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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 9 of the Provisional Agenda

INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Seventh Session

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REPORT FROM THE GLOBAL CROP DIVERSITY TRUST TO THE INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. Established in 2004 under international law as an independent international organization, the Global Crop Diversity Crop Trust (the Crop Trust) operates within the framework of the International Treaty on Plant Genetic Resources for Food and Agriculture (the Treaty) as an essential element of its Funding Strategy and in accordance with the overall policy guidance provided by its Governing Body. The Crop Trust's 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." The Constitution further states that "the Trust shall in particular, without prejudice to the generality of the foregoing:

- endeavour to safeguard collections of unique and valuable plant genetic resources for food and agriculture held ex situ, with priority being given to those that are plant genetic resources included in Annex I to the International Treaty or referred to in Article 15.1(b) of the International Treaty;
- promote an efficient goal-oriented, economically efficient and sustainable global system of ex situ conservation in accordance with the International Treaty and the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (hereinafter referred to as "the Global Plan of Action");
- promote the regeneration, characterization, documentation and evaluation of plant genetic resources for food and agriculture and the exchange of related information;
- promote the availability of plant genetic resources for food and agriculture; and
- promote national and regional capacity building, including the training of key personnel, with respect to the above."

2. The Relationship Agreement between the Crop Trust and the Governing Body of the International Treaty recognizes the Crop Trust "as an essential element of the Funding Strategy of the International Treaty in relation to ex situ conservation and availability of plant genetic resources for food and agriculture". It notes that the Crop Trust established an endowment with the objective of "providing a permanent source of funds to support the long-term conservation of the ex situ germplasm collections on which the world depends for food security". In this regard, the Agreement highlights the call in the first Global Plan of Action for Plant Genetic Resources for Food and Agriculture (GPA) for the "development and support of a rational, efficient and sustainable system of genetic resources collections around the world", re-emphasized in the International Treaty's call for contracting parties to "cooperate to promote the development of an efficient and sustainable system of ex situ conservation".

3. The Crop Trust, in accordance with its Constitution and the Relationship Agreement with the Governing Body, focuses on ex situ (genebank) conservation and availability of plant genetic resources for food and agriculture. It addresses major portions of the International Treaty including Articles 5 and 6, and much of Articles 7, 8, 9, 14, 16, 17.

4. The Commission on Genetic Resources for Food and Agriculture (the Commission) at its Ninth Regular Session welcomed the establishment of the Crop Trust and appealed to donors to support it. At subsequent sessions, the Commission has noted the Crop Trust's efforts in mobilizing funding for ex situ conservation and in furthering the aims of the Global Plan of Action, and in particular the objective "to develop a rational, efficient, goal-oriented, economically efficient and sustainable system of ex situ conservation and use for both seed and vegetatively propagated species" (Priority Activity 6).

5. Building an efficient and sustainable global conservation system is at the core of the Crop Trust's work. The endowment fund provides long-term stable funding to crop collections of global importance, such as the international collections managed by the CGIAR Centres under Article 15 of the International Treaty. The Crop Trust also funds specific work to further the development of the global system and address challenges for PGRFA conservation and use, such as climate change. The Crop Trust's role in this regard is recognised in the Second Global Plan Action.

6. The Crop Trust is pleased to submit this report on its activities to the Seventh Session of the Intergovernmental Technical Working Group on PGRFA. This report provides an update on both institutional and programme developments.

II. INSTITUTIONAL DEVELOPMENTS

7. The Crop Trust was established by FAO and Bioversity International (acting on behalf of the CGIAR Centres), and jointly hosted by the two organisations in Rome pending a permanent host-country agreement. After a thorough study of proposals submitted by a number of different countries, the Crop Trust's Executive Board took the decision to accept the headquarter agreement offered by the government of Germany. Accordingly, in January 2013 the Crop Trust started operating from its new offices in Bonn.

