

### 3 Functions and activities

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A community seed bank is much more than a bank for money. It is a bank for life–food.

— A woman farmer from Zimbabwe (Chapter 38)

A community seed bank can perform multiple functions. Depending on the objectives set by its members, it might undertake raising awareness and education; documentation of traditional knowledge and information; the collection, production, distribution and exchange of seeds; sharing of knowledge and experience; promoting ecological agriculture; participatory crop improvement experiments; income-generating activities for members; networking and policy advocacy; and the development of other community enterprises. Apart from the concrete results that these activities produce, farmers' involvement can contribute to their empowerment as individuals and groups. Based on our global review of community seed banks, we can conclude that some are highly focussed on conservation of agricultural biodiversity including reviving lost local varieties, while others give priority to both conservation and access and availability of diverse types of seeds and planting materials suitable to various agro-ecological domains, primarily for local farmers. In addition to these two main functions, promoting seed and food sovereignty is another core element of some community seed banks.

Based on the experiences collected in this book and other analyses (Sthapit, 2013; Vernooy, 2013), we have grouped the functions and activities of community seed banks into three core areas: conservation, access and availability, and seed and food sovereignty. In theory, this could lead to seven possible types of seed banks: three single function, three double functions and one that would undertake all three functions. However, considering only the community seed banks described in the second part of this book, we have limited our classification to four types (Table 3.1).

#### **A focus on conservation**

Conservation of local crop varieties is one of the most important functions of community seed banks. In fact, except for a few cases, most community seed

Table 3.1 Classification of the community seed bank case studies based on functions

<i>Functions*</i>	<i>Case study examples (Chapter)</i>
Conservation	Bhutan (10), Malaysia (20), Mexico (23, 42), Rwanda (27)
Access and availability	Burundi (32), Canada (14), Costa Rica (16), Uganda (30)
Conservation; and Access and availability	Bolivia (11), Brazil (12, 13), China (15), Guatemala (17), Honduras (33), India (18, 19), Mali (21, 22), Nepal (24, 25, 34), Nicaragua (26), South Africa (43), Sri Lanka (28), United States (31), Trinidad (29), Zimbabwe (38)
Conservation; Access and availability; and Seed and food sovereignty	Bangladesh (9), Brazil (39), Spain (36)

\*Conservation = conservation of local varieties, heirloom varieties and restoration of lost varieties from the area; Access and availability = platform offering access to multiple varieties at the community level, fostering exchange and seed production of participatory plant bred varieties; Seed and food sovereignty = local control over seed conservation, sharing of agricultural biodiversity knowledge and expertise and promoting ecological agriculture.

banks were established to stop the rapid loss of local varieties and rebuild local crop diversity through rescue and rehabilitation. A number of factors have contributed to the loss of crop diversity and, in many parts of the world, continue to do so. We can distinguish between social factors, such as farmers following what their neighbours do in terms of replacing local varieties with modern ones; political factors, where the public sector has promoted improved and hybrid varieties without considering loss of local varieties; natural factors, such as prolonged drought and devastating flood leading to the total destruction of local crops; and economic factors, such as the replacement of local varieties with improved and hybrid ones to increase production and household income. An additional factor is the lack of awareness among farming communities about the current value and future potential value of local varieties. In concrete terms, Nepalese farmers used to cultivate more than 2,500 local varieties of rice before the process of modernization of agriculture began; now it is estimated that only several hundred remain.

A community seed bank is based on the principle of conserving local varieties on farm, that is, in farmers' fields or home gardens. However, most community seed banks include a seed-storage facility collectively managed by the farming community. This represents a community-level ex-situ facility, similar to that of a national or international gene bank. In practice, except in a few cases, community seed banks store seeds only for one season and regenerate seeds each year through various mechanisms.

For example, the community seed bank in Bara, Nepal, establishes a diversity block of more than 80 local rice varieties in an appropriate area each year to characterize and multiply seeds for the next season (Chapter 34). At the same time, they also distribute seeds of each local variety to one or more members on a loan basis, so that the bank has two sources of new seeds each year. Such

on-farm conservation efforts allow continued evolution through both natural and human selection. A recently established community seed bank in Bhutan is putting efforts into maintaining existing buckwheat varieties and restoring lost ones to enhance genetic diversity in the area, thereby strengthening farmers' capacity to adapt to changing climatic conditions (Chapter 10). Community seed banks in Mexico were established as part of a national strategy for in-situ and on-farm conservation. There, 25 community seed banks have formed a network that has been integrated into a National System of Plant Genetic Resources for Food and Agriculture. These community seed banks have focussed on conserving a large number of local varieties of maize, beans, squash and chili (Chapter 42). The community seed banks described in the case countries have more or less similar stories. The Quilenco community seed bank in Guatemala hosts about 657 accessions of maize. A large number of rice, cucurbit and other neglected and underutilized species can be found in community seed banks in Bangladesh and Nepal, and a diversity of beans, cowpeas and millets in Rwanda and Uganda. It is likely that many of these local varieties would have been lost in the absence of such community seed bank initiatives.

### **A focus on access and availability**

Access to and availability of a large quantity of farmer-preferred varieties, local or improved or both, are the core business of some community seed banks. The goal of these banks is to make seed available to needy farmers when required. Depending on rules and regulations set by the farmers' organization operating the seed bank, it provides seed on a cash or loan basis. When community seed banks sell seeds, they always set a competitive price based on a service motive rather than to make a profit. In the case of seed loans, the borrower must return 50–100 per cent more than the borrowed amount after harvesting his or her crop. For example, each year, the Kiziba community seed bank in Uganda provides common bean seeds to more than 200 farmers. Here, the borrowers have to return twice the amount they borrowed (Chapter 30). In Burundi, community seed banks have been integrated with a community granary to make seed available to farmers who lose seeds because of poor storage conditions, theft or because they sold their seed during a cash shortage. The community granary provides a secure space for farmers to store seeds for the next planting season (Chapter 32).

