

The Role of the Global Crop Diversity Trust in Helping Ensure the Long-Term Conservation and Availability of PGRFA

-- an overview --

May 2007

Explanatory Note to the Paper

The paper that follows examines the role that the Global Crop Diversity Trust could play in encouraging the development of a more efficient, effective and sustainable system for the long-term conservation of PGRFA in accordance with the Trust's Constitution, the Global Plan of Action and the International Treaty.

The Trust must be goal-oriented and disciplined if it is to achieve its mission. It cannot be "all things to all people." Nor can it afford to fund all PGRFA-related activities, not even all the good and worthwhile ones. It must be mindful of its mandate, focus its energies and resources and be clear about what it can and should fund, and what it (fortunately, or unfortunately) cannot and should not support. But, to do this, it must make at least some basic assumptions about what a more efficient, effective and sustainable system would look like, simply in order to know in which direction to proceed.

This paper addresses such topics, making transparent the assumptions upon which the Trust bases its work. It is not the "last word" on the subject. The development of an improved conservation system will be an iterative process. The Trust will have to adapt and adjust along the way, altering its strategy and adjusting its priorities as appropriate.

The Interim Panel of Eminent Experts, the Trust's interim board, at its 8th Meeting in April 2006, "welcomed, endorsed and decided to keep under permanent review the paper as an important and clear statement of the Trust's role, and noted that it would provide a valuable framework to guide the operations and funding decisions of the Trust."

I. Introduction

All will agree on the desirability, indeed the necessity, of conserving plant genetic resources for food and agriculture (PGRFA). Similarly, most would also recognize that doing this in an efficient and cost effective manner is a prerequisite for success, and for the sustainability of the effort.

This paper identifies the major areas of work in this field in which the Global Crop Diversity Trust is most interested in being involved. It is appropriate that the Trust defines such priorities and makes them transparent. The paper explicitly acknowledges the assumptions that underlie the Trust's goals and funding priorities. Implicitly at least, this provides a sketch of what a more efficient, effective and sustainable global system for *ex situ* conservation of PGRFA might look like.

There are almost 1,500 genebanks in the world housing some 6.5 million samples of plant germplasm, of which some 1-2 million are thought to be distinct. There is thus a high degree of duplication among samples, much of it unplanned. Nevertheless, many samples are unduplicated and are maintained under conditions that threaten their long-term survival.

Recognizing this situation, the FAO Global Plan of Action (GPA), adopted by 150 countries in 1996, calls for action to safeguard "*as much existing unique and valuable diversity as possible in ex situ collections of plant genetic resources for food and agriculture.*" Furthermore the GPA calls on countries to "*develop an efficient goal-oriented, economically efficient and sustainable system of ex situ conservation*" and to "*develop and strengthen cooperation among national programmes and international institutions to sustain ex situ collections...*"

More recently, the International Treaty on Plant Genetic Resources for Food and Agriculture, adopted in 2001, requires that Parties "*cooperate to promote the development of an efficient*

and sustainable system of ex situ conservation". It also calls for international cooperation to enhance international activities to promote, *inter alia*, the conservation, evaluation and documentation of PGRFA.

In response to such calls, the Global Crop Diversity Trust was created in 2004 as an independent fund under international law. The Trust is co-sponsored by FAO and by IPGRI on behalf of the Centers of the CGIAR. While a large number of countries, foundations, private companies and individuals have contributed funds, the Trust has not yet assembled all the financial resources that will be necessary to realize its ambitious and vitally important goals.

An essential element of the funding strategy of the Treaty, the Trust's overall objective, as stated in its Constitution, is "to ensure the long-term conservation and availability of plant genetic resources for food and agriculture with a view to achieving global food security and sustainable agriculture." In large part, it plans to achieve this objective by helping existing institutions safeguard distinct and valuable plant genetic resources held *ex situ*, with priority given to collections that come under the International Treaty's Annex I or under Article 15.1(b) of the Treaty.

