

37 USC Canada's experience in supporting community seed banks in Africa, Asia and the Americas

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From famine to feast

In over two decades, USC Canada's support for community seed supply systems has grown from a seed recovery programme responding to drought and genetic erosion in Ethiopia, to a global programme focussed on promoting food security and food sovereignty through the sustainable use of agricultural biodiversity. USC Canada is a nongovernmental organization (NGO) based in Ottawa. Originally founded in 1945 as the Unitarian Service Committee of Canada, USC has worked internationally for over six decades to support communities in a variety of rehabilitation and development initiatives. In light of the success of its Seeds of Survival programme described in this chapter, since 2007, USC Canada has focussed all its efforts on supporting food and livelihood security through agro-ecological approaches, with specific attention to the conservation and sustainable use of agricultural biodiversity, including seed systems.

Community seed banks have been a central feature of this work. They serve as incubators of community resilience, where communities not only store seeds and germplasm, but also carry out experimentation and innovation around seeds that can handle the vagaries and extremes of climate change. Equally important, community seed banks are helping farm communities organize around their rights and their interests in production that is affordable, productive and respectful of the integrity of their landscapes and plant genetic resources.

Throughout this journey, USC Canada has learned many things from the women and men farmers and partner organizations who are leading these initiatives. One of the key lessons has been the importance of sustained support and careful accompaniment to cultivate leadership, a sense of ownership and organizational mechanisms in the farming communities that manage community seed banks. As these experiences accumulate, our programmes are increasing efforts to spread the work to the national level, through both targeted training and collaboration with other institutions and policy work. Efforts to integrate work on vegetable seed security into the programmes; to enhance market development and income-generation opportunities; and to ensure gender equality and youth engagement are also current areas of focus. Research and impact assessments will also give us a better understanding of the

factors that facilitate long-term sustainability and will be valuable in guiding future work.

The early days

USC Canada's support for community seed banks began in Ethiopia in the late 1980s in the wake of one of the world's worst famines in the previous decades. This major centre of the origin and diversity of crop genetic resources was confronted with more than a hunger crisis; after repeated poor harvests because of drought, farming families in the Wollo and Tigray regions of the north had lost many of the seed varieties that had sustained their farming systems and culture for generations. The shortage of seed material was so widespread that families could not easily obtain desired seeds through exchange with relatives and neighbours or on the market. Nor were well-intentioned humanitarian aid initiatives the solution: seeds distributed to farmers were not well adapted to the specific growing conditions of the area and performed poorly, not only in terms of grain yield, but also in terms of the diverse agronomic, cultural, economic and other selection criteria of small-scale farmers (Teshome et al., 1999). Serious loss of Ethiopia's on-farm crop genetic resources and weakening of farmer-based seed systems was also occurring elsewhere in the country, because of displacement by modern varieties, land shortages and conflict, among other reasons (Tsegaye, 1997; Worede et al., 1999; Tsegaye and Berg, 2007).

Two visionaries, Dr. Melaku Worede, director of Ethiopia's national gene bank, the Plant Genetic Resources Centre in Addis Ababa (now named Ethiopian Institute for Biodiversity Conservation), and Pat Mooney, researcher and activist with the Action Group on Erosion, Technology and Concentration (ETC Group), formerly the Rural Advancement Fund International, embarked on a mission to rescue genetic material for future harvests. They convinced John Martin, the director of USC Canada, to support an ambitious initiative: the Seeds of Survival (SoS) programme. Financial support provided by USC was backed by funding from the Canadian International Development Agency and private donations from the Canadian public and family foundations.

