



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES**  
**FOR FOOD AND AGRICULTURE**

## **Item 16.2 of the Provisional Agenda**

### **NINTH SESSION OF THE GOVERNING BODY**

**New Delhi, India, 19–24 September 2022**

### **Report of the Global Crop Diversity Trust to the Governing Body**

#### **Note by the Secretary**

*Pursuant to Article 3 of the Relationship Agreement with the Global Crop Diversity Trust (Crop Trust), the Executive Board of the Crop Trust regularly submits reports on the activities of the Crop Trust to the Governing Body of the International Treaty. At its Eighth Session, by Resolution 10/2019, the Governing Body provided policy guidance to the Global Crop Diversity Trust regarding its work.*

*The report contained in this document provides an update on the institutional and programmatic developments of the Global Crop Diversity Trust that occurred since the Eighth Session of the Governing Body. Issues related to the cooperation with the Global Crop Diversity Trust are reported in a separate document before the Governing Body, which also contains draft elements for a Resolution as possible policy guidance to the Global Crop Diversity Trust for the next biennium.<sup>1</sup>*

#### **Guidance Sought**

The Governing Body is invited to take note of the Report of the Global Crop Diversity Trust, and to consider it in providing policy guidance to the Global Crop Diversity Trust for the biennium 2022–23.

<sup>1</sup> Cooperation with the Global Crop Diversity Trust [IT/GB-9/22/16.2](https://www.fao.org/itpgrfa/9/22/16.2)

## I. INTRODUCTION

The Global Crop Diversity Trust (Crop Trust) was established in 2004 under international law as an independent international organization and operates within the framework of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) 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 Crop Trust's new Executive Director, Stefan Schmitz, on behalf of the Executive Board, is pleased to submit this report to the 9th Session of the Governing Body of the Treaty. The report covers programmatic, resource mobilization and communications activities carried out by the Crop Trust during the period 2019-2022, i.e since the 8th Session of the Governing Body, as per its Resolution 10/2019. A separate report prepared by the Treaty Secretariat covers more specifically collaboration between the two organizations, which in the past biennium has included, *inter alia*:

- Establishing an Emergency Reserve for Genebanks<sup>2</sup>
- Organizing a call for proposals for safety duplication in the Svalbard Global Seed Vault<sup>3</sup>
- Hosting three online international expert panel discussions, two in the context of the International Year of Fruits and Vegetables<sup>4</sup>
- Mobilizing technical support for the orderly maintenance of Article 15 collections
- Aligning resource mobilization and communications efforts

## II. TECHNICAL PROGRAMME

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. To date, the Crop Trust Executive Board has approved long-term funding from the endowment to nine of the CGIAR genebanks and to the Centre for Pacific Crops and Trees (CePaCT), the genebank of the Pacific Community (SPC), all of which are Article 15 collections. This long-term funding is partially<sup>5</sup> supporting the conservation and availability of 20 international collections of 17 major crops<sup>6</sup>, plus the Svalbard Global Seed Vault (SGSV). These collections play a crucial part in the development and implementation of a rational, efficient and effective global system for *ex situ* conservation of PGRFA. In addition to long-term funding from the endowment, the Crop Trust has also raised bilateral funding to support its long-term commitments. Total long-term funding from the endowment and bilateral support amounts to approximately USD 66 million since 2006. In addition to providing long-term funding from the endowment, the Crop Trust also implements projects aimed at strengthening the ability of national genebanks to participate in the global system of *ex situ* conservation. The Crop Trust has received a total of USD 298 million in project funding since its establishment. Both the long-term funding and current projects are summarized in the next section. The work of the Crop Trust on information systems and on the development of global crop conservation strategies, both of which support the global system as a whole, are described in the subsequent sections.

---

<sup>2</sup> [www.fao.org/plant-treaty/notifications/detail-events/en/c/1456915/](http://www.fao.org/plant-treaty/notifications/detail-events/en/c/1456915/)

<sup>3</sup> [www.croptrust.org/svalbard-grant-call-for-proposals/](http://www.croptrust.org/svalbard-grant-call-for-proposals/)

<sup>4</sup> [www.fao.org/plant-treaty/overview/partnerships/international-expert-panel/en/](http://www.fao.org/plant-treaty/overview/partnerships/international-expert-panel/en/)

<sup>5</sup> Wholly in the case of rice at the International Rice Research Institute (IRRI).

<sup>6</sup> Crops supported by the Crop Trust through long-term funding from the endowment are: banana/plantain, barley, common bean, cassava, chickpea, edible aroids, faba bean, forages, grasspea, lentil, maize, pearl millet, rice, sorghum, sweetpotato, wheat, and yam.

## A. Ensuring the conservation and availability of PGRFA

### CGIAR Genebank Platform

In 2017, funding for the essential operations of all 11 international genebanks managed by CGIAR under Article 15 (AfricaRice, Alliance-Bioversity, Alliance-CIAT, CIMMYT, CIP, ICARDA, ICRAF, ICRISAT, IITA, ILRI, and IRRI) was secured through a partnership between CGIAR and the Crop Trust under the CGIAR Genebank Platform. This complemented long-term funding from the Crop Trust endowment, and continued the arrangements put in place with the Genebank CGIAR Research Program (CRP), which ran from 2012–2016. The Genebank Platform<sup>7</sup> came to an end in December 2021, and this report thus covers CGIAR genebank activities up to that point. The report prepared by CGIAR provides further details on the work and impact of these genebanks.

