The International Treaty
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

IT/ACFS-5/10/Inf.5 Rev.1

May 2010

INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

FIFTH MEETING OF THE *AD HOC* ADVISORY COMMITTEE ON THE FUNDING STRATEGY

Geneva, Switzerland, 26-27 May 2010

EXPERT ADVICE ON THE SECOND CALL FOR PROPOSALS, INCLUDING A STRATEGY AND PROGRAMME FOR THE BENEFIT-SHARING FUND

ABOUT THIS PUBLICATION

At its Third Session, the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture "decide[d] to delegate authority for the execution of the project cycle during the next biennium 2010/2011 to the Bureau." It also decided to reconvene the Ad Hoc Advisory Committee on the Funding Strategy with the task "to advise the Bureau and the Secretary on the operation of the Benefit-sharing Fund, including on the disbursement and reporting procedures."

At its first meeting the Bureau of the Fourth Session of the Governing Body of the Treaty requested the *Ad Hoc* Advisory Committee on the Funding Strategy to advise the Bureau and the Secretary on the execution of the Benefit-sharing Fund's project cycle during the biennium 2010/2011, on the basis of preparatory work done by the Secretary, including the engagement of the necessary expert advice.

Following the guidance of the Bureau of the Governing Body and in order to conduct the requested preparatory work, the Secretary sought expert advice for the preparations of the documentation of the fifth meeting of the Ad Hoc Committee on the execution of the Benefit-sharing Fund's project cycle during the biennium 2010/11. This expert advice was prepared by a team of leading international experts, including the following authorities in the field of plant genetic resources for food and agriculture and related fields:

Main author:

Dr Geoffry Hawtin is a British and Canadian genetic resources and plant breeding specialist who has worked for many years in East Africa and in the Near East with ICARDA. He has been the Director General of the International Plant Genetic Resources Institute (IPGRI, now 'Bioversity International') from 1991 to 2003. In 2003, he became the founding CEO of the Global Crop Diversity Trust, to which he remains a Senior Advisor. He was also the Director General of the International Center for Tropical Agriculture in Colombia (CIAT) from 2008-2009. Currently, he is the Chair of the Board of Directors of the Tropical Agricultural Research and Higher Education Center (CATIE) in Costa Rica and a Member of the Board of Trustees of the Kew Royal Botanical Gardens.

Contributing authors:

Dr. Roberto Acosta Moreno worked at the UN Framework Convention on Climate Change Secretariat in Bonn as the Coordinator of the Adaptation, Technology and Science Programme for the last 13 years (2006 to 2009). He was the convening Lead Author in the adaptation contribution to the Second Assessment Report of the Intergovernmental Panel of Climate Change (IPCC). He is a Chemical Engineer and a Doctor on Technical Sciences (Ph.D) by training. He holds more than 39 years of professional experience on a broad range of technological and environmental matters related to global climate change in particular.

Prof. Dr. M. S. Swaminathan served as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and Independent Chairman of the FAO Council. Professor Swaminathan was awarded the Albert Einstein World Science Award in 1986, and the first World Food Prize in 1987. A plant geneticist by training, Professor Swaminathan's contributions to the agricultural renaissance of India have led to his being widely referred to as the scientific leader of the green revolution movement. During the deliberation of the expert advice, Prof. Swaminathan was represented partly by **Dr. Bala Ravi Sekhara Pillai**, a professional plant breeder with expertise in plant genetic resources, related global treaties/conventions, IPR regimes and farmers' rights and biosafety aspects. He is currently advisor to M.S.Swaminathan Research Foundation in Chennai (India) and engaged in grass root research on community conservation of

PGR including those of underutilized crops for alleviation of poverty and malnutrition. He worked with Indian Council of Agricultural Research (ICAR) for 30 years and retired as the Assistant Director General (IPR).

Dr David Hegwood engaged in international food and agricultural policy for 25 years. His current position is Senior Food Security Advisor at the U.S. Agency for International Development. For nearly 20 years he worked for the U.S. Department of Agriculture in Washington, Brussels and Rome. He was an advisor the U.S. Secretary of Agriculture from 2001 to 2004, and from 2004 to 2008 served as the USDA representative to the United Nations Food and Agriculture Organization. Dr Hegwood also worked for the California Department of Food and Agriculture, served a brief stint with the U.S. Senate Agriculture Committee, and spent a few years as a private sector consultant advising clients on international trade and environmental negotiations.

These experts held extensive discussions and deliberations by email and met twice in London to elaborate their advice. The expert paper resulting from their work is attached as an Annex to this document in the form and the language in which it was provided to the Secretary.

The contents of this document are entirely the responsibility of the authors, and do not necessarily represent the views of the Secretariat or the Contracting Parties of the International Treaty.

[Annex follows]

TABLE OF CONTENTS

		Paragraph
1.	Introduction	1-3
2.	The Benefit-sharing Fund as Instrument of the International Treaty on Plant Genetic Resources for Food and Agriculture.....	4-10
3.	Thematic Focus: Ensuring Food Security in the Face of Climate Change...	11-25
4.	Applying the Thematic Focus on Ensuring Food Security Through Adapting to Climate Change, within the Governing Body Priorities.....	26-30
	4.1 Information Exchange, Technology Transfer and Capacity Building.....	31-34
	4.2 Managing and Conserving Plant Genetic Resources On-Farm.....	35-36
	4.3 Sustainable Use of Plant Genetic Resources.....	37-39
5.	Towards a Strategic Application of the Programmatic Approach.....	40-41
	5.1 Strategic Plans	42-49
	5.2 Implementation Projects	50-53
6.	Project Size and Funding Structure	54-64
7.	Call for Proposals	65-68
8.	Help Desk	67-69
9.	Conclusions	70-71

Appendix 1: Key Activities in the Conservation and Use of PGRFA for Ensuring Food Security in the Face of Climate Change

Appendix 2: Operational Procedures for the Use of Resources Under the Direct Control of the Governing Body

Appendix 3: Proposed Additional Criteria for Awarding Grants in the Second Funding Cycle of the BSF for “Quick Win” Projects that Help Farmers Conserve and Use Plant Genetic Diversity to Achieve Sustainable Food Security in the Face of Climate Change

1. INTRODUCTION

1. This document responds to a request by the Secretariat of the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) for expert advice on the Call for Proposals that will initiate the second project cycle of the Benefit Sharing Fund (BSF). The document describes a strategic approach to funding and outlines a coherent, tightly focussed programme within the framework of the three priorities established for the BSF by the Governing Body. It also provides advice with respect to the spending structure for the next rounds and the design and implementation of a specific and well-targeted Call for Proposals.

2. Recognizing that the situation is changing rapidly, the document aims to provide concrete suggestions to assist the Secretariat to prepare for the meetings of the Bureau and Ad-hoc Advisory Committee on the Funding Strategy only with respect to the next rounds of the project cycle (i.e. for the period from mid 2010 to 2014). The development of further funding rounds, and the strategy and programme beyond this period will require periodically reviewing progress and lessons learned, responding to the evolving priorities of the Governing Body, building partnerships with relevant institutions, and scaling up the Treaty's action programmes over time as more funds become available.

3. The document first sets the context for the work, based mainly on the International Treaty on Plant Genetic Resources for Food and Agriculture, key decisions and Resolutions of its Governing Body, and the adopted Annexes of the Funding Strategy of the Treaty. It also takes into account the outcomes of the 'Policy Seminar on the ITPGRFA: Global Challenges and Future Direction'[1]. A programmatic focus for the BSF is then proposed that is tightly focussed on assisting farmers in developing countries to adapt to the negative impacts of climate change in order to achieve sustainable food security. Finally, it addresses a number of issues relating to the strategic development of this focus such as the size and scope of the projects to be funded by the BSF as well as processes, including technical support, needed for ensuring a well targeted and successful Call for Proposals.

2. THE BENEFIT-SHARING FUND AS INSTRUMENT OF THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

4. The Treaty is a unique international instrument for the management and exchange of plant genetic resources for food and agriculture, and for ensuring the fair and equitable sharing of the benefits arising from their use. The Treaty recognizes that these resources:

> "*are the raw material indispensable for crop genetic improvement, whether by means of farmers' selection, classical plant breeding or modern biotechnologies, and are essential in adapting to unpredictable environmental changes and future human needs*".

5. While the Treaty covers all plant genetic resources for food and agriculture, it establishes a Multilateral System on Access and Benefit-sharing for facilitating the international exchange and use of an important sub-set of these resources. These constitute a critical asset for ensuring food security and reducing poverty, especially in face of the threat of climate change and other environmental, social, cultural and economic changes.

6. The Treaty recognizes that countries are inter-dependent with respect to their need for plant genetic resources for food and agriculture (PGRFA), an inter-dependence that will become greater in the future as the world needs to grow ever more food to feed its expanding population, exacerbated by the effects of changing demands on agricultural land and climate change.