Launched in 1989, SoS set out to work in partnership with farmers to rebuild the indigenous seed system. Using ex-situ materials obtained from the national gene bank and tirelessly scouting out seed reserves still held by farm families, scientists from the national gene bank collaborated closely with a network of over 500 farmers in North Shewa and Wollo to multiply on farm as many varieties as possible of sorghum and locally adapted maize. These varieties were re-integrated into the local seed systems by participating farmers and distributed to thousands of farmers who were hardest hit by the droughts in North Shewa, Wollo and Tigray. Similar work was initiated in the wheat-producing systems in East Shewa, helping farmers re-introduce varieties of durum wheat, chickpea, fenugreek and vetch that had been almost entirely displaced by introduced modern varieties (Tsegaye and Berg, 2007). An innovative approach to participatory crop improvement emerged, with farmers

and scientists working together to develop ‘enhanced’ farmers’ varieties, adding specific characteristics of interest to farmers, while maintaining the broad genetic diversity and integrity of the variety (Worede et al., 1999).

Taking root

Between 1989 and 1997, thousands of farmers benefitted from this effort and regained access to a diversity of precious genetic resources that were well adapted to their heterogeneous farming conditions and diverse cultural and economic needs. One of the key lessons learned was that seed security and genetic diversity were crucial for food security. Yet, with national agricultural development strategies primarily focussed on supporting commercial production through high-input technologies, few plans were in place to backstop and strengthen the resilience of farmer-based seed supply systems.

Based on the SoS experience, an integrated approach to strengthen the security of farmer-based seed systems and promote the on-farm conservation of Ethiopia’s plant genetic resources began to emerge. Community seed banks were proposed as a key strategy to empower communities to conserve their plant genetic heritage, while providing a backup seed source to strengthen household seed saving and exchange practices (Feyissa, 2000; Worede, 2010). This was combined with participatory crop enhancement and farmer innovation to support ongoing adaptation and diversification of cropping systems to meet emerging needs and challenges.

To share the lessons learned from the SoS programme, between 1990 and 2006, USC Canada supported over a dozen international training workshops, which provided conceptual and field-based training on the conservation and sustainable use of plant genetic resources to nearly 300 development practitioners, farmers and scientists from 29 countries. An SoS small-projects fund was established to promote community-based food and seed security initiatives (many led by SoS trainees), while technical assistance, South–South exchanges and networking sustained ongoing learning and exchange among SoS initiatives that were developing in various parts of Africa, Asia and Latin America.

As a result of these efforts, community seed banks began to be established in USC programmes from 1995, initially in Mali (Chapter 22), Ethiopia and Nepal (Chapter 24) (Feyissa, 2000; Bhandari et al., 2013; Goita et al., 2013), and eventually spreading to 16 countries with direct USC support (Table 37.1). Although many of these countries represent centres of origin and diversity for a range of grain, tuber, root, vegetable, pulse and oil crops, the specific programme and country context in which community seed banks have been developed varies substantially. These include programmes focussed on farmer-led agricultural research and strengthening of seed systems (e.g. Ethiopia; Honduras (see Chapter 33); Cuba); programmes with a major emphasis on land rehabilitation and livelihood diversification (Bolivia, Nepal, Timor Leste, West Africa); and even one programme (Bangladesh) that builds on an initiative aimed at life-skills development with adolescent girls. As of 2013, USC Canada

Table 37.1 Community seed banks (CSBs) and field gene banks (FGBs) currently supported by USC Canada, 2013*

Country (region)	Partner organization(s)	Year CSB work began	Supported by USC		Organizational platform of CSB	Access to CSB		Main crops targeted by CSB/FGB	Programme context
			CSBs	FGBs		Communities	Households [†]		
Africa									
Ethiopia (Kalu and Worelu districts, South Wollo)	Ethio-Organic Seed Action	1997‡	5	0	CSBs in two districts are run by a legally registered farmer conservator association (FCA), with a total membership of >1,800. The nine-member executive of each FCA manages the CSB operations in collaboration with local subcommittees at satellite locations.	18	1,955	Field crops, including sorghum, tef, pearl and finger millets, emmer wheat, durum wheat, chickpea, lentil, grass pea, field pea, mung bean, fenugreek	CSBs and associated participatory varietal selection are a central organizing feature of the programme. Income generation with youth and women's groups, soil and water conservation and other initiatives are organized through the CSBs. Ethio-Organic Seed Action has replicated this work in other parts of the country.

