1.6 Practices that contribute to the empowerment of farming communities for managing their agrobiodiversity in Asia

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SEARICE: catalysing community biodiversity management

The South-East Asia Regional Initiatives for Community Empowerment (SEARICE) has been working with farmers since 1996 to enhance their skills in implementing community biodiversity management (CBM) in five countries in Asia: Bhutan, the People’s Democratic Republic of Laos, the Philippines, Thailand and Vietnam. Our work is firmly rooted in processes that encourage awareness-raising and contribute to the empowerment of farming communities in the management of their agrobiodiversity and seed systems. Through these processes, farmers are made aware of their own strengths and weaknesses, allowing them to (re-)gain access to, and control over, their livelihood assets. In addition, these processes strengthen the farmers’ capacity to make decisions autonomously, in a manner that conserves and sustains their agrobiodiversity. It is our goal to enhance the empowerment of farming communities by building their capabilities to engage in local and innovative research, and by promoting the recognition of, and respect for, men and women farmers, as co-equals of scientists and plant breeders.

SEARICE plays a catalytic role within communities in the five target countries for achieving CBM. It creates a space for small-scale farmers to assess their situations, and to address socio-economic and environmental issues, so that they can become autonomous, propelling forces for influencing the development of policies, and for defining their political agenda. In this way, the farmers can identify what they want and need, and can address, both in capabilities and through advocacy, the structural constraints that have been preventing them from achieving their human potential.

Farmer breeding: ensuring conservation and control over local varieties

Through the work of our partners in Asia, farmers have become conscious of the growing corporate control over seed, and of the need to assume responsibilities concerning their own access to and control over plant genetic resources (PGR). Through participation in farmer field schools organized by SEARICE partners, farmers realized that PGR were gradually being lost. To address this loss, our partners launched efforts to conserve local varieties, building bridges between plant breeders and farmers. One of the ways to achieve this was to carry out farmer and participatory
breeding. Breeding institutions provided pre-breeding materials to farmers, who then began to produce new materials according to their own preferred traits, and adapted to farmer management. These farmer-bred varieties are resistant to pests and diseases, do not depend on chemical inputs and have shorter maturity periods. Such characteristics lower production costs and increase productivity (Almekinders et al., 2006). The experiences of several organizations that have been collaborating with SEARICE on the implementation of CBM are summarized below:

- In Bhutan, the Biodiversity Use and Conservation in Asia Programme (BUCAP) was initiated by the National Biodiversity Centre, in close partnership with the dzongkhag (district) agriculture offices in various dzongkhags, and with the Renewable Natural Resources and Research Centres in four regions of the country. Farmers selected 32 rice and two maize varieties, which were recognized by the Bhutan Varietal Release Committee. Previously, farmers relied only on just a handful of varieties, selected at the International Rice Research Institute in the Philippines.
- In Laos, a national project team, consisting of the Plant Protection Centre of the Department of Agriculture, the Ministry of Agriculture and Forestry and the Rice and Commercial Crop Research Centre, coordinated a project that produced 67 rice varieties, over a period of nine years. The Provincial and District Agriculture and Forestry Offices implemented the project at provincial and district levels.
- The Philippine Rice Research Institute, a public breeding programme, released 55 inbred lines between 1994 and 2004, whereas SEARICE partners in the Philippines released 209 farmer-bred varieties during the same period.
- Since 1995, SEARICE partners in Vietnam have produced 250 farmers’ varieties, from crosses and selections; 45 traditional varieties; and over 400 local varieties, which are being maintained by farmers through rehabilitation. This is in sharp contrast to the previous situation, where the farmer’s role in rice breeding had become virtually non-existent, following the introduction and cultivation of the green revolution rice variety, Than Nong 8 (IR8).

**Farmers’ rights and advocacy**

Farmers associated with our projects expressed the need to influence policies and the political arena, in order to advance farmers’ rights within the context of CBM. This motivated us to work together to make changes in the policy arena. Those changes we were successful in achieving include, among others:

- the development of local mechanisms to recognize and protect farmers’ rights (i.e. to save, use, exchange and sell seed, and improve their own varieties);
- a ban on the introduction of genetically modified organisms in certain areas;
- the incorporation of farmers’ seed in local government seed policies, including those related to organic agriculture programmes;
- the participation of farmers in policy discussions with decision-makers at national levels, and in international agreements and treaties.
CBM case studies

Here I share three case studies describing the experiences of groups of small-scale farmers who work with our partner organizations, involving strengthening their capacity to influence decision-makers to adopt CBM to help the in situ conservation of PGR.

Thailand: reviving the Bun Kao Mai ceremony

*Bun Kao Mai* is a traditional Buddhist ceremony dedicated to ‘Mother Rice’ or to the rice spirits, which celebrates and refers to diversity in rice varieties, bountiful harvests and excellent seed. Following the green revolution, the farmers had little to offer to the rice spirits and so *Bun Kao Mai*, along with its blessings of diversity and excellent seed, faded.

