



The Global Crop Diversity Trust  
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## **Chapeau**

### **Unlocking the power of genebanks for the benefit of current and future generations**

To turbocharge the 2030 Agenda, particularly elements which call for transforming agrifood systems, a strategic emphasis must be placed on actionable steps to integrate the preservation and utilization of crop diversity. The importance of crop diversity is recognized under Target 2.5 of the Sustainable Development Goals (SDGs) which calls for maintaining “the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species.” As explored in more detail below, genebanks play a pivotal role in maintaining this crop diversity, acting as high-tech sources of innovation rather than static repositories. To propel the Sustainable Development Goals (SDGs) back on track and address new challenges and opportunities, a collaborative approach is essential.

Firstly, governments, seed and food processing industries, the research community, civil society, the financial sector, multilateral agencies, and farmers must unite in a concerted effort. This collaboration should focus on establishing sustainable funding mechanisms for genebanks to ensure their empowerment and functionality. Recognizing genebanks as dynamic contributors to sustainable agrifood systems now and in the future is crucial. Governments and multilateral organisations including the UN system can play a leading role in formulating and supporting policies that prioritize the integration of genebanks into broader agricultural strategies.

Advanced technologies must be harnessed to enhance the efficiency of genebanks, promoting better collaboration and engagement with users, especially local communities. Capacity building initiatives can ensure that genebanks rise to their full potential as dynamic hubs of agricultural innovation. Financial investments are paramount, underlining the need for substantial resources to conserve and document crop diversity effectively. This transformative approach not only aligns with the SDGs but also positions genebanks as catalysts for a paradigm shift in agrifood systems—making them more productive, healthy,

resilient, sustainable, and equitable, ultimately benefiting both current and future generations of humanity and the planet.

## **Chapter I. Sustainable development and financing for development**

**Accelerate funding and technical assistance for urgently needed investments into the global genebank system:** To empower genebanks to effect meaningful change in agrifood systems, sufficient, guaranteed financial resources are essential. Investments are needed to upgrade and future-proof storage facilities and associated infrastructure, implement robust documentation and information systems, and support research to investigate the genetic potential of genebank holdings to meet user needs now and in the future. Funding safety back-ups of genebank collections, especially of field collections, are also essential, as real-life experience in Syria and elsewhere has shown. International public finance such as multilateral development banks and international climate funds should facilitate countries in making upfront investments into the genebank system combined given the long-term benefits and significant return on investment<sup>1</sup> of secure and accessible essential collections of crop diversity. This support can include dedicated concessional funding packages that promote coordination and combine resources from health, agriculture, biodiversity and climate change agendas delivered along with in-depth technical advisory from specialized entities such as the Crop Trust.

**Boost engagement with farmers, farmer organizations, local communities, and development organizations:** Genebanks must engage directly with individual farmers, local enterprises, and communities and collaborate with development organizations at scale to reach those people and communities that are growing the food that we all need. Farmers, especially small-scale farmers, many of whom are women, possess invaluable knowledge as traditional custodians of on-farm crop diversity. Genebanks, breeders and researchers should collaborate with farmers in participatory breeding programs, on-farm conservation efforts, and decision-making processes. Initiatives that promote farmer-led seed systems, community seedbanks, seed business development, and citizen science projects, including for trees, empower both genebanks and farmers to contribute to the transformation of agrifood systems.

## **Chapter II. International peace and security**

**Intensify platforms for collaboration and knowledge-sharing:** Genebanks, whether community-based, national, regional, or global in scope, need to collaborate more among themselves, as well as with their diverse stakeholders. No community, country or region is self-sufficient in crop diversity, and no single genebank can do everything – nor does it need to, if all are ready to specialize and share common burdens. A strategic global system for

conserving crop diversity is needed based on strengthening the connective tissue among genebanks from those at the scale of a village all the way through to those that operate globally. Establishing solid, inclusive, equitable platforms for collaboration, as well as knowledge-generation and knowledge-sharing, enhances the use of diversity, encourages innovation, and accelerates crop improvement and sustainable farming practices. The equitable sharing of crop diversity, and its associated data and best practices is a cornerstone for increasing trust and understanding among nations. By reinforcing the capacity of all genebanks, this collaborative approach not only advances agrifood systems but also serves as a model for fostering global harmony through shared knowledge and joint endeavors.