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Table 37.1 (Continued)

Country (region)	Partner organization(s)	Year CSB work began	Supported by USC	Organizational platform		Access to CSB	Programme context		
				of CSB	of CSB				
			CSBs	FGBs	Communities	Households [†]			
Mali (Doutenza and Mopri cercles)	USC Canada-Mali	1995	8	1	Six CSBs are managed by an inter-village committee with representatives from each member village; day-to-day operation is coordinated by a six-member management team. Two CSBs are run by legally recognized farmers' cooperatives.	32	6,072	Pearl millet, sorghum, rice, fonio, maize, cowpea, bambara groundnut, peanut, fonio, sesame, hibiscus, okra, chili, cotton, gourds, watermelon, African eggplant, garlic, sweet potato, manioc, sugarcane, banana	CSBs integrated to strengthen seed security and promote crop diversification in the Sahel. CSBs complement work on land rehabilitation, market gardening, agro-forestry and support to farmers' organizations. Experience developed in the Douentza region has inspired other SoS initiatives in West Africa.
Mali (Safó and peri-urban Bamako)	CAB Demeso	2008	1	1	The CSB is managed by Dunka Fa farmers' cooperative (250 members), the FGB by a women's group (about 100 members).	14	1,655	Sorghum, maize, pearl millet, rice, groundnuts, cowpea, taro, banana, okra, sweet potato, quinqueliba, cottonier	Main programme focus is promotion of agro-forestry and income generation through support to farmers' cooperatives and women's groups in peri-urban Bamako.

Burkina Faso (Djibo)	Association pour la protection de la nature, Sahel	2002	9	3	12	786	Sorghum, maize, pearl millet, fonio, cowpea, bambara groundnut, peanut, sesame, okra, hibiscus, manioc, sweet potato, sugarcane	Programme initially focussed on participatory land rehabilitation. CSBs integrated to strengthen seed security and promote crop diversification, as part of broader land rehabilitation. CSBs integrated to strengthen work on seed systems, including promotion of a vegetable seed farm run by a farmers' organization.
Senegal (Podor)	Réseau Africain pour le Développement Intégré	2007	2	1	2	358	Sorghum, pearl millet, maize, cowpea, tomato, squash, African eggplant, banana	CSBs and FGB are run by management committees assigned by the district (commune) in which they are located.

Asia

Nepal (Lalitpur district)	Dalchowki Community Development Committee (DCDC)	1998	1	0	16	>100	Cereals, legumes, oil crops, vegetables	Support for CSB and related participatory varietal selection and crop diversification. Work is underway to develop stronger linkages between the CSB and farmer groups, national gene bank and other institutions in Nepal for long-term sustainability.
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Table 37.1 (Continued)

Country (region)	Partner organization(s)	Year CSB work began	Supported by USC		Organizational platform of CSB	Access to CSB		Main crops targeted by CSB/FCB	Programme context
			1	3		Communities	Households [†]		
Nepal (Makawanpur and Sarlahi districts)	Parivartan	2006	1	3	CSB is run by Rambas Organic Agriculture Cooperative Society (153 members); the FGBs are run by local farmers' groups.	4	350	Cereals, legumes, oil crops, vegetables, taro, yam, banana, mango, guava	Riverbank rehabilitation and support for sustainable, agro-biodiversity based livelihoods, through crop diversification in field and home gardens, improved quality of seeds, organic practices, soil and water conservation and cooperative development.
Bangladesh (six districts in northwest)	USC Canada–Bangladesh (with nine local NGOs)	2011	9	0	CSBs are based at adolescent resource centres, which have a total membership of 4,455 youths. CSB management committees are composed of eight youths, two adults and one representative of the partner NGO.	33	2,033	A variety of vegetable crops	Promotion of diversified home garden production, with specific emphasis on young farmers. Builds on prior work supported by USC on life–skills training with adolescent girls at adolescent resource centres.