Because no one organization or fund could ever undertake to finance all worthwhile activities associated with such an objective, the Trust, out of necessity, will *focus on* activities that provide *global benefits* and that are *cost-effective, efficient and sustainable*. Any other approach would, in the context of limited resources, reduce the sum of benefits to be derived from the Trust's efforts or substantially increase the total size of the Trust fund needed to achieve the Trust's objectives. The benefits to be provided by the Trust should not be measured by the funds it disperses, but by what is accomplished globally with those funds.

There are many different types of collections – from those intended to meet the needs of local communities or institutions, and collections intended primarily to serve national needs, to collections maintained by international institutions for distribution to all *bona fide* users throughout the world. Some collections are narrow and specialised, others are large and contain materials from many different countries and/or regions. Though important for different reasons and to different constituencies and interests, not all collections are necessarily of equal relevance in building a conservation system that is efficient and effective internationally rather than purely locally or nationally. Not all are equally deserving of international support to achieve global objectives. This paper concentrates mainly on the international dimensions of *ex situ* conservation, as it is principally at this level that the Trust, as an international institution, aims to provide its support. The Trust understands and welcomes the fact that collections that fall outside its particular funding purview will continue to operate and serve the needs of their holders.

II. Assumptions Underpinning the Trust's Work

While the GPA and International Treaty call for action to increase the efficiency and effectiveness of *ex situ* conservation, they give little detailed guidance on how this might best be achieved. In the absence of such guidance, the Trust, like all other institutions in this field, must make certain assumptions in order to be able to move ahead. What are those assumptions?

- First, it has been assumed that an efficient and effective conservation system must, at a minimum, be capable of carrying out a range of functions including acquisition, storage and maintenance, safety duplication, regeneration, multiplication, characterization, evaluation, documentation, distribution and promotion of the use of the material.
- Second, that existing institutions and facilities constitute the starting point, and that the Trust should take account and advantage of this and build upon it through helping to develop and improve existing capacity in a progressive fashion without needlessly duplicating or substituting that existing capacity where it already is accomplishing its task.

- Third, that while any action must be firmly based on sound scientific and technical principles, to be effective, due account must also be taken of social and political realities.
- Fourth, it has been assumed that increasing overall efficiency and effectiveness can be achieved through a number of specific actions such as developing common databases, reducing unnecessary duplication, achieving a better division of labour and strengthening collaboration.
- Finally, it has been assumed that a robust global conservation system will require and benefit from concrete participation by all relevant institutions, not just those directly involved in providing long-term storage services. Conservation is not synonymous with storage. Consequently, Trust support will extend beyond the narrow storage function. It will promote conservation in a manner that promotes access and encourages use.

III. Securing Diversity & Improving the Efficiency, Effectiveness and Sustainability of Conservation

While the Trust is an essential element of the funding strategy of the International Treaty and plays an important role in funding key priority activities of the GPA, it is clearly not, nor ever will be, in a position to support all activities that are important to conserving PGRFA efficiently and effectively worldwide. Hard choices have to be made as to what to support and what not to support. This is particularly so at this early stage of the Trust's existence when funding is considerably less than the minimum amounts required to ensure adequate conservation and availability of all important PGRFA.

Although there are many genebanks in the world, relatively few have both the capability of managing and conserving the collections within them for the long term in accordance with accepted guidelines, and the capability of distributing healthy materials internationally in a timely manner. From a pragmatic point of view, and recognizing that it is not feasible to design and build a new international conservation system from scratch, collections maintained in facilities that already have, or are close to having this capability must inevitably form the backbone of any international system. These are the collections that the international community, South and North, have come to depend on, and on which the Trust must build. We describe these as "model reference collections." Whenever these collections are already securely conserved, and reliably financed, the Trust will, for the most part, consider it unnecessary to use its limited funds to support this work or support others in duplicating it. The Trust will look to activities that can add to this, not to replicate it. The Trust will thus focus its attention on conserving diversity not already secured and to providing funding when it is really needed.