[1] Policy Seminar on the ITPGRFA: Global Change and Future Direction, Bari, Italy, December 2009.

7. Recognizing the high degree of inter-dependence among countries with respect to PGRFA, and in parallel with facilitating access, Contracting Parties to the Treaty undertake to exchange information, to transfer technology, to build capacity to conserve and sustainably use plant genetic resources, and to share the monetary and other benefits arising from the use of these resources. To support such action, the Treaty establishes a Funding Strategy, which gives priority:

> "*… to the implementation of agreed plans and programmes for farmers in developing countries, especially in least developed countries, and in countries with economies in transition, who conserve and sustainably utilize plant genetic resources for food and agriculture"*.[2]

8. In the context of the Treaty's Funding Strategy, a major achievement to date has been the establishment of a new international institution, the Global Crop Diversity Trust[3], which aims to put the conservation of *ex situ* plant genetic resources on a sustainable long-term basis. Through the creation and management of an endowment fund, the Trust aims to support the upkeep and distribution of key germplasm collections in perpetuity and helps support the Svalbard Global Seed Vault as an international safety net to underpin the security of collections worldwide. The Trust also provides project funding to help support capacity building and the upgrading of collections. The Trust has been recognized by the Governing Body as essential element of the Funding Strategy of the Treaty[4].

9. The Funding Strategy must now ensure that greater attention is also given to funding additional areas such as the on-farm conservation and management of plant genetic resources and their sustainable use, especially, as argued below, in the face of climate change. The Governing Body has adopted a fund-raising target of US$ 116 million over five years for the BSF, to be raised from the commercialization of protected products derived from the Multilateral System, as well as from voluntary contributions.

10. The Governing Body, at its second meeting in 2007, identified three priority areas for support from the BSF[5], building on the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture[6]:

"A. <u>Information exchange, technology transfer and capacity-building</u> (reflecting Global Plan of Action priority activities 15 and 19).

> *a. Building strong national programmes is essential for capacity-building in developing countries and furthering the implementation of the Treaty. It is a prerequisite for sustainability of efforts to strengthen and develop national capacities in the conservation and utilization of plant genetic resources for food and agriculture.*
>
> *b. Expanding and improving education and training in developing countries is a* sine qua non*, in order to build capacity. Education and training is a long-lasting investment in the sustainable management of the diversity of plant genetic resources for food and agriculture in developing countries.*

B. <u>Managing and conserving plant genetic resources on farm</u> (reflecting Global Plan of Action priority activity 2);

> *a. Supporting on-farm management and conservation of plant genetic resources for food*

---

[2] Article 18.5 of the International Treaty.

[3] For more information on the Global Crop Diversity Trust see: www.croptrust.org

[4] See: http://www.croptrust.org/main/governance.php?itemid=6

[5] IT/GB-2/07/Report. Funding Strategy. Appendix D.1. Draft Priorities

[6] See http://www.fao.org/ag/AGP/AGPS/Pgrfa/Gpaeng.htm

and agriculture is the most direct way of reaching farmers, indigenous and local communities in developing countries to whom benefits should flow. It forms a strong contribution to the maintenance of on-farm diversity of plant genetic resources for food and agriculture. Only by strengthening these efforts can on-farm management of diversity complement ex situ *conservation.*

C. The sustainable use of plant genetic resources (reflecting Global Plan of Action priority activities 9, 10, and 11);

a. Expanding the characterization and evaluation of collections is necessary to promote and facilitate their use. More complete characterization and evaluation will increase the relevance of germplasm held ex situ *and on farm for breeding.*

b. Diversification of crop production, genetic enhancement and broadening the genetic base of crops will directly contribute to increasing the sustainability of agricultural production. This will lessen dependence on external inputs, increase productivity, and respond to the challenge of climate change."

3. THEMATIC FOCUS: ENSURING FOOD SECURITY IN THE FACE OF CLIMATE CHANGE

11. The three priority areas agreed upon by the Governing Body are very broad in scope, and in order to have a more substantial impact with the level of resources that are expected to become available to the BSF over the next few years, it is important that, fully consistent with these priorities, the use of funds from the BSF be highly focussed thematically. Without such focus, the BSF risks funding a wide scatter of disparate projects and the consequent dilution of impact. This, in turn would hamper the forging of partnerships and make it extremely difficult, if not impossible, to achieve the funding target set by the Governing Body.

12. The choice of thematic focus must represent a real, major and urgent area of concern to all, and particularly developing countries; it must respond to international concerns and the priorities of potential voluntary donors to the Fund; there must be a high probability of success in tackling the important issues identified, through the enhanced conservation and use of plant genetic resources; and there should be the potential of leveraging the International Treaty's unique mandate, comparative advantages and systems.

13. Previous discussions within the Governing Body, and among the agricultural community more generally, indicate that there is widespread agreement that one of the areas of greatest concern currently confronting agriculture is how to ensure sustainable food security in the face of climate change. The Declaration of the World Summit on Food Security[7], for example, states in paragraph 5:

"*Climate change poses additional severe risks to food security and the agriculture sector. Its expected impact is particularly fraught with danger for smallholder farmers in developing countries, notably the Least Developed Countries (LDCs), and for already vulnerable populations. Any recipe for confronting the challenges of climate change must allow for mitigation options and a firm commitment to the adaptation of agriculture, including through conservation and sustainable use of genetic resources for food and agriculture*."

14. Science has established that climate change is real and in progress. The IPCC Fourth Assessment Report (IPCC-FAR) identified a number of key vulnerabilities that are likely to be exacerbated to the extent that global mean temperature increases as consequence of climate change. Some of these that are related to agriculture are listed in Box 1.

[7] WSFS 2009/2, FAO, Rome

Box 1 Key vulnerabilities as mentioned in IPCC-FAR[8].

- Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases.
- A global assessment of data since 1970 has shown it is likely that anthropogenic warming has had a discernible influence on many physical and biological systems.
- Increasing levels of climate change will result in impacts associated with an increasing number of key vulnerabilities, and some key vulnerabilities have been associated with observed climate change.
- Global mean temperature changes of up to 2°C above 1990-2000 levels would exacerbate current key vulnerabilities, and cause others, such as reduced food security in many low-latitude nations (medium confidence). At the same time, some systems such as global agricultural productivity at mid- and high-latitudes, could benefit (medium confidence)
- Global mean temperature changes of 2 to 4°C above 1990-2000 levels would result in an increasing number of key impacts at all scales (high confidence), such as widespread loss of biodiversity and decreasing global agricultural productivity.
- Global mean temperature changes greater than 4°C above 1990-2000 levels would lead to major increases in vulnerability (very high confidence), exceeding the adaptive capacity of many systems (very high confidence).
- Regions already at high risk from observed climate variability and climate change are more likely to be adversely affected in the near future, due to projected changes in climate and increases in the magnitude and/or frequency of already damaging extreme events.

15. Notwithstanding limited CO_2 fertilization for some crops in some areas, changes in timing and intensity of precipitation, seasonality, temperature regimes during the growing season, diseases, pests, and weeds, and interactions between all of these factors, will all affect growth and yields over the coming years and result in farmers needing new crops and crop varieties, and associated new management practices. Indeed, agro-ecological zones are already shifting and already farmers are having to adjust their farming practices in order to cope with the changing weather patterns. Several authors[9] have reported that vegetation belts could shift several hundred kilometers closer to the earth's poles. In the Andes local and indigenous communities are having to plant their potatoes at higher altitudes than formerly. These factors are also likely to impact on populations of crop wild relatives, species that are especially important as a potential source of traits for breeding improved varieties (Peters, 1989)[10]. Many are already endangered or

[8] Parry, M.L., O.F.Canziani, J.P.Palutikof and Co-authors 2007: Technical Summary. Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel of Climate Change. M.L.Parry, J.P.Palutikof, P.J. van der Linden and C.E.Hanson, Eds., Cambridge University Press, Cambridge, UK. pp. 25, 27 and 73.

[9] Davis, M.M. and C.Zabinski (1990): Changes in geographical range resulting from greenhouse warming effects on biodiversity on forests. In: Proceedings of the World Wildlife Fund's Conference on Consequences of Global Warming for Biological Diversity. R.L Peters and T.E. Lovehoy, Editors. Yale Univ. Press, New Haven, Conn. USA; Peters, R.L and J.D.Darling (1985): The greenhouse effect and nature reserves. Bioscience 35(11):707-717; Davis, M.B. and Shaw, R.G (2001): Range shifts and adaptive responses to quaternary climate change. Science, Vol 22(5517), pp: 673-679; Olesen, J.E and M.Bindi (2002): Consequences of climate change for European agricultural productivity , land use and policy" European Journal of Agronomy, Vol. 16 (4) , pp: 239-262

[10] Peters, R.L….(1989): "Threats to biological diversity as the earth warms. In: "Global change and our common future. Papers from a Forum" Ruth S. Defries and Thomas F. Malone, Editors. National Academy Press. Washington D.C. USA.

threatened.

