Briefing Note

Agrobiodiversity

The background

Since the beginnings of agriculture over ten thousand years ago, farmers have bred crop plants and domesticated animals, while creating highly developed land-use systems. In this way, over the course of time more than 10,000 plant species have yielded a wealth of crop varieties adapted to special conditions and needs. Similar developments took place in the domestication and breeding of livestock. In the past 12,000 years more than 5,600 breeds of livestock have been obtained from more than 40 animal species. In parallel with this diversity, an extensive body of knowledge grew up on how it can be protected, utilised, and enhanced by breeding. This was inextricably linked with the emergence of a vast cultural diversity.

Since the beginning of the 20th century, agricultural diversity in industrialised countries has been in rapid decline; more recently, however, progress has been made in slowing down this trend. Today genetic erosion is mainly taking place in developing countries. In China, for example, 10,000 local wheat varieties were still in cultivation in 1949. Today there are fewer than a thousand. In other words, in half a century 90% of native wheat varieties have been suppressed from cultivation. Many regions of high biodiversity are threatened by the rapid decline in agricultural genetic diversity in the developing world. This will also have impacts on industrialised countries because the gene pool hosted by developing countries is existential for meeting humanity's future requirements, which include adapting agriculture to climate change, for example, or ensuring food security.

The causes of the dramatic loss of biodiversity in agriculture are complex and multifaceted. Structural changes within agriculture and the intensification of farming practices are the most significant factors. The lack of economic incentives or the effects of perverse incentives also exert a major influence on the loss of biodiversity in agriculture. For example, the introduction of high-yielding varieties or the spread of broad-scale monocultures often attract subsidies. In contrast, broad support is almost nowhere to be found for the breeding of improved, locally adapted crops and livestock or for the marketing of products that help to conserve agrobiodiversity.

Genetically modified varieties can represent another risk to biodiversity in agriculture. What effects genetically modified organisms have on biodiversity is a matter of dispute among scientists, however. This applies particularly to the questions of whether they pose a risk and what damage they cause.

While genetically modified varieties have made high-intensity agricultural production more profitable in some instances, they have also hastened the spread of monocultures, suppressed biodiversity and thus impoverished the food supply. Finally, genetic engineering has contributed decisively to the concentration of firms in the seed industry. This trend puts farmers in a position of dependence and imposes genetic uniformity on agricultural production.

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International agreements regulate the treatment of biodiversity in general, and the specific treatment of agrobiodiversity.

The Convention on Biological Diversity (CBD) grants the Contracting Parties rights to the biological resources in their own countries and, at the same time, obliges them to conserve these. The Cartagena Protocol on Biosafety is designed to address the risks of genetic engineering. It is a supplementary agreement to the Convention on Biological Diversity.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is one of the standard agreements signed by a country on acceding to the World Trade Organization (WTO). It permits the patenting of plants and animals, with the exception of biological processes and living organisms.

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) obliges member countries to conserve agricultural diversity. They must ensure that seed and plant material can be freely exchanged, and recognise farmers as the custodians and users of genetic diversity. Thus, the ITPGRFA enshrines the concept of Farmers' Rights for the first time.

Germany and most developing countries have signed the agreements and have thereby made a commitment to implement them.

Our position

In this context, GIZ takes the following positions:

1. Agrobiodiversity is important for food security

European history has shown how risky it can be to rely on just a few varieties of crops. For example, the prime reason that potato blight (*Phytophtora infestans*) spread with such ease in the 1840s was that all European potatoes were derived from just two varieties. This narrow genetic base led to the Irish potato famine which resulted in the starvation of more than a million people and mass emigration.

At the beginning of the twenty-first century we are equally if not more dependent on agricultural diversity. We need it for the sake of food security, above all for people in developing countries.

