BIODIV

Issue Papers

Agrobiodiversity

Genetic resources for food and agriculture

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Agrobiodiversity

Agricultural biological diversity – or agrobiodiversity for short – includes all components of biological diversity of relevance to food and agriculture and all components of biological diversity that contribute to sustaining the key functions of agro-ecosystems. It follows that agrobiodiversity has two levels:

(1) Genetic resources for food and agriculture: This encompasses all cultivated and domesticated species, including their wild relatives and managed stocks of wild animals and plants. (2) Components of agrobiodiversity that provide ecological services: This includes, for instance, beneficial organisms that control pests, soil organisms that process nutrients for crop plants, pollinators, and plants that contribute to controlling erosion or stabilizing the water balance.

Agrobiodiversity is the outcome of thousands of years of effort by farmers in selection and breeding, and in developing appropriate production systems and methods. Plant and animal genetic resources are the source material for the further development of crop varieties and animal breeds by farmers and breeders. The small farmers of Africa, Asia and Latin America – and above all the women, who are responsible for the greater part of food production in these countries – are particularly dependent upon the diversity of genetic resources. A rich diversity of native plant varieties and locally adapted animal breeds secures these farmers' survival in the face of difficult climatic conditions and marginal locations, e.g. in arid or upland regions. Traditional genetic resources can be utilized with minimum agricultural input, have quality characteristics that correspond to needs and, in addition, often play an important role in the culture of the rural population. Greater genetic diversity also contributes to reducing climatic and disease-related risks.

Despite its benefits, agriculturally utilized biodiversity is declining rapidly in developing countries. This has many causes. More than 2,000 farm animal breeds are threatened with extinction. It is thought that the diversity of crop varieties has declined by 75 percent since the middle of the 19th century. This poses a considerable threat to future global food supply.

International recognition of the importance of agrobiodiversity

Since 1992, **Agenda 21** and the **Convention on Biological Diversity** (CBD) have set the social and legal framework for the sustainable use and conservation of biological diversity. Within the CBD process, the topic of agrobiodiversity was addressed for the first time at the 3rd session of the Conference of the Parties to the Convention (COP3) in 1996. It was then specified within a work programme further developed at COP5. Here the focus is placed upon the ecological services of agrobiodiversity and the impacts of agricultural cropping systems and methods upon biological diversity.

For the main food and fodder crops worldwide, the issues of access to and exchange of plant genetic resources for food and agriculture and of the associated benefit-sharing will be regulated by the **International Treaty on Plant Genetic Resources for Food and Agriculture**, adopted by the FAO Conference in November 2001. It is a result of an intensive effort to revise the **International Undertaking on Plant Genetic Resources** (IU), a FAO agreement of 1983 and to harmonize it with the CBD. The key element will be a multilateral system that – supplementing CBD provisions – regulates the access to and exchange of plant genetic resources for food and agriculture.

Where animal genetic resources are concerned, the debate on regulating access and exchange is only just beginning. To address the key issues of conservation and sustainable use, the FAO adopted in 1998 a **Global Strategy for Animal Genetic Resources**. This is being implemented within the context of an international programme.

The **WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement** prescribes in Article 27.3b that member states must introduce patent rights or other intellectual property rights to plant varieties. The option of introducing *sui generis* systems under TRIPS makes it possible to

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adopt variety protection pursuant to UPOV (International Union for the Protection of New Varieties) or to design individual systems of protection. Such systems could, for instance, permit farmers explicitly to re-sow protected seed on their fields, or could give protection to traditional knowledge associated with the use of the resources. In the same way, *sui generis* systems can also be developed for the protection of farm and domestic animal breeds.

Biodiversity and the Convention on Biodiversity

The term "biological diversity", or short "biodiversity", encompasses the diversity of life on earth, ranging from genetic diversity and diversity of species to the diversity of ecosystems. The Convention on Biodiversity adopted in Rio de Janeiro in 1992 comprises three elements: the conservation of biological diversity, its sustainable use and the equitable distribution of benefits arising from its use. In the meantime, 179 countries and the European Union have joined the Convention. By signing the Convention, Germany has agreed not only to conserve biodiversity on its own territory but also to support developing countries in implementing necessary measures.

The contribution of the sectoral project "Managing Agrobiodiversity in Rural Areas" (AGROBIODIV)

The AGROBIODIV project develops concepts and strategies that contribute to reducing the loss of genetic resources for food and agriculture over the long term. At the same time, the project helps raise public awareness of the importance of the diversity of plant varieties and animal breeds for self-reliant food security and thus for poverty reduction. Decision-makers in the developing countries and the German development cooperation arena are supplied with the information needed for the policy debate. Project partners are given advice on the implementation of international agreements and plans of action at the regional, national and local levels for the benefit of the affected sections of the population. The services provided by the project include assignments of personnel to provide conceptual advice, the implementation of pilot measures, and the provision of support in organizing workshops and forums and gaining third-party funding.

Thus, for instance, the AGROBIODIV project supported in 2001 two workshops primarily targeting political decision-makers in southern Africa on "Community based management of animal genetic resources" and "Incentive measures for the sustainable use conservation and of agrobiodiversity".

Furthermore, the project provides advice on the valorization of under-utilized crop varieties (e.g. Peru Balsam in El Salvador) and domestic animal breeds (e.g. Nguni cattle in southern Africa); this includes the promotion of partnerships with the private sector. A further important area is supporting partner countries to develop policies, programmes and strategies in the sphere of agrobiodiversity.

Need for action

- The international resolutions and regulations on agrobiodiversity need to be translated at national level into laws, policies and implementing activities. In this, it is important to facilitate coherence among the various sectors, e.g. environment, agriculture and trade, and their promotion approaches.
- Identification and removal or reduction of constraining factors such as one-sided promotion of low-biodiversity, input-intensive agriculture, particularly at inappropriate locations.
- Creation of incentive mechanisms (such as identification of new products and markets, introduction of suportive policies) for conserving biological diversity in agriculture.
- Capacity building:
  - Policy advice and legislation
  - Capacity building in governmental and non-governmental institutions
  - supporting farmers in conserving and utilizing their genetic resources
- Public information and awareness-raising

Further information

Agrobiodiversity in the CBD process:
http://www.biodiv.org/programmes/areas/agro

Information on the IT/IU and ITWG-AnGR:
http://www.fao.org/WAICENT/FAOINFO/AGRICULT/cgrfa/default.htm
http://www.fao.org/ag/cgrfa/AnGR.htm

Information on TRIPS:
http://www.wto.org/english/tratop_e/trips_e/trips_e.htm

Critical monitoring of the IT/IU and TRIPS negotiating processes, with numerous links:
http://www.ukabc.org/iu2.htm
http://www.grain.org

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