Incentive Measures

for the Conservation of Agrobiodiversity

Improved access to local and national markets can be an incentive to the sustainable use of biological diversity, as it has a direct effect on the family's income. Photo: Conny Almekinders

Today it is quite normal for spaghetti and macaroni to be made from home-grown durum wheat in some regions of central Ethiopia. Even just a few years ago, the raw material for producing the pasta still had to be imported. The story behind this is first the decline then the successful saving of an important indigenous cereal crop.

Central Ethiopia is the home of many varieties of barley and durum wheat. However, during the last two decades of the previous century they were increasingly displaced by higher-yielding varieties of common wheat. These, though, are nowhere near as well adapted to the soil and climate conditions as their predecessors and, besides, are considerably more susceptible to plant diseases. Food security for local families was under threat. By the time the farmers realised this, it was almost too late. The old varieties had disappeared, and there was virtually no seed stock to be found.

Old varieties rediscovered

Communal seed banks offered a way out of the crisis. As well as receiving the old varieties of durum wheat that had been collected decades earlier and kept in central storage, the farmers were reacquainted with the knowledge that had been lost. It had become apparent that only farmers over the age of 50 were still familiar with the old varieties and knew how to cultivate them. The seed banks are managed by elderly men and women in the respective villages, and these people are also responsible for selecting and propagating the seed stock in collaboration with scientists.

What are incentive measures?

The terms "incentive" and "incentive measure" were brought into the debate in connection with the Convention on Biological Diversity (CBD, 1992). Article 11 of the Convention encourages all signatory states to adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

At the Third Meeting of the Conference of the Parties (COP 3) in 1996, a document (COP 3, 24) was produced that contained a definition of incentive measures. It states that such measures are specific inducements designed and implemented to influence government bodies, business, non-governmental organisations or local people to conserve biological diversity or to use its components in a sustainable manner. The intention behind this is to change the behaviour of individuals and institutions in such a way that this objective is actually achieved.

The marketing of durum wheat is also handled centrally via the seed banks. As a result, the farmers are able to obtain respectable prices. This fact and the secure supply of seed at the local level, along with having the broad range of cultivars available again, are strong incentives for the farmers to preserve the old varieties and to develop them further on a voluntary basis.

Diversity must provide benefits

When it comes to preserving diversity out in the fields and in the livestock pens, farmers have a key role to play. It is they who decide which species and breeds of animal they will rear and which crops and varieties they will grow. The precondition for their choice is that they will obtain a benefit, for example more grain, greater food security or better wool. This has been the case for millennia. In recent decades, though, the industrialisation of agriculture has speeded up dramatically. This accelerating

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On behalf of Federal Ministry for Economic Cooperation and Development

Small-scale producers in Bolivia enter the market with an assorted selection of native potato varieties, benefiting directly from their local diversity. Photo: Conny Almekinders

tendency is re-inforced by increasing global competition and structural changes in agriculture itself. The result is a trend that leads to concentration on an ever smaller number of commercially viable high-yielding varieties and breeds that displace traditional crop plants and agricultural animals to an ever greater extent. If the old varieties and breeds are to be prevented from disappearing, incentives are needed which make them attractive to farmers again.

This is because, for an individual farmer, "biological diversity" and "agro-biological diversity" are abstract terms in which he or she at first glance sees no tangible value. In fact, though, the diversity of cultivated plants and domesticated animal breeds is fundamental to food security. It is precisely the poorest people, living in marginal areas, who depend for their survival on plants and animals that still produce a yield even under the least favourable climatic conditions, for example extreme aridity. For individuals working on the land, however, this is not easy to appreciate without further explanation if they themselves enjoy no direct benefit. Incentives therefore have a major role to play when it comes to motivating farmers to engage in the conservation of agro-biological diversity. At the same time, though, consumers, politicians, scientists, agricultural extension officers and seed producers have to play their part too if the outcome is to be successful.

The table below shows which measures – positive or negative – motivate or demotivate farmers in this connection.

Types of incentive	**Positive incentives:** These encourage activities at an economic, statutory or institutional level that are conducive to agrobiodiversity.	**Negative incentives:** These lead to unsustainable behaviour at the expense of agrobiodiversity.
Direct incentives: These strengthen the actors directly, enabling them to utilise and conserve agrobiodiversity. Conversely they are directly discouraged by negative incentives and negative influences of counterproductive incentives.	**Economic** • Direct payments for sowing local varieties • Subsidised market prices • Access to loans when growing local varieties • Promotion of the growing and sale of (for example) indigenous vegetables (semi-wild varieties) through state subsidies or support from development cooperation projects **Non-economic** • (Public) recognition for the conservation of diversity • Greater availability of and easier access to seeds of local varieties (through participatory plant breeding, seed markets) • Training (e.g. in integrated plant protection) and education	**Economic** • Lower market prices for small quantities, for less uniformity or lower quality • Subsidies for modern varieties **Non-economic** • Restricted access to local varieties preserved in gene banks • If the marketing of local/non-registered varieties is illegal • If local varieties are not accepted by - buyers - processors because of their heterogeneity or because they are too few
Indirect incentives: These lead to changes in an actor's agro-ecological and socio-economic environment, which in turn has an impact on the use and conservation of biodiversity.	• Legislation which allows farmers to sell seeds of local varieties • Establishment of production chains for diversity products in the food sector: - Processing - Labelling - Joint marketing	• If the extension services promote monocultures and high-input agriculture • Promotion of export crops/cash crops to the detriment of food plants • If access to loans is tied to the use of modern varieties

The success of incentive systems stands and falls with their acceptance by farmers. It therefore follows that the incentives must be tailored to farmers' wishes and interests. Whatever the case, advantages are achieved through:

- new knowledge, for example knowledge of new processing techniques or the development of new products
- improved access to markets
- increases in yield
- cost reduction
- prices.

