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LI-BIRD's approach to supporting community seed banks

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Purpose and evolution of support

Kachorwa in Bara district in Nepal's central terai or plains is one of three sites of a research project entitled 'Strengthening the scientific basis of in-situ conservation of agricultural biodiversity in Nepal', implemented collaboratively by Bioversity International, the Nepal Agricultural Research Council (NARC) and Local Initiatives for Biodiversity, Research and Development (LI-BIRD) between 1997 and 2006. From 1997 to 2002, various awareness-raising activities and research were conducted at the project sites to sensitize local farming communities to the importance of agricultural biodiversity. The participatory approach that was used resulted in the enthusiastic involvement of many community members. However, despite increased awareness in the farming community, the loss of local rice varieties continued unabated in Kachorwa: from 33 in 1998 to only 14 in 2003. After much soul searching by the project team and extended consultations with the farming community, the Bara community seed bank was established as a pilot project (Plate 24). Managed by the local farmers, its aim was to halt the rapid loss of local varieties and to recover lost varieties. The success of the seed bank can be measured in terms of the large increase in the number of local varieties now available in the community: 80 in 2010 (Shrestha et al., 2010).

To make the community seed bank functional and sustainable, an extra effort was made to empower farmers. An organization of farmers, called the Agriculture Development and Conservation Society (ADCS), was established and registered at the district administration office. The purpose of this organization was not only to promote the community seed bank, but also to function as a nodal organization for agriculture and biodiversity research and development at the village level. By mid-2014, ADCS had about 400 members, of whom 362 were women.

With the establishment of ADCS, members started searching for and recovering lost varieties by visiting neighbouring villages and districts when crops were mature to be able to easily identify varieties. They were motivated to collect local varieties partly because some members were already involved in participatory plant breeding of rice in which local varieties were used as a

parent, and these efforts were leading to good results in the form of improved varieties. Farmers named one of the promising varieties Kachorwa 4 combining their village name and the fact that it was variety line number 4. Members of ADCS now produce seeds of this variety every year and have been generating revenues for both the producers and the organization. This variety is now being registered with the National Seed Board of Nepal.

ADCS has two strategies to maintain its conservation work: it grows all local varieties in a diversity block each year under the control of the organization to ensure a regular return of seeds to the community seed bank; and it keeps a small amount of seed of each variety in the community seed bank as a reserve that is replenished after each harvest.

ADCS has been operating a community biodiversity management fund to make the conservation work sustainable and to support members' economic activities at the household level. Starting with 75,000 Nepalese rupees (NPR; about US\$1,000 at the time) in 2003, by mid-2014, the fund had grown to about US\$10,000. Each year, about 100 members receive a small loan from this fund to support income-generating activities, such as rearing livestock or maintaining a small shop. ADCS charges 12 per cent interest, which is lower than other sources. The borrower does not need collateral and has a year to repay the loan. ADCS also lends seeds of local varieties to its members, who pay back 150 per cent of the amount borrowed after harvesting the crop. Members also commit to growing at least one rare local variety conserved in the community seed bank.

In addition to conserving local varieties and operating the community biodiversity management fund, ADCS encourages its members to practice monthly saving. This strategy mobilizes social capital to generate financial capital. By mid-2014, the amount of members' savings had reached US\$48,500. Each year, almost all members request a loan for production and consumption purposes. A few years ago, ADCS was registered as a cooperative to allow it to operate the saving and community biodiversity management funds legally.

ADCS produces and sells seeds of a few improved varieties that are in high demand in the area. This helps members earn income by selling seeds from their harvest. ADCS provides storage and processing of the seeds for a fee. Neighbouring farmers benefit by being able to buy seeds close by at a low price compared with other sources.

Because of all these successful activities of the ADCS, the Kachorwa community seed bank has become a centre of attention among farmers' groups and organizations working in the field of on-farm management of agricultural biodiversity in Nepal.