8. There have been major changes in both the Executive Board and Management of the Crop Trust over the past year. The members of the Executive Board are nominated by the Governing Body of the International Treaty and by the Donors' Council. In addition, there are non-voting members appointed by FAO and CGIAR. The Board generally meets twice a year and reports of its decisions are available on the Crop Trust website. Donors who have contributed USD 25,000 or more are invited to join the Crop Trust's Donors' Council. The Council meets annually and provides financial oversight and advice to the Executive Board. The Council's reports and the complete list of donors can be found on the Crop Trust website.

9. The new Board Chair is Ambassador Walter Fust from Switzerland, former head of the Swiss Agency for Development and Cooperation. In March 2013, Ms Marie Haga took up the position of Executive Director, following the retirement of Professor Cary Fowler in 2012. Ms Haga has held three ministerial positions in Norway and was a member of the Crop Trust's Board from 2010 to 2012. The Crop Trust welcomed new Executive Board members nominated by the International Treaty's Governing Body according to the streamlined procedures adopted at its last meeting: Sir Peter Crane (United Kingdom), Dr Gebisa Ejeta (Ethiopia), Dr Prem Lal Gautam (India), and Dr Mauricio Lopes (Brazil). The Donors' Council also nominated Dr Mary-Ann Sayoc (Philippines) to the Board. The Governing Body also agreed a joint position between the Crop Trust and the International Treaty Secretariat, which was filled in early 2014. All changes in the membership of the Executive Board and staff of the Crop Trust are described on the website at: http://www.croptrust.org/content/staff.

10. The Crop Trust has an important mandate consistent with the requirements of the International Treaty and the Second Global Plan of Action, but financial resources are limited. The Crop Trust focuses funding on activities that provide maximum global benefits, are cost-effective, efficient and sustainable. The Crop Trust operates on the basis of a Fund Disbursement Strategy, which was adopted by the Crop Trust's Executive Board in 2009 after consultation with the Governing Body of the Treaty and Donors.

11. To date, the Crop Trust has raised about USD 350 million, of which some USD 170 million are for the endowment[1]. However, the Crop Trust is still far from reaching its endowment target and the programmatic goals recognized in its Relationship Agreement with the Governing Body and set out for itself in its Constitution and Fund Disbursement Strategy. In 2013, the Executive Board and Donors' Council agreed a new Fundraising Strategy and Strategic Workplan.[2]

12. The Crop Trust contributes significantly to implementation of the International Treaty and the Second Global Plan of Action. The Crop Trust thus appeals to countries and donor agencies to summon the political will at the highest level to make the investment needed to secure crop diversity through its endowment fund.

[1] An update on funds raised can be seen online: http://www.croptrust.org/content/funds-raised.
[2] http://www.croptrust.org/content/summary-executive-board-and-donor-council-meetings-2013

III. PROGRAMME DEVELOPMENTS

A. Long-term conservation and availability of crop diversity

13. Article 5.1e of the International Treaty requires that Contracting Parties "cooperate to promote the development of an efficient and sustainable system of ex situ conservation …" and Priority Activity 6 of the Second Global Plan of Action has as an objective "to develop a rational, efficient, goal-oriented, economically efficient and sustainable system of ex situ conservation and use for both seed and vegetatively propagated species". At the core of the Crop Trust is the endowment fund, created to provide financial security to globally important collections of crop diversity in perpetuity.

14. As the endowment fund grows, the income it generates is used to provide in-perpetuity funding to collections of crop diversity of global importance that are conserved at international standards and available in accordance with the terms and conditions of Part IV of the International Treaty.

15. To date, the Crop Trust has approved long-term grants to nine CGIAR genebanks and the genebank of the South Pacific Community. The funding is supporting the conservation and availability of 20 international collections of 17 major crops[3]. The supported collections serve an exclusively international role as the backbone of the rational, efficient and effective global system. In addition, the Crop Trust funds the annual operating costs of the Svalbard Global Seed Vault.

16. Long-term grants now total USD 2.3 million annually and since their initiation in 2006, USD 14.1 million has been disbursed from the Crop Trust endowment. Long-term grants accounted for 16% of running costs of the supported CGIAR genebanks in 2013. In 2012, the funding for routine activities of the CGIAR-held international collections was stabilised for the next five years with the initiation of the new Crop Trust-Consortium programme of management and sustainable funding, called the CGIAR Research Programme on Genebanks (Genebanks CRP). This funding commitment for the international collections includes management oversight by the Crop Trust and the Consortium office and aims to increase efficiencies, ensure accountability, nurture collaboration between genebanks, and most importantly, improve long-term stability of funding. The programme agreement calls for the commitment to "phase-out" annual funding while simultaneously building the Crop Trust's endowment, thus ensuring true sustainability.