The Genebank Platform was managed by the Crop Trust together with the CGIAR Genebank Managers and aimed to increase efficiencies, enhance quality management, optimize protocols, develop data management systems and actively promote the use of the collections. The Crop Trust's annual contribution to funding the genebanks' essential operations in the Genebank Platform increased from USD 6.2 million in 2017 to USD 15 million in 2021. Although the Crop Trust does not play a coordinating role in CGIAR's new Genebank Initiative, which took over from the Genebank Platform in January 2022, it was involved in its design, will continue to be a partner, and is of course continuing to provide the genebanks with long-term funding for essential operations as per existing agreements.

The Crop Trust developed the Online Reporting Tool (ORT) to monitor progress of the genebanks towards performance targets. Meeting performance targets triggers consideration for a Long-term Partnership Agreement (LPA) covering most of the costs of essential operations. All CGIAR genebanks made progress towards these targets. Although currently, the only LPA is with IRRI<sup>8</sup>, number of additional collections are on course to reach performance targets in the next biennium. The figures on the activities of the CGIAR genebanks presented below were extracted from the ORT and cover the year 2021.

- (1) The CGIAR genebanks presently manage 739 626 accessions, including 26 329 *in vitro* and 34 420 held in the field. Approximately 79 percent of these are immediately available for international distribution. This continues the steady increase in the availability of accessions since the Genebank CRP was launched, and it is particularly significant when the ongoing distribution and acquisition of samples are taken into account.
- (2) Of the seed accessions, 67 percent are secured in safety duplication at two levels, and 73 percent of clonal crop collection accessions are safety-duplicated in the form of *in vitro* or cryopreserved samples.
- (3) 100 percent of the accessions have passport or characterization data accessible online, and 99 percent have a Digital Object Identifier (DOI).
- (4) 96 590 germplasm samples were distributed to users in 2021; 32 130 distinct accessions were provided to users within CGIAR, and 64 460 were sent to advanced research institutes and universities (51 percent), national agricultural research systems (NARS) (34 percent) and to farmers and the private sector (10 percent) in 91 countries. These germplasm flows represent the bulk of global distributions using the SMTA.

The demand for germplasm regained its previous levels in 2021, after dropping to half the normal rate in 2020 due to the pandemic. All CGIAR genebanks and Germplasm Health Units (GHU) have been able to respond to requests and send out germplasm despite the pandemic, although in some cases, the help of other units within the institute was required. During the periods of lockdown, the focus of all

---

<sup>7</sup> [www.genebanks.org/](http://www.genebanks.org/)

<sup>8</sup> [www.irri.org/ar2018-worlds-rice-bowl-protected-perpetuity](http://www.irri.org/ar2018-worlds-rice-bowl-protected-perpetuity)

genebanks, aside from keeping staff safe, was on sustaining sufficient staff in the laboratories, screenhouses and fields to carry out all operations needed to avoid the loss of accessions. These included monitoring cold rooms, subculturing *in vitro* accessions and processing harvested seed. Several CGIAR centres invested in automated irrigation equipment in 2021 to ensure that harvests were not jeopardized by restrictions on workers going into the fields.

Two initiatives, in particular, focused on ways to improve the efficiency of genebank operations:

- (1) CGIAR genebanks succeeded in cryobanking nearly 6 000 accessions of clonal crops, including 81 percent of the potato collection and 73 percent of the banana collections. CIP, Alliance-Bioversity, IITA and Alliance-CIAT are collaborating with the Crop Trust to develop a global initiative to help national partners secure in cryopreservation the more than 100 000 accessions of clonal crops that are thought to be conserved worldwide in the field and *in vitro*. The Global Cryopreservation Initiative was given a boost in 2021 by the Treaty, which hosted an expert panel on “Cryopreservation: a long-term strategy for hard-to- conserve PGRFA collections in a post-COVID world.”<sup>9</sup> The event was sponsored by the Government of Belgium and was attended by more than 200 participants.
- (2) At least 18 800 accessions have been archived and 37 000 designated for partial curation thanks to recently published guidance on improving accession management. In addition, in response to recommendations from technical reviews, several genebank managers have substantially reduced surplus seed stocks built up over many years and were being kept as a precautionary measure, freeing up space and allowing resources and staff to be focused solely on the actively curated stock. As a result, further accessions and seed lots are expected to be rationalized, and the total size of the CGIAR collection may continue to show decreases as a result.

Collecting expeditions took place, mainly towards the end of 2021, in Chad, Mauritania, Niger, Sudan, South Sudan, Togo, and Papua New Guinea, to fill gaps in collections identified by a comprehensive spatial analysis of landrace passport data<sup>10</sup>. The expeditions were undertaken by NARS partners in collaboration with Alliance-Bioversity, ICRISAT, IITA and ICARDA and resulted in the collecting of a wide range of priority crops (approximately 4 000 accessions of more than 30 species) from more than 200 previously uncollected sites. All collected materials are in the Multilateral System (MLS). The projects included training of NARS scientists, extension workers and farmers in collecting, documenting and conserving PGRFA.

The value of the CGIAR genebanks was documented as part of the Genebank Impacts Fellowship program, launched in 2018 and overseen by the Crop Trust and Michigan State University. In total, twelve genebank impact fellows conducted short interdisciplinary research projects, employing quantitative and qualitative methods to enhance understanding the impacts of the international genebanks. Several studies traced the ancestry of modern varieties adopted by farmers to specific genebank accessions and apportion benefits by drawing from extensive information on pedigrees. The outputs from the first cohort of fellowships were published in a special issue of the journal *Food Security* in 2020, entitled “Genebanks and Food Security in a Changing Agriculture”<sup>11</sup>. The studies from the second cohort were published in a special *CABI Agriculture & Bioscience* journal in 2022, entitled “The Value of Genebanks on Farms in Developing Agriculture”<sup>12</sup>.