This is illustrated by the experience gathered to date by the British Overseas Development Institute (ODI) with the project co-financed by GTZ, *Options for Supporting On-farm Conservation in Eastern and Southern Africa* (www.odi.org.uk/rpeg/research/natural_resources/Index.html; www.africanfarmdiversity.net).

Cattle markets are a place where information is exchanged, so they are perfect for promoting awareness of biodiversity conservation.
Photo: Ilse Köhler-Rollefson

Attractive competition – seed and livestock markets

Access to information, capacity development and social recognition are factors that should not be underestimated as incentives for farmers to conserve the diversity of species. One example of a suitable means of bringing these factors into play is seed and livestock markets, at which diversity competitions take place at the same time. A side-effect of such markets is that they attract the attention of both farmers and visitors to the beauty and importance of the diversity of plants and animals in agriculture.

A more significant aspect, however, is that at these public events farmers receive recognition and praise for their work, both of which are non-economic incentives that substantially contribute to the success of the markets and the successful conservation of agrobiodiversity. In addition, the farmers with the greatest diversity are often also in line for cash prizes, thus giving them a direct economic incentive that makes their work worthwhile.

Furthermore, seed and livestock markets stimulate the exchange of information and products not only among farmers but also between farmers and scientists.

The surrounding economy also needs incentives

The service sector itself also needs incentives to enable it to provide effective support to farmers in the exploitation of agro-biological diversity. For example, it is barely worthwhile for a seed company to produce and market seeds from local varieties of bambara nut originating from West Africa. A subsidy from the agriculture or environment ministry could change that. In so doing, the ministry could also simultaneously fulfil its obligation under the Convention on Biological Diversity. Moreover, if the outcome of such a step is greater food security on the ground, then the incentive measure will have paid off.

Similarly, in the processing sector too, appropriate incentives can pave the way for the conservation of agrobiodiversity. As a rule, smallholders harvest only small quantities of grain, and to make things yet more difficult, even these are highly heterogeneous. It is therefore difficult for them to find a mill to process the grain. State-guaranteed fixed prices for this grain or subsidies could encourage a mill to purchase machines which can be used to process such small, non-uniform batches of grain.

Rising demand and, in turn, rising sales are likewise incentives to conserve diversity. But first of all, it is often necessary to run public awareness-raising campaigns among people with purchasing power, advertising the local product and its advantages. This is what happened in Peru, for example. There, sales of quinoa were successfully expanded following an information campaign spreading the word about its nutritional value.

Successful incentive systems can be planned

Experience gained in recent years has shown that promotional measures targeted at conserving agricultural biodiversity are always successful whenever certain basic rules are observed. These rules include:

- **Integrated project approach**

  In this connection, project activities designed to promote the utilisation and conservation of diversity are placed in a broader context.

The range of incentive measures is directed both towards the organisational development of farmers, traders and the seed industry and to the provision of technical support to them.

- **Effective working relationships with the farmers**

  Sufficient time and resources must be available in order to find out the interests of the farmers, because it is they who are the key players in the conservation and use of biodiversity.

- **Group work**

  This is greatly valued by farmers; farmers' meetings, the determination of group objectives and institution building all improve results.

- **Short funding paths and a clear role model**

  The successful projects spent a great deal of time and resources on coming to an understanding with the relevant interest groups: they obtained political backing, made sure that they had support from the service sector, and consulted with the world of trade and commerce.

In parallel, there are a series of other factors that promote the sustainable use and conservation of biodiversity on farmers' fields and pastures and in their sheds and stables:

- popularity of the project among the farmers
- market-related, reliable incentive measures
- constantly accessible funding (if required) – which means via marketing agreements with industry or through membership dues instead of via financiers
- economic integration, which in the long term is the responsibility of a reliable local institution.

Eliminating negative incentives

To achieve success, though, it is also important that negative incentives should be eliminated, for example the promotion of breeding programmes for exotic breeds which crowd out indigenous breeds. No additional money is needed for this, but instead normally only political will and the ability to assert oneself over the stakeholders concerned.

In the public service sector, non-economic incentives can have a great impact on breeders, researchers and extension officers. They create the conditions under which services are oriented more towards the needs of the farmers and the requirements of agrobiodiversity. A sensible, professionally designed incentive system that is geared to success in the field and does not depend on the number of reports and scientific articles generated may be an effective example. In order to gain the support of political decision-makers and representatives of donor organisations, a joint village visit helps achieve the desired outcome. An exchange of experience with farmers and the drawing of attention to the beauty and importance of agricultural biodiversity have proven to be highly fruitful.

The identification of farmers with their products and the public recognition that this brings are an important incentive for the conservation of biological diversity. Photo: FAO

The Issue Paper series "People, Food and Biodiversity" aims to:

- stimulate an interest in the conservation and sustainable use of biological diversity,
- present quickly and clearly concrete actions and experiences,
- explain new concepts and issues relating to the topic of biological diversity,
- encourage and stimulate the mainstreaming of this topic within development cooperation projects and programmes.

We look forward to your suggestions and experiences so as to enable us to improve this series.

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