Timor Leste (Aelieu and Manatuto districts)	Resilient Agriculture and Economy through Biodiversity Action (RAEBIA Timor Leste, formerly USC Canada–Timor Leste)	2007	10	0	Each CSB is managed by a farmers' group, which stores seeds used for collective activities and manages a revolving seed fund.	10	869	Maize, beans, rice	Watershed management and livelihood diversification, including promotion of agro-forestry, home gardening, aquaculture/fishing and income generation activities. CSBs help support diversification of food production.
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Americas

Honduras (Yoro, Intibucá and Francisco Morazán)	Fundación para la Investigación Participativa con Agricultores de Honduras (FIPAH)	2001	13	5	Eleven CSBs are each run by a farmer research team (137 members in total); the remaining two are co-managed by regional farmers' organizations.	98	679	Maize, beans and other legumes, taro, chayote, banana, sugarcane, manioc	Through youth and adult farmer research teams, FIPAH uses a participatory approach to on-farm conservation of farmer seed varieties, through seed reproduction and sale, participatory plant breeding, community-run seed banks, cooperative grain storage systems and collective enterprise development.
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Table 37.1 (Continued)

Country (region)	Partner organization(s)	Year CSB work began	Supported by USC	Organizational platform of CSB		Access to CSB		Main crops targeted by CSB/FGB	Programme context
				CSBs	FGBs	Communities	Households [†]		
Cuba (ten of 15 provinces)	National Institute of Agricultural Sciences (INCA)	2000¶	95	Part of CSBs	CSBs are run by families with a keen interest in conserving crop diversity.	56	1,000–1,800 annually borrow seed from CSBs	There are 77 crops including cereals, legumes, vegetables, condiments, fruit trees, tubers	The Program for Local Agricultural Innovation is an innovative farmer-scientist research programme that has brought seed diversity and security to over 50,000 rural farmers in Cuba. Includes promotion of agro-biodiversity, ecological farming practices, knowledge-sharing and farmer-scientist collaboration.
Bolivia (northern Potosi)	Programa de Desarrollo Integral Interdisciplinario (PRODII)	2008	10	Part of CSBs	CSBs are run by families with a keen interest in conserving crop diversity.	Data not available.	Germplasm held in CSBs is disseminated through seed fairs and farmer-farmer exchanges	Andean tubers (potato, oca, ullucus), maize, wheat, faba bean	Support for sustainable, agro-biodiversity-based livelihoods, through crop diversification, soil and water conservation and postharvest transformation, cooperative farmers associations, marketing and sales.

Canada (national)	Seeds of Diversity Canada (SoDC)	2014	SoDC houses a community seed collection at Everdale Farm, Ontario, which facilitates exchange of seed between and among Canada's national gene bank and over 1,000 SoDC members across the country. In collaboration with USC Canada, work is currently underway to support community seed libraries across Canada to increase public access to diverse seed materials.	Field crops and vegetable seeds of potential interest to farmers and either unavailable on the commercial market or not available in sufficient quantities to be useful to growers	The Bauta Family Initiative on Canadian Seed Security is USC Canada's application of its SoS programme in Canada. The nationally coordinated and regionally driven programme works with producers, researchers, civil society organizations and relevant industry and government partners to increase the production, conservation and spread of regionally adapted, biodiverse, ecologically grown Canadian seed.
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*Other countries where CSBs have been supported by USC in the past include Lesotho, Malawi, Ghana, India and Indonesia.

