

CGIAR-Crop Trust System Level Review of Genebank Costs and Operations

Updated June 2020

Background

The 11 CGIAR genebanks conserve and make available crop and tree genetic diversity on a long-term basis under the CGIAR Genebank Platform. They are responsible for a large proportion of annual germplasm distribution occurring under the auspices of the International Plant Treaty.¹ The continued conservation of and access to these unique public resources is a global concern. Trends concerning advancing technologies, data and knowledge all have an impact on equitable access to and use of such resources and have a fundamental influence on the operation and impact of the genebanks. Assessing the current status of the collections and their future operation is a critically important exercise for the CGIAR and also the Global Crop Diversity Trust (Crop Trust), which is a long-term funder.

The Crop Trust raises funds for and manages an endowment fund which works as a unique mechanism to finance the essential operations of the genebanks on a long-term basis. The fund has reached more than USD 300 million, but is not yet sufficient to fund all 11 genebanks. However, until now, only one of the 11 genebanks has reached and sustained key performance targets indicating a steady state of operation and is, thus, financed by the endowment fund through a long-term partnership agreement (LPA) with the Crop Trust. Several other genebanks are approaching the same level of performance and are similarly becoming eligible for LPAs. A point is, therefore, being reached where more genebanks can be financed through LPAs while the Platform transitions towards a renewed form under “One CGIAR”. It is in this context that a costing review of the genebanks was initially planned in 2016 in developing the Genebank Platform proposal and is now being implemented.

Current budgets for “routine operations”² of individual genebanks were determined in an in-depth costing study that was commissioned by the CGIAR and Crop Trust in 2009. After more than eight years of improvement of facilities and operation, the planned 2020 *System-level Review of Genebank Costs and Operations* (GCO) will be undertaken by a small Panel, with technical and financial expertise, and revisit the questions of how do the genebanks operate and what do they cost, and provide recommendations directed at the CGIAR System and Crop Trust for the prioritisation of funding.

This system-level review is underpinned by a series of individual technical and financial reviews that have been implemented at all 11 CGIAR genebanks during a period from December 2017 to May 2020, as well as a large body of data and reports that emanate from the activities of the Genebanks CRP between 2012-2016 and the CGIAR Genebank Platform since 2017.

¹ International Treaty on Plant Genetic Resources for Food and Agriculture

² “Routine operations” are the critical daily activities required to ensure that germplasm is monitored, conserved and made available for the long term. Sixteen operations and sub-activities are defined.

Objectives

The broad objectives of this review are to:

- Consider the overall scope and objectives of CGIAR genebanks within the context of evolving CGIAR priorities and global system for conservation and use – encompassing the relationship between CGIAR genebanks and other international genebanks, national genebanks and other partners, as well as future CGIAR research programs;
- Prioritize genebank operations with a special focus on consolidating the “essential operations” that should be targeted for endowment or ring-fenced funding;
- Recommend specific actions for improving efficiency, collaboration and rationalization within the System;
- Agree general principles to facilitate the fair allocation of resources to CGIAR genebanks.

Specific issues

The CGIAR genebanks already function, to a significant extent, as one entity within the framework of common performance targets and international genebank standards, with a maturing quality management system, a well-established management team, effective monitoring and review system and legal framework provided by the International Plant Treaty. Added to these are current developments towards one data management system and a networked phytosanitary system. Further synergies are, of course, possible through new shared services and specialisation in advanced technologies. A strategic review of the CGIAR system of genebanks will help to consolidate and advance these developments. However, it is not really possible to look at the priorities for funding without considering the existing and potential roles of the genebanks within a transforming research environment both within and outside the CGIAR. The proposed review will first ask the question “What is the role of these genebanks within the CGIAR System and beyond?” considering in some depth the range of crops and services that the genebanks manage and provide, and the current and potential use of these collections.