There are three major areas that the Trust will be involved in and support (*Figure 1*):

1. Securing PGRFA

Based on the assumptions made earlier, and as a matter of priority and urgency, the Trust will allocate the largest share of its funds to securing distinct and valuable PGRFA by:

- a) supporting collections that meet international guidelines for conservation and distribution (referred to by the Trust as reference collections), but which are in need of longer-term financial support to ensure that standards are adequately maintained;
- b) upgrading collections to meet international guidelines in cases where this is the most efficient and cost effective way to proceed; and,
- c) duplicating and securing important collections of materials that are not already represented in a reference collection, from facilities that are unable to meet or be economically upgraded to accepted guidelines, to ones that can. This process might involve a number of related steps to help the institution providing the material to characterize and/or evaluate the collection (to confirm its uniqueness and relevance at the global level), to undertake

multiplication and regeneration, or to update its databases to bring them in line with common data standards.

Figure 2 shows a decision tree for use by the Trust in determining which of these categories a particular collection falls into, as a basis for targeting funding.

2. Promoting Participation / Increasing Benefits

The Trust will allocate a certain amount of funding to support activities of international significance in collections that do not – or not yet - meet international guidelines for conservation and distribution. This might include, for example, support to national collections for activities such as:

- building documentation systems that are compatible with international protocols
- characterization and evaluation for traits of international significance
- activities to conserve and make available local and indigenous knowledge about the materials
- collecting to fill gaps within the total gene pool conserved by all participating collection holders
- activities that promote access to and use of materials – and in particular the two-way links with farms and professional plant breeders activities to strengthen the participation of national programmes within the international arena e.g. through strengthening their role in the transfer of materials into and out of the country.

Many of these activities will take place at the national and local level. The Trust anticipates providing resources, as feasible, to regional and crop networks to support and coordinate such activities. (Model reference collections will also be eligible for such funding, if needed, though the Trust wishes here to highlight the eligibility of other collections.)

3. Increasing efficiency and effectiveness within and between collections

In order to reduce costs, and increase sustainability, the Trust will help reference collections collectively improve their efficiency and effectiveness through such action as promoting greater collaboration, strengthening common databases, reducing unnecessary duplication, etc. For the most part, activities in this area will be undertaken after those outlined above are well underway.

IV. A Staged Approach

As outlined above, the initial and primary focus of the Trust will be on identifying, securing and promoting the availability/use of those collections and accessions of PGRFA that are most important to global agriculture.

Secondly, the Trust will focus on regional, national and local activities that support this objective.

As the Trust's endowment fund grows and as the targeted genetic resources become securely conserved, the Trust will then be able to devote attention to increasing efficiencies in the management of those resources by reference collection holders.

The work of the Trust in these areas will be guided and influenced by the regional and crop strategies being developed by experts and stakeholders in cooperation with the Trust. It will also make use of the latest data and analytical tools (e.g., GIS-genetic diversity modelling) to evaluate likely diversity to be found between collections. Initially the strategies will concentrate on identifying the larger, more diverse collections and assessing whether or not they meet international guidelines for conservation and distribution. For those that already meet the

guidelines, an assessment will be made of their funding needs, if any. For the most important collections that do not meet the guidelines, an assessment will be made of what it would take enable them to do so. In addition, the strategies will also begin to identify other priority activities that would be most cost-effective in strengthening the overall conservation efficiency and effectiveness of a particular genepool. The strategies are seen by the Trust to be “rolling” and will continue to evolve over time in response to changing needs and circumstances.