16. There is also likely to be an increased frequency of extreme weather events such as floods, droughts, hurricanes or significantly high or low temperatures. The agricultural community needs to be both more prepared to withstand such events as well as better able to recover quickly from their effects.

17. Ensuing that agriculture is able to adapt to climate change and can continue to produce the food needed by expanding human populations, is clearly a topic of huge importance requiring foresight and planning, and a massive and sustained mobilization of human and financial resources. Merely reacting to the changing conditions on a year-by-year basis will expose more farmers to the negative impacts of climate change. Long-term approaches are required and greatly increased efforts are needed as a matter of urgency.

18. There is an accompanying need to maintain and manage the other ecosystem services critical to agriculture and society at large, in the face of climate change, including the regulation of water supplies, pest management, and pollination services. This requires a paradigm shift from looking at crops and crop varieties solely in the context of on-farm management geared to farming family needs and markets, to looking at crop and farming systems as part of broader ecological landscapes and the maintenance of functional diversity and connectivity both within and across them.

19. In adopting the priorities for the BSF, the Governing Body recognized that:

> *"diversification of crop production, genetic enhancement and broadening the genetic base of crops will directly contribute to increasing the sustainability of agricultural production. This will lessen dependence on external inputs, increase productivity, and respond to the challenge of climate change".*

20. At the invitation of the Italian Government, international experts met in Bari, Italy, in December 2009, at a *Policy Seminar on the International Treaty on Plant Genetic Resources for Food and Agriculture: Global Challenges and Future Direction.* The participants stressed the importance of plant genetic resource for food and agriculture in responding to food security challenges resulting from climate change. Because of the importance and urgency of taking steps to help agriculture adapt to climate change, the Seminar recommended that the BSF should, in the near future, focus on climate change adaptation and plant genetic resources.

21. These recommendations are also consistent with the IPCC-FAR which indicated, albeit without much detail, the need for, and possibilities of breeding improved varieties of key staple crops to help meet the impact of climate change[11]. A recent publication by Lobell et al. (2009)[12] reported that there is a growing consensus among agriculturalists that the development of new varieties will be critical for successful adaptation to climate change.

22. There was also full agreement at the Policy Seminar in Bari that global interdependence with regard to PGRFA will increase as a result of climate change, and that the wide, international exchange of agricultural genetic materials will become ever more necessary.[13] Many agro-ecological zones, sometimes whole regions, will be unable to ensure food security with the crops and varieties they currently grow and will be forced to rely on resources from elsewhere, often

---

[11] Easterling, W.E., P.K.Aggarwal, P.Batima, K.M. Brander, L.Erda, S.M.Howden, A.Kirilenko, J.Morton, J.F.Soussana, J.Schmidhuber and F.N.Tubiello, 2007: Food, fibre and forest products. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Panel of Climate Change. M.L.Parry, J.P.Palutikof, P.J. van der Linden and C.E.Hanson, Eds., Cambridge University Press, Cambridge, UK. Pp.296.

[12] Lobell, D. et al., (2009): "Climate Extremes and Crop Adaptation". Summary statement from a meeting at a Program on Food Security and Environment. Stanford, CA.

[13] See also Fujisaka S, D. Williams and M. Halewood. 2009. The impact of climate change on countries' interdependence on genetic resources for food and agriculture. Background Study Paper 48 of the Commission on Genetic Resources for Food and Agriculture, FAO.

from abroad. In turn, the resources these areas currently hold are likely to be of great importance for farmers in yet other areas.[14] The International Treaty is an instrument that is uniquely designed to promote and facilitate such essential international germplasm exchanges.

23. The authors of this document agree that the major thematic focus of the BSF, at least over the coming two rounds of the project cycle and probably longer, should be on the conservation and use of PGRFA to help ensure food security in the face of climate change. Notwithstanding the concerns cited above, to date relatively little attention has been given to this subject nationally or internationally and there is only limited scientific information on the topic. The IPCC-FAR assessment provided only scant information on the impact of climate change on genetic resources and on the role of genetic resources in helping agriculture adapt to climate change[15]. While the Copenhagen Climate Summit recognized the relationship between climate change and agriculture and food security, no major international programme has yet been mounted to counter the threat. The field is thus wide open and much remains to be done. It is, therefore, highly appropriate that the BSF should take a leading role in initiating a major global programme to address this issue, in particular focusing on the use of genetic resources in helping agriculture to adapt to climate change for the benefit of the most vulnerable farmers and rural populations.

24. The International Treaty, because of its mandates and operational systems, is exceptionally well placed in the international policy landscape to create such a programme, but it cannot act alone or in isolation. Neither the International Treaty nor its BSF have a Secretariat that is an implementing agency and thus it is critical that the work be carried out through close collaboration with a wide range of stakeholders and partner organizations; and fortunately there are substantial opportunities for such cooperation. While, in line with the Governing Body's priorities, the primary beneficiaries of the programme should be vulnerable farmers and rural communities in developing countries, and a principal focus should be at the local and national levels, it will be important to also work with regional and international partners who bring similar and complementary resources and skills to address the problem. Potential partner institutions at the international level include, for example, the UNFCCC, UNDP and CBD as well as the CGIAR Centres, the Challenge Program on Climate Change, Agriculture and Food Security (CCAFS) and the proposed new CGIAR 'Mega Program' on climate change. Furthermore the Global Crop Diversity Trust is already funding climate change activities in relation to *ex situ* conservation and there is a large potential for developing integrated and coordinated activities linking *ex situ* conservation to use and *in situ* conservation, funded through close collaboration between the Trust and the BSF.

25. A well–articulated programme that responds to the anticipated impacts of climate change also has considerable potential to attract the funding needed to achieve the Governing Body's fund-raising target. Very substantial funds could become available from international and national donor agencies as well as private foundations and other organizations and individuals. Such a programme would also be well placed to benefit from the enhanced financial and technical support for developing countries that is likely to result from UNFCCC negotiations – funding that could amount to some US$10 billion over the next three years or so. The challenge will be to secure some of these resources to support efforts on plant genetic resources for food and agriculture. There is a clear window of opportunity for the Treaty, which is particularly well situated to help sustain and increase agricultural production in developing countries under the impact of climate change through promoting and facilitating the conservation, exchange and use of PGRFA.

4. APPLYING THE THEMATIC FOCUS ON ENSURING FOOD SECURITY

[14] Burke, M., D. Lobell and L. Guarino. 2009. Shifts in African crop climates by 2050, and the implications for crop improvements and genetic resources conservation. Global Environmental Change.

[15] It has been suggested that the International Treaty might consider commissioning a review of the scientific evidence relating climate change with PGRFA and make this available as an input to the 5th IPCC Assessment Report.

THROUGH ADAPTING TO CLIMATE CHANGE, WITHIN THE GOVERNING BODY PRIORITIES

26. While the previous section argues for a focus on the conservation and use of PGRFA to help ensure food security in the face of climate change, even this is arguably too broad a topic to achieve a meaningful and significant impact given the resources that are likely to become available through the BSF over the next few years. Appendix 1 indicates a range of related and inter-connected approaches and activities that would need to be covered in any comprehensive effort to conserve and use PGRFA to help ensure food security in the face of climate change. Clearly the BSF cannot and should not, at least initially, aim to contribute to all of these.

27. In narrowing down the areas on which to concentrate, it is important:

a) to take fully into account the priorities already established by the Governing Body, i.e. information exchange, technology transfer and capacity building; managing and conserving plant genetic resources on farm; and the sustainable use of plant genetic resources;

b) to consider the comparative advantage of the International Treaty and its BSF; and

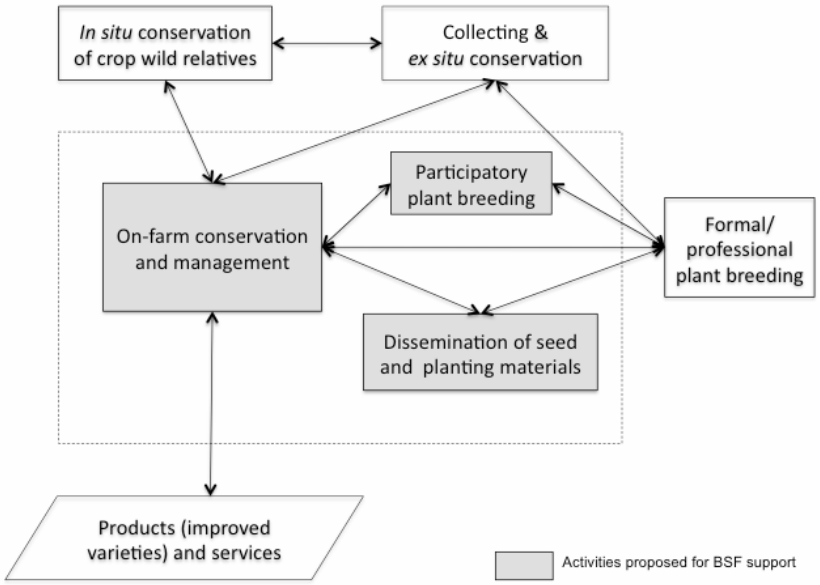
c) to ensure that the BSF complements and not duplicates the efforts of other key actors in the field.

