

## SEARICE's Contribution to Sustainable Use of Plant Genetic Resources

The Community Biodiversity Development and Conservation and Biodiversity Use and Conservation in Asia Programme (CBDC-BUCAP) aims to strengthen the capacity of farmers to manage their plant genetic resources (PGR) and to secure their local seed systems through conservation, crop improvement and sustainable utilization. The Southeast Asia Regional Initiatives for Community Empowerment (SEARICE) is the regional coordinator of the CBDC-BUCAP program which is being implemented in the five rice-growing countries of Bhutan, Lao PDR, the Philippines, Thailand and Vietnam.

At the end of 2008, the CBDC-BUCAP Program has made a significant contribution to the conservation and development of PGR diversity, particularly in terms of building farmers' capacity to select and develop varieties that meet their needs and preferences. In the Mekong Delta alone, farmers have selected **250** new segregating lines and released new stable lines bringing the number of farmer varieties available in the communities to a total of **103** varieties. In addition, farmer plant breeders in Mekong Delta have made **60** new crosses, resulting in greater diversity of rice varieties available in the region. This translates to more choices for the farmers to consider, which in turn tends to increase the number of varieties being grown in communities at any time. In Bohol province of the Philippines, for instance, farmers are growing **15 to 29** rice varieties per community per season. Fifty percent of these varieties are farmer-developed. This is a big improvement compared to the 5-9 varieties being grown in the province at the start of the CBDC-BUCAP program, and to the 10-12 varieties found in communities not covered by the program.

Moreover, farmer-developed varieties meet the specific needs of the community since they were bred and selected using farmers' own breeding objectives and selection criteria, and were tested in farmers' own fields. In Vietnam, for instance, there are **4** farmer varieties which adapt very well to acid-sulfate soil; **8** farmer varieties that thrive well in acidic soil; and **7** varieties that do well in saline soils. In other countries, there are

farmer varieties that are tolerant to drought and flooded conditions; varieties that are suitable for organic farming systems; and varieties that are resistant to specific pests. This capacity of farmers to develop varieties that are adapted to specific local conditions and micro-niches shows how farmers are adapting to climatic changes and helping their communities develop resiliency.

### Livelihood improvement through sustainable use of PGR diversity

The production of good quality seeds and use of better varieties (i.e., the result of farmer breeding and selection) translates to increase in yield. In Eastern Bhutan, farmers have reported a **30%** increase in corn yield due to improvements in seed selection. In the same region, farmers have increased their income by processing corn into *tengma* (corn flakes). Two farmer groups from two communities (Khalling and Dremetse) have been able to save **90,000 (US\$2,000)** and **45,000 Ngultrum (US\$1,000)**, respectively, from the sale of *tengma*.

Likewise, in Laos, farmers have reported a **10-20%** increase in rice yield as a result of using better varieties and good quality seeds. Aside from the use of farmer varieties and good quality seeds, the increase in yield has been attributed to the reduction in the use of external inputs and to improvements in the farming system. In Vietnam, for instance, **8,000** hectares of riceland are under SRI (system of rice intensification) and the experience of farmers in this system is quite encouraging. SRI has reduced the amount of inputs used: **50-70%** less seeds; **80%** less pesticide; **20-30%** less urea; and **30-50%** less irrigation water. This has resulted in a **10-20%** increase in yield. In the Mekong Delta, farmers have reported a mean net income of **US\$645** per hectare resulting from the combined effects of an improved farming system and the use of good quality seeds from their own varieties. This compares favorably with the **US\$257** per hectare income from conventional farming system using improved varieties.

### Strengthened farmers' management of PGR diversity

The results on the ground clearly show that farmers are quite capable of managing their PGR. The training provided by the program to the farmers has further enhanced their knowledge and skills, which is now recognized not only by their own communities but by other communities and even by the government and the scientific community.

In Laos, initial results reveal that **90-95%** of the seed requirements in the communities where the project is being implemented are supplied by farmers within the community and that most of the seeds are varieties developed through

In the Mekong Delta, farmers have reported a mean net income of **US\$645** per hectare resulting from the combined effects of an improved farming system and the use of good quality seeds from their own varieties. This compares favorably with the **US\$257** per hectare income from conventional farming system.

the program. In the Mekong Delta, Seed Clubs have produced and sold more than **83,000** tons of good quality seeds in 2008, providing **16%** of the seed requirement in the region. This is a major contribution considering that in the same year, the formal sector produced and distributed only **19,000** tons of seeds, thus meeting only **3.5%** of Mekong Delta's seed requirements.

This capacity of farmers to produce good quality seeds has resulted in better access for all farmers in the community to seeds that are adapted to their local conditions. In Thailand, around **700** farmers in Nan province (and an estimated **1,500** farmers, including those from neighboring provinces) are using farmer-developed varieties. In North and Central Vietnam, more than **82,000** farmers have access to seeds produced

by farmer partners. In the Mekong Delta, more than **100,000** hectares are planted with farmer varieties, and around **21%** of the total number of varieties grown in the region (Mekong Delta) are farmer varieties.