V. Translating the Analysis into Funding Decisions

The analysis outlined in section III above will enable various functions to be identified for individual collections within an international context, and the type of support they may need to carry out these functions effectively. From this starting point, the Trust will need to decide exactly what collections and activities to fund. Such decisions will be based on the Eligibility Principles and Criteria (see Annex 1) as well as additional factors such as the priority of the crop concerned, the total available funding, the availability of alternative funding sources, and the total cost, cost-effectiveness and opportunity cost of the proposed activities. The Trust will allocate its resources with the aim of achieving the greatest overall positive impact on conservation, i.e. maximizing the amount of genetic diversity safeguarded within collections that meet international guidelines for conservation and distribution, and that are able to operate individually and collectively in a highly efficient and effective manner.

At this time the Trust is not in a position to consider unsolicited proposals for funding. It will invite proposals associated with priority collections identified by relevant crop and regional strategies. Proposals will be subject to scientific review. The Trust will monitor funded activities, require timely financial and programmatic reports; and measure impact and effectiveness. It is anticipated that most funding will be granted, through contracts, on a multi-year and a matching basis.

VI. Conclusions

It is imperative that greater efforts be made to ensure that the world’s vital PGRFA are conserved for the benefit of current and future generations. The Trust has a vital role to play as a funding agency dedicated to this task. However, the Trust has limited financial resources at its disposal and needs to make hard decisions if it is to maximize its impact. The approach chosen is logical and pragmatic: to build on the current situation in a stepwise manner. The Trust will concentrate, at least initially, on securing the largest and most diverse collections and collections that are otherwise judged to be important to the world community. While doing this, efforts will also be made to involve all collection holders in the international effort.

The Trust believes the approach outlined herein is pragmatic, scientifically-based and achievable. It will provide significant benefits to all through ensuring that the most important PGRFA for food security and sustainable agriculture are effectively and efficiently conserved and made available internationally to all who need them.

Figure 1. Three Major Areas for Trust Involvement and Support

Securing Collections of Distinct and Valuable PGRFA

- the highest priority -

E.g. through Trust support for maintenance, provision of funds to address emergencies, support for information generation and services, funds to defray distribution costs, etc.

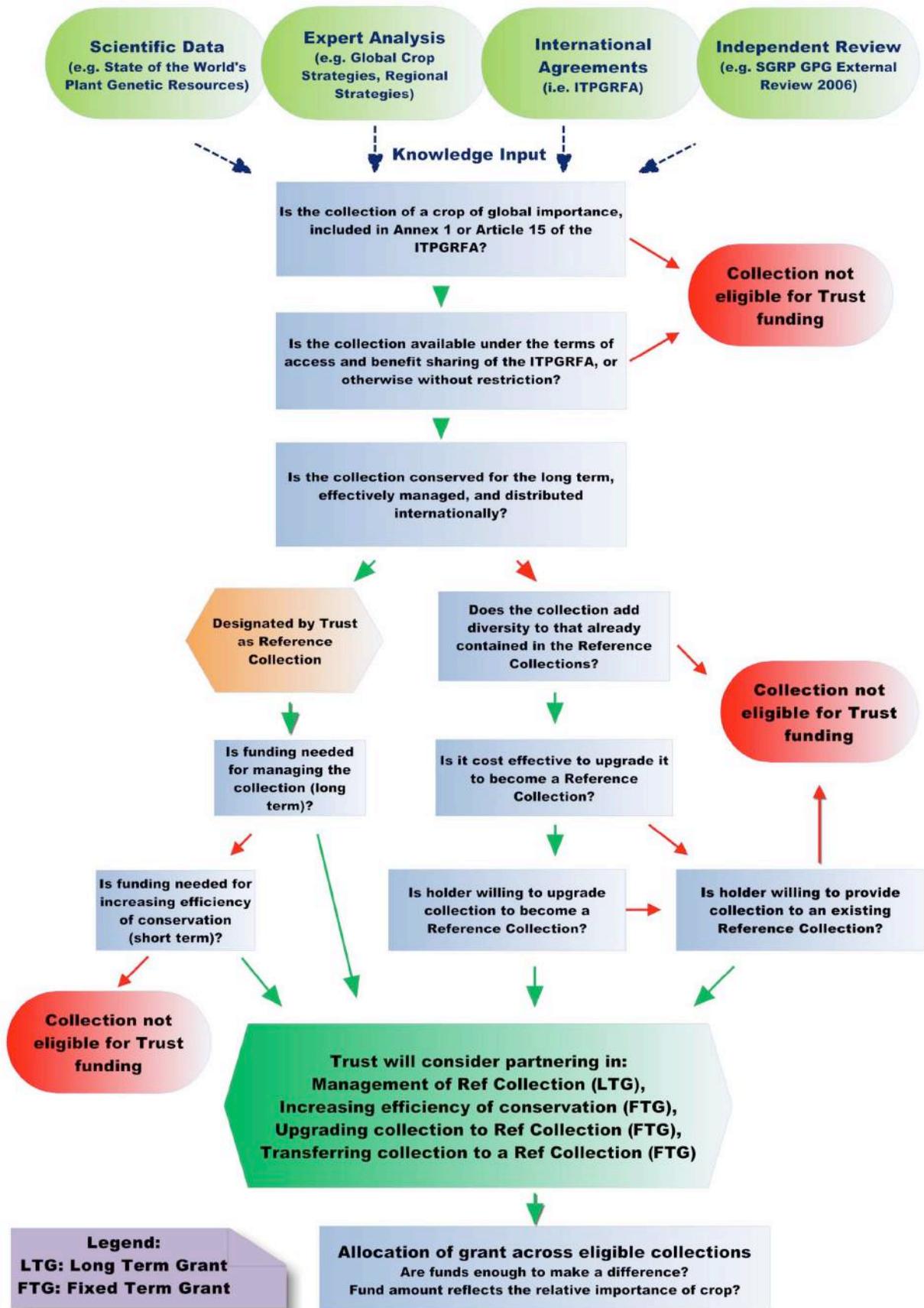
Increasing and Improving the Capacity of All to Participate in, Contribute to, and Benefit from the Emerging System for Long-term Conservation of PGRFA