28. Given the above, it is proposed that the BSF, for at least the next two rounds of the funding cycle, concentrate on the first priority of the Governing Body (information exchange, technology transfer and capacity building) and address the other two priorities of the Governing Body (managing and conserving PGRFA on farm, and the sustainable use of PGRFA) through the three inter-related activities shown in the centre of Figure 1 (on-farm conservation and management of PGRFA, participatory plant breeding and the distribution of appropriate seed and planting materials). This is not to say that the other areas shown in Figure 1 are less important, or contribute less to the stated goal, but rather that they are not afforded a high priority by the Governing Body at this time (e.g. the *in situ* conservation of crop wild relatives) and/or may already be covered to a significant extent by others (such as *ex situ* conservation by the Global Crop Diversity Trust).

29. In the case of formal plant breeding, the task is so large, open ended and long–term – and involves so many actors from different sectors, that it is hard to see, with the projected resources, how the BSF could really make a meaningful contribution or have a significant impact. Clearly further work on prioritization would be needed before allocating significant resources to this activity. However, as indicated earlier, the BSF might contribute to all of the areas shown in Figure 1., as appropriate, through providing funding for information exchange, technology transfer and capacity building.

30. It should also be recognized that this recommendation for focus applies to the next two funding cycles only. Beyond that, the Governing Body may wish to expand, or refocus activities e.g. to give a greater emphasis to the *in situ* conservation of crop wild relatives, pre-breeding to introduce traits from crop wild relatives, plant breeding in general or even to expand activities to cover mitigation of climate change.

Fig 1: Proposed activities for support by the Benefit Sharing Fund to help farmers adapt to climate change



4.1 Information Exchange, Technology Transfer and Capacity Building:

31. Given the high priority given to this area by the Governing Body, it is suggested that the BSF support information exchange, technology transfer and capacity building activities in all areas relating to the conservation and use of PGRFA to help farmers achieve food security in the face of climate change. Thus support in these areas would not necessarily be limited only to the priority areas discussed in the following two sub-sections. However, given the need, discussed later, to fund larger, more integrated projects than was possible in the first funding cycle, such activities would in general be included within larger projects having an overall focus on the suggested priority areas, and would link, as appropriate to other activities within the project concerned.

32. A critical area for support that is vital if the other areas to be covered by the programme are to have an impact and be sustainable is the strengthening of the institutional environment. It is essential that national programmes have the capacity and appropriate supporting policies to enable them to assess their future germplasm needs with respect to climate change, and are able to access, develop and/or disseminate the required genetic materials. The BSF should thus be prepared to fund activities aimed at making sure appropriate capacity is in place and that institutions are able to operate within a favourable policy framework. The latter might include, for example, helping to ensure that issues relating to PGRFA are included within relevant national programmes and strategies for climate change adaptation.

33. Awareness by policy makers and the general public of the importance of climate change and its predicted impact on agriculture and food security is lacking in many countries. Much greater efforts are needed to provide information on the issues involved and what needs to be done to enable agriculture to adapt. The BSF should consider supporting efforts to provide such information, particularly regarding the threat posed to crop diversity and its critical importance in helping agriculture to adapt to climate change.

34. Other areas that might be considered could include, for example:

a) Improved information systems to ensure that timely and accurate information, including local and indigenous knowledge, is readily available on the genetic resources themselves, the traits they posses and how to access and use them;

b) Building institutional capacity to monitor, analyze and predict the effects of climate change on agricultural systems, and to provide local communities, national governments and others with appropriate technical and policy advice on genetic resources management;

c) Building capacity and associated technology transfer with respect to *in situ* conservation and the use of crop wild relatives;

d) Building capacity and associated technology transfer in plant breeding, especially in collaboration with GIPB.[16]

4.2 Managing and Conserving Plant Genetic Resources on Farm:

35. As indicated in Appendix 1, a key area for support by the BSF is the strengthening of systems for the on-farm conservation and management of genetic diversity, with the primary aim of reducing farmers' vulnerability to climate change. In this respect, farmers, as custodians and managers of genetic diversity, have much to offer both their own communities and the world more generally as a result of their efforts to conserve PGRFA, improve it through breeding and selection and through making it available for use by others.

36. Funds from the BSF could be allocated to support a wide range of activities in this area including, *inter alia*, the on-farm evaluation, selection and management of local and introduced genetic diversity (including new, improved varieties bred by professional plant breeders); farmer breeding and selection activities; ensuring the conservation of any genetic diversity that might otherwise be lost as a result of introduction and breeding efforts, (e.g. through conservation in national or international genebanks or the development of local and community genebanks); conserving and making available local and indigenous knowledge; developing outlets for local crops and varieties; adding value to local crops and varieties; and linking farmers with communities elsewhere nationally, regionally and internationally to promote the sharing of material and information relating to climate change.

4.3 Sustainable Use of Plant Genetic Resources:

37. While it is recommended that, for the reasons given above, crop improvement by the formal sector would in general not be funded by the BSF, the joint efforts of professional breeders and farmers in improving crops that are important to resource-poor farmers, or have the potential to become important under future climate scenarios, is an activity that accords well both the second and third priorities of the Governing Body. Such joint efforts, commonly referred to as participatory plant breeding, should focus on the breeding and selection of varieties with traits that are particularly important for helping farmers adapt to the negative impact of the climate change, e.g. resistance to, or tolerance of heat, drought, water-logging, salinity, or predicted new pests and diseases. While the focus of any such effort would be on-farm, it is critical that a) there be adequate scientific and technical back-up and support (including for such activities as pre-breeding and broadening the genetic base) b) that efficient and effective systems be in place for accessing and disseminating materials nationally and internationally under the International Treaty and c) that future environmental conditions be predicted as accurately as possible.[17]

38. Improved varieties, however bred, are of no value unless they can be widely disseminated and are actually grown by farmers. Such dissemination may occur through formal and informal channels and both will become more important over time as the effects of climate change cause the geographical location of ecosystems to shift. Varieties that are adapted to one location are

[16] The Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) is an initiative of FAO that aims to enhance the capacity of developing countries to improve crops for food security and sustainable development, through better plant breeding and delivery systems. http://km.fao.org/gipb/

[17] While recognizing that all climate prediction is subject to a large degree of uncertainty, especially at smaller scales, predictions could be made, for example by including within projects the downscaling of global climate change models onto the targeted regions and crops. This could help the BSF to focus its interventions on regions of likely high-impact and important and potentially important crops. It would also help in the identification and linking of homologous agro-ecological zones, i.e. linking target areas with other areas that today have a climate and other environmental conditions that are similar to those predicted for the target areas themselves in the future.

likely to find themselves adapted to quite another geographic area a few years hence. In order to help address this situation, the BSF should thus consider allocating resources to strengthening the production and delivery systems for seed and other planting material that will be required by farmers in order to adapt their farming systems to climate change. This might be achieved through, *inter alia*, supporting the efforts of public or private seed companies, as well as other, often less formal, arrangements for disseminating varieties directly among farmers themselves. In supporting such systems, it will be important to ensure that appropriate measures are in place for conserving any material that might be replaced by the new varieties. In order to achieve focus, any support for the dissemination of seed and planting material should ideally be linked to plant improvement or on-farm activities that are funded by the BSF.

39. In summary: it is proposed that the main focus and scope of the portfolio of projects to be funded by the BSF over the coming few years, be to help ensure sustainable food security by assisting farmers to adapt to climate change through the conservation and sustainable use of PGRFA. Given the reality both of climate change and the challenge of producing the food needed by expanding human populations, this is clearly an objective of immense importance. It is also an area where, despite intense discussions in the climate change arena in recent years, and the increased probability that very substantial resources will be devoted by the international community to adaptation to climate change in the future, no authoritative and effective programme for managing plant genetic resources for food and agriculture for climate change has yet been proposed. There is a distinct window of opportunity in this regard for a major programme to be initiated, in full conformity with the Governing Body's priorities: information exchange, technology transfer and capacity-building; managing and conserving plant genetic resources on farm; and the sustainable use of plant genetic resources.

5. TOWARDS A STRATEGIC APPLICATION OF THE PROGRAMMATIC APPROACH

40. Enabling farmers to adapt to climate change is a medium- and long-term activity that requires the development and regular update of strategic plans and based on these, the proactive development of the means to adapt, before irreversible disasters occur. Activities should not be piecemeal, but conceived and implemented within the framework of overarching strategies. Such a strategic approach would also greatly facilitate the mobilization of the necessary financial resources by the Treaty, and provide the basis for the development of cooperation between the Treaty and other relevant funds, institutions and programmes.