Based on the success of the seed bank at Kachorwa, LI-BIRD introduced the community bank as a major intervention in other agricultural biodiversity management projects, such as the 'Western terai landscape complex project' supported by the Global Environment Facility (six cases), the Community-based Biodiversity Management Programme supported by The Development Fund (six cases) and 'Promoting innovative mechanisms for ensuring farmers'

rights through implementing access to and benefit sharing regime in Nepal supported by the International Development Research Centre, Canada (two cases). Later, under the Community-based Biodiversity Management South Asia Programme supported by The Development Fund, LI-BIRD assisted nongovernmental organizations (NGOs) in Sri Lanka to introduce community seed banks there as well (five cases) (Chapter 28). In Nepal, about 2,000 farmer households have access to various local seeds from the 15 community seed banks that collaborate with LI-BIRD (Shrestha et al., 2013b; Chapter 25).

Functions and activities

In areas of Nepal where production potential is high, only a few farms maintain a wide diversity of local varieties of staple crops and some vegetables and fruit. However, many local varieties are still valued for their taste, agro-ecological niche specificity, ritualistic use and food culture, biotic and abiotic stress tolerance, better storage and a longer fruiting period providing households with a more extended supply of vegetables. Once local varieties with these traits disappear, their reintroduction will be difficult, as farmers – not the formal seed sector – are the sources of seeds of these varieties. Thus, the main goal of community seed banks supported by LI-BIRD is to ensure on-farm management of local varieties of selected crops and their availability to farmers.

A community seed bank first gathers information and seed samples of local varieties by organizing a diversity fair (Adhikari et al., 2006) or carrying out participatory four-cell analysis to identify the status of local crop diversity (Sthapit et al., 2006). The information is used to identify common, unique and rare local varieties and, based on this, seeds are collected and a distribution plan is developed. Regular regeneration of seeds is carried out by establishing diversity blocks (Tiwari et al., 2006) and also by distributing seeds to seed bank members. In addition to conserving local varieties, community seed banks have also engaged in the production and marketing of some improved varieties for which there is high demand locally. The seed banks consider this a way to provide services beyond their members, increase the incomes of seed-producer farmers and generate some operating revenues.

Community seed banks have included a number of cereal crops (rice, wheat, finger millet, maize, barley, buckwheat and minor millets), vegetables (sponge gourd, pumpkin, ridge gourd, bottle gourd, taro, elephant foot yam, yam), pulses (cowpea, bean, soybean, broad bean, horse gram, pigeon pea and field pea) and oil seed crops (rapeseed, lean seed and sesame) in their collections. So far, the 15 community seed banks supported by LI-BIRD have conserved more than 1,200 local varieties of these crops, which amounts to about 10 per cent of what is conserved in the National Agriculture Genetic Resources Centre (national gene bank). Many of these crops fall into the category of neglected and underutilized species.

When seeds are stored in a community seed bank, records are kept of the details of collection and the properties of the variety. To continue regeneration

of the collections, community seed banks employ three strategies: distribution of seeds among members and non-members, establishment of diversity blocks for major crops and retention of small amounts of seed at the bank as remnant stock.

Based on the principle of conservation through use, seeds and planting materials are regenerated in small areas or multiplied in larger plots depending on local demand. Seeds are normally distributed on loan or sometimes sold to members and non-members both within and outside the village. At the community seed bank at Kachorwa, seed production and the sale of a variety of rice produced through participatory plant breeding (Kachorwa 4) are regular activities. In other cases, varietal enhancement also takes place with technical support and guidance from LI-BIRD. For example, improvement of Kalonuniya and Tilki aromatic rice varieties is carried out in Shivagunj, Jhapa and Rampur Dang.

Rural farming communities in Nepal face multiple challenges. A strong farmers' institution like a community seed bank can also function as a forum for local problem-solving and collective action. Some community seed banks also provide additional services to community members. For example, every community seed bank supported by LI-BIRD has been operating a community biodiversity management fund (Shrestha et al., 2012; 2013a), which can be loaned at a low rate of interest to finance production activities. This fund has not only created opportunities for seed bank members to increase their income, but it has also been a way to generate revenue for the seed bank in the form of interest.