## CATIE

During the biennium, the Crop Trust joined with the Treaty Secretariat to support the rejuvenation of the Article 15 coffee collection maintained by the Centro Agronómico Tropical de Investigación y

<sup>9</sup> [www.fao.org/plant-treaty/tools/toolbox-for-sustainable-use/details/en/c/1414985/](http://www.fao.org/plant-treaty/tools/toolbox-for-sustainable-use/details/en/c/1414985/)

<sup>10</sup> [www.nature.com/articles/s41477-022-01144-8](https://www.nature.com/articles/s41477-022-01144-8)

<sup>11</sup> [https://link.springer.com/journal/12571/topicalCollection/AC\\_237153bc6fd0c500cecd8b578c865869](https://link.springer.com/journal/12571/topicalCollection/AC_237153bc6fd0c500cecd8b578c865869)

<sup>12</sup> <https://www.biomedcentral.com/collections/genebanks-agriculture>

Enseñanza (CATIE) in Costa Rica. Based on the recommendations of the global conservation strategy, and a follow-up, detailed, accession-by-accession study funded by Felco SA, the collection will be moved to a new, better field site at CATIE while ensuring that all accessions are represented by adequate numbers of trees and are fully documented. This work has started with the most at-risk accessions. Support has also been provided, in close coordination with the Treaty Secretariat, to the conservation of the seed collection at CATIE, by helping to ensure the power supply for the cold room and by helping to carry out a strategic rationalization of the collection.

### **Svalbard Global Seed Vault**

The 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 by the FAO *Genebank Standards for PGRFA* as an essential element of good genebank practice. The Crop Trust supports the duplication under black-box conditions of crop collections at the SGSV as an ultimate safety net. A 10-year agreement was signed in 2017 between the Crop Trust, the Government of Norway and NordGen for the management of the SGSV.

Currently, the SGSV holds 1 125 419 samples from 89 genebanks, corresponding to 1 115 genera and 5 840 species. Despite the pandemic, many genebanks still deposited a large number of accessions. In 2021, for example, 22 genebanks, two of which were first-time depositors (Serbia and Latvia), backed up 50 926 seed samples. Twelve of the depositors are international organizations, 69 are national genebanks and universities, two are regional genebanks (SPGRC and NordGen), five are NGOs and one is a private company. A new version of the SGSV online portal<sup>13</sup> was finalized in 2021.

### **Projects supporting national genebanks**

#### **Crop Wild Relatives (CWR) Project**

“Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives” (the CWR Project<sup>14</sup>) was an 11-year project funded by the Government of Norway (via NORAD), with an overall goal of collecting and conserving crop wild relatives (CWR) and facilitating their use in crop breeding for food security in the new climates of the future. Coming to an end in 2021, the project succeeded in meeting and, in some cases, surpassing its targets, despite the challenges presented by the global pandemic during its last two years. According to an external review, it has significantly contributed to advancing the implementation of the MLS, leaving behind an important legacy on which future initiatives of this kind can build. Its main achievements are as follows.

- (1) During the initial research and planning phase, a comprehensive master list of 1 667 globally important CWR taxa of 173 crops (in 37 families, 108 genera and 1 392 species) was developed, along with a searchable, curated occurrence dataset containing records for 445 priority CWR taxa within the 25 genebanks targeted by the project. A gap analysis, performed for 1 076 CWR species in 81 crop genebanks, served as the basis for planning and implementing the second phase of the project, i.e. CWR collecting and conservation.
- (2) Collecting activities were undertaken between 2013 and 2019 by 47 national partner institutions and were jointly coordinated by the Millennium Seed Bank (MSB) and the Crop Trust. A total of 4 587 seed samples of 321 species were collected from 25 genebanks in 25 countries across five continents, exceeding the project’s target of 4 000 samples. The MSB has thus far received 3 667 unique samples of 253 species. It has shipped onward 4 019 samples (3 279 unique accessions) of 223 species to 10 international and national genebanks for multiplication, use and safety backup. All material collected with project support is available

---

<sup>13</sup> [seedvault.nordgen.org/](http://seedvault.nordgen.org/)

<sup>14</sup> [www.cwrdiversity.org/](http://www.cwrdiversity.org/)

in the MLS. The preliminary results of a recently conducted re-run of the gap analysis testify to the successful outcomes of the CWR collection and conservation activities. The analysis revealed that at least two-fifths of the taxa originally in the high-priority category for conservation are now better represented thanks to the collecting.

- (3) There were 19 pre-breeding projects total, involving 62 national and international partners in 34 countries. The crops included in pre-breeding were alfalfa, banana, barley, bean, carrot, chickpea, cowpea, durum wheat, eggplant, finger millet, grasspea, lentil, pearl millet, pigeonpea, potato, rice, sorghum, sunflower and sweetpotato. The evaluation projects covered 13 of the 19 project crops and involved 59 partner organizations across 38 countries. More than 14 000 CWR-derived lines were cumulatively developed across the pre-breeding projects, with the most promising of these lines available in national and international genebanks via the SMTA. Moreover, the outputs of the evaluation projects are now entering the breeding pipelines of project partners and commercial breeders, with new CWR- and landrace-derived varieties beginning to be released.
- (4) A partnership between the CWR Project and the James Hutton Institute in Scotland has ensured that the pre-breeding and evaluation data are presented in a format that allows easy viewing and analysis by breeders and other researchers on the Germinate platform. All the data uploads have been completed for the 14 CWR Project crops, which did not already have data platforms<sup>15</sup>. Germplasm is linked to Genesys entries via DOIs.
- (5) A total of 12 686 persons across 71 countries, of whom 37 percent were women, received training through the CWR Project. This figure includes over 10 000 farmers who were trained in evaluating and selecting pre-bred lines of crops developed from crosses with CWR. It also contains 211 post-doctoral researchers, graduate students (PhD and MSc) and undergraduate students within the pre-breeding and evaluation projects. A total of 174 staff from collecting partner organizations were trained at the MSB or through in-country and regional courses, as well as through a series of Seed Conservation Techniques Courses<sup>16</sup>.