The popularity of the farmer varieties can be observed not only among farming communities but also within the government and the scientific community. Currently, there are **16** farmer varieties in North and Central Vietnam and **14** in the Mekong Delta that are undergoing national testing for certification. The potential of these varieties has been recognized by government authorities as evidenced by government initiatives to test them for wider adaptation. Three out of 14 varieties in Mekong Delta are already registered (i.e. HD1, NV1 and HD4). **HD1** has already received provisional national certification status after passing national tests. HD1 had in fact been shown to be better than formal varieties when it survived the yellow dwarf

disease and the brown plant hopper attack in 2008, which almost wiped out all the other rice varieties in Mekong Delta.

But more than material benefits, farmers claim that their enhanced knowledge and skills have helped boost their confidence. They take pride in the respect and admiration accorded to them by fellow farmers in the community and in the recognition given to them by government authorities and professional plant breeders.

Even the initial results of community self-assessment would show the overwhelming appreciation of the farmers for how the project has enhanced seed security in their communities. Farmers testify to the fact that they “can now produce the seeds that we need according to our own preferences and we are also assured of quality.” Other farmers also expressed relief that they no longer depend on external sources for their seeds.

Through the project, farmers were able to organize themselves into groups for collective action and joint efforts to further strengthen their local seed system. In the Mekong Delta alone, **21** new seed clubs were established in 2008, bringing the total number of Seed Clubs in the Mekong Delta to **325** with about **8,000** farmer members. Even in Bhutan, where it used to be illegal for farmers to organize into groups, there are now **6** farmer groups doing production and marketing of *tengma*.

### Strengthened capacities of local institutions in supporting community management of PGR diversity

As farmers gain confidence in managing their plant genetic resources, extension agents, teachers, plant breeders and researchers who are supporting the work of farmers begin to recognize the tremendous potential of farmers to manage their own PGR and have started to look more closely at how best to support farmers instead of trying to do the work for them.

In Laos, stronger linkages with local research stations and seed centers have been formed in 2008. This has resulted in greater access to PGR materials and technical assistance for farmer

breeding and selection. Farmers are now linked with Pakcheang Rice Seed Station, Pon Ngam Research Station and Thasano Seed Multiplication Center all located in the provinces. Similarly, in Thailand, partners have expanded their network and strengthened their links with many research and academic institutions for continued support of community-based PGR management. There are now five Research Centers and other national institutions like the National Seed Bank and Agricultural Universities in Thailand that are providing support for the work of farmers.

In Vietnam, there is already an established network of institutions that are linked together and constantly providing support to the Seed Clubs (in Mekong Delta) and BUCAP Clubs (in North and Central Vietnam).

Positive policy changes and actions toward protection of farmers’ rights over their PGR



*Above: Mr Nguyễn Văn Tinh with his H1 variety--adjudged the best variety in the dry season 2006-07 in An Giang Province*

At the policy level, the project has gained recognition and support from local government authorities and even from key institutions at the national level. In Vietnam, the local support for on-farm conservation and development (both technical and financial) has exceeded what the project (CBDC-BUCAP) has managed to provide.

In the Mekong Delta alone, local support in 2008 (i.e., for various activities such as farmer field schools, farmers' field days, follow-up training, study tours, seeds, and agricultural equipment) has been valued at more than **US\$200,000**.

At the national level, the Ministry of Agriculture and Rural Development (MARD) had issued an order in early 2008 supporting on-farm seed conservation and development (Decision 35/2008/QD-BNN). This important ministry directive is a clear acknowledgment of the work of farmers in PGR management as well as an explicit expression of government support.

In Bhutan, the draft Plant Variety Protection (PVP) rules already contain a number of provisions on farmers' rights. This can be credited to the series of discussions with the drafting committee and other key stakeholders. The learning agenda and participatory approaches integrated into the drafting process has resulted in strong support of relevant Departments and Ministry in Bhutan for community based seed management. The need for and importance of on-farm PGR conservation are now clearly outlined in the 2008 Biodiversity Action Plan of Bhutan. Likewise, the PGR conservation, development and use (CDU) activities have been mainstreamed through the national planning workshop of Bhutan's Ministry of Agriculture.

In Laos, research exploring a *sui generis* form of plant variety protection is still on-going. This innovative policy process involving research and policy dialogues with farmers is a first in Laos and probably in the region (Asia).

The work with academic institutions has also advanced in 2008. In Laos, for instance, there is now an on-going process of institutionalizing the integration of PGR management in the curricula of agricultural schools in the country. This will continue in 2009 and by the end of the year, it is expected that all agricultural schools in Laos will be teaching PGR conservation and development using the modules that are currently being developed. #

**SEARICE Notes** is a regular publication of the Southeast Asia Regional Initiatives for Community Empowerment (SEARICE).

**Editor**

TERESA L. DEBUQUE

**Page Layout**

MARCELINO DELOS REYES

**Support Staff**

AGNES LINTAO

LORELIE PERELLO



**SEARICE** is a regional non-government development organization that promotes and implements community-based conservation, development and sustainable use of plant genetic resources in partnership with civil society organizations, government agencies, academic research institutions and local government units in Bhutan, Lao PDR, the Philippines, Thailand and Vietnam. Established in June 1977, SEARICE is registered with the Philippines' Securities and Exchange Commission (SEC) as a non-stock, non-profit organization based in the Philippines.

#29 Magiting Street, Teachers Village, Diliman, Quezon City, Philippines

Tel: (63 2)433-7182; 433-2067

Fax: (63 2)922-6710

URL: <http://www.searice.org.ph>

Email: [searice@searice.org.ph](mailto:searice@searice.org.ph)