

# Community Gene Banks Sustain Food Security and Farmers' Rights

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by  
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**The communal use of *plant genetic resources* (PGR) has contributed to the nurturing of agricultural biodiversity for millennia. Yet local and indigenous communities have not profited from more recent commercialization of these resources and are often not facilitated by the products of modern plant breeding. For these communities, *community gene banks* (CGBs) could not only provide back-up storage to increase food security, but also form a measure for putting the concept of *Farmers' Rights* into practice. However, the success of CGBs strongly depends on a national legal framework.**

Local communities all over the world have been engaged in creative agricultural practices by selecting traditional cultivars, landraces, medicinal plants, fruit crops and horticultural crops with desired traits, which are well-adapted to local environmental conditions. However, these community based practices are now rapidly being eroded in the current of dynamic changes caused by urbanization, industrialization of agriculture and the development of global markets. A practical approach towards preserving agricultural biodiversity is to collect valuable germplasm along with a file of relevant information in a specially designed CGB (see also the article by Butler and Pistorius in Monitor No. 28).

In recent years, the interest in CGBs as a strategy for conserving and using crop diversity has grown rapidly. CGBs are now being developed as a result of action by communities and *Non-Governmental Organizations* (NGOs) at grassroots level.

## CGBs under development

CGBs can serve a number of diverse purposes.

- Many communities have already developed methods to maintain their resources of agro-biodiversity for use when needed, such as in case of emergencies or natural disasters. For example, the Dani tribe in Waga-Waga, Indonesia, uses a CGB since 1994 to preserve sweet potato. Community grain pits are used to store different crop seeds. In some communities in India, sacred groves serve this purpose. Among Brazilian indigenous groups, women are charged with maintaining a secret resource as planting material. In Andhra Pradesh, India, the *Deccan Development Society* (DDS), a grassroots organization working with voluntary associations of poor women, works in drought-prone areas where people have traditionally practiced dryland

farming. CGB projects in these areas help farmers to raise local crops and to start preserving seeds. Also, in Chengam (Tamil Nadu, India) seeds of traditional varieties are preserved at the community seed bank.

- Another important aspect of CGBs is the possibility to link farmers and communities with national *ex situ* collections and to provide additional security for preserving locally adapted materials. In Ethiopia, for example, a number of CGBs are planned under a fund of the *Global Environment Facility* in collaboration with the *Ethiopian Biodiversity Institute*. This facility will be based in different regions of the country to hold local materials and will be managed by the communities in collaboration with the *Plant Genetic Resources Centre (PGRC)* in Ethiopia.
- CGBs can also provide a resource of material for on-farm breeding and crop improvement, which will continue to be available to the communities. Landraces, maintained by individual farmers, are selected and frequently exchanged within and between communities through traditional seed supply systems. In Kerala, India, local communities occasionally exchange seeds when they meet in the context of a festival.

Thus, CGBs have the potential to make a significant and innovative contribution both as back-up facilities for local farming communities and as elements within networks of exchange for local communities and NGOs. CGBs thereby serve as an insurance for national and global food security. At the same time, depending on national legislation, CGBs may also provide a mechanism to ensure that economic benefits accrue to the community that has identified and supplied the potentially valuable material. In contrast, the absence of such a mechanism can deprive communities and countries of their legitimate economic benefits and recognition.

### **Protecting the rights of farmers**

Although industry and research institutes have been utilizing information on traditional practices and resource material from local communities in their breeding programmes, and have gained income from the resulting commercial varieties, in many cases no tangible credit is given to the local farming communities.

The term *Farmers' Rights* has been coined to recognize the rights of farmers over their contribution to conservation and crop development, and the sharing of their knowledge on adaptive traits. The contribution of local and indigenous communities has formed the basis for the introduction of the principle of equity in sharing benefits. The notion of Farmers' Rights was introduced by the United Nations *Food and Agriculture Organization (FAO)* in 1989 in its *International Undertaking on Plant Genetic Resources*, which is to be transformed into a legally binding amendment to the *Convention on Biological Diversity (CBD)*.

The concept of Farmers' Rights is defined by the *FAO Commission on Plant Genetic Resources for Food and Agriculture* as "*rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in the context of origin and diversity*". CGBs can play a significant role in supporting the local, indigenous, and rural communities to treasure their PGR, thereby putting the FAO's concept of Farmers' Rights into practice. Rewarding these communities will at the same time help in sustaining and enhancing biodiversity and securing future benefits.

The above mentioned FAO Commission is considering different options for converting rights into financial rewards. Since the contributions are often made by the community and not by individuals, procedures are needed to recognize community contributions to PGR conservation and selection. Moreover, it is argued that remuneration might not have to take place at the level of the individual

community but at regional, national, and higher levels. The FAO Commission is developing a possible formula for sharing benefits based on different benefit-indicators in accordance with the total relative contributions in each country or region. Possible financial formulas are yet to be published by the FAO.