The CWR Project partnered with the editors at *Crop Science* for a special issue focused on the use of CWR by project partners and others in pre-breeding and evaluation efforts aimed at adapting crops to climate change. This was published in 2021, entitled “Adapting agriculture to climate change: A walk on the wild side.”<sup>17</sup>

The mid-term review of the project<sup>18</sup> in 2018–2019 and the final review in late 2021 provided significant opportunities for learning and reflection as well as insights and inputs for planning its successor, Biodiversity for Opportunities, Livelihoods and Development (BOLD) (see below).

## **BOLD Project**

The Biodiversity for Opportunities, Livelihoods and Development (BOLD) Project<sup>19</sup> was officially launched in June 2021. This 10-year initiative is funded by the Government of Norway (via Norad). BOLD is coordinated by the Crop Trust in close partnership with the Norwegian University of Life Sciences (NMBU) and also with NordGen and the Treaty Secretariat. The new project builds on the successes, partnerships and achievements of the CWR Project. As with the CWR Project before it, BOLD receives advice from a panel of experts, which includes the Treaty Secretariat. The project is divided into the following work packages (WPs).

<sup>15</sup> [germinateplatform.github.io/get-germinate/](https://germinateplatform.github.io/get-germinate/)

<sup>16</sup> [brahmsonline.kew.org/msbp/Training/Training](https://brahmsonline.kew.org/msbp/Training/Training)

<sup>17</sup> [access.onlinelibrary.wiley.com/doi/toc/10.1002/\(ISSN\)1435-0653.adapting-agri-to-climate-change](https://access.onlinelibrary.wiley.com/doi/toc/10.1002/(ISSN)1435-0653.adapting-agri-to-climate-change)

<sup>18</sup> [www.norad.no/om-bistand/publikasjon/2019/adapting-agriculture-to-climate-change-collecting-protecting-and-preparing-crop-wild-relatives/](https://www.norad.no/om-bistand/publikasjon/2019/adapting-agriculture-to-climate-change-collecting-protecting-and-preparing-crop-wild-relatives/)

<sup>19</sup> [www.croptrust.org/blog/biodiversity-for-food-security-a-bold-approach/](https://www.croptrust.org/blog/biodiversity-for-food-security-a-bold-approach/)

**WP1: Capacity and Resource Development.** This project element will endeavor to strengthen the capacity of 15 national genebanks, prioritizing collecting partners of the CWR Project, to manage, document, conserve and duplicate crop diversity and make it available to farmers and breeders. Initial external reviews of potential partner genebanks have begun, which will result in plans for: (1) upgrading facilities and equipment; (2) training staff on genebank operations and policies; (3) implementing a QMS; and (4) identifying and making available useful diversity. Policy training will be provided by the Treaty Secretariat. An Emergency Reserve for Genebanks<sup>20</sup>, managed together with the Treaty Secretariat, has been established as part of this WP. It will provide urgent support to genebanks facing imminent threats. The first disbursement was made in mid-2022.

**WP2: Making New Diversity Available.** Alfalfa, barley, durum wheat, finger millet, grasspea, potato and rice are the focus of this WP, which builds on the work done by pre-breeding and collecting partners in the CWR Project. WP2 will facilitate the use of new diversity of these crops by breeders and farmers for climate change adaptation and food security in partner countries. WP2 will complement the strengthened capacity of national genebank partners to conserve the crop diversity addressed in WP1 by extending and advancing selected pre-breeding and evaluation partnerships from the CWR Project. It will include on-farm trials and other participatory approaches to ensure a more effective flow of novel crop diversity to breeders and farmers.

**WP3: Genebanks and Seed Systems.** This WP comprises a research component led by NMBU to explore different, complementary ways of enabling crop diversity to be readily accessible to farmers. Models will be developed to strengthen the connections between genebanks and national seed systems. Innovative pilot efforts by national genebanks in four partner countries will then be supported to actively contribute diversity to national and regional seed systems as examples for other national programs to adopt or adapt, as appropriate.

**WP4: Safety Duplication at the Svalbard Global Seed Vault.** Having launched a call for proposals<sup>21</sup> in late 2021 in coordination with the Treaty Secretariat, this WP is now establishing agreements with at least 40 partners in low- and middle-income countries worldwide to provide technical and financial support for the regeneration and safety duplication in the SGSV of their crop diversity collections.

**WP5: Communications, Engagement and Outreach.** Proactively communicating the results of BOLD to stakeholders is essential to advocate for the necessary financial, legal, technical and institutional support at national and international levels. This WP will highlight the vital role of genebanks and project partners, including the SGSV, in the conservation and use of crop diversity in support of climate change adaptation and food security. It will also create and leverage a sustainable community of practice among partners to improve communication, outreach capacity and knowledge exchange. National and global campaigns will target stakeholders, including farmers, seed system actors and policymakers.