41. It is suggested that the BSF operate in two overlapping phases: firstly the development of overarching strategic plans, and secondly a role-out, or implementation phase. The first phase (which would occur in parallel with some initial 'quick win' projects) would fund, through projects, analyses of the challenges posed by climate change and opportunities for meeting these challenges, through the development of spatially appropriate priorities, strategies and action plans. The second phase would fund specific projects to implement these strategies and priorities. The strategic plans should provide the framework in which activities supported by the BSF can be developed and future Calls for Proposals articulated.

5.1 Strategic plans:

42. While much of the individual action within projects is expected to be targeted locally and nationally, in order to capture synergies and complementarities, and recognizing the shift of agro-ecological zones that will occur with climate change, strategic plans should set out clear priorities and action plans on a regional, sub-regional, eco-regional, or other basis[18]. For example, strategic plans could focus on agro-ecological zones, such as the marginal dry lands of the sub-Saharan Africa region, Southern Africa, tropical mountain areas, or Asian flood plains and coastal saline

[18] This might include, for example, strategic plans formulated on the basis of specific crops or crop group (cereals, food legumes, vegetables, etc).

areas - all areas where the IPCC-FAR has predicted major disruptions will occur due to climate change[19]. A pragmatic approach, that makes it possible for relatively large-scale integrative strategies to be developed,[20] and within which groups of potential recipients can jointly find a role, will be needed.

43. The BSF should, at least initially, aim to fund the development and implementation of strategic plans through existing national, regional and international institutions, through existing national and regional networks where these are effective, or through encouraging the creation of new consortia or other multi-stakeholder groupings. The identification of coherent and representative recipient groups to carry out the work, with clearly defined roles and responsibilities agreed among the partners concerned, should be a priority for the BSF. It is expected that in many cases these consortia or multi-stakeholder groups would continue in existence beyond the development of the strategic plans and have a role in their implementation.

44. Ideally the strategic plans would be integrated or coordinated with broader local, regional, national and international agriculture and/or climate change adaptation strategies and action plans, including the regional and crop conservation strategies sponsored by the Global Crop Diversity Trust.[21] They would be implemented as part of broader approaches to low emission, climate resilient development. This would have the advantage of leveraging synergies in both action and financial resources.

45. In drawing up the strategic plans, the following general rationale and concepts need to be taken into account and addressed appropriately:

- Plant genetic diversity is the single most important resource in adapting crops to rapidly changing agro-ecological conditions, and changing pest and disease patterns. Managing and sustainably deploying this resource must be a key part of the responses to climate change.
- Climate change risks undermining the food security of many of the world's poorest farming communities. Increased understanding of the substantial threat that climate change poses to developing country farmers, and food security, has not been met with an equally increased understanding of how they can adapt to these changes, especially through the conservation and use of PGRFA.
- The role of plant genetic resources in adapting to climate change needs to be addressed strategically, and through advanced planning that articulates and structures practical and effective responses,
- This will require the development of a consensus on priorities within a wide stakeholder community, and the progressive build-up of skills, knowledge and information bases and technologies.
- Priorities established and agreed by representative groups, through strategic planning, can help direct the investments of the BSF most effectively, and can attract national and international resources to practical actions, both immediate and longer term, to ensure that climate change does not overwhelm farmers' ability to adapt.
- The first phase of strategy development should support a variety of approaches to the use of plant genetic resources in adapting to the effects of climate change.
- On the basis of identified key needs and priorities, farmers and the plant genetic resources community will be able to contribute to, and benefit from programmes for adaptation to climate change. In this way, national and international resources can be mobilised to

---

[19] Parry, M.L., O.F.Canziani, J.P.Palutikof and Co-authors 2007: Technical Summary. Climate Change 2007: *Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel of Climate Change.* M.L.Parry, J.P.Palutikof, P.J. van der Linden and C.E.Hanson, Eds., Cambridge University Press, Cambridge, UK. Pp.59-67.

[20] For example through integrated landscape management approaches.

[21] For more information on the regional and crop conservation strategies sponsored by the Global Crop Diversity Trust see: http://www.croptrust.org/main/identifyingneed.php?itemid=514

effectively and sustainably support the progressive development and implementation of effective adaptation measures in developing country agriculture.

46. The strategic plans should aim to cover all areas indicated in Figure 1 and not only the three areas proposed for initial attention, i.e. they should not only include on-farm conservation and management, participatory plant breeding and the dissemination of seed and other planting material, but also include plant breeding (including base broadening, pre-breeding, the introgression of genes from wild species, etc); collecting and *ex situ* conservation (especially by reference to the Strategic Plans sponsored by the Global Crop Diversity Trust); the *in situ* conservation of wild relatives, etc. This comprehensive approach is in line with the first priority of the BSF and is important if the strategies are to play an important role in guiding BFS funding priorities beyond just the next two funding cycles.

47. The strategic plans should be make clear how the proposed areas of activity would contribute to assisting farmers in developing countries to adapt to climate change and achieve sustainable food security. They should establish clear priorities, targets and where possible milestones, and they should cover a long enough period for these targets to be met, ideally 6 to 10 years. To the extent possible, the individual strategic plans should dovetail and complement each other and not overlap unduly. Collectively they should provide donors and other interested parties with a comprehensive overview of the overall objectives and scope of the whole BSF programme should provide benchmarks against which to measure its success.

48. In drawing up the strategic plans, it is expected that there will be wide consultation with multiple stakeholders from different types of institution in multiple countries.

49. Individual strategies might cover, but not be limited to, the following areas relating to plant genetic resources and climate change:

- Analyses of likely future climate scenarios for particular agro-ecological zones, including through the downscaling of climate change models, an identification of those area where food and nutritional security are most fragile;
- Analyses of the probable consequences of climate change for the farming systems, food security and plant genetic resources of different target groups in these zones, especially the most vulnerable communities. Other ecosystem services provided by agriculture and that are related to PGRFA should also be taken into account;
- The setting out of existing baseline data and identifying areas in which additional baseline data will need to be collected through project activities to implement the strategy;
- The identification of analogues – regions experiencing similar conditions at present to those expected to occur in the target region in future. The possibility and desirability of developing partnership arrangements with institutions in such analogous agroecological zones should be explored;
- Studies of existing national, regional and international development plans and activities relevant to the conservation and use of PGRFA to assist farmers to adapt to climate change;
- Identification of the main crops on which to focus[22];
- Strategies for the conservation of local crop varieties and crop wild relatives, especially taking into account the replacement of existing diversity through the actions of the project itself;[23]
- Strategies for the genetic improvement of the key crops identified, including through participatory breeding methods, to develop varieties that are adapted to the new environments that are expected to result from climate change
- Strategies for the dissemination of seed and other planting material of improved varieties;

[22] It is recommended that target crops for these strategies should not be limited just to those that are included within the Multilateral System of Access and Benefit Sharing of the International Treaty.

[23] Elements within the strategies that are concerned with conservation strategies should focus primarily on *in situ* and on-farm conservation, and showing how they link to and complement the *ex situ* conservation strategies supported by the Global Crop Diversity Trust (http://www.croptrust.org/main/identifyingneed.php?

- Evaluation of the need for new policies, regulations, *etc*. and strategies for developing and implementing appropriate policy and regulatory changes relating to PGRFA;
- The identification of key local, national regional and international institutions to be involved in implementing the strategy, and the need for strengthening or creating new institutional capacity, partnerships and coordination mechanisms:
- Mechanisms for keeping the strategies under review and for updating them as needed.

5.2 Implementation projects:

50. As suggested earlier, projects to implement the strategic plans should involve multiple stakeholders from different sectors, ideally organized in more or less formal consortia. Most projects are expected to be international in scope and may involve institutions and individuals from several countries and from local, national and international organizations. In many cases both public and private, for-profit and not-for-profit institutions would be involved.

51. In order to have the desired impact, it is recommended that implementation projects be substantially larger and more comprehensive (see below) than the eleven small-scale projects supported in the first cycle[24]. Target beneficiaries and the expected outputs and outcomes of the projects should be identified and impact pathways and milestones, including verifiable indicators of success, should be made clear from the outset.

52. The Governing Body has approved a list of criteria for selecting projects covering: project relevance; feasibility; effectiveness and efficiency; benefits and beneficiaries; team composition and capacity; collaboration; planning and monitoring; sustainability; geographic extension; and crop relevance. This list is attached as Appendix 2 for ease of reference. Additional criteria might be considered over time, and these could build on the experience of others. For example, the Convention on Biological Diversity has published a number of principles for the design, planning and implementation of adaptation activities to reduce the impacts of climate change on biodiversity[25].

53. Given the importance of the materials developed as a result of investment by the BSF, all such material arising from projects funded by the BSF, including any that are not included in Annex 1 or Article 15 of the Treaty, should be made available through the multilateral system of access and benefit sharing under the International Treaty.

