															
Conserve different crop varieties															
Building seed group marketing of agriculture produce															
Empower women															
Endeavor poverty															
International Non-Government Organization															
Government Organization															
Government Organization in Partnership with an International NGO															
Own															

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