

Farmers as bankers -

Community seed banks



Gene bank of cereal varieties, Addis Ababa, Ethiopia (photo: G. Ulutunçok)

What is the point of community seed banks and gardens?

Community seed banks are local institutions that conserve and maintain access to locally adapted seed and planting materials for farmers. Typically they rely on a community storage structure where the seed can be processed, selected and stored, in order to have sufficient quantities available even when normal supplies fail. Usually there is a community seed bank committee that oversees activities and decides what can be stored, and how and when seed can be used. In many cases, the seed stores built can provide storage conditions which are better than those on farms, and sometimes they also have an office and meeting room. Keeping the seed in a secure building administered by a committee is more likely to prevent farmers from selling off or consuming the seed in times of food scarcity. Thus seed banks contribute to the security of the seed supply. Seeds for the village store are procured from farmers who are recognized to be good seed producers. While the initial seed lots are often purchased by a project, a regulated process for withdrawing and depositing seed is necessary to ensure the subsequent conservation of seed stocks.

Farmers who have borrowed seed are required to return a similar quantity to the seed bank after harvest. For crops which are not propagated from seed, alternative structures must be developed for conservation and propagation at community level, e.g. by setting up conservation gardens.

We reap what we sow

For some 10,000 years, breeding and production of seed was the sole preserve of farmers. They produced the rich diversity of crop species and varieties that exist today, and maintained them in cultivation. It was only about 100 years ago, when the laws of heredity were deciphered, published and generally accepted, that scientific plant breeding began.

Gene banks were initially set up as 'working collections' for specialized breeding programmes. They are repositories holding samples of the most important crop plants from every continent *ex situ*, i.e. outside their natural context. Later, gene banks were given an additional mandate: the conservation of locally grown crop varieties. The increasingly widespread use of modern plant varieties led to the gradual replacement of traditional varieties, which meant that their genetic characteristics were also lost to farming. Thus, scientific plant breeding deprived itself of the raw material which was the very basis of its work.

Farmers have great difficulty in accessing the material in *ex situ* collections. Gene banks tend to be located a long distance away from villages. In addition, they can only respond to a restricted number of requests and distribute small volumes of seeds or planting material. So, for a farmer who may want to restock with seed of traditional local varieties, that are lost or degenerated, *ex situ* collections are not very useful. Likewise, seed programmes initiated by state or non-governmental organizations rarely distribute traditional local varieties, because their goal is usually to diffuse new breeding products. ▶



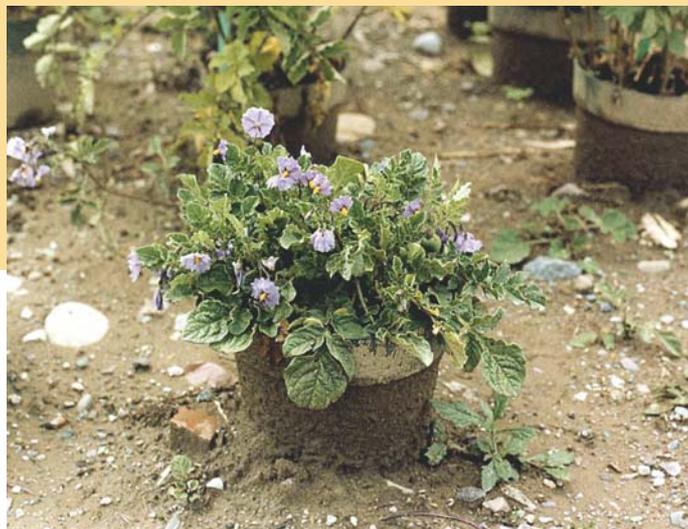
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Ex situ collection of wild and semi-wild potato relatives at the experimental station of the International Potato Center (CIP) in Huancayo, Peru (photo: C. Almekinders)

- This is why farmers are often interested in community seed banks and other community conservation schemes which give them access to important planting material.

Sufficient supplies to withstand the drought

In Zimbabwe's marginal rural areas, recurrent droughts make it very difficult for farmers to save seed until the next sowing season. Community seed banks have helped to remedy this problem. In cooperation with the national gene bank, two non-governmental organizations (NGOs) – the Community Technology and Development Trust (CTDT) and the Intermediate Technology Development Group (ITDG) – have launched projects on community seed banking.