†Unless otherwise noted, number refers to households that have access to CSBs based on membership or as a resident of a village that supports the CSB.
‡Initial funding for the CSBs in Ethiopia was provided by a grant from the United Nations Global Environment Facility to the Ethiopian Institute for Biodiversity Conservation (national gene bank), and subsequently continued by Ethio-Organic Seed Action with USC support in 2002.

¶USC contributed financial support to the Program for Local Agricultural Innovation from 2007 to 2012, and is currently contracted by INCA to provide ongoing technical support and networking to the programme.

is actively supporting over 150 community seed banks in ten countries of Africa, Asia and Latin America, and in 2014 will begin supporting community seed libraries across Canada, as part of the Bauta Family Initiative on Canadian Seed Security (www.seedsecurity.ca/en/).

Farmer led and multifaceted

Models of community seed bank organization vary from one country and locality to another. In all cases, USC partners with a local organization (usually an NGO) that supports and works directly with community seed bank initiatives. Although functions and roles vary, they generally include the following components.

Germplasm conservation

Most community seed banks include storage space for a collection of crop varieties used in participatory varietal selection and plant breeding programmes and as a backup in case of major crop failure. These collections generally focus on farmers' varieties from the region, but seeds obtained from seed fairs, agricultural research stations and other sources are often included as well. Community seed banks ensure that collections are renewed on a regular basis, either through ongoing participatory varietal selection activities or by specific members.

Seed access

A major function is to provide adaptable seed materials to community members who are facing seed shortages or who wish to experiment with new crops or varieties. 'Revolving seed funds' are the most common solution: seeds are borrowed, planted and paid back at harvest time, usually with interest at a rate determined by the community or members. The seed fund may be built up by purchasing seed from local farmers at harvest time, by members contributing a portion of their seeds or cash or by establishing seed multiplication plots managed by participating villages or farmers' groups. In a few cases, seeds are sold rather than loaned, particularly when surplus seed is made available to non-members. In Mali, community radio has been used to advertise the availability of surplus seed to attract purchasers from surrounding villages. In Bolivia, seeds are disseminated primarily at district seed fairs, but occasionally individual farmers purchase seeds from a community seed bank, particularly when their household stock has been lost due to crop failure.

Backup seed storage

Community seed banks can operate as a backup for household-level seed saving and storage. Members sometimes also store some of their own seed

supply in the community seed bank. This can be advantageous in terms of distributing risk, for example, in case of fire or other damage to household seed stocks. The backup seed-storage service is generally limited to members of the cooperative or farmer group that manages the seed bank, but in some cases the privilege is also extended to vulnerable groups in the community. For example, in Burkina Faso, female-headed households are allowed to store seeds in exchange for helping to maintain the premises; and in the Douentza and Mopti regions of Mali, resource-poor families who do not have a granary can store seeds in the seed bank for a small fee.

Participatory crop enhancement

Community seed banks can play a key role in introducing, evaluating and selecting crops and varieties from seeds obtained at seed fairs, exchanged with other institutions or communities or generated through the breeding activities of farmers themselves. This is done through farmer-led participatory varietal selection, in which both women and men farmers work with programme technical staff and other scientists or extension workers over several seasons to assess the adaptability of new crop varieties to local conditions. Farmers' own selection criteria – such as grain yield, biomass production, disease resistance, storability, milling quality and nutritional value – are used to assess the results (Teshome et al., 1999).

For instance, in Harbu, Ethiopia, farmers have selected several varieties of drought-resistant pearl millet, previously unknown in the region, which can be integrated into their cropping pattern in years when long-maturing varieties of sorghum fail. This provides an interesting complement to fast-maturing sorghum varieties, which are usually difficult to store, thus helping to increase grain availability in low-rainfall years. In Ethiopia, as well, seed multiplication plots have been established in local farmers' fields to multiply seed chosen after several seasons of participatory varietal selection. These seeds are then made available to community seed bank members through the revolving seed fund and disseminated more widely through farmer–farmer exchanges and networking with other agricultural actors. (See also, the Nepal Dalchowki and Honduras case studies, Chapters 24 and 33 respectively.)