Of the billion people suffering from hunger worldwide, four out of five live in rural areas. In the main, they are farmers and livestock breeders. Despite living in environmental conditions which are often challenging, their livelihoods are secured by a great diversity of local crop varieties and locally adapted animal breeds. This diversity enables them to produce with a minimum of agricultural inputs such as fertilisers, pesticides or irrigation. Hunger and poverty can only be beaten by putting farmers in a position to farm successfully in these conditions and to make better and more sustainable use of the scant resources available to them.

Foodstuffs are becoming scarce commodities globally and food prices are rising. The global potential for any further expansion of land use for agricultural production is very limited. However, further intensification of production on favourable agricultural sites is not sufficient to solve the problem of the increasing scarcity of food. Therefore it is necessary to utilise the great potential of agrobiodiversity, and to harness it especially for the benefit of the world's ecologically disadvantaged regions.

2. Agrobiodiversity helps with adaptation to climate change

Global warming is expected to have drastic consequences for agriculture and food security, although these will vary substantially from one region to another. In the adaptation of agriculture to climate change, agrobiodiversity takes on a new significance as 'risk insurance' for the future. The genetic diversity of plants and animals gives them the capacity to withstand higher temperatures or greater aridity more successfully.

Our recommended actions

Conservation and sustainable use of agrobiodiversity safeguards the food supply and preserves rural habitats. International cooperation can contribute to the harmonisation of international regulatory frameworks and promote the shaping of appropriate national framework conditions.

GIZ considers the following the most important recommendations for action:

1. Intensify the international policy dialogue

Efforts should be made to step up cooperation between the United Nations Environment Programme (UNEP), which is responsible for the CBD, and the Food and Agriculture Organization of the United Nations (FAO) which has responsibility for the ITPGRFA. Beyond this, civil society should be involved more in the international negotiations on the implementation of the IT-PGRFA.

In view of the great development-policy significance of Farmers' Rights worldwide, the IT-PGRFA Secretariat should devote greater attention to this aspect. National implementation of Farmers' Rights should be supported by the Contracting Parties.

2. Support partner countries

Many developing countries lack expertise on the linkages between biodiversity conservation, food security and poverty reduction. The need for advisory work in this area is considerable. An important aspect in most partner countries is the legislation on patenting and protecting plant varieties. It must be drafted in such a way as to permit traditional seed propagation and seed exchange practices and to safeguard traditional knowledge. International cooperation can advise the partner countries on utilising the provisions of the TRIPS Agreement for achieving these aims. A further issue is the unintentional contamination of existing biodiversity with genetically modified organisms. Here international cooperation's advisory work can contribute to maintaining diversity.

3. Promote marketing

As yet far too little of the potential of agrobiodiversity is utilised. This can be changed by opening up new markets (e.g. with high-quality, locally made products with protected geographical provenance labels or organic certification). Steps should be taken to ensure that such trade complies adequately with the provisions of the CBD on equitable benefit-sharing. The same applies to the provisions on Farmers' Rights set out in the IT-PGRFA. It is also important to eliminate barriers to trade, since facilitating marketing is another way of promoting sustainable use.

Standards are helpful in the marketing of agrobiodiversity products. Criteria, accreditation procedures and certification systems should therefore be developed to ensure the sustainable use of agrobiodiversity and to regulate the international trade in agricultural raw materials and foodstuffs.

4. Set up funds for financing

An important incentive would be created by setting up national development funds to support those farmers who are investing in the conservation and use of agrobiodiversity. Such funds could be used to support programmes for the production and marketing of biodiversity products. This would generate added value.

5. Conserve seed and promote research

Local and municipal initiatives including village gene banks play a key role in the conservation of agricultural diversity. International cooperation can support such initiatives.

More research is necessary on the adaptation of crops and livestock to climate change. The same is true of the systematic use of agrogenetic resources for the intensification of agriculture, on marginal sites in particular.


6. Train experts and raise public awareness

Capacity building of local experts should be made a priority theme of international cooperation. The main emphasis should be on creating an understanding of what agrobiodiversity is, why it is important, and how Farmers' Rights are relevant. A similar approach is required to raise the awareness of the public at large

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