In Ethiopia, community seed banks build on the farmers' cultural and religious traditions, whereby seed is donated to those who have fallen into poverty. NGOs and the Biodiversity Conservation & Research Institute (BCRI) operate community seed banks with a dual purpose: firstly, they aim to ensure that sufficient seed stocks are available in the regions for the most important crop species and local varieties, and that farmers have access to them; secondly, given the Institute's limited capacity and budget, BCRI relies on community seed banks to conserve, regenerate and distribute seeds of local varieties as a complement to the conservation work which comes under its mandate. The BCRI recognizes the importance of co-evolution of varieties maintained on-farm, and the farmers' knowledge pertaining to the growth and use of these varieties. Participating farmers who maintain local varieties rather than high yielding varieties on-farm receive compensation for the foregone yield, usually in the form of agricultural tools.

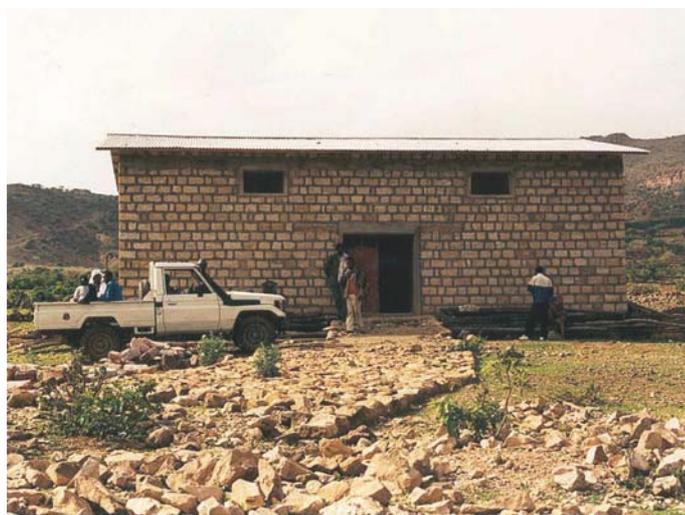
The GREEN Foundation, which works in India with women's farming groups, has been supporting the establishment of a network of 31 community seed banks in Karnataka Province. This has increased the number of women farmers involved in

conserving the seed of traditional crops from 10 to over 1,500. For this innovative scheme which contributes to the conservation of biodiversity and to poverty reduction, the United Nations Development Programme (UNDP) awarded the GREEN Foundation the 2004 Equator Prize. The Equator Initiative is also supported by the German Federal Ministry for Economic Cooperation and Development (BMZ).

Gardens full of tubers

Conservation gardens in Ecuador demonstrate how conservation and evaluation goals can be combined in a community-based approach. The National Department of Plant Genetic Resources and Biotechnology (DENAREF) in Ecuador maintains a large collection of Andean root and tuber plants. These include mashua (*Tropaeolum tuberosum*), oca (*Oxalis tuberosa*), melloco (*Ullucus tuberosus*), arracacha (*Arracacia xanthorrhiza*), jicama (*Smallanthus sonchifolia*), achira (*Canna edulis*) and miso (*Mirabilis expansa*), which are conserved *ex situ* using both tissue culture and field-planted material.

A study was conducted in 1999 in the region of Las Huaconas, home to many local Indian communities, on the crop species and varieties in use. It was found that many of the native varieties of Andean tuber crops collected by DENAREF in 1980 were no longer to be found in the communities. This circumstance motivated DENAREF to produce planting material in what they called conservation gardens. '*Jardines de Conservación*' are experimental plots planted on communal land. They not only proved to be ideal propagation sites but also lent themselves to collaborative evaluation of crops by farmers and researchers. Out of 30 samples of different tuber crops distributed to farmers in six different communities, 30 percent were still in production three years later.



Community seed bank in Hahaile, Tigray, Ethiopia (photo: K. Teekens)

At present, DENAREF, with support from GTZ, is coordinating the setting up of a community garden for tropical root and tuber crops in the village of Gualaquiza. Gualaquiza lies in the Amazon Basin and is home to the Shuar-Achuar Bilingual Institute (PIBSHA). Collections of cocoyam (*Xanthosoma spp.* and *Colocasia spp.*), yam (*Dioscorea spp.*), sweet potato (*Ipomea batatas*) and cassava (*Manihot esculenta*) are maintained in the Institute's garden. Students will maintain, develop and study the collection as part of their training programme.

