



Implementing international agreements to conserve agrobiodiversity: Lessons from five countries

We must conserve agricultural biodiversity: to increase global food production, to adapt agriculture to climate change, and to deal with additional, as yet unknown, challenges in the future. The international community has committed itself to do this through various international agreements and treaties: the Convention on Biological Diversity (CBD), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and the Global Plan of Action for Animal Genetic Resources and the accompanying Interlaken Declaration in the implementation of this plan. By signing these three agreements, member states undertake to implement them in their national laws and to design policies accordingly.

This brief examines how far this has happened using the examples of Brazil, Peru, Ethiopia, India and China.

Importance of the selected countries for agrobiodiversity

All five countries are major centres of biodiversity. Peru, Ethiopia, India and China are centres of origin and hotspots of globally important food crops. They have a long history of domestication and breeding of agricultural crops and livestock. Brazil is a centre of biodiversity of global importance and also home to important agricultural crops.

All five countries are suffering huge losses of agrobiodiversity. For example, in the 1950s China had about 46,000 varieties of rice; just half a century later there were only about 1,000 varieties. Similar developments have occurred in wheat and maize.

All the countries studied have ratified the Convention on Biological Diversity and the Interlaken Declaration. All except China are also signatories to the International Seed Treaty, as the International Treaty on Plant Genetic Resources for Food and Agriculture is often called (*see also*

Overview: Selected countries and their agrobiodiversity

Country	Characteristics
Brazil	Recent breeding for agricultural use; long tradition in use of wild plants Origin of natural rubber, Brazil nut, guarana, pineapple and cashew.
China	Agrobiodiversity hotspot with about 10,000 different food plants Domestication of camels, horses, cattle, buffaloes, yaks, donkeys, sheep and goats.
Ethiopia	Hotspot of coffee, teff, barley, peas and forage crops Domestication of camels, cattle, donkeys, horses, sheep and goats.
India	Hotspot of rice, millet, wheat, barley, various vegetables and fruit crops Domestication of camels, cattle, horses, buffaloes, yaks, sheep, goats and pigs.
Peru	Hotspot of potatoes, sweet potatoes and maize Domestication of llamas, alpacas and guinea pigs.

the issue paper in this series “The International Treaty on Plant Genetic Resources for Food and Agriculture – Status of Implementation”.

Survey results

National legislation and agrobiodiversity conservation

In all five countries, the conservation of agrobiodiversity is mainly in the hands of small farmers and indigenous communities. All the countries except China formally recognize through legislation the role of local communities in the conservation and management of agrobiodiversity. In China this role falls to the state, though here too there have recently been signs of change.

All countries have undertaken significant efforts to translate their international obligations into national law and policies. The focus has been on the Convention on Biological Diversity, followed at some distance by the International Seed Treaty. The impact of the Interlaken Declaration is not yet visible. This weighting means that agrobiodiversity is mostly treated as a component of general biodiversity, and that plant genetic resources receive more attention than livestock.

Farmers' Rights

The International Seed Treaty lays down the rights of farmers. These include the rights to retain their own seed, sow it, exchange it with others, and to sell it. The treaty also protects farmers' associated traditional knowledge, and guarantees their right to participate in all decisions affecting the conservation and sustainable use of plant genetic resources. Last but not least, farmers have a right to a fair share of the benefits arising from the use of local genetic resources and the associated traditional knowledge. All the countries except China have passed laws providing for the equitable sharing of benefits from access to and use of agrobiodiversity and indigenous knowledge. But corresponding rules for implementation are still rare, and farmers have yet to see real benefits (see Box 1).

All the countries except Brazil have laws to allow farmers to sow their seed, exchange it with others, and sell it. In practice even in Brazil this right is not questioned; on the contrary, the government supports the farmers' position. In India and Ethiopia, however, implementation is hampered by high technical standards for the sale of seed.

Laws in Peru and Ethiopia regulate the participation of farmers and local communities in decision-making, but implementing these laws has proven difficult. In Peru, the main reason for this lies in the lack of institutions with sufficient legitimacy to represent the numerous indigenous communities. In Ethiopia, the state claims the right to act on behalf of the farmers.

Ethiopia: Teff Agreement

An agreement for the use of genetic resources of teff was signed in 2004 by three parties: the Ethiopian Institute of Biodiversity Conservation (IBC), responsible for access and benefit sharing, the Ethiopian Agricultural Research Organization (EARO), and a Dutch company. The agreement stipulates that new teff varieties that the company breeds will belong to the company and EARO jointly. Varieties not bred by the company belong to the IBC as a representative of farming communities. The company will share the associated knowledge and technologies with the IBC and EARO, and will share the royalties with them. In addition, the company will pay five percent of the net profits from the teff operations into a fund to improve the living conditions of farmers and the teff sector. Except for an advance payment to the national partners, however, by 2009 this agreement had produced no significant benefits for Ethiopia's farmers.