Involvement of community seed banks in participatory plant breeding activities, selection of farmer-preferred varieties and seed production on a commercial scale are other ways that contribute to increased access and availability of newly improved varieties. A community seed bank in southern Costa Rica produces more than 32t of bean seed each year, which is directly sold to the members of the Union of Seed Producers (Chapter 16). The community seed bank in Bara, Nepal, in collaboration with a local research organization, has developed a new rice variety named Kachorwa 4 using a participatory plant breeding method. This community seed bank now produces

and sells 5–10t seeds of Kachorwa 4 each year and generates income to support the seed bank (Chapter 34). These quantities of seed are significant and indicate the potential for well-organized community seed banks to operate as bona fide seed suppliers. More technical and financial support would be of great help to further professionalize this function.

The Toronto Seed Library in Canada has a different approach to making seeds available to seed savers and gardeners, based on the principle of wanting to offer an alternative to the genetically modified seeds produced by large corporations. The seed library obtains seeds free of charge from individuals, seed companies and seed stores in and around Toronto and disseminates them to as many people as possible, also free of charge (Chapter 14).

In addition to making seeds available in these ways, many community seed banks also promote informal exchanges through seed or diversity fairs and participatory seed exchange events. The motto of these events is usually, the more seeds that circulate the better.

### **Combining conservation with access and availability**

Most of the community seed banks that we surveyed perform both conservation and access functions. In many countries, community seed banks are a major source of local varieties guaranteeing farmers access to native seeds. These banks are engaged in on-farm conservation of a large number of local varieties and also make diverse types of high-quality seeds available to farmers through sales, loans or free of charge. Production of many seed varieties – from a few kilograms to several tonnes a season – as well as storage, cleaning, grading, packaging, distribution and selling are regular activities of such seed banks. In general, community seed banks give priority to local varieties, but some also include farmer-preferred improved varieties released or registered by the national system.

Several examples exist. Native Seed/SEARCH in the United States holds a collection of 1,900 accessions of domesticated crops, dominated by traditional and heirloom varieties of maize, beans, squash and wild relatives. At the same time, it distributes more than 50,000 packets of seeds of local varieties each year (Chapter 31). Three community seed banks in Zimbabwe, supported by the Community Technology Development Trust, have maintained, over time, 31–57 local varieties of mostly sorghum, pearl millet and cowpeas. Farmers associated with these community seed banks have developed links with seed companies and produce and sell more than 350t of improved varieties of sorghum, cowpea and pearl millet seeds each year (Chapter 38). In Nepal, 15 community seed banks have conserved 1,195 accessions of diverse crop species and nearly 2,000 farmers use seeds from these banks annually (Shrestha and Sthapit, 2014). Similar stories can be told about community seed banks in Brazil, Guatemala, India, Mali and Nicaragua. Combining conservation with access and availability, when managed well, gives community seed banks greater operational vitality, and this can contribute to sustainability.

### **Linking conservation, access and availability with seed and food sovereignty**

Some community seed banks function beyond the scope of conservation of agricultural biodiversity and making seeds available to farmer communities. In addition, members of these seed banks are continuously working on relevant issues, such as empowerment of farming communities; promotion of ecological agriculture; implementation of participatory plant breeding and grassroots breeding activities; establishing farmers' rights over seeds; and development of fair community-level benefit-sharing mechanisms that may arise from the use of genetic resources. Although primarily facilitated by civil society organizations, this kind of community seed bank has developed seed autonomy to some extent. For example, in Bangladesh, the Nayakrishi seed huts and community seed wealth centres, which are supported by the nongovernmental organization (NGO) UBINIG, have been able to promote ecological agriculture among 300,000 farming households in the country (Chapter 9).

The Spanish Seed Network has also been conducting a campaign demanding a legal framework that: allows farmers to produce and sell their farm-saved seeds; promotes recovery of cultivated heritage; values small-scale farming and organic production including fighting against patents in agriculture; and mitigates the impact of genetically modified varieties (Chapter 36).

In Nepal, NGOs developed a community-based biodiversity management approach to empower communities to manage agricultural biodiversity on farm and enhance biodiversity-based livelihood strategies. Part of this approach is grassroots plant breeding. The local Nepali rice varieties called Kalonuniya and Tilki, which were disappearing from farms, have become common again thanks to this farmer-based plant breeding programme (Shrestha and Sthapit, 2014). Another element of the approach is the community biodiversity management fund, which has evolved as a key mechanism for the equitable sharing of benefits that may arise from the use of genetic resources (Shrestha et al., 2013). Such a fund contributes to the empowerment of farmers to manage biodiversity locally, by strengthening biodiversity-based livelihoods. As such, it can also contribute to the multiple objectives of a community seed bank (Chapter 34).

In the state of Minas Gerais, Brazil, the community seed banks known as regional seed houses represent a conservation strategy that complements other strategies and actions used by a network of male and female peasant farmers, organizations and social movements in the field of agro-ecology, and federal teaching and research institutions. The objective of the regional seed houses is to strengthen agricultural biodiversity as managed by communities, identifying the diversity, species density and varieties resistant to climate change; broadening the local diet; ensuring local and regional food security and sovereignty; and conserving traditional native seeds as well as the biodiversity of the region's agricultural systems (Chapter 13).

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