17. Three CGIAR genebanks (CIAT, Bioversity International and CIMMYT) hosted external expert reviews in 2013. CIAT and ILRI have already taken steps to respond to urgent recommendations, including upgrading the drying room so as to reduce the number of drying cycles in the case of the former Center, and eliminating unnecessary risks to the security of the cold room in the latter. All agreed review recommendations are being addressed through costed Recommendation Action Plans (RAPs), which are in the process of being reviewed and funded through the Genebanks CRP. In October 2013, the Genebanks CRP received confirmation from the Consortium Board Chair that the CRP would receive as a priority the full five-year budget as determined in its proposal. This allowed it to initiate a number of such non-routine activities.

18. The CGIAR genebanks maintain a total of ca. 725,000 accessions. A total of 156,838 germplasm samples was provided by the CGIAR genebanks to users in 2013 (cf 131,181 in 2012); 67,651 distinct accessions were provided to CGIAR Research Programs (CRPs) and 31,003 accessions were sent outside the CGIAR directly to NARS (51%), advanced research institutes (33%), farmers and the private sector (16%) in 102 countries. These numbers represent an increase of 20% in distribution compared to 2012.

[3] Crops supported by the Crop Trust through long-term grants are: banana and plantain, barley, bean, cassava, chickpea, edible aroids, faba bean, forages, grass pea, lentil, maize, pearl millet, rice, sorghum, sweet potatoes, wheat, and yam.

B. Safety duplication

19. The International Treaty cites the need "to take appropriate steps to minimize or, if possible, eliminate threats to PGRFA" (Article 5.2) and the Second Global Plan of Action has as an objective "to provide for the planned replication and safe storage of materials not currently safety duplicated". Safety duplication is recognized as an essential element of good genebank management practice aimed at minimizing risk to ex situ collections. The Crop Trust supports the duplication under black-box conditions of unique accessions of the world's most important crop collections at the Svalbard Global Seed Vault, in Norway, as an ultimate safety net.

20. The Seed Vault, welcomed unanimously by the then 172 Members plus EU of the Commission, was officially launched in February 2008 and provides virtually fail-safe security for duplicate samples of PGRFA. Since it opened its doors in 2008, the Vault has accepted deposits on about 20 occasions, and now holds a total of 824,625 accessions from 60 institutes[4], of which the deposit of some 75% was funded by the Crop Trust. This includes ca. 560,000 accessions from the international collections managed by CGIAR Centres.[5]

21. The Crop Trust is contributing funding on an on-going basis for the management and operation of the facility.

C. Information and information systems

22. Article 17.1 of the International Treaty requires that Contracting Parties "cooperate to develop and strengthen a global information system to facilitate the exchange of information, based on existing information systems, on scientific, technical and environmental matters related to plant genetic resources for food and agriculture, with the expectation that such exchange of information will contribute to the sharing of benefits by making information on plant genetic resources for food and agriculture available to all Contracting Parties." Articles 13.2(a) and 12.3(c) address requirements to make information available. Priority Activity 15 of the Second Global Plan of Action calls for "Constructing and strengthening comprehensive information system for plant genetic resources for food and agriculture". The Crop Trust has supported the implementation of two initiatives to enhance the management and availability of information about PGRFA:

23. The Crop Trust partnered with the US Department of Agriculture (USDA) and Bioversity International to develop and deploy a state-of-the-art genebank data management software package, GRIN-Global. Version 1.0 was released at the end of 2011 and an improved Version 2.0 is to be released in 2014. The system was introduced to 38 genebanks for evaluation and eventual adoption. More information can be found at www.grin-global.org.

