Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

THE BENEFIT-SHARING FUND

Crop diversity for food security

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The Benefit-sharing Fund operates under the International Treaty on Plant Genetic Resources for Food and Agriculture. The genetic resources of our most important food crops – the "life insurance" for our food production – are managed by governments according to the provisions of the International Treaty. The Benefit-sharing Fund provides funding to conserve and develop these crop genetic resources in cooperation with farmers, assisting farming communities in developing countries improve food security by helping them cope with climate change and other threats to food production. Recent UN reports on climate change show that crop genetic resources can play a vital role in creating a more climate-resilient agriculture.

What is the Benefit-sharing Fund?

The Benefit-sharing Fund (BSF) is a Fund established under the International Treaty to support projects that manage plant genetic resources for food and agriculture (PGRFA) for the benefit of farmers in developing countries. Activities supported by this Fund include conservation, characterization and development of these crop genetic resources and making them available for farmers to improve their livelihoods and increase food-security.

Such crop genetic resources are the hereditary basis for the diversity and variation in agricultural crops. Genetic diversity allows for apples that taste and look differently and for rice varieties that can grow in totally different environments. This diversity also provides a kind of "life insurance" for our food crops by ensuring that some plants are more likely to survive threats from insects, plant diseases and climate change than others. PGRFA is also an important factor in efforts to increase crop yields and, thereby, food production. With a growing world population and increasing competition for land, the importance of crop genetic resources for sustainable food security is bound to increase in the coming decades.

The Governing Body of the International Treaty has established three basic priorities for the Fund, and for the Treaty's Funding Strategy in general:[1]

1. Information exchange, technology transfer and capacity-building;
2. Managing and conserving plant genetic resources on-farm; and
3. Sustainable use of plant genetic resources.

To be eligible for support from the Fund, project proposals must be submitted by any governmental or non-governmental organization, including genebanks and research institutions, farmers and farmers' organizations, and regional and international organizations, based in developing countries that are Contracting Parties to the International Treaty. Projects must address one or more of the three afore-mentioned priorities, and meet the overall objectives of the International Treaty.

1 For more details see chapter 3.3 in http://www.planttreaty.org/sites/default/files/edm3_full_en.pdf

The International Treaty and the Benefit-sharing Fund in times of climate change

The 2014 report of the Intergovernmental Panel on Climate Change (IPCC) explores risks for humanity in the coming decades, and notes the "risk of food insecurity and the breakdown of food systems linked to warming, drought, flooding, and precipitation variability and extremes, particularly for poorer populations in urban and rural settings".[2] Poor populations in developing countries will be most affected. However, the IPCC report also discusses the significant potential for reducing risks to food security by taking climate adaptation measures, such as the development and use of stress-tolerant crop varieties. If stronger adaptation measures are implemented, the expected risk level for food security in Africa can be reduced from "high" to "low–medium" in the coming decades.

Climate-resilient crop varieties will not appear automatically. Crop genetic resources – the raw material for adaptation – must be conserved, developed and made available. The International Treaty makes this possible.

In addition to providing benefits directly to farmers through projects where crop genetic resources are conserved and managed for food security, the Treaty also provides the international legal framework for managing genetic resources of agricultural crops worldwide by establishing the basic rules for managing the agrobiodiversity that underpins production of our most important food crops. This is done through provisions for conservation of, access to and use of these resources, as well as for the sharing of benefits when commercial products are developed from them. In other words, in addition to efforts for *in-situ*

2 See IPCC report http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf

conservation under the Benefit-sharing Fund projects, the Treaty also provides an important framework for *ex-situ* collections around the world, including the Svalbard Global Seed Vault, as well as for the Global Crop Diversity Trust.