6. PROJECT SIZE AND FUNDING STRUCTURE

54. While the Governing Body has set a fund-raising target of US$ 116 million over five years, the exact amount of funds available for the next and subsequent funding rounds is not yet certain. It is vital that the available resources be allocated to areas of highest priority, in a coherent and coordinated manner. It is thus proposed that a significant amount of the funds available for the next (second) round of the project cycle be allocated to the development of strategic plans as described above. Although a certain amount of resources will also need to be devoted to strategic planning in subsequent rounds – in an on-going and evolving series of planning exercises – the proportion going to such strategy development should become greatly reduced from the third round onwards, with a progressively greater percentage going to projects to implement the strategies. By devoting sufficient resources to a major planning exercise up front in the next round, it should be possible to lay the foundation for the rational and effective allocation of resources in the following and subsequent funding cycles.

55. In order to achieve this desired planning base, it is recommended that up to about US$6 million be allocated to the development of strategic plans in this next (second) cycle (it being considered unlikely that high quality proposals could be generated for more than about this

[24] *See:* ftp://ftp.fao.org/ag/agp/planttreaty/gb3/gb3i11e.pdf

[25] Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change, Secretariat of the Convention on Biological Diversity, Technical Series No.41

amount in the time available). Furthermore, given the nature of the task, it is expected that the cost of individual planning projects would not exceed about USD 0.5 million, with an average strategy development project size being in the order or USD 200,000 – 400,000. In allocating funding for strategic planning, the selection criteria drawn up by the Governing Body for action projects (see Appendix 2) as well as the criteria listed in Section 5, should be applied, as appropriate. These projects would generally run for a maximum of one year in order for the strategies developed through them to be available to guide the following (third) call for proposals for funding from the BSF, in 2012.

56. It is important that not all the funds available for the second cycle be allocated to supporting strategic plan development but that there be a balanced portfolio of both strategy development and implementation/action projects. This is important in order to:

a) make use of all the resources provided by donors for the purpose for which they were provided, rather than just leaving part of them unused;

b) implement donors' preference for having the funds they have contributed disbursed as rapidly as possible, enabling them to report on the impact of the funds and thereby, hopefully, generate further contributions;

c) gain experience with managing a significant portfolio of medium/large projects; and

d) achieve a few 'quick wins' and thus demonstrate to potential donors the value of supporting the BSF.

57. In the absence of strategies developed through the processes described above, it will be important that any implementation/action projects supported in this next round demonstrate, in addition to the selection criteria approved by the Governing Body:

a) that they address the major goal of achieving sustainable food security through the conservation and use of PGRFA to assist farmers to adapt to climate change:

b) that they have the potential for a short-term impact ('quick win');

c) that they respond to a clear priority need, as expressed through already existing strategies or plans; and

d) that they are country driven and demonstrate a clear engagement with, and participation by relevant stakeholders.

58. Further suggestions regarding more specific criteria that could be applied in the case of these 'quick win' projects are given in Appendix 3.

59. Implementation or action projects, whether in the next or subsequent rounds, should be of an adequate size to have a significant impact. They are likely to involve many different stakeholders as partners acting in consortia; often, though not necessarily, the same institutions and consortia that developed the original strategic plans on which the projects concerned are based. Such implementation projects will thus generally have to be considerably larger than those funded in the first round, and it is recommended that projects be funded up to a maximum size of USD 1 million or even more if sufficient funding becomes available. (For the next – second - cycle, however, given the likely limited availability of funds and lack of strategies, 'quick win' projects might be limited to a maximum of about USD 300,000.)

60. Implementation projects would normally run for a period of three years but they could be renewed for a second (or even third) phase providing milestones are met, funding is available and the work remains a priority for the Governing Body.

61. In order to bring adequate resources to bear on the problem of helping farmers adapt to climate change, beyond those which the BSF itself is able to provide, the BSF should encourage prospective grant recipients to seek additional funds from other funding sources, whether national or international, that share similar or complementary objectives. These might include, for example, the Global Crop Diversity Trust, The Global Adaptation Fund, GEF, UNDP, other

multilateral and bilateral donors, programmes and foundations. The proposals should also make clear the resources that the potential recipients and project partners themselves bring to the table.

62. Such multiple funding sources might be managed in a variety of ways, for example:

a) all funds provided might be pooled and managed by a single institution – whether the BSF, another donor or one or more recipients;

b) funds might be provided by donors in parallel, but in a well coordinated way, either to the same or different recipient organizations, and for the same or different elements of an overall programme. The BSF, another donor, or one or more of the recipients, acting alone or in a consortium, could provide the necessary overall coordination; or

c) a combination of the above could be used.

63. Whatever mechanism is used, it is important that the BSF request recipients, in the Call for Proposals, to identify actual and potential additional funding sources. Assistance might also be provided to potential recipients to help them identify and secure additional funding for specific projects, by the Secretariat of the International Treaty and/or by other institutions that have extensive experience in putting together funding consortia.

64. Efforts should also be made (by the project proponents, possibly with advice and assistance from the Treaty Secretariat or others) to ensure the projects supported by the BSF dovetail with other related projects and programmes.

7. CALL FOR PROPOSALS

65. As recommended above, the next (second) Call for Proposals, in mid-2010[26], should invite proposals both for projects to develop appropriate strategic plans as described above, as well as for 'quick win' action projects that are expected to have an early impact. The following (third) Call for Proposals, two years later, would provide further, more limited support for additional strategic plans in areas not already covered, but would focus mainly on action projects and especially those that support the implementation of the strategies developed in the earlier cycle. In subsequent cycles, consideration might also be given to allocating a small percentage of the funds to support learning and knowledge exchange activities, once a number of projects are up and running.

66. The process for calling for proposals has been outlined in considerable detail in Appendix D.3 of the Funding Strategy and is appended to this report as Appendix 2 for ease of reference. Additional comments and suggestions are given below on certain elements of this process:

1) Call for pre-proposals: In order to ensure a sufficient number of good quality proposals the Secretariat might wish to proactively encourage certain institutions or groups of institutions to support Parties in preparing and submitting pre-proposals; of course with no guarantee of their ultimately being awarded a project grant. Thus, for example, members of the *Ad Hoc* Advisory Committee on the Funding Strategy, regional or international institutions, and/or regional or other crop genetic resources networks might specifically be invited to consider working with relevant Parties to develop and submit pre-proposals. It is recommended that the deadline for submitting pre-proposals be at least 8 weeks after the call is issued[27] to allow sufficient time for the preparation of the pre-proposals by multiple institutions and consortia.
2) Review of pre-proposals: In order to assist the Secretariat, it might be useful for all pre-proposals to be subjected to an independent expert review. This would look not only at such areas as the priority of the subject matter, technical merit, quality, feasibility, novelty

[26] The first call for proposals was in 2008.

[27] The times indicated in this section are all extremely tight and should be extended if at all possible.

etc., but also evaluate the capacity of the institutions involved to take on the proposed work. The time required for such a review would be at least 4 weeks.

3) Selection of pre-proposals: A limited number of pre-proposals would be selected by the Bureau (with advice from the Secretariat) to go to the full proposal stage. It is important that programme priority and technical merit be the major basis for selection without ignoring the need to achieve, to the extent possible, a balance of projects among the regions that compose the Treaty. It should be made clear to applicants that the decision to proceed to a full proposal would not imply the project would necessarily be funded. It is suggested that between 1.5 and 3 pre-proposals be selected for each project to be finally approved.
4) Feedback on pre-proposals: the Secretariat should be prepared to provide feedback to the successful pre-proposal applicants in order to help guide them in the preparation of the full proposal (see 'Help Desk' below), again without any guarantee of final grant approval. It might be possible, for example, to suggest to applicants to combine two or more pre-proposal submissions into a single, more comprehensive full proposal. It is recommended that the time from informing an applicant that his or her pre-proposal has been accepted, to the deadline for submitting a full proposal, be a minimum of 3 months (and ideally at least 4 to 6 months).
5) Full Proposal review: It is recommended that the full proposal be subjected to a more extensive external, independent peer review process with the resulting advice being made available, through the Secretariat to the Bureau.

8. HELP DESK

67. It is likely that parties will both require, and seek, some kind of technical support to assist them to develop proposals. It would thus be highly desirable for the Treaty Secretariat to provide a Help Desk for this purpose that would draw upon existing institutions and programmes that support the implementation of the Treaty.

68. Such a Help Desk might be set up and operate as follows:

- The Help Desk would be coordinated by the Secretariat of the International Treaty;
- It might operate, at least in part, through the services of a roster of regional or international experts as well as through services provided by appropriate national or international institutions;
- International institutions and programmes that might assist the Help Desk include the Treaty/FAO/Bioversity Joint Programme on Capacity Building for the Implementation of the International Treaty,[28] FAO, UNDP, the Global Crop Diversity Trust and the Centres of the CGIAR;
- After a pre-proposal has been selected for further development the Help Desk might offer proponents support to help them prepare the full proposal. Such support might include technical expert advice (e.g. in the conservation and use of PGRFA, institutional or policy matters, or climate change and adaptation strategies), and provision for consultation among prospective project partners;
- It could also establish and promote mechanisms to assist knowledge exchange and learning between the projects and parties in different countries, regions and agro-ecological zones;
- All support provided would be subject to available funding, which would be mobilized through existing channels, such as through a window of the Joint Programme or through one or more partner institutions.