24. The Crop Trust and Secretariat of the International Treaty supported the Centres of CGIAR, under Bioversity's leadership, to develop a global on-line portal to accession-level germplasm information. The portal, Genesys[6], which is now in it's second version, builds on existing collaborative information systems, namely SINGER, EURISCO and GRIN. It allows searching across multiple genebank databases online and currently contains data on 2.3 million accessions held in some 356 genebanks, including evaluation data from USDA and some CGIAR Centres.

25. In furtherance of Article 17.1 of the International Treaty and Priority Activity 15 of the Second Global Plan of Action, the Crop Trust is continuing to support the development of Genesys as a fundamental component for an effective global conservation system. It is also planning to assist genebanks with the analysis of their documentation needs, the adoption of GRIN-Global as appropriate, and making information on their collections available through Genesys, thereby contributing to the global system.

[4] Full details of holdings can be found at: http://www.nordgen.org/sgsv/
[5] An analysis of Svalbard Global Seed Vault holdings is provided at: http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0064146
[6] Genesys can be accessed at: http://www.genesys-pgr.org/

26. In early January 2014, the Crop Trust helped organize and facilitate an expert planning meeting on 'SeedSeq and the Digital Seed Bank' that took place in San Diego, USA. As a major outcome of the meeting an initiative was launched, called Diversity Seek (DivSeek) that aims to support the use of 'big data approaches' to better explore the crop diversity stored in the world's genebanks. The group of participants suggested as overarching strategy of the initiative to develop and maintain a system of international standards, protocols and tools for generating, organizing, structuring, indexing, condensing, retrieving and sharing genotypic and phenotypic data on plant and crop biodiversity in seed banks to facilitate the breeding of improved crops that meet the needs of the growing human population. The Crop Trust agreed to host the facilitation unit for the initiative for at least the first year of its existence in 2014, its work to be jointly implemented with the Secretariat of the International Treaty.

Adapting agriculture to climate change: collecting, protecting and preparing crop wild relatives

27. The Commission at its Thirteenth Regular Session highlighted the importance of both in situ and ex situ conservation of wild relatives to enable adaptation to climate change. In 2011, the Crop Trust launched a 10-year project to collect high-priority diversity of the wild species related to 29 Annex 1 crops, to secure that diversity for the long-term, and to use it to prepare materials useful to breeding programmes around the world in adapting these crops to climate change. The project is funded by the Government of Norway and guided by an Advisory Group comprising experts and representatives of the Secretariat of the International Treaty and CGIAR Centres. It is being implemented in partnership with the Millennium Seed Bank (MSB) of the Royal Botanic Gardens, Kew, UK and with specialist institutes and national and international conservation and pre-breeding programmes around the world.

28. The crop wild relatives (CWR) in a total of 92 genera, including the project's 29 target crops, have been catalogued and the database is searchable at the portal Crop Wild Relatives & Climate Change as The Harlan and de Wet Crop Wild Relative Inventory (http://www.cwrdiversity.org/checklist/). A dataset has been assembled from numerous online and expert sources, representing the largest and most comprehensive resource on the geographic occurrence of the wild relatives of the world's major crops.

29. This dataset has been analysed to identify high priority species and regions for collecting (http://www.cwrdiversity.org/conservation-gaps/). The collecting will be funded through grant agreements with the Crop Trust which will recognize all relevant national laws and international agreements and be carried out by national institutions, with technical back-stopping provided as necessary by staff of the Millennium Seed Bank and other experts as appropriate. Country-specific field identification guides are being developed by MSB to support national partners in their collecting activities, and will represent a long-term resource and important contribution to capacity building.

30. In preparation for the pre-breeding phase of the project, crop-specific consultations have been held with a wide range of breeders and other researchers who have experience in the use of CWRs. Consultations have been held on: potato, common bean and lima bean, chickpea, oat, rye, sunflower, wheat, Asian and African rice, barley, eggplant, sweet potato, alfalfa, lentil, banana and plantain, cowpea, sorghum, apple, pigeon pea, finger and pearl millet, pea and carrot. Two case studies on pre-breeding are also underway, on rice and sunflower. These crops were chosen because considerable CWR diversity already exists in genebanks (though some gaps do also remain) and because the crops provide an interesting contrast in terms of level of past investment.