Activities supported through the Fund have increasingly focused on enabling farmers to face climate change. For example, the projects funded have helped identify rice varieties with high drought tolerance in India, drought-tolerant sorghum in Tanzania and rice with good flood adaptability in Indonesia. Crop genetic resources conserved and lessons learnt through such activities can help adapt agriculture to climate change in the coming decades. The Fund has also supported the development of regional strategic action plans aimed at helping society cope with climate change and reducing risks to food security.[3]

Recent climate events have confirmed the clear relevance of the approach taken by the Fund to focus on supporting crop adaptation in times of change. Because of this the Fund has been officially recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as an option for adaptation funding.[4] The focus on climate-resilient agriculture is continuing under the third project cycle of the Fund now being implemented.

3 See http://www.planttreaty.org/sites/default/files/BSF_2nd_cycle-booklet.pdf for some examples from 2nd cycle of the BSF.
4 http://unfccc.int/adaptation/workstreams/implementing_adaptation/items/4638.php

Activities supported by the Benefit-sharing Fund

The Fund supports activities that ensure that local crop varieties of importance to our food security are preserved, reintroduced, developed and maintained in farmers' fields, so that they remain available to farming communities. The projects funded enable local farming communities to cope with global challenges by supporting activities such as characterizing traditional and wild crop genetic material for their stress resistance levels, selecting and breeding high performing varieties adapted to particular local conditions, making such planting material widely available to farmers, and training farmers and other stakeholders in the conservation and sustainable use of PGRFA. Over the years, more than 700.000 people, most of them farming families, have benefited from these activities.

Utilizing crop diversity in this way creates real opportunities to improve nutrition and creates more sustainable livelihoods in many countries. Furthermore, the resources and knowledge created through such activities are beneficial for food security in general.

The BSF also makes available funding for scientific efforts to identify specific traits and breed new varieties – resulting in crops with higher tolerance for climate change induced stresses, and resistance to increasingly occurring pests and diseases, while at the same time keeping yield and nutrition levels up.

The urgency of the situation and enormity of the challenges facing our world today requires coordinated efforts across disciplines as well as with other relevant funding mechanisms. The Fund also encourages innovative partnerships between research centers, farmers, civil society, public and private sector leaders at all levels.

Since a modest start with a few small-grant projects in 2009, the Benefit—sharing Fund has developed into a more comprehensive program, where more than 10 million US$ is being distributed to 22 projects in the third project cycle. From the second project cycle, food security in particular for local communities in the developing world that stand to suffer the most from the effects of climate change, became an explicit priority of the BSF. The third project cycle continues this and has separate "windows" for respectively 1) Immediate Action Projects enabling farmers to cope with climate change and 2) Co-development and Transfer of Technology, that aim at providing and transferring key technologies which will enable the exchange of value added information about PGRFA, and in particular those technologies that are related to the use of species in the genepool of the Multilateral System.

Countries are interdependent

A central feature of the International Treaty, also in a climate change context, is the Multilateral System that facilitates the exchange of crop genetic material at the global level. Food supply in today's world is to a large extent a result of how humans throughout history have brought crops from one region to new parts of the world. This is why potatoes and maize originating in Latin America are now staple foods in Europe and Africa respectively and why the Asian soybean has become a very important crop in South- and North-America. Crops develop different properties as a response to local climates, pests and other environmental factors where they are grown. Genetic diversity of crops in areas where they first originated is frequently high. If the genetic base for production is too narrow, resilience of food production suffers. This is why Europe had the "potato famines" in the 1840s, after the potato blight wiped out crops that were a staple for millions of people.

The Multilateral System and food security

This is also why access to a broad base of genetic material for food crops is essential. The Multilateral System facilitates access to the crop genetic resources of 64 major food crops accounting for 80 percent of plant-based food globally. Several hundred transactions of such crop genetic material is taking place daily from a pool of 1,9 million accessions.

The importance of such access across borders will increase with climate change affecting food production in the coming decades. Some of the most relevant research on climate-resilient crops are utilizing a wide base of genetic material, two examples being:

- The International Rice Research Institute (IRRI) that is developing drought-tolerant rice varieties which are being released in several Asian countries.[5]
- The International Center for Agricultural Research in Dry Areas (ICARDA) that is developing tools to more effectively "mine" the genetic resources in gene banks for climate resilience as well as resistance to pests and disease. [6]

Results from activities funded by the Benefit-sharing Fund are also expected to benefit the Multilateral System by increasing the pool of crop genetic resources available for research and breeding for future needs.