Fruitful contacts

The impetus to organize a community seed bank usually comes from outside the community, in response to the realization that it is affected by seed shortages. In many countries, the initiative is taken by NGOs, development organizations or gene banks and their programmes for the conservation of plant genetic resources. They have the possibility of bringing communities into contact with organizations which maintain *ex situ* collections, such as the BCRI in Ethiopia or DENAREF in Ecuador. Once such contacts are established, there is a chance that old local varieties or other interesting material can be reintroduced into the villages by means of community seed banks or other activities like seed fairs. It is vital that gene banks recognize the potential which lies in the linkage of *ex situ* and on-farm conservation. The reintroduction of lost species and varieties makes a critical contribution to the farmers' well-being and to the conservation of agricultural diversity.

As interest grows, so does knowledge

For a community, the establishment of a community seed bank can be an entry point for developing village organizational structures. Among farmers, a community seed store can awaken interest in improved seed quality. In Ecuador, the community seed bank stimulated community activity on demonstration plots using old and new varieties, culminating in participatory evaluation of that material.

Because it is often the case that the returned seed may be of lower quality than that obtained from the seed bank, it can be useful to link activities surrounding the seed bank with training courses in seed production and selection, as was done in Ethiopia.

When a seed bank is founded and seed stocks are acquired, the use to which funds are put must be absolutely transparent. Before the seed bank becomes operational, the policy on who has access to seed, when, and under what conditions must be clearly defined. The less well-off farmers in the community, who may be most in need of the seed, may be unintentionally excluded if they cannot afford to comply with the conditions for returning seed. Training in seed production and management for seed producers opens up new sources of income, which should not remain the sole preserve of the better-off. A successful seed bank has the potential to develop into a small local seed company.

Community seed banks are a good complement to community seed fairs. Both promote the conservation of agricultural diversity. In order to assess whether a seed bank will be sustainable without project funding, an understanding of the local seed production system is required, including such key questions as:



The recognition and reintroduction of the impressive diversity of tuber crops in the Ecuadorian Andes contributes to the food security of Quechuan families.
(photo: R. Bode)

when are farmers unable to save seed, which farmers are most under threat from seed insecurity, and what quality deficiencies does the seed exhibit? Transfer of the necessary know-how may take place via training programmes on seed production and selection.

In order to make a more thorough assessment of the effect of community seed banks on the conservation and sustainable use of agrobiodiversity, however, further studies will be necessary.

Further information

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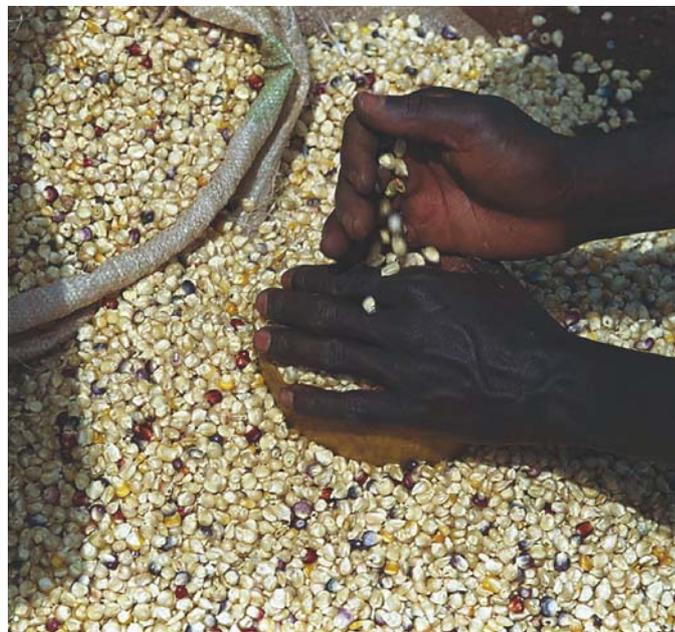
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Colourful maize grains in Ndege Village close to the Akagera National Park, Rwanda (photo: G. Ulutunçok)



National gene bank in Beijing, China (photo: A. von Lossau)

The **People and Biodiversity** issue paper series aims to:

- arouse interest in the topic of conservation and sustainable use of biodiversity,
- present in a concise manner concrete approaches for action and experience,
- explain new terms and concepts in the thematic area of biodiversity,
- encourage and stimulate readers to mainstream biodiversity issues in development cooperation projects.

We would welcome your comments and experience. They will help us to improve this series step by step.

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Postfach 5180, 65726 Eschborn, Germany

Text: Dr. Conny Almekinders

Editor: Yvonne Mabilille

Layout: Peter Philips, MediaCompany Berlin

Contact:

Annette von Lossau, Dr. Rolf Mack, Dr. Kirsten Probst

Email: annette.lossau-von@gtz.de

Homepage: <http://www.gtz.de>

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