Conservation and sustainable use of agrobiodiversity

All five countries have legislation to protect natural biodiversity by establishing new sites and expanding existing sites. Such locations also are home to some wild relatives of agricultural crops. However, the management of these areas faces various challenges: staff with limited training, inadequate financial resources and equipment, and a lack of coordination. This is especially the case in poorer countries.

All five countries have initiatives to promote the sustainable use of agrobiodiversity. Special campaigns aim to raise consumers' awareness that local products and dishes are part of the national cuisine and cultural heritage. New products are being developed from local varieties, and the quality of existing local products is being improved so they can be promoted in national and international markets. These initiatives aim to create incentives for farmers to continue to grow local varieties. Other efforts promote ecotourism as an additional source of income for small-scale farmers who maintain traditional varieties and knowledge. In some countries, local communities are increasingly involved in the management of natural resources. That results in improved management of wild or semi-wild relatives of crop species.

Brazil promotes agricultural biodiversity indirectly but effectively through nutrition programmes. The Family

Farm Food Acquisition Programme (PAA) and the National School Meals Programme (PNAE) buy food from small-scale farmers to supply to government offices, hospitals, schools and kindergartens. Both programmes thereby expand the market for local foodstuffs, so providing incentives for small farmers to continue growing their traditional varieties.

In-situ conservation

Both the Convention on Biological Diversity and the International Seed Treaty promote the *in-situ* conservation of agricultural genetic resources. In Ethiopia and Peru this is done mainly through individual projects: participatory breeding programmes, rural or community seed banks, seed fairs, the reintroduction of local varieties that have disappeared, and the training of farmers on the conservation of old varieties. Farmers cooperate with national and international agricultural research centres such as the International Center for Tropical Agriculture (CIAT) and the International Potato Research Center (CIP). This provides an opportunity to improve considerably *in-situ* conservation and to reintroduce forgotten varieties into farmers' fields.

To conserve agrobiodiversity *in situ*, India and China have established entire eco-zones and agrobiodiversity zones, as well as special conservation areas for the wild relatives of crops and medicinal plants. For example, the Tura Range in the Garo Hills district in the eastern Indian state of Meghalaya has been declared a conservation zone for the many wild relatives of citrus and banana growing there. Other efforts promote the cultivation of medicinal plants in order to reduce pressure on wild stocks, which still accounts for most medicinal plants harvested. China maintains a network of farms and protected areas to conserve livestock breeds (see Box 2).

Conclusions

Considerable efforts have been made to translate international obligations to conserve biodiversity into national laws and policies. The focus has been on conserving natural biodiversity and plant genetic resources. Less importance has been attached to the conservation of agrobiodiversity and (especially) animal genetic resources. The first step must now be followed by a second further, more intensive measures to reduce the loss of agricultural genetic resources. The practical implementation of legal provisions is constrained by a lack of awareness, a shortage of resources, and limited capacity. There is a lack of coordination among ministries, the private sector and civil socie-



China relies on government-run farms to maintain local breeds of livestock.

China: In-situ conservation of livestock

During its Eighth Five-Year Plan from 1991 to 1995, China established 83 state breeding farms, and set up farms to conserve high-potential indigenous breeds. In addition, provincial, prefectural and district administrations created further breeding farms and special protection zones in the areas of origin of indigenous breeds. Local institutions implement conservation programmes; important elements include herd-book registration, performance testing, a ban on cross-breeding and inbreeding, and rules for effective breeding. Between 1996 and 2001, 26 breeds were officially evaluated and formally approved.

ty. Concepts are needed to create value for diversity, craft incentives for conserving it, share benefits, and ensure the rights of farmers. Despite these shortcomings, individual countries have significant experience and have developed innovative approaches that can inspire future initiatives.

Recommendations for development cooperation

Development cooperation can help countries conserve their agricultural biodiversity, especially by strengthening and expanding existing mechanisms and supporting international information exchange:

- With their international networks, development agencies are ideally placed to promote the conservation of agrobiodiversity through the South-South dissemination of experience and good-practice examples, and to strengthen developing countries' capacities in international negotiations.
- To use limited resources efficiently, coordination is necessary among relevant ministries, including agriculture, forestry, environment, trade and tourism, as well as



Producer markets like this one in Peru reveal the quality of local seed types. They give producers an incentive to maintain and further develop their varieties.

among the government, the private sector, civil society and small-scale farmers.

- To conserve agrobiodiversity, it is vital to strengthen the institutions and capacities of the government, the private sector, civil society and (particularly) farmers. Proven initiatives include participatory breeding programmes and the promotion of local products, which can be fostered by development cooperation.
- Support for producers and the private sector along the value chain has led to promising results. This approach needs to be further developed and expanded. The same is true for proposed mechanisms to allocate costs and benefits.
- The conservation of livestock genetic resources must receive greater attention, as must states' obligations under the Interlaken Declaration.

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