

## 12 Brazil

### Gene banks, seed banks and local seed guardians

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There is tremendous potential for on-farm conservation in Brazil, given the 215 indigenous communities (that occupy about 12 per cent of the land) and the large number of non-indigenous farmers, most of whom practice subsistence agriculture. Beginning in the 1970s, an extensive network of gene banks was set up led by the Brazilian agricultural research corporation (Empresa Brasileira de Pesquisa Agropecuária or EMBRAPA). In the last decade, EMBRAPA has been restructuring its research programme in favour of on-farm conservation and the interface with ex-situ conservation. This move was not only in response to an internal desire to start working on on-farm conservation, but also the result of the demands of numerous traditional farmers, true seed guardians, to restore varieties that had disappeared from their fields.

In Brazil, public policies geared towards traditional indigenous agriculture, especially in terms of strengthening on-farm conservation and the promotion of local seed banks, are still incipient (for a more detailed discussion of policies that affect community seed banks in Brazil, see Chapter 39). Not considered priorities, such initiatives suffer from lack of support from the public sector and delays in the release of the few funds raised for this purpose. However, references to seed guardians and community seed banks can be found in national plans, such as the Política Nacional de Gestão Territorial e Ambiental de Povos e Terras Indígenas (national territorial and environmental management policy of indigenous peoples and lands), the Política Nacional de Segurança Alimentar e Nutricional (the national policy for food and nutrition security; PNSAN, 2010), the Política de Desenvolvimento do Brasil Rural (development policy of rural Brazil) and the more recent Política Nacional de Agroecologia e Produção Orgânica (national policy for agro-ecology and organic production; PNAPO, 2012). The latter, especially, along with its implementation plan, emphasizes the need for the Brazilian state to support farmers' local conservation initiatives and indicates the need to develop guidelines for access to germplasm banks by farmers, through their organizations.

More recently, as a result of awareness rising about the importance of conservation of so-called Creole varieties (i.e. locally adapted), the agricultural research community has increased even further the adoption of on-farm conservation strategies. Nowadays, organized farmers and seed guardians are taking the initiative to conserve Creole varieties through community seed banks, including several based on partnerships with governmental institutions (see Chapter 13 for another case study from Brazil).

## **Krahô people**

The Krahô indigenous people live in 28 villages in a territory of 302,000ha in northeast Tocantins state, in the municipalities of Itacajá and Goiatins. In the last 50 years or so, the Krahô have lost agricultural genetic resources, and their food security system was disturbed when the government tried to change their family-based agricultural culture into a collective system with new agricultural practices and a predominance of rice monoculture (Schiavini, 2000). In the early 1990s, supported by Fernando Schiavini of the national Indian foundation (Fundação Nacional do Índio; Funai), members of the union of Krahô villages began to discuss their situation and plan for counteraction. In 1995, a group of Krahô leaders approached EMBRAPA to rescue their traditional seeds, most notably several maize varieties. Interactions between the Krahô and EMBRAPA later led to the signing of the first contract (through Funai) regarding access to genetic resources and associated traditional knowledge in Brazil. This precedent enabled the introduction, at the national level, of the principle of prior informed consent at the genetic heritage management council (Conselho Gestor do Patrimônio Genético) as a major step towards implementing the Convention on Biological Diversity.

Since 2000, several local seed banks have been established following extensive surveys of on-farm agro-biodiversity (Dias et al., 2008b) and the identification of guardians of agro-biodiversity (Silva, 2009). In addition, fairs have been held to exchange traditional seeds and confer diversity awards (Dias et al., 2008a). These fairs have been organized by the union of Krahô villages, with support from Funai and EMBRAPA and a wide network of other supporters including Brazilian government agencies, the rural extension agency of Ruraltins state, the University of Brasilia and local prefectures.

The Krahô local seed bank conducts on-farm conservation through a network of farmers and guardians who maintain varieties by practising their traditional agriculture. Species maintained by the local seed bank include: rice (20 varieties), faba bean (15), yam (15), sweet potato (13), cassava (13), bitter cassava (macaxeira; ten), maize (ten), common bean (six), pigeon pea (five), pumpkin (11) and squash (three).