### Seeds for Resilience Project

In mid-2020, thanks to the Government of Germany, the Crop Trust initiated a new five-year project: “National Seed Collections for Climate-Resilient Agriculture in Africa” (Seeds for Resilience). The project aims to: (1) build the capacity of key national *ex situ* collections of PGRFA in Africa; and (2) strengthen links between these genebanks and users. The partner genebanks are as follows:

Country	Genebank [Acronym] (FAO WIEWS Institute Code)	Priority crops

<sup>20</sup> [www.croptrust.org/project/emergency-reserve/](http://www.croptrust.org/project/emergency-reserve/)

<sup>21</sup> [www.croptrust.org/svalbard-grant-call-for-proposals/](http://www.croptrust.org/svalbard-grant-call-for-proposals/)

Ethiopia	Ethiopian Biodiversity Institute [EBI] (ETH085)	Faba bean, barley, sorghum, enset, coffee
Ghana	Council for Scientific and Industrial Research - Plant Genetic Resources Research Institution [PGRRI] (GHA091)	Cowpea, maize, rice, <i>Solanum</i> spp., cassava
Kenya	Kenya Agricultural and Livestock Research Organization - Genetic Resources Research Institute [GeRRI] (KEN212)	Sorghum, finger millet, pearl millet, cowpea, pigeon pea, <i>Vigna radiata</i>
Nigeria	National Centre for Genetic Resources and Biotechnology [NACGRAB] (NGA010)	Sorghum, okra, pearl millet, cowpea, yam
Zambia	Zambia Agriculture Research Institute - National Plant Genetic Resources Centre [ZARI-NPGRC] (ZMB048)	Beans, cowpea, sweetpotato, cassava, sorghum

In 2019, following the model of the Crop Trust’s work with the CGIAR genebanks, a systematic review process of operations was undertaken with each of the partner genebanks. These reviews gathered information about the upgrading priorities and needs of partners. Then, in 2020, the partner genebanks prepared their project workplans, focusing on addressing existing operational backlogs, such as seed viability monitoring, regeneration, and safety duplication. Despite the travel and meeting restrictions due to the pandemic, the project conducted a series of 19 webinars on genebank data management (including GRIN-Global), QMS and communications. By 2021, all project agreements were signed and in place. Partners initiated project activities, and the webinar series continued, focused on QMS and GRIN-Global.

As the restrictions to meet and travel were relaxed, the project conducted the first face-to-face capacity-building event in April 2022 in Ibadan, Nigeria, in coordination with IITA’s Genetic Resources Center and its first Genebank Operations and Advanced Learning (GOAL) workshop in May in Nairobi, Kenya. Finally, in late May 2022, “QMS intensives” were conducted at GeRRI and ZARI-NPGRC. Facilitated in person by the Crop Trust QMS specialist, these include detailed reviews of all current genebank processes and existing standard operating procedures (SOP), followed by a discussion of any identified priority gaps and deficiencies in operations.

Some key achievements by all project partners to the date include the following:

- (1) Prepared and conducted documentation audits of five SOPs: distribution, conservation, regeneration, characterization and acquisition.
- (2) Shared data on Genesys. First-time data publishers include ZARI-NPGRC<sup>22</sup> (uploaded passport information on 1,203 accessions) and NACGRAB<sup>23</sup> (now sharing 7,699 passport records)
- (3) Started establishing “user groups” in different localities.

### Capacity development

Drawing on resources from the CGIAR Genebank Platform and the CWR Project, the Crop Trust and partners organized three types of major capacity-building events during the biennium.

- (1) GOAL workshops are aimed at building the capacities of national and regional genebanks to manage PGRFA in a global context in alignment with international standards. Genebank staff

<sup>22</sup> [www.genesys-pgr.org/wiews/ZMB048](http://www.genesys-pgr.org/wiews/ZMB048)

<sup>23</sup> [www.genesys-pgr.org/partners/70c7de36-d218-444b-aa3f-636196e1d185](http://www.genesys-pgr.org/partners/70c7de36-d218-444b-aa3f-636196e1d185)

from 26 countries have attended 10 GOAL workshops since 2015. However, the pandemic only allowed one GOAL workshop during the past biennium, which was held in Nairobi in 2022 under the Seeds for Resilience project, described above.

- (2) QMS intensives provide one-on-one support in developing SOPs, risk management, policy compliance, user satisfaction monitoring and management of equipment and infrastructure. From 2016 to 2019, QMS intensives have been conducted at five genebanks (WorldVeg, CePaCT, INIA (Spain), MARDI (Malaysia) and the Australian Grains Genebank). Sixty-nine genebank staff have attended QMS intensives. However, again, travel restrictions due to the pandemic limited QMS intensives during the biennium to two in 2022, as described above.
- (3) Finally, in 2021, a series of monthly webinars were organized to tackle new, speculative and provocative issues related to genebanks' role in the conservation and distribution of plant diversity. On average, 80 people attended the Genebank Resources on the Web (GROW) webinars<sup>24</sup>, and 952 participants attended the online events in 2021.

## **B. Strengthening information systems for genebanks**

Article 17.1 of the 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.” Similarly, 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.” To these ends, the Crop Trust has been strengthening its support for implementing two information systems: GRIN-Global<sup>25</sup> and Genesys<sup>26</sup>. Close collaboration with the Treaty's Global Information System (GLIS) focuses on building synergies and complementarities. As per the policy guidance provided in Governing Body Resolution 10/2019, the Crop Trust has been participating in the Scientific Advisory Committee of GLIS.

### **GRIN-Global**

The Crop Trust collaborated with the US Department of Agriculture (USDA) and Alliance-Bioversity International to develop and deploy an advanced genebank data management software package, GRIN-Global, which was initially released in 2011. The CGIAR Genebank Platform facilitated and supported the evaluation of GRIN-Global in all CGIAR genebanks from 2017 to 2021. A helpdesk service also provided assistance and guidance to national genebanks. In 2019, work started under the Genebank Platform on the next generation of the system, called GRIN-Global Community Edition (GGCE).

The Crop Trust has now strengthened the team that supports genebanks in data management and publishing, which since late 2021 also includes the development and maintenance of GGCE. This consists of the introduction of barcoding and other information technologies to genebank operations to simplify data acquisition and improve data quality.