69. The Ad Hoc Advisory Committee and Bureau might wish to support this initiative and encourage the provision of the necessary financial support from interested Parties and donors.

[28] The Governing Body has twice welcomed the Joint Programme that has been established for the implementation of the Treaty (see reports of the Second and Third Sessions of the Governing Body).

9. CONCLUSIONS

70. The BSF is an exciting initiative that aims to provide funds for the implementation of the International Treaty. However, at least in its early years, the BSF is likely to be limited in size and it is vital that its resources be allocated in a coherent, coordinated and focused manner to areas of highest priority and highest expected impact, especially in developing countries. This document makes some suggestions as to how this might be realized through allocating funds to help the most vulnerable farmers and rural communities achieve sustainable food security in the face of climate change, through appropriate support for the conservation and use of PGRFA.

71. International policies and actions to address the impact of climate change on agriculture are evolving rapidly. The Treaty will therefore need to further articulate and implement its unique inter-governmental mandate for the management and exchange of plant genetic resources, and translate this into concrete action programmes for the benefit of developing countries that can draw substantial resources to the Funding Strategy and the BSF.

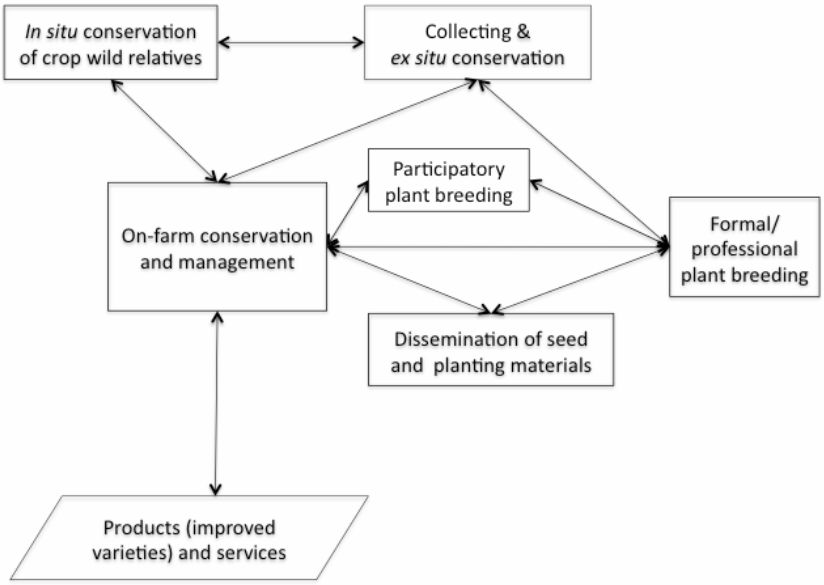
Appendix 1

KEY ACTIVITIES IN THE CONSERVATION AND USE OF PGRFA FOR ENSURING FOOD SECURITY IN THE FACE OF CLIMATE CHANGE

This Appendix provides a brief overview of the range of activities and institutions concerned with the conservation and use of PGRFA to ensure sustainable food security. With the growing need for agriculture to adapt to climate change, the importance of these activities and institutions will increase as will the need for greater partnerships and coordination among them. Fig 2 illustrates key activities and linkages among them.

At least for the foreseeable future, the Benefit Sharing Fund will be unable to support activities in all the areas shown in Fig. 2 and, for reasons given in the main text, it is proposed that at least for the next two rounds of funding, activities supported directly by the fund be limited to the on-farm conservation and management of PGRFA, participatory plant breeding and the dissemination of seeds and other planting materials.

Fig 2: Key activities involved in the conservation and use of plant genetic resources for food and agriculture



On-farm conservation and management of PGRFA: Farmers play a central role in the conservation and management of PGRFA. In this respect, farmers, as custodians and managers of genetic diversity, have much to offer both their own communities and the world more generally as a result of their efforts to conserve PGRFA, improve it through breeding and selection and through making it available for use by others. Recognizing and strengthening the contribution of farmers in these areas is an important objective of the Treaty. As the magnitude, specific environmental consequences and speed of climate change are uncertain for most parts of the world, managing, and in many cases increasing genetic diversity within agricultural systems, represent an important strategy for increasing resilience. Individual farmers, rural communities, farmer organization and many institutions that directly support the work of farmers (e.g. extension services, credit agencies, farm input suppliers, research institutions, development NGOs, FAO

etc.) can all contribute to enhancing farmers' efforts to conserve and manage PGRFA.

In situ conservation: In addition to conserving local crop varieties, landraces and even some wild relatives on-farm, the *in situ* conservation of crop wild relatives is important for helping ensure that the genetic diversity needed for improving crop varieties remains available long into the future. Crop wild relatives harbour many important traits that can be transferred to the cultivated species – traits that are likely to become ever more important for maintaining productivity in the face of climate change (for example the ability to tolerate drought, high temperatures, soil salinity, water-logging, or new pests and diseases). However, many of the species conserved in protected areas and under special management regimes outside of such areas, are likely to remain vulnerable to the effects of climate change and become further threatened as ecosystems shift. A considerable amount of work is needed to identify vulnerable species and populations and to design and take the necessary steps to ensure their survival. In many cases both *in situ* and *ex situ* approaches will be needed. Institutions involved in the *in situ* conservation of PGRFA include environmental ministries and associated institutions, national parks, environmental NGOs, botanical gardens, genebanks and other genetic resources institutions, universities, research institutions, United Nations Agencies (FAO, UNEP, CBD) etc.

Ex situ conservation: Collecting samples of cultivated crop varieties and landraces, as well as their wild relatives is critically important. Many will not survive on-farm or in the wild, especially with the effects of climate change becoming ever more severe. A major effort has been undertaken around the world over recent decades to collect plant germplasm – but greater efforts are still needed, especially to collect samples of the more minor crops, fruits and vegetables as well as crop wild relatives. Furthermore, much of the material already collected is inadequately conserved and remains under threat, and is often unavailable for distribution. Recognizing this situation FAO and the CGIAR established the Global Crop Diversity Trust to support and fund efforts to improve the *ex situ* conservation of PGRFA, and to make sure it is available for use. The Trust is an essential element of the Funding Strategy of the International Treaty and close partnership between the Trust and the BSF is vital. In addition to the Trust, institutions involved in the *ex situ* conservation of PGRFA include, national, regional and international genebanks, botanical gardens, FAO, private companies, rural communities (community genebanks) and universities.

Plant breeding: The development and dissemination of new crop varieties, coupled with appropriate cultural practices, represents one of the most powerful means of improving agriculture and increasing agricultural productivity. It was the breeding and production of new varieties and associated practices that underscored the dramatic increases in wheat and rice production in Asia and Latin America in the 1970s and 1980s. Far greater efforts are now needed to develop improved varieties that will not only produce more, and better quality food, to feed the worlds burgeoning population, but that are also more environmentally friendly. Furthermore, with the effects of climate change kicking in, this increased productivity must be achieved under rapidly changing environmental conditions and associated shits in pest and disease spectra. Given that it takes 10 to 15 years to breed, test, multiply and disseminate a new variety, it is imperative that efforts be expanded rapidly, to breed varieties that are suitable for the conditions that will prevail 10 to 20 years hence. Our ability to predict what these conditions will be for any given area needs to be substantially improved in order to more effectively target such breeding efforts. Major formal sector institutions involved with plant breeding include; public plant breeding institutes, private plant breeding companies, international agricultural research centres, FAO, biotech companies and universities.

Participatory Plant Breeding: While much of the world's plant breeding is carried out by professional plant breeders working in the public or private sectors, in many countries farmers are themselves also actively involved in improving their crops. Concerns have been expressed that in many countries the formal sector breeders do not adequately address the needs of resource-poor farmers, and tend breed varieties that are better suited to the agricultural systems of the commercial farming sector. Resource-poor farmers, on the other hand, frequently lack the skills, knowledge and access to genetic diversity of professional breeders. In order to address this

situation, new breeding approaches have been developed that aim to bring professional breeders and farmers together in joint programmes to improve the crops that are important to the poor. In such approaches, referred to as participatory plant breeding, much of the research and selection work is carried out on-farm, with the aim of ensuring that the resulting varieties are adapted to local conditions and meet local social, cultural and economic needs and preferences. In addition to the formal sector institutions listed above, institutions involved in participatory plant breeding include farmer cooperatives, other farmer and rural community organizations, and developmental NGOs.