Given this context, a more in-depth examination can take place of the individual genebanks and the range of practices and costs across the system. A multitude of factors influence the costs or potential costs of genebank operations. The main contributing factor is crop type, with clonal crops being many times more expensive to conserve than seed crops and, within seed crops, wild species, forages and trees being several times more expensive than cultivated seed crops. In addition, within similar crop types, there is an apparent scale of efficiency with larger collections able to process larger throughputs at a comparable cost to smaller collections. Beyond these factors, the different approaches to managing collections have a significant impact on costs, the following activities in particular:

- Conservation and distribution of breeders and other specialist collections
- Use of live field collections and regional stations (for regeneration, characterisation, evaluation/pre-breeding, distribution and, in some cases, conservation)
- Approaches to conserving and making available wild species (crop wild relatives, forages, trees)
- Adoption of advanced technologies (cryopreservation, genotyping, imaging, automation)
- Assessment of phytosanitary risks and subsequent controls

- Cost recoveries and institute charges for research, facilities, campus, security, other services, research costs, etc.

The System-level Panel will consider these issues and consolidate the understanding of what are “essential operations” that must be funded as an absolute priority annually, while also recognising and highlighting other important activities that should be funded. General principles for the fair allocation of funding across the system will be established where required and guidance provided where a more standardized approach may be feasible.

Outputs

- Determination of *Essential operations* and/or needs for endowment or ring-fenced funding;
- Highlighting of priority activities for additional funding;
- Options for consolidation of activities or collections;
- Principles of allocating funds to CGIAR genebanks;
- Recommended financial allocations to individual CGIAR genebanks for essential operations.

Panel composition

- Geoff Hawtin (Chair)
- Mellissa Wood (Independent)
- Sonja Vermeulen (CGIAR System Organization)
- Ruairadh Sackville Hamilton (Independent)
- Kent Nnadozie (Plant Treaty)
- Jamie Craig (CGIAR System Organization)
- Janet Muir (Crop Trust Finances)
- Charlotte Lusty (Secretary, Genebank Platform coordinator)

Timeline

Date	Meeting	Outputs
March 12	CGIAR System Management Office-Crop Trust meeting in Montpellier	Discuss objectives, panel composition and use of outputs.
March 24	Crop Trust Executive Board	Inform EB of plans
March 27	Article 15 Genebank Managers	Inform genebank managers of plans
April 16	System Panel members formally invited and regular calls instituted	Agreement of scope. Discussion on background papers and timeline.
June 1	Technical and financial reviews of individual genebanks completed (excluding ILRI)	11 technical review reports and 11 costing study reports
Jun - Aug	Draft reports & background papers circulated for feedback from genebank managers, Crop Trust staff and System Panel	Draft summary report of review findings

Date	Meeting	Outputs
August 31	Background papers for System Panel finalized and circulated	Final background papers
September	Potential Chatham House Brainstorming event	Visions on future of genebanks
September	Virtual consultations of GCO Panel (including with DG, genebank manager reps, Funder reps, clonal collection reps and potentially other specialist groups)	System Panel outputs (see above)
Sept 30	System Panel draft recommendations shared with CGIAR Genebank Managers	Feedback from genebank managers and other relevant constituents
November	Crop Trust Executive Board reviews long-term partnership agreements.	Triggering of LPAs

Background papers

- Vision and needs of individual CGIAR genebanks
- Consultation report on “Scope and roles of the CGIAR genebanks – 2030 vision”
- CGIAR System-level brief on phytosanitary measures and priority needs
- Summarized findings on finances
- Genebank essential operations

Additional resources

- 10 genebank technical review reports
- Breakdown of financial costs, staff lists, facilities and equipment lists, collections and accessions numbers, germplasm distribution, other operations, etc. for 11 genebanks
- Benchmark studies of costs and operations at comparable non-CGIAR genebanks
- 2012-2019 annual reports on the status of collections and activities of the genebanks
- 2012-2019 financial reports of individual genebanks
- Report on the species prioritization of Tropical Forages collections
- In depth report on SOPs comparison CIAT-ILRI
- Individual genebanks Standard Operating Procedures (SOPs).