Knowledge exchange and training

Community seed banks can serve as key knowledge-exchange and learning spaces through training sessions, seed fairs, farmer–farmer exchanges, visits by schoolchildren, development workers and others, and even popular theatre presentations. These events range from local training in production and the use of biopesticides, for example, to international events, such as a field visit to East Shewa, Ethiopia, by participants of the Wheat for Food Security in Africa International Conference (October 2012).

Some community seed banks have been designed to play a special role as knowledge hubs and have specific infrastructure or resources to support this role, including rooms or shaded outdoor areas for meetings, training sessions or other events; demonstration plots where soil and water conservation, terracing, agro-forestry or other agro-ecological techniques are tried and showcased; and resource centres or libraries holding information on the crop genetic resources held by the seed bank. In Ethiopia, plans are underway to develop a multimedia ‘knowledge library’ linked to the community seed banks and supported by USC (Worede, 2010); this would help support a range of training and knowledge-exchange activities.

Income generation and other initiatives

Many of the farmer groups and cooperatives that run community seed banks have developed income-generating activities to create livelihood opportunities and other benefits in the community. The Dunka Fa cooperative in Safo, Mali, has built an onion storage facility so that cooperative members’ produce can be held until prices are favourable (usually a few months after the harvest). Seed production and marketing is also being developed in a number of community seed banks. (For further examples, see the Honduras case study, Chapter 33.)

Networking

As initiatives mature, there is increasing effort to promote networking among community seed banks at both local and regional scales. For examples, see the Mali and Nepal case studies (Chapters 22 and 24, respectively).

Gender considerations

Women play crucial roles in seed saving. They often have the main responsibility for this task in their households and communities and retain specialized knowledge of the culinary, storage and other postharvest characteristics of plant genetic resources (Howard, 2003). Community seed banks and their work related to seed systems can thus be a strategic entry point for increasing the value of women’s knowledge and contributions, addressing women’s priorities and needs relating to agricultural production and providing an area where women can play a greater leadership role within their families and communities. A few key approaches have been employed by USC to promote gender-equitable spaces.

Valuing women’s knowledge, crops and production spaces

From the early days of the SoS programme, women’s knowledge related to seed saving and agricultural production has been recognized and valued (Tsegaye, 1997). Both women and men have been actively involved in participatory

varietal selection and plant breeding, and their selection criteria, including both agronomic and postharvest characteristics, are valued.

Most community seed banks supported by USC also focus on a wide range of crops, helping to address the needs of women who, in some contexts, have specific responsibilities for certain crops or production spaces (e.g. home gardens). In West Africa, for example, seed bank crops include cowpea, bambara groundnut, hibiscus and okra, which are generally grown by women. Support for tree nurseries and field gene banks has also contributed to strengthening access to germplasm for home gardens in Timor Leste, Nepal, Cuba and elsewhere. In Bangladesh, community seed banks focus specifically on native vegetable seeds as part of a broader programme aimed at empowering adolescent girls through involvement in home gardens.

Despite these achievements, in many USC programme countries, a number of introduced vegetable crops (such as carrot, tomato and cabbage) are still grown, and farmers must rely on purchased seed, often imported from Europe or elsewhere. Although some initiatives in USC Canada programmes promote local seed saving and production (e.g. a vegetable seed farm supported in Podor, Senegal), this is one area that requires more attention in the future.

Promoting women's participation and leadership

In most USC-supported community seed banks, there is a good gender balance in terms of membership and leadership – in many cases, as a result of ongoing monitoring and gender awareness-raising by USC and other community actors.