Support

LI-BIRD, as a facilitating organization, offers support to farming communities for the establishment and management of a community seed bank. This involves several steps, beginning with creating awareness through various participatory methods, such as informal discussions, village workshops, diversity fairs and a site visit. These activities help raise awareness among farming communities of the value of genetic resources for current and future use and provide a general idea of the status of local agricultural biodiversity, which is necessary for planning community seed bank activities. Through its various projects, LI-BIRD also provides financial support for developing the necessary physical infrastructure (seed store, meeting room, seed-storage structures, wooden racks, seed cleaning and drying materials, etc.). LI-BIRD considers empowerment of seed bank members a key to success and sustainability. Hence, training and capacity-building activities are designed to cover not only technical aspects of seeds and community seed bank management, but also local institution management and governance. Its work includes developing local resource people and ways to generate local financial resources for maintaining the seed bank when there is no support from external agencies. In addition, LI-BIRD facilitates the process of linking the community seed bank with local government, extension offices and the national gene bank.

Networking

At the latest count (2013), there were 115 active community seed banks in Nepal, located across the country from terai to high hills and from east to west. Most are supported by international organizations or NGOs, but a few are funded by the government. They can be grouped into three types: those that deal only with local varieties; those whose main function is to conserve local varieties, and also to regenerate and distribute seed of modern varieties; and those that primarily supply high volumes of modern varieties of seeds (Chaudhary, 2013). At the first national workshop on community seed banks in 2012, participants reached the consensus that a true community seed bank should engage in farm management of local varieties. They also concluded that, although Nepal has a large number of community seed banks, sharing of knowledge and resources has not occurred, except in a few cases where farmers' groups and practitioners have visited each other's seed bank.

In March 2013, a national workshop for farmers and groups involved in establishing and managing community seed banks in Nepal was held at Kachorwa. It concluded with the formation of an ad hoc committee to set up a national network of community seed banks. A detailed procedure is yet to be developed, but the committee intends to provide a platform for learning and sharing among community seed banks; facilitate the exchange of seeds and planting materials; prepare a national catalogue of genetic resources conserved by community seed banks; facilitate a process of linking community seed banks with the national gene bank; represent community seed banks in national fora when necessary; and facilitate incorporation of the conservation of plant genetic resources into the activities of community seed banks that are not already doing this. LI-BIRD staff are helping the new national network become a well-functioning organization.

Policy and legal environment

To fulfill its obligation as a party to the Convention on Biological Diversity, the government of Nepal developed the National Biodiversity Strategy 2002 and drafted an Access to Genetic Resource and Benefit Sharing bill. Similarly, as a member country of the International Treaty on Plant Genetic Resources for Food and Agriculture, it has drafted a Plant Variety Protection and Farmers' Rights Act. In addition, an agro-biodiversity policy has been in place since 2007.

Remarkably, none of these legal documents discusses the term 'community seed bank'. It was only in 2008/09 that the government of Nepal endorsed the concept of a community seed bank in the budget speech of that year. The government envisioned that seed banks would improve access to quality seed for small and marginal farmers. An operational guideline was prepared by government staff for piloting new community seed banks in 17 districts. However, this document focusses mainly on increasing the seed replacement rate of improved varieties to increase food security and pays little attention to

the conservation and sustainable use of plant genetic resources. Although a step in the right direction, it does not, in the view of most community seed banks in the country, offer much concrete support (for a more detailed discussion of policies affecting community seed banks in Nepal, see Chapter 41).

Sustainability and prospects

One of the challenges for community seed banks is to develop mechanisms for sustaining their activities without support from external agencies. In the case of those supported by LI-BIRD, this is an important agenda item right from the beginning. Community seed banks that are completely self-sustaining do not yet exist in Nepal, but a number of practices have been tested with good results. For example, a locally managed fund, established with contributions by (donor) project funds and the community, has been established for every LI-BIRD-supported seed bank, and this has been effective in generating some financial resources. Some of these seed banks have generated income by integrating the production and sale of seeds of improved varieties to farmers beyond the community. Some seed bank members have agreed to grow one variety each, while others have introduced the idea of a diversity block managed by a farmers' group or a village. Both strategies are helpful in terms of minimizing costs. Linking community seed banks with local government, line agencies and the national gene bank is another way in which LI-BIRD is addressing sustainability.

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