E.g. through Trust support to Regional and Crop Networks for relevant network and country activities

Increasing Efficiency and Effectiveness of Long-term Conservation in the Reference Collections

E.g. through: Trust support for data bases, cooperative agreements between collection holders, better division of labour, etc.

Decision process for assessing collections as eligible for Trust funding



Annex I. Principles and Funding Criteria

The Trust, in working towards the development and maintenance of an efficient and effective global conservation system, has adopted four basic principles that must be met in order for a collection to be eligible for support.

- The plant genetic resources are of crops included in Annex 1 or referred to in Article 15.1 (b) of the International Treaty.
- The plant genetic resources are accessible under the internationally agreed terms of access and benefit sharing provided for in the multilateral system as set out in the International Treaty.
- Each holder of plant genetic resources for food and agriculture commits itself to long term conservation and availability.
- Each recipient of funds from the Trust shall undertake to work in partnership with the aim of developing an efficient and effective global conservation system.

In addition to, or to amplify these principles, the Trust has developed a set of more specific criteria to be met before a collection will be considered for long-term funding support. In cases where a collection meets the principles and is prioritized for Trust support, but is unable to meet the funding criteria, the Trust will consider providing support for the upgrading and capacity building needed to allow it to do so.

The long-term funding criteria and the way in which they are applied will be kept under review and revised as needed. However, initially there will be six criteria.

- The recipient has effective links to users of plant genetic resources.
- The plant genetic resources are judged to be important within the context of an agreed regional or crop conservation strategy.
- The legal status of the collection and holder are such that their ability to meet the eligibility principles with respect to access and benefit-sharing, and their commitment to long-term conservation are assured.
- The recipient is willing to act in partnership with others to achieve a rational system for conserving plant genetic resources and making them available.
- The recipient has the human resources and management systems needed to maintain the plant genetic resources and can demonstrate conformity with agreed scientific and technical standards of management.
- The facilities in which the collection is maintained are adequate to ensure long-term conservation.