For example, until recently only 22 per cent of registered seed bank members in Ethiopia were women, reflecting the fact that membership was accorded on a household basis and typically registered under the name of the male household head. However, the farmer conservator associations that run the seed banks launched a campaign to attract more women members by establishing individual rather than household-level memberships. This move appears to be the result of a participatory gender equality review process supported by USC to encourage communities to assess how to enhance gender equality within the programme (Dalle and Stefov, 2013), as well as ongoing gender-awareness training by field staff and local government agencies. Support for women's and youth groups has also helped increase interest in the community seed banks and stimulate more active participation, as has the emergence of some strong women leaders within the farmer conservator associations.

In Honduras, a recent study found that participation in the *Comités de Investigación Agrícola Local* (CIALs) has contributed to notable improvements in gender equality and empowerment of women, by providing a space where men and women are able to challenge unequal gender roles (Humphries et al., 2012a). This shows that collective action around food and seed security has the potential to contribute to broader social change – a strategy that is actively pursued in USC-supported programmes.

Policy influence

Community seed banks provide important fora for rural communities and farmers' organizations to interact and learn about broader trends and policies that can affect local seed and food security, to craft policy changes that reflect farmers' concerns and priorities and to open negotiations with policymakers and other actors at local and national levels. The partner NGOs play an important role in facilitating this process, which also serves to inform the national and international policy efforts that these NGOs undertake, often in collaboration with larger farmers' organizations and other civil society actors.

In recent years, the CIALs in Honduras have been reflecting on what they view as equitable benefit-sharing in relation to the participatory plant breeding varieties in which they have invested years of labour and skill to develop. They see this as a first step towards engaging in open dialogue on ownership rights with governmental and nongovernmental collaborators (Humphries et al., 2012b). The Foundation for Participatory Research with Honduran Farmers also successfully convinced the government to convene a Committee on Plant Genetic Resources for Food and Agriculture to develop mechanisms to fulfill Honduras' obligations under the International Treaty on Plant Genetic Resources for Food and Agriculture. These initiatives are particularly crucial in light of Honduras' 2006 free-trade agreement with the United States, under which farmers' plant genetic resources and knowledge are considered patentable commodities (Humphries et al., 2012b). USC-supported programmes in West Africa are similarly involved in the regional Coalition for the Protection of Africa's Plant Genetic Patrimony to engage communities, farmers' organizations and policymakers in issues related to the conservation of plant genetic resources.

In a few countries, provisions to support and promote community seed banks have been included in national legislation, regulatory frameworks and agricultural development programmes (see the policy case study for Nepal, Chapter 41). In Timor Leste, USC Canada's partner, Resilient Agriculture and Economy through Biodiversity Action (RAEBIA), has participated in a steering committee to guide the country's draft national seed policy (2013), which makes explicit note of the value of community seed banks.

USC is also supporting initiatives to establish community seed banks more broadly. In recent years, USC-supported programmes have worked to share their hands-on, decades-long experience with a broad range of actors at the local and national levels and, increasingly, are providing technical expertise and training to governmental, civil society and academic institutions to integrate the lessons USC has learned into their own practices. In Ethiopia, for example, Ethio-Organic Seed Action (EOSA) field staff and expert farmers from established community seed banks have helped Wollo University develop participatory varietal selection trials on campus, allowing local farmers, students and faculty to learn from one another in a novel way. EOSA is also providing technical support and guidance to the Southern Nations, Nationalities and People's Regional Government to establish community seed banks in eight districts, all with

government funding. EOSA frequently receives requests from government agencies and NGOs for technical advice on seed system-related work.

Last but not least, USC Canada makes every effort to assist its partners and, when feasible, selected women and men farmers, to participate in international fora, the three most prominent being the International Treaty on Plant Genetic Resources for Food and Agriculture, the Committee on World Food Security and the International Convention on Biological Diversity.

Sustainability

As farmer-led and managed institutions, community seed banks generally inspire a strong sense of ownership and pride among the farmers' organizations and communities who benefit from them – a feature that can help sustain these initiatives into the future. However, USC's experience has shown that this sense of ownership, along with the organizational skills and mechanisms needed to sustain a community seed bank, require time to develop and must be cultivated carefully.