5 Information of relevant IRRI activities: http://irri.org/our-impact/tackling-climate-change
6 Relevant activities in ICARDA, see http://www.icarda.org/update/identifying-climate-proof-crops

Monitoring and evaluation

Once per year, the Treaty requires detailed program and financial statements, with future disbursements linked to the quality of the recipient's stewardship of the funds and their progress against agreed targets. At any stage of project implementation, the Bureau may consider the suspension or cancellation of a project in cases of mismanagement or poor project implementation. A Terminal Report summarizes key successes, lessons learned and challenges for the future, and includes a financial report.

A terminal independent evaluation of the project portfolio is conducted at the end of the project cycle. Such evaluations must comply with the norms and standards of the United Nations Evaluation Group in assessing achievements and outcomes based on, *inter alia*, visits to the locations of a sample of projects. The evaluation report shall contain findings and recommendations and will be made public through the website of the International Treaty. The evaluation team shall be led by independent experts not involved in the projects of the Benefit-sharing Fund.

How does the Benefit-sharing Fund operate in practice?

The Benefit-sharing Fund is an integral part of the Funding Strategy of the International Treaty, which was adopted by the Governing Body of the Treaty in 2006. The Fund collects and makes available those financial resources under the Funding Strategy that are under direct control of the Governing Body.

The Governing Body of the Treaty decides on the policy framework for the BSF as well as basic principles like eligibility criteria and general priorities. It also elaborates operational procedures for the Fund including procedural guidelines for the project cycle and policies related to conflicts of interests and code of conduct.[7]

In the 2 year cycles between the meetings of the Governing Body, the authority for the execution of the project cycle of the BSF is delegated to the Bureau of the Treaty. The Secretariat of the Treaty is responsible for the daily management of the project cycle in close consultation with the Bureau.

Step by step

The procedures for the operations of the Benefit-sharing Fund are as follows:

The Treaty Bureau announces a "call for proposals", the last one was in 2014. The Treaty then activates its global network to raise awareness and encourage that the highest quality, most innovative and scalable proposals are submitted to the Secretariat.

General priorities for funding as well as criteria for eligibility and selection of projects are set by the Governing Body. With regard to criteria for the selection of projects, these contain a number of elements related to the proposed projects that will have to be considered for each proposal such as project relevance, feasibility, effectiveness and efficiency, benefits and beneficiaries, team composition and capacity, collaboration, planning and monitoring, sustainability, geographic extension and crop relevance.

Proposals are appraised according to eligibility, priorities for funding and selection criteria by an independent panel of experts who reviews, scores and ranks the proposals on their quality and technical merits.[8] The Bureau, based on the appraisal and recommendations made by the panel of experts, approves the projects to be funded. Information is made available to grant-seekers on the Treaty's website and through individual correspondence.

As a subsequent step, the Secretariat establishes a contractual agreement with the executing entities of the approved projects. The agreement and corresponding grant payment schedule is then signed. Working in close collaboration with the Secretariat, National Focal Points and other stakeholders, the primary grant recipient submits regular project updates along with disbursement requests.

The priorities, the eligibility criteria, the criteria for the selection of projects and the steps of the project cycle of the Benefit-sharing Fund are elaborated in more detail in Annexes 1 to 3 of the Funding Strategy. The Secretariat has compiled them in a booklet for easy reference.[9] Some frequently asked questions have also been developed for applicants and regional training workshops organized for pre-selected projects.