As a result of these activities, the Krahô people are now self-sufficient in terms of their agricultural practices, and they have no need to obtain seeds from any outside entity, public or private.

## **Paresi people**

The Paresi are inhabitants of the plateaus in Mato Grosso state. The population of approximately 2,005 lives in about 60 villages on ten indigenous territories, an area close to 1.3 million ha.

In 2010, a study of Paresi agriculture revealed impoverishment of genetic diversity (Maciel, 2010). With the support of the community, Maciel raised awareness of the issue and organized discussions and study tours culminating in a fair to reintroduce and exchange traditional roots and seeds. Since then, villages have continued holding fairs annually and these exchanges have contributed to improving the quality of the household diet and increasing the diversity of species grown locally. Plants such as arrowroot, yam, winged yam varieties and especially indigenous maize or soft maize (*milho fofo*), considered extinct in the area for 50 years, are again under cultivation.

To increase crop diversity, farmers are using diversity kits with several types of cassava, pineapple and soft maize. The multiplication of the varieties in the kits takes place in the village and on the Botucatu campus of the Universidade Estadual Paulista under the direction of the faculty of agricultural sciences. Varieties of purple and white winged yam, various sweet potatoes, peanuts and pigeon peas originating from the producers' fair in Tangará da Serra, Mato Grosso, are also part of the kit. The Paresi seed fairs have contributed to the establishment of a larger seed conservation network in the region.

## **Guarani Mbyá people**

In Paraná state, EMBRAPA's Centre for Temperate Climate Agricultural Research (CPACT) has recently started promoting the use of Creole seeds. CPACT is working with the Guarani Mbyá people to address genetic erosion of their crops, including varieties of beans, maize, groundnut, squash and cassava. Of the 35 varieties of the Creole cultivars held by CPACT, villagers selected seven: Rim de Porco, Unha de Princesa, Preto Comprido, Vermelho Anchieta, Amendoim Unaic, Fogo na Serra and Mourinho. Of these, only the Mourinho bean was representative of a variety considered truly Guarani. The other varieties were selected because they were similar to those cultivated by the Guarani in the past (Feijó et al., 2014). The varieties were multiplied and distributed to the indigenous farmers who reintroduced Mourinho beans into their fields.

## **Community associations in the Canguçu region**

The União das Associações Comunitárias do Interior de Canguçu e Região (UNAIC), in the municipality of Canguçu, Rio Grande do Sul, is an association of family farmer groups. It was founded in March 1988 and its principal objectives are the protection of the rights of family farmers and the promotion of sustainable rural development based on agro-ecological practices.

The production of Creole seeds was initiated in September 1994, stimulated by partner institutions, such as the Pastoral Rural da Igreja Católica and the Support Centre for Small-Scale Farmers. At the same time, with support from EMBRAPA, seed exchange between the state and farmers was initiated. In 1997, a community seed bank was established to promote the exchange of cultivars among farmers and the multiplication and preservation of these varieties. In 1999, the production of Creole varieties of maize and beans became a UNAIC programme. A register was set up at the former plant production department of the Rio Grande do Sul state government. As a result, new markets were opened with emphasis on the commercialization of seeds via an exchange programme set up by the government, allowing access to these seeds by traditional communities as well as settlers under agrarian reform.

In 2002, UNAIC inaugurated a seed-processing unit, donated by the Rio Grande do Sul government, the first grain-processing unit in Latin America and also the first exclusively administered by family farmers. The unit opened at the time of the first state fair for Creole seeds and popular technologies, whose main objectives were to publicize the seed preservation work done in Canguçu and to exchange information on the production of Creole seeds in the state. This event, which had its sixth anniversary in 2013, contributed to raising awareness in the local community about the importance of biodiversity conservation.

Since its formation, UNAIC has rescued and multiplied 19 cultivars of Creole maize, seven of beans, two of wheat and four of species intended for green manure. UNAIC's work has directly benefitted 40 farming families and indirectly helped a significant number of other farming families, settlers under agrarian reform, quilombolas and other traditional communities that have acquired the Creole seeds produced and commercialized by UNAIC.

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