A case in point comes from Mali, where after the withdrawal of USC Canada–Mali's support from the village of Badiari (Douentza cercle), the community seed bank continued to operate independently. A strong sense of community ownership had been established, and the management committee had developed clear organizational mechanisms to sustain operations. In contrast, in the village of Ouornion (Mopti cercle), the community seed bank ceased to operate when USC's funding for the project ended earlier than expected, only three years after it had been established. In both cases, USC eventually re-engaged with the communities, and provided additional support to help upgrade infrastructure, which had begun to deteriorate, and, in the case of Ouornion, to rebuild the organizational skill and community support needed to relaunch the seed bank.

In all USC-supported community seed banks, farmers are working with USC partners to develop tailor-made strategies to sustain the financial and organizational viability of these farmer-run institutions (Table 37.2). In Timor Leste, only modest financial resources are required to sustain the seed banks and the focus is primarily on building organizational capacity, including engagement of young farmers. For more complex seed bank operations, significant effort is being invested in generating financial resources to help maintain them, to strengthen financial management skills of the farmers' organizations and to diversify funding. In all cases, a favourable policy environment, as well as strong capacity among accompanying agencies to facilitate farmer-led approaches, are particularly important in the long run.

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Table 37.2 Strategies for building the sustainability of farmer-led community seed banks

<i>Strategy</i>	<i>Examples</i>
<i>Financial sustainability</i>	
Development of micro-enterprises and other mechanisms to generate income	Many seed banks are developing the capacity to produce and sell seeds. Other initiatives include beekeeping, fruit production, establishment of membership fees and rental of meeting rooms and office space.
Capacity building to enhance financial management skills	Most farmers' organizations and cooperatives are receiving support to build financial management skills. In Ethiopia, the seed banks have bank accounts, undergo annual government audits and are working to strengthen financial systems in light of an increasing diversity of initiatives (youth/women's groups, soil and water conservation, etc.).
Diversification of sources of financial support	In Nepal, seed banks have obtained financial support from government agencies (district agricultural and livestock offices, national gene bank).
Use of local materials and construction techniques	Most seed banks make use of local materials and construction techniques; this enhances the capacity of local communities to maintain the infrastructure in the long run.
<i>Organizational sustainability</i>	
Registration of farmers' groups as cooperatives or other legally recognized entities	Several village-based seed banks in Mali have chosen to form cooperatives, institute membership contributions and use savings/credit funds to generate financial resources for the seed bank and its members. Legally registered cooperatives can also access certain government programmes.
Enhancement of women's leadership and participation	All USC programmes encourage women's leadership and ensure that their skills and knowledge are valued and contribute to seed bank management. Strong women's leadership encourages other women to become involved, broadening the seed bank's support base.
Engagement of young farmers and youth in activities linked to the community seed bank	In several programmes, specific strategies have been developed to engage schoolchildren, youth and young farmers. These include support for youth-specific farmer research teams (Honduras), young farmers' productive activities (Timor Leste, Bangladesh, Ethiopia) and collaboration with local schools (Ethiopia). Youth-specific programmes are expected to engage more young farmers in seed bank management and activities.
Collaboration and partnerships with local government, agricultural extension services and other institutions	All USC-supported seed banks have established links with local and national government agencies and research institutions; this has enhanced knowledge and understanding in these institutions of the farmer-led approach of the seed banks and, in several cases, has led to provision of material, technical or financial support to the seed bank.
Transformation of USC Canada offices into national NGOs and other organizational development of partner NGOs	USC has supported the establishment of national NGOs to take over its field operations; this helps diversify funding sources and has increased access to national programmes, networks and coalitions. USC has also invested in various organizational development initiatives of partner NGOs, including strengthening of financial management systems, support for gender equality reviews, staff capacity building and professional development and leveraging funding from other donors to support seed banks.

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