7 See http://www.planttreaty.org/content/resolution-22013-implementation-funding-strategy-international-treaty for latest decision on these matters from Governing Body session in 2013.
8 For members of the Panel of experts, see http://www.planttreaty.org/node/2606/
9 ftp://ftp.fao.org/ag/agp/planttreaty/publi/funding_strategy_compilation_en.pdf , see also http://www.planttreaty.org/faq?tid=105

Increased focus on technology development in the third project cycle

The funding of Immediate Action Projects that are meant to enable farmers to cope with climate change and other challenges to food security is continuing in the third cycle. Activities of this cycle include, *inter alia*, community action to conserve local varieties; introduction and testing of new varieties; plant breeding and selection by farmers and rural communities carried out in partnership with professional plant breeders; and the development and promotion of appropriate seed production and dissemination systems.

In the third cycle a new "funding window" on Co-development and Transfer of Technologies has also been opened. Projects under this funding window are meant to help bridge the gap between advanced research and the needs of developing country farmers. In fact, projects focus on key emerging technologies and information resources that could have a strong impact on the livelihoods of farmers, but that have not yet been fully integrated by institutions in developing countries and would therefore generally not be available to farmers today. Examples are technologies and information repositories for the combined use of genomic sequence data and phenotypic data, providing input for improved and more effective use of crop genetic resources to create more resilient food production systems.

Outputs expected from Co-development and Transfer of Technology projects funded through Window 3 include, for example, local varieties properly analyzed for useful traits, use of marker assisted selection systems to facilitate breeding for traits that are important for adaptation to climate change, potentially useful breeding populations developed through crossing with crop wild relatives that have traits useful for adaptation to climate change and new and locally-adapted varieties bred from these populations.

Other outputs could be technologies transferred, co-developed and deployed to support use of bioinformatics tools by beneficiary institutions, resulting in strengthening the capacity of lead developing country institutions and local stakeholders to use information management systems and to conduct integrated data analysis and interpretation of germplasm, genomic and phenotypic data.[10]

Among the 22 approved projects, there are also several multi-country projects which will make it possible to expand the scope and coverage of funded activities and to approach problems that are faced by several countries in a concerted manner, creating the potential for scaling up efforts across agro-ecological zones. The needs of local farmers are the starting point of these projects.

10 More information on the third call on http://www.planttreaty.org/content/bsfcall3.

Seeds for a more food-secure future

The Funding Strategy of the International Treaty was adopted at the first meeting of the Governing Body in 2006. The Benefit-sharing Fund constitutes the part of the Funding Strategy where the Governing Body has direct control over how the resources are used. It was established as a mechanism to ensure that benefits derived from the use of crop genetic resources – through the benefit-sharing provisions of the International Treaty - will flow back to farmers in developing countries, the traditional custodians of this agricultural heritage.

During the first years of operations, the Fund has depended to a large extent upon voluntary contributions. Such contributions have allowed activities to grow from a modest start with the first project cycle in 2009 to the third cycle approved in March 2015.

The Strategic Plan for the implementation of the Funding Strategy of the International Treaty, endorsed at the Governing Body meeting in 2009, set a cumulative target of raising 116 million US$ for the Benefit-sharing Fund in the period until December 2014. This target was based on an assessment of main challenges in the management of PGRFA in developing countries.

Although this funding target was not met, it does give a clear indication that there are significant funding needs to be met if the Benefit-sharing Fund is to play a major, strategic role in the management of crop genetic resources in order to contribute to a more food-secure future in times of climate change.

Genetic resources are crucial to help agriculture cope with pests, plant diseases and climate change. By supporting sustainable management of crop genetic resources in developing countries, the Benefit-sharing Fund of the International Treaty helps farmers increase food security and improve livelihoods. More than 700.000 people have benefitted so far. Long term effects for food security could have potentials far beyond this, since we are facing a future where climate-resilient agriculture will be of great importance.

Contributions to the Fund have so far come from Australia, Austria, Canada, Germany, the European Commission, Indonesia, Ireland, Italy, Norway, Spain, Sweden and Switzerland as well as from IFAD and Syngenta. New contributions are strongly needed to enable the Fund to continue and expand its activities in the coming years.

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