In 1996, the Joko Learning Centre, through the local civil society network Hug Muang Nan (Love Nan Group), in Nan Province, partnered with SEARICE to implement the Community Biodiversity Development and Conservation (CBDC) programme, similar to the CBDC programme that was implemented in Ethiopia, as described by Feyissa (Chapter 1.4). CBDC’s work in Nan Province focused on the in situ conservation and development of PGR, and on rice in particular. CBDC in Nan Province included a series of practices, as part of a CBM process, aimed at repatriating local rice varieties; supporting household seed storage capacities; establishing community seed banks; distributing seed to farmers; facilitating local seed exchange; implementing participatory varietal selection and plant breeding; and conducting on-farm trials with local varieties through farmers’ field schools. In addition, PGR conservation and development was included in the curricula of primary education and monk schools. These efforts led to the revival of local rice varieties; the development of a multitude of farmers’ varieties; and a wide availability of seed, which in turn resulted in better harvests.

Consequently, farmers had enough reasons to express their gratitude to the rice spirits, and as such CBDC was instrumental in the revival of the *Bun Kao Mai* ceremony. Farmers believed that *Bun Kao Mai* inspired them to work towards CBM. The project evolved into an event that exhibited CBM principles and practices, and raised awareness was on the need to conserve PGR, among policy-makers, politicians, monks, teachers, students, farmers, tourists and other visitors. Consequently, the *Bun Kao Mai* event became a platform for motivating the community to learn about local, regional and global issues relating to agricultural biodiversity.

Local government was so inspired by the *Bun Kao Mai* event that they allocated funds to ensure its regular organization. In addition, the work of teachers and students, in encouraging young people to appreciate the importance of the local culture associated with rice, was recognized and they obtained numerous awards for their efforts in this regard. The local government also formulated a policy supporting the work of farmers in seed production and variety development. Through networking in the *Bun Kao Mai* platform, the Joko Learning Centre has become a member of the National Health Committee, which formulates national policies on food safety. Furthermore, Nan Province has been designated a model for the creation of provincial community rice production centres.
**Bhutan: contributing to the development of enabling policies**

A number of practices that contribute to the on-farm management of PGR were initiated through the Biodiversity Use and Conservation in Asia Programme (BUCAP) in 2001. Its overall goal was to contribute to poverty alleviation through the conservation and sustainable use of PGR. The programme included practices aimed at achieving on-farm conservation, and the development and use of rice and maize genetic resources in 11 provinces, directly benefiting over 289 households, in 18 project sites in Bhutan.

In the initial stages of BUCAP, the science of PGR conservation was a fairly new subject for our Bhutanese partners. One of our immediate priorities was to enhance the technical capacity of those partners. We also wanted to foster close ties with the national gene bank in Bhutan, which secures PGR for holistic and sustainable agricultural development, and provides farmers with free and easy access to the seed of its accessions. Over 1200 germplasm accessions are being conserved in the national gene bank and about 300 accessions are being held in three community seed banks. In addition, new crops and crop varieties have been made available to the farmers through participatory varietal selection (PVS) in high yielding and locally adapted crops and varieties. In Bhutan, BUCAP has contributed to enhancing household food security and broadening the use of local crops and varieties. Some examples of the results of BUCAP include:

- Two new maize varieties have been added to the five existing varieties.
- 30 new rice varieties have been evaluated and introduced through PVS.
- Upland rice has been introduced into 13 communities as a new crop, to diversify the maize-based cropping system.
- New varieties of vegetables, legumes and cereals have been introduced into five communities, promoting food and nutrition security at household level.
- Local rice and maize varieties are being maintained by farmers through improved seed purification and storage management, thereby contributing to on-farm management.

As part of our advocacy work at SEARICE, we provided space within BUCAP for policy-makers to interact with farmers, and become acquainted with the results of the project. This exposure resulted in the development of provisions on farmers’ rights to save and exchange seed for inclusion in the Biodiversity Act of Bhutan. Furthermore, the Variety Release Committee (VRC) has acknowledged farmers’ initiatives on PVS, and recognized farmers’ varieties. PGR activities have been mainstreamed in the development plan of the Royal Government of Bhutan. The draft National PGR policy has recognized the informal seed system and promotes sustainable agricultural development through the conservation and use of PGR.

**Vietnam: recognizing farmers as breeders**

In Vietnam’s Mekong Delta, the main rice-producing region of the country, demand for rice seed, based on the total area available for plantation, is around 0.55 million
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The formal seed supply system, which includes research institutes, seed centres, extension services and seed companies (government, non-government and foreign), cannot meet such a demand. The formal system deals primarily with formally released varieties and markets the seed through labelled units of volume, officially sanctioned by law.