### **Genesys**

The Crop Trust and CGIAR continued to support the development of Genesys through the Genebank Platform as a fundamental component of an effective global conservation system. Genesys has been managed by the Crop Trust since 2013, with the Treaty Secretariat participating in the advisory

---

<sup>24</sup> [www.genebanks.org/news-activities/news/grow-webinar-series/](http://www.genebanks.org/news-activities/news/grow-webinar-series/)

<sup>25</sup> [www.grin-global.org/](http://www.grin-global.org/)

<sup>26</sup> [www.genesys-pgr.org](http://www.genesys-pgr.org)

committee since the beginning. Genesys allows searching data across over 4 million active accessions held in 463 collections. The largest providers of data (by number of accessions) to Genesys are ECPGR, USDA NPGS (USA), Embrapa (Brazil), followed by individual national, regional and international genebanks.

The Crop Trust works continuously with existing data providers to help them share up-to-date information about their collections and actively promotes and encourages data publication (automated when feasible) from genebanks. Since 2019, new agreements to publish data in Genesys have been established with the following institutes: Myanmar Seed Bank, INIAP (Ecuador), AgResearch (New Zealand), CNRA (Ivory Coast), NPGRC (Zambia), CSIR-PGRRI (Ghana), NARC (Nepal), EBI (Ethiopia).

In 2021, the objectives of the three global PGR information systems (GLIS, WIEWS and Genesys) and their relationships were clarified in the FAO Commission on GRFA document “Strengthening cooperation among global information systems on plant genetic resources for food and agriculture” (CGRFA/WG-PGR-10/21/2/Inf.1).<sup>27</sup> Genesys continues to automatically inform the DOI Registration Service of GLIS about any changes to passport data for registered material. This helps keep the DOI database updated without genebanks having to send separate updates to the two systems.

### Supporting information management by national genebanks

The Crop Trust assisted national and regional genebanks in 29 countries<sup>28</sup> with the upgrading their IT infrastructure and information systems from 2014–2020. The work was part of the Norway-funded CWR Project and significantly influenced the design and activities of the follow-up BOLD Project (see above). The BOLD Project will support 15 national genebanks in information technologies and automation of genebank operations, backed by GGCE. The same approach is also taken in the Seeds for Resilience project, where the five partner national genebanks receive similar support to upgrade their information infrastructure and data management.

### C. Developing global crop conservation strategies

In the first years of its existence, between 2004–2010, the Crop Trust brought together groups of experts to develop a series of global conservation strategies to help identify, prioritize and plan actions to ensure the long-term conservation and availability of PGRFA of different crops. Since 2019, with the participation of the Treaty Secretariat, the Crop Trust has been implementing a project to update five of the existing global crop conservation strategies and deliver ten new ones, using the latest data, knowledge and expertise. The project "Breathing New Life into the Global Crop Conservation Strategies: Providing an Evidence Base for the Global System of *Ex Situ* Conservation of Crop Diversity" is funded by the German Federal Ministry of Food and Agriculture and is due to close in October 2022.

The selection of crops took place during the project’s initial phase, in collaboration with the Treaty Secretariat and a group of experts. The strategies that are being updated are potato, yams, *Vigna*, millets and sorghum. The new ones are groundnut, pea, cucurbits, temperate forages, sunflower, eggplant, peppers, vanilla, brassicas and *Citrus*. As of May 2022, two updates (yams and millets) and four new strategies (cucurbits, groundnut, vanilla and temperate forages) have been published<sup>29</sup> and circulated among stakeholders.

Following Governing Body Resolution 10/2019, the project will also “elaborate a dynamic system for developing, implementing and updating Crop Conservation Strategies, with a view to enhancing their use by Contracting Parties and relevant stakeholders, as practical tools to realize the implementation of

<sup>27</sup> [www.fao.org/fileadmin/user\\_upload/wiews/docs/CGRFA\\_WG-PGR-10\\_21\\_2\\_Inf1.pdf](http://www.fao.org/fileadmin/user_upload/wiews/docs/CGRFA_WG-PGR-10_21_2_Inf1.pdf)

<sup>28</sup> Azerbaijan, Bhutan, Bolivia, Brazil, CATIE (Costa Rica), Chile, Colombia, Cuba, Ecuador, Guatemala, Jordan, Kenya, Lebanon, Malawi, Morocco, Myanmar, Nigeria, Pakistan, Peru, Philippines, Rwanda, SPC (Fiji), SPGR (Zambia), Sudan, Tanzania, Tunisia, Uganda, Uruguay, Vietnam.

<sup>29</sup> All completed strategies are available at [www.croptrust.org/resources/](http://www.croptrust.org/resources/).

the International Treaty.” A white paper on this subject is under preparation, which will also link to the Treaty Secretariat project “The Plants That Feed the World: baseline data and metrics to inform strategies for the conservation and use of plant genetic resources for food and agriculture.”

### III. RESOURCE MOBILIZATION

As reminded by Governing Body Resolution 10/2019, the Crop Trust “is an essential element of the Funding Strategy of the International Treaty, in relation to the *ex situ* conservation and availability of plant genetic resources for food and agriculture.” In that context, the Crop Trust’s fundraising priority continues to be the development of the endowment fund to provide predictable and reliable in-perpetuity support to key, globally important genebanks, following the Crop Trust Fund Disbursement Strategy. Based on genebank costing studies, the objective is to provide USD 34 million a year to fund national and international genebanks, as well as the running costs of the SGSV and the Crop Trust Secretariat.

Availability of USD 34 million annually requires capital of USD 850 million since the long-term objective of the Crop Trust’s endowment fund is to earn an average annual investment return of 4 percent plus the rate of USD inflation to preserve the actual financial value of the endowment over time while meeting spending commitments. This requires absorbing a proportional amount of investment risk, with considerable short-term fluctuations of return to be expected. The endowment portfolio is highly diversified and structured for the long term, and short term market dislocations do not trigger structural changes to the portfolio’s asset allocation. As a responsible asset owner, the Crop Trust considers environmental, social and governance (ESG) integration into its investment process to be an important component of its investment strategy, supporting its broader mission and objectives.