One major difficulty with the implementation of Farmers' Rights rests in the different approaches towards property. The idea of ownership of seeds, or *Intellectual Property Rights* (IPR) on them, does not make sense to local communities, where the seed is the property of the community and does not belong to an individual. Therefore this is often regarded as an inappropriate concept imposed by industrialized countries. IPR by a third party should not lead to the exploitation or appropriation of germplasm that is identified and conserved by local communities. To be able to respect Farmers' Rights, operational procedures to recognize and reward the contributions of the farming communities need to be developed.

Two dialogues on methods of recognizing and rewarding informal innovations in the area of genetic resources conservation were organized by the *M.S. Swaminathan Research Foundation* (MSSRF) in 1994 and 1996. A detailed draft legislation was developed for converting existing knowledge into practical procedures relating to Farmers' Rights. From these drafts, the government of India has developed a draft legislation for a *Plant Variety Protection and Farmers' Rights Act* (see also the article by Dhar, Pandey and Chaturvedi in Monitor No. 23) and a *Biodiversity Act* for adoption by the Indian parliament. When these proposals are implemented, India may become the first country in the world to give a legal status to Farmers' Rights, and to formulate a distinctly different *sui generis* system for IPR.

### The fruits of organization

To avert over-exploitation and avoid commercial losses, farmers can maintain more control over the distribution of seed material and information if the seed material is stored in a CGB. The documentation on germplasm by the use of passport information that is available with CGBs will help to identify a particular community for any suitable reward or recognition for their effort in conservation and help to prevent future misappropriation.

A practical approach towards these ends is to establish a specially designed CGB. The activities of such a CGB are carried out with the understanding that the donating community can make use of a restored variety, and that varieties be made available to others only with the prior informed consent of the concerned groups.

In India, the *Scarascia Mugnozza Genetic Resource Centre* at the MSSRF has established a CGB to provide access to germplasm that was conserved and developed by farmers. This technical resource centre is a facility for *ex situ* conservation, evaluation and sustainable utilization of landraces. The establishment of this facility was made possible by a grant from the government of Italy, through the *International Plant Genetic Resources Institute* (IPGRI). Its continued functioning is supported by the *MacArthur Foundation* (USA) and the *Swiss Agency for Development and Cooperation*.

*Ex situ* conservation is done by preserving the germplasm in the form of seeds at low temperature under controlled humidity conditions. This medium-term gene bank, where germplasm can be preserved for a period of 20 to 25 years, is linked to the long-term seed repository of the *National Bureau of Plant Genetic Resources* (NBPGR) at New Delhi, where seeds are stored at -20 °C and can thus be preserved for 100 years. So far, few accessions have been deposited in this long-term repository where the necessary multiplication and regeneration are carried out.

Periodically, passport data, photographs of seeds, herbarium specimen and details on the quantity stored,

the amount of germplasm distributed to the community (if any), and details on germination and viability of the seed material, with complete information on the farmer who has given material for storage, are systematically recorded. This *ex situ* preservation facility is being linked with *in situ*, on-farm conservation facilities established recently in target sites. Relevant information is periodically updated with the gene bank management software developed by IPGRI. This information has also been linked with the database on *Farmers' Rights Information Systems* (FRIS) developed by MSSRF.

This system will help farmers to obtain recognition and reward for their valuable contribution to conservation. The farmers are already aware of their materials being preserved at the CGB and have responded well in establishing linkages with the communities. In most cases, they give seed material voluntarily for conservation.

Thus, this CGB acts as a back-up store for indigenous communities and local farm families. At the same time, it serves to recognize and reward their contribution to conservation. Since 1994, seeds of landraces, traditional cultivars, and rare, endangered and medicinal plants have been collected and preserved from biodiversity-rich areas in India such as Wayanad (Kerala), Jeypore (Orissa), Kolli Hills (Tamil Nadu) and East Godavari (Andhra Pradesh). This seed conservation activity is strengthened by the organized herbarium specimens and the multimedia database of the MSSRF. These facilities help to highlight the IPR related to the contributions of indigenous and rural families, and to gain recognition under the relevant provisions of the proposed Indian *Plant Variety Protection and Farmers' Rights Act* and *Biodiversity Act*. The CBD recognizes biodiversity as the sovereign property of the nation in which it occurs. Recognition of Farmers' Rights and reaffirmation of sovereign rights of nations over their contribution can, for example, be implemented through the provision of an international *Community Gene Fund* for PGR, as suggested by Swaminathan (1995, 1996).

A national legal framework should facilitate and stimulate the work of CGBs by encouraging and supporting projects and funds to the involved agency or organization where possible. CGBs can help participatory conservation for site specific crops in respective locations and stimulate commercialization by forming farmer networks. Rewards to the community may include creating facilities, such as the construction of schools, hospitals and transportation. At the time of remuneration, the CGB can provide all required information about the seed material.

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Personal communication with N. Anil Kumar.

Indonesia's Waga-Waga Community

Genebank; <http://www.cipotato.org/projects/nrm/c&cspgr/waga.htm>

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