Dissemination of Seed and planting materials: Improved varieties are of no value unless they reach, and are grown by farmers. Seed production and delivery systems may involve, for example, small or large, public or private seed companies, as well as other often less formal arrangements for disseminating improved varieties directly among farmers themselves. In many countries such systems are inadequate and need to be strengthened considerably if efforts to develop improved varieties are to have their desired impact. A number of international institutions, including FAO and the CGIAR Centres, are actively supporting efforts to strengthen the seed sector.

Appendix 2

OPERATIONAL PROCEDURES FOR THE USE OF RESOURCES UNDER THE DIRECT CONTROL OF THE GOVERNING BODY[29],[30]

This Annex contains Principles, Project Cycle and Selection Criteria.

I. Principles

These operational procedures are based on the following principles:

1. Transparency and impartiality.
2. Simplicity and accessibility.
3. Efficiency and effectiveness.

II. Project Cycle

The project cycle (the period between the meetings of the Governing Body) will normally have a duration of two years and consist of:

1. Opening a call for proposals

   a. issued by the Governing Body, in the official languages of the Treaty, and containing relevant information and procedures – priority areas;18 concept note and project documents format; eligibility, selection and approval criteria; timing and deadlines; expected funds available;

   b. advertisement on the Treaty website and through the national focal points;

   c. responsibility: prepared by the secretariat, under the guidance of the Bureau, and implemented on the decision of the Governing Body.

2. Submission of pre-proposals

   a. in any of the Treaty languages plus a translation in either English, French or Spanish;

   b. according to an agreed format and within agreed deadlines;

   c. target: 2-3 pages;

   d. addressing the selection criteria;

[29] IT/GB-2/07/Report, Appendix D.3.

[30] The Governing Body may wish to address the following issues: whether moneys under the direct control of the Governing Body should, where applicable, only be applied to Annex 1 Crops; whether the germplasm resulting from projects funded by the Governing Body should be made available according to the terms and conditions of the Multilateral System.

e. responsibility: Contracting Parties or legal or natural persons, in consultation with the Contracting Party or Contracting Parties in question. The formal submission should be by Contracting Party or Parties in question to the Secretary of the Governing Body;

3. Screening and response to pre-proposals

a. according to eligibility criteria;

b. according to other relevant criteria established as part of the call for proposals, e.g. budget parameters;

c. response to be provided within agreed timelines;

d. responsibility: Bureau, on the basis of preparatory work by the Secretariat. The Bureau might work through email, and make its final decisions in a regular meeting.

.

4. Submission of project proposals from approved pre-proposals

a. in any of the Treaty languages plus a translation in either English, French or Spanish;

b. according to an agreed format for project documents and within agreed deadlines

c. addressing the selection criteria;

d. recipient and channels of payment will be identified;

e. Contracting Parties to be responsible for making submissions;

f. list of submissions to be made public;

g. responsibility: Contracting Parties or legal or natural persons, in consultation with the Contracting Party or Contracting Parties in question. The formal submission should be by Contracting Party or Parties in question to the Secretary of the Governing Body.

5. Appraisal of project proposals

a. ranking of project proposals according to selection criteria;

b. portfolio of project proposals meeting the requirements prepared for approval within agreed deadlines;

c. portfolio to be made public;

d. responsibility: Bureau, on the basis of recommendations by a panel of experts designated by the Bureau in consultation with their Regions. The panel of experts will work without remuneration with resources provided under the core administrative budget for any meeting necessary.

6. Approval of projects for funding within the project cycle

a. according to the funds at the disposal of the Governing Body in that project cycle;

b. according to other possible considerations, such as geographical balance and relative regional needs, distribution across crops, types of activities (e.g. capacity-

building and training, conservation and use of plant genetic resources for food and agriculture), the duration of the Project;

c. projects not fundable within that year will be presented to donors for possible funding, or may be re-submitted in the following budgetary period;

d. responsibility: Governing Body, or, if delegated[31], the Bureau.

7. Disbursement

a. transparent and secure procedures necessary;

b. responsibility: Secretary, according to procedures to be approved by the Governing Body.

8. Reporting and monitoring

a. use of standard reporting and monitoring procedures;

b. recipients will report according to a reporting schedule in the project document, and will assess progress at milestones identified in the project document;

c. further development of the monitoring procedures can be found in Appendix II to the document;

d. responsibility for project monitoring: The executing entity develops the monitoring products and deposits them with the Secretary, according to procedures to be approved by the Governing Body.

9. Independent Evaluation

a. use of standard evaluation procedures based on norms and standards of the United Nations Evaluation Group;

b. evaluation of the sustainable effects and impacts of projects or groups of projects, providing accountability on results and aiming at facilitating the further development of the Funding Strategy;

c. evaluation of the components of the Funding Strategy addressed under this annex will be periodically commissioned by the Governing Body;

d. responsibility for evaluation: the Governing Body.

III. Selection Criteria

1. Project relevance.

a. Are the priorities of the Funding Strategy and the strategic principles and priorities established by the Governing Body for the allocation of funds at its disposal clearly incorporated and represented in the proposed goals and expected outputs of the

[31] The Governing Body may wish to delegate the possibility to approve projects between sessions, within an agreed ceiling and up to a limited percentage of the total budget available in the project cycle, and under which circumstances.

proposal?

b. Is the project contributing to a rational global conservation system? Is the project contributing to the Millennium Development Goals, in particular goals 1 and 7?

c. What is the relevance of the project to a country's or region's priorities in its plans and programmes for PGRFA? What information is available on such priorities?

d. Does the project duplicate activities already carried out or underway? Does the project complement activities already carried out or underway?

2. Feasibility

a. Is the proposed activity feasible in terms of resources and timing? In particular, is the budget adequate to fully cover the proposed activities and produce the expected results?

3. Effectiveness and efficiency

a. Are the anticipated project costs warranted against the expected project results and benefits?

b. Are the types of activities most effective towards achieving the project's net results, its outcome and impact?

4. Benefits and beneficiaries.

a. Who are the immediate beneficiaries?

b. Will the results of the proposed project, directly or indirectly, reach the proposed beneficiaries?

c. What is the potential contribution of the project to economic development?

5. Team composition and capacity.

a. Can the capacity of the team be considered sufficient? Does the team include partners with different disciplines?

b. Does the project proposal foresee use of available local expertise?

6. Collaboration.

a. What is the extent of collaboration promoted by the project proposal?

b. How does this collaboration contribute to the effectiveness and efficiency of the project?

c. Is there counterpart funding or input in kind by the applicant?

7. Planning and Monitoring.

a. Have proper milestones and indicators been incorporated in the project proposal?

b. Does the proposal indicate how project progress will be monitored and its impact assessed?

c. To what extent is the expected positive impact measurable?

8. Sustainability.

a. How sustainable are the activities and beneficial changes introduced by the project?

b. Is technology transfer and capacity building realized?

c. Has a training component been incorporated?

9. Geographic extension.

a. How wide is the geographic scope and impact of the proposed project?

b. What is the global and/or regional importance of the project in achieving the objectives of the Treaty?

10. Crop relevance.

a. What is the contribution of the crop or crops, for which activities are proposed, to global or regional food security and sustainable utilization?

b. What is the relevance of the crop or crops, for which activities are proposed, to the quality and diversity of the human diet or animal feed?

c. What is the contribution of the proposed project to conservation and utilization of the crop's or crops' gene pool?

d. Is the project addressing the conservation and/or utilization of a crop in one of its centres of diversity?

e. To what extent is the gene pool covered by the proposed project activities threatened at a national, regional or global level?

Appendix 3

PROPOSED ADDITIONAL CRITERIA FOR AWARDING GRANTS IN THE SECOND FUNDING CYCLE OF THE BSF FOR 'QUICK WIN' PROJECTS THAT HELP FARMERS CONSERVE AND USE PLANT GENETIC DIVERSITY TO ACHIEVE SUSTAINABLE FOOD SECURITY IN THE FACE OF CLIMATE CHANGE

- The proposed projects must address the adverse impacts of, and risks posed by, climate change to particularly vulnerable farming communities, ideally in more than one Contracting Party country. The target beneficiaries may be defined, for example, by specific climate threat, specific farming system or agro-ecosystem, or a coherent regional or sub-regional grouping.
- The project pre-proposal must clearly identify the problem, the information that needs to be gathered or generated, and the methodologies that will be used to identify and prioritize adaptation responses. [32]
- Project pre-proposals should identify a coherent and representative group of institutions (a 'consortium') that will implement the project, with clearly defined roles and responsibilities.
- Projects should make specific provision for describing the lessons learned in the implementation of project activities.
- The pre-proposals should, whenever possible, specify the farmers or farming communities that are expected to benefit from the proposed project in their food security and their adaptation to climate change.
- The proposals may also support the integration of plant genetic resources components into sub-regional, national or regional plans for adapting to climate change.

[32] Reference may be made, for example, to information in the *Fourth IPPC Assessment Report* and the *Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture*.