From its establishment in 2004 to 31 December 2021, the Crop Trust has received USD 245 million in donor contributions paid into the endowment. The Crop Trust has also received a EUR 50 million concessional loan from KfW (German Development Bank) in October 2017 and an additional EUR 4.4 million towards the interest on the loan. The loan and the contribution towards the interest on the loan are invested in a separate EUR Fund. In addition, the Crop Trust has received a total of USD 298 million in project funding and USD 21 million for operating expenses since it was established.

The Crop Trust’s fundraising efforts are overseen by the Executive Board and the Donors’ Council. The Donors’ Council is composed of governments and private sector donors who contribute at least USD 25,000 or USD 250,000, respectively. The Donors’ Council meets biannually and provides financial oversight and advice to the Executive Board.

To help ensure that the Crop Trust’s endowment fund reaches its goal in a timely fashion, the Crop Trust is developing and implementing a more diversified fundraising strategy. The German Government has provided support for this effort through a project in cooperation with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). A recent significant milestone has been the development of initial recommendations by CCS Fundraising. These were shared with the Crop Trust Executive Board and Donor’s Council in March 2022 and are currently being reviewed by Crop Trust senior management to decide on the next steps. The recommendations centred around the potential to engage in a more concerted fundraising campaign. CCS emphasized the continued importance of traditional Crop Trust public sector donors (i.e., governments) and private foundations and highlighted the complementary role of innovative finance and private sector fundraising. Clear and effective communication of the Crop Trust’s mission, goals and impact will be of paramount importance for a successful campaign, which should be in line with broader policy discussions on crisis and climate resilience, biodiversity conservation, food security and rural livelihoods.

The Crop Trust will emphasize stewardship of existing contributors and explore opportunities with potential new donors. In addition to endowment fund giving, the Crop Trust will continue to pursue time-bound funding from specific donors for specific projects, for example, upgrading individual genebanks, prioritizing collections and crops included in Article 15 and Annex 1 of the Treaty. As the

endowment fund builds, it is crucial to limit avoidable withdrawals. The Crop Trust will therefore continue to seek support for the operating expenditures of genebanks, the Crop Trust Secretariat and the SGSV.

As already discussed in previous reports to the Governing Body, the Crop Trust is pursuing crop-based fundraising to foster greater engagement, including monetary contributions, from private sector actors, with a focus on companies in the food and agricultural sector. In addition, the Crop Trust and the Treaty Secretariat are discussing how to most effectively structure and coordinate approaches to the private sector, bearing in mind the Treaty's Food Industry Engagement Strategy and the Crop Trust's Financing Strategy. The aforementioned project with GIZ focuses on two avenues. The first is the development of mechanisms to enable companies to engage in specific crop value chains in return for Corporate Social Responsibility (CSR) and Sustainability attention. The second is to help develop consortiums with private sector players to participate in relevant Public-Private-Partnership calls for proposals jointly.

Following Governing Body Resolution 10/2019, the Crop Trust collaborated with the Treaty Secretariat in resource mobilization throughout the past biennium by taking part in the *Ad Hoc* Committee on the Funding Strategy and Resource Mobilization and through regular consultations and exchange of ideas at the highest level.

#### IV. COMMUNICATIONS & OUTREACH

The Crop Trust launched its new, digital-first communications strategy in 2020 alongside new policies and procedures. The main strategic objectives are to raise awareness of the importance of the conservation and use of crop diversity on the global development agenda and to support genebanks worldwide to communicate with their stakeholders. Key elements include: (1) advancing the Crop Trust's social media channels; (2) launching a new institutional website and project sub-sites; (3) targeted participation in key global events; (4) increasing exposure in global media; and (5) fostering communications communities of practice among the staff of partner genebanks.

As per the policy guidance in Governing Body Resolution 10/2019, collaboration with the Treaty continued and strengthened during the biennium, for example, through coordinated outreach efforts that included engagement via the Global Landscapes Forum:

- the launch of the Emergency Reserve for Genebanks: Adapting Agriculture to Climate Change<sup>30</sup>
- Building Resilient Food Systems Through Greater Biodiversity<sup>31</sup>
- Harnessing Crops' Potential for Drylands Restoration and Climate Change Adaptation<sup>32</sup>

Additional collaboration with the Treaty included:

- a series of expert panel discussions (on the COVID-19 pandemic and PGRFA, fruit and vegetable diversity and cryopreservation<sup>33</sup>)
- the promotion of the Fifth Call for Proposals for the Benefit-Sharing Fund
- social media support for the International Day for Biological Diversity and other events
- two high-level joint opinion pieces (planned for late 2022)

<sup>30</sup> [events.globallandscapesforum.org/agenda/climate-2021/06-november-2021/it-starts-with-a-seed-adapting-agriculture-to-climate-change/](https://events.globallandscapesforum.org/agenda/climate-2021/06-november-2021/it-starts-with-a-seed-adapting-agriculture-to-climate-change/)

<sup>31</sup> [events.globallandscapesforum.org/agenda/biodiversity-2020/28-october-2020/harnessing-the-power-of-nature-building-resilient-food-systems-through-greater-agrobiodiversity/](https://events.globallandscapesforum.org/agenda/biodiversity-2020/28-october-2020/harnessing-the-power-of-nature-building-resilient-food-systems-through-greater-agrobiodiversity/)

<sup>32</sup> [events.globallandscapesforum.org/agenda/africa-2021/02-june-2021/biodiversity-for-resilience-harnessing-crops-potential-for-drylands-restoration-and-climate-change-adaptation/](https://events.globallandscapesforum.org/agenda/africa-2021/02-june-2021/biodiversity-for-resilience-harnessing-crops-potential-for-drylands-restoration-and-climate-change-adaptation/)

<sup>33</sup> [www.fao.org/plant-treaty/overview/partnerships/international-expert-panel/en/](http://www.fao.org/plant-treaty/overview/partnerships/international-expert-panel/en/)

Collaboration with the FAO Commission included participation in the International Multi-stakeholder Symposium on Plant Genetic Resources for Food and Agriculture<sup>34</sup> in 2021.