The need for quality seed that meets the demand of farmers prompted SEARICE partners to establish seed clubs. In order to do this, farmers were first trained through the farmers’ field school (FFS) method. The aim of the seed clubs is to engage these farmers in the seed production and distribution of quality seed for community use. Since 2010, 358 seed clubs have been set up, involving 5857 farmers in seed production in the Mekong Delta. Our partners provide the seed clubs and individual farmers with segregating materials from early generations (F2–F5), in order to facilitate breeding and selection.

The role of the seed clubs in the Mekong Delta has become significant, as they have been able to respond adequately to the high demand for rice seed, and provide more seed than the formal seed supply system can. In 2008, for instance, the seed clubs produced and supplied more than 16% of the total seed demand in the Mekong Delta, while the formal seed sector only produced about 3.5%. Also in 2008, in An Giang, one of the 13 provinces where the seed clubs have been established, the seed clubs were able to supply more than 90% of the provincial seed demand. In recognition of this major achievement, the Vietnamese government acknowledged the SEARICE-assisted programme in An Giang province as a breakthrough programme.

Farmers have benefitted from the seed clubs through lower seed prices. The price of seed marketed by the seed clubs was 26% lower than that of seed sold through the formal system. The formal system has to cover costs of transport, processing, storage and packing. Seed club members do not incur these costs as they sell directly to customers at harvest time. In terms of quality, the formal seed system is controlled by field inspections and seed testing. Seed quality assurance in the seed clubs is based on direct contact between buyers and sellers, including observation of seed production demonstration plots.

The seed clubs also produced a diverse number of varieties. These varieties are in high demand for a number of reasons, including for use in diverse cultivation conditions; for increasing resistance to ever-changing pests and diseases; and for meeting household production and taste requirements, and specific demands for quality in local markets. Two varieties produced by farmers gained recognition in the Mekong Delta. The HD1 and TM3 varieties have good characteristics and are suitable in acid sulfate and saline soils. A farmer in Kien Giang province, Mr Nguyen Van Tinh, developed the HD1 variety, which was officially certified on 23 December 2010, at national level, by the Ministry of Agriculture and Rural Development. The whole process from selection and tests, to documentation and official release, took nine years. Results of the national rice variety testing, which was carried out on the winter–spring crop of 2006–2007, showed that the HD1 variety had a good yield and was of good quality. It was further reported to be resistant to brown plant hopper and yellow draft disease. This achievement confirms the fact that farmers, through breeding, are capable of releasing good varieties that can compete with those produced by the formal sector. The case of HD1 is the first time that a farmers’ variety
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has been officially released by the Vietnamese government. Results from the national tests show that almost all of the promising farmers’ varieties pass the varietal trials and can be released at national level, in the same way that varieties produced by the formal sector are.

Although the seed clubs made the informal seed supply system flourish, their activities ran afoot of Vietnam’s Plant Variety Protection (PVP) Law. The Law prevents farmers from breeding rice varieties and sharing them, and consequently the Tan Binh seed club (Dong Thap) and Ngo Khue enterprise have been fined for supplying the seed of non-released farmers’ varieties within their community. However, in 2008, recognizing the impediments of the PVP Law, and acknowledging the work of seed clubs, the Ministry of Agriculture and Rural Development issued Decision 35/2008/BNN, which officially recognizes the existence of the informal seed system, and acknowledges farm-saved seed. This policy has opened up opportunities for farmers to develop new varieties and produce seed of those local varieties with support from local authorities (Tin et al., 2011).

Lessons learned

The experiences of SEARICE and its partners in Asia, as presented through the case studies described above from Thailand, Bhutan and Vietnam, show that in order to contribute to the empowerment of farmers and their communities in agrobiodiversity management, we need to address aspects related to seed supply, breeding and PGR conservation. Only through such an integrated approach, can we contribute to the empowerment required to achieve in situ conservation, or the on-farm management of PGR. As illustrated by the case studies from Thailand and Vietnam, SEARICE and its partners focus on seed supply and breeding, by using methods such as farmers’ field schools to strengthen farmer organizations in agrobiodiversity management.

Policy and legal frameworks can create impediments, but because of the significant results of our work with partners at grassroots level in the five target countries, we have been able to influence the adaptation of genetic resource policies to address farmers’ rights in the context of seed production and farmer breeding, and recognize farmers as custodians of agrobiodiversity. This recognition at policy level and, above all, the self-recognition of farmers, contributes to their empowerment and motivates their continued participation in community biodiversity management.

Note

The current chapter is based on reports prepared by Ditdit Pelegrina, Normita Ignacio, Golda Hilario and Singay Dorji; interviews with Samruoy Phadphon and Pimonphan Sakitram from the Joko Learning Centre and the Hug Muang Nan Foundation in Thailand; and on a research study published in Tin et al. (2011).