The Crop Trust also hosted events at the United Nations Food Systems Summit<sup>35</sup>, the World Biodiversity Summit, and the Second International Agrobiodiversity Congress<sup>36</sup>. The Food Forever Initiative<sup>37</sup> wrapped up in 2021 after a successful four years.

Media coverage increased significantly in the biennium, including exposure in major outlets and global wires, including Reuters<sup>38</sup>, Times Radio<sup>39</sup>, New Scientist<sup>40</sup>, The Economist, Nature Plants: Editorial<sup>41</sup>, BBC, Sky News's Daily Climate Show, The Independent<sup>42</sup>, and The Guardian<sup>43 44</sup>.

With new, more targeted management, social media channels experienced significant growth: Twitter +16 percent, Facebook +148 percent, LinkedIn +59 percent, Instagram +35 percent (for the period June 2021–March 2022).

In support of two major projects, Seeds for Resilience and BOLD (see above), in 2021 the Crop Trust launched the first “community of practice” on genebanks communications to support staff in partner genebanks to communicate effectively with stakeholders. Activities will include facilitating a supportive community of relevant experts worldwide, capacity development and mobilization, strategy development, enhancing the online presence of genebanks, and producing and disseminating communications materials.

The Crop Trust continued to collaborate closely with SGSV partners on various communications initiatives, including social media. These included:

- a podcast<sup>45</sup>
- a major outreach effort in coordination with the Treaty for the SGSV call for proposals<sup>46</sup> in 2021, including a video<sup>47</sup>
- press releases and opinion pieces around each deposit<sup>48</sup>
- a lightning talk by Crop Trust Executive Director Stefan Schmitz at the February 2022 deposit<sup>49</sup>

Finally, after a year of development, the new Crop Trust website launched in May 2022. The site includes a news hub (*The Crop Diversity Digest*<sup>50</sup>), and a new monthly newsletter (*The Dish*<sup>51</sup>) that will round up the latest information on PGRFA conservation and use from around the world and share institutional, project and partner news.

<sup>34</sup> [www.fao.org/documents/card/en/c/CB3683EN/](http://www.fao.org/documents/card/en/c/CB3683EN/)

<sup>35</sup> [www.un.org/en/food-systems-summit](http://www.un.org/en/food-systems-summit)

<sup>36</sup> [www.eatgrowsave.org/](http://www.eatgrowsave.org/)

<sup>37</sup> [www.croptrust.org/work/projects/outreach-projects/food-forever-initiative/](http://www.croptrust.org/work/projects/outreach-projects/food-forever-initiative/)

<sup>38</sup> [news.trust.org/item/20220328114910-rm628/](http://news.trust.org/item/20220328114910-rm628/)

<sup>39</sup> [www.thetimes.co.uk/radio/show/20220524-11336/2022-05-24](http://www.thetimes.co.uk/radio/show/20220524-11336/2022-05-24)

<sup>40</sup> [www.newscientist.com/article/2321492-global-food-crisis-is-leaving-millions-hungry-but-there-are-solutions/](http://www.newscientist.com/article/2321492-global-food-crisis-is-leaving-millions-hungry-but-there-are-solutions/)

<sup>41</sup> [www.nature.com/articles/s41477-022-01166-2](http://www.nature.com/articles/s41477-022-01166-2)

<sup>42</sup> [www.independent.co.uk/voices/food-prices-increase-crop-diversity-global-south-b2064335.html](http://www.independent.co.uk/voices/food-prices-increase-crop-diversity-global-south-b2064335.html)

<sup>43</sup> [www.theguardian.com/environment/2022/apr/15/seed-banks-the-last-line-of-defense-against-a-threatening-global-food-crisis](http://www.theguardian.com/environment/2022/apr/15/seed-banks-the-last-line-of-defense-against-a-threatening-global-food-crisis)

<sup>44</sup> [www.theguardian.com/food/ng-interactive/2022/apr/14/climate-crisis-food-systems-not-ready-biodiversity](http://www.theguardian.com/food/ng-interactive/2022/apr/14/climate-crisis-food-systems-not-ready-biodiversity)

<sup>45</sup> [www.corteva.com/resources/feature-stories/growing-debate.html](http://www.corteva.com/resources/feature-stories/growing-debate.html)

<sup>46</sup> [www.croptrust.org/svalbard-grant-call-for-proposals/](http://www.croptrust.org/svalbard-grant-call-for-proposals/)

<sup>47</sup> [www.youtube.com/watch?v=WwyZgw6qV0I&t=9s](http://www.youtube.com/watch?v=WwyZgw6qV0I&t=9s)

<sup>48</sup> [www.croptrust.org/blog/take-a-look-inside-the-latest-svalbard-global-seed-vault-deposit/](http://www.croptrust.org/blog/take-a-look-inside-the-latest-svalbard-global-seed-vault-deposit/)

<sup>49</sup> [www.youtube.com/watch?v=9dQM7JiESUE&t=1s](http://www.youtube.com/watch?v=9dQM7JiESUE&t=1s)

<sup>50</sup> [www.croptrust.org/news-events/](http://www.croptrust.org/news-events/)

<sup>51</sup> [croptrust.prodstaging.croptrust.org/news-events/subscribe/](http://croptrust.prodstaging.croptrust.org/news-events/subscribe/)