### **Chapter III. Science, technology and innovation and digital cooperation**

**Harness advanced technologies:** Genomics<sup>2</sup>, cryogenics<sup>3</sup>, bioinformatics<sup>4</sup>, and information technologies<sup>5</sup> are already allowing genebanks to keep more efficiently alive, store, catalogue and analyse vast and diverse collections of annual, perennial and tree crops. But much more is needed. Digital platforms and open-access databases are essential to enable seamless knowledge-sharing and collaboration among genebanks and researchers worldwide. These platforms facilitate the identification of valuable material for crop improvement and other uses, while also ensuring that the rights of traditional owners are respected and that benefits are equitably shared. At the same time, investing in green technologies can make genebanks less costly to run and decrease their carbon footprint, while increasing the use of biotechnologies can improve the storage of species that cannot be stored as seeds. By continuing to harness and embrace existing and developing technologies, genebanks can further improve their efficiency and accelerate the multiple beneficial uses of crop diversity.

**Enhance capacity building and research efforts:** Empowering genebanks requires building technical and scientific capacities. Training programs should be developed to continuously enhance the skills of genebank staff in areas such as exploration and collecting, complementary conservation techniques (including cryopreservation), diversity assessment, trait discovery, seed and plant health, and data management. Strengthening scientific capabilities through research partnerships and capacity-building programs enables genebanks to fulfil their potential for agrifood systems transformation. Investments in capacity-strengthening should be prioritized based on information about gaps in coverage of the global system for conservation of crop diversity, in terms of both conserved, available genetic diversity and information about collections. Support should be provided for under-resourced organisations that are willing and able to assume new responsibilities, and address those gaps, on behalf of the international community. Several genebanks have played an international role over decades to support countries to conserve and exchange germplasm. Providing increased support to this growing global system is key to strategically enhancing exchanges of capacity and diversity worldwide.

**Promote engagement with the plant breeding and research community:** The predominant users of genebanks are crop breeders and researchers, including those working on tree crops, perennials, and agroforestry systems. Genebanks grow their capacity to do good in the world when they continually improve the ways that they make their collections accessible to this research community, especially in low-income countries and in the public sector, so that quality seed can be delivered to farmers globally through well-functioning, inclusive seed systems.

#### **Chapter IV. Youth and future generations**

**Fulfill the power of long-term funding solutions for long-term institutions:** Crop diversity is by no means the only thing needed to transform agrifood systems. But across both time and space, and both within and among species, crop diversity is fundamental to setting agrifood systems on a path towards a more sustainable, equitable and climate resilient future. However, this vital resource is being eroded. Landraces are disappearing daily from farmers' fields, traditional crops are being abandoned, and in many natural habitats forages and crop wild relatives are being pushed towards extinction. Current and future farmers are thus losing the options on which their livelihoods depend, and the raw material needed to develop crop varieties for better nutrition, livelihoods, and resilience are steadily vanishing. In recent comprehensive global reviews, 40% of plant species are considered threatened with extinction<sup>6</sup>, and 86% of studies found a decline in crop diversity over time<sup>7</sup>. And when crop diversity is lost, it is lost forever.

Genebanks are the last line of defence against the global erosion of diverse annual, perennial and tree crops, and are fundamentally designed with an extended perspective which safeguards the interests of future generations. Project cycle funding for genebanks fails to provide the security and multi-year planning that long-term institutions such as genebanks need. Adequately funding the Crop Trust's endowment fund, set up as a permanent funding mechanism for essential genebank collections globally, is a critical cornerstone in ensuring that the global genebank system fulfils its true potential in helping to achieve the 2030 Agenda.

**Effectively track progress on genetic crop diversity:** International agreements on sustainable development and biodiversity conservation explicitly prioritize fully safeguarding the genetic diversity of crops and their wild relatives. These explicit objectives stem from a growing recognition of the pivotal role genetic diversity plays in ensuring food security, enhancing nutrition, and promoting sustainable agriculture through effective crop breeding. An essential hurdle in achieving these objectives lies in accurately assessing the existing status of agricultural genetic diversity conservation and establishing practical means to measure advancements in the years ahead. This includes the development and roll-out of genetic diversity indicators that are cost-effective, accessible, and relevant.<sup>8</sup>

Within the negotiations of COP-15, numerous nations articulated the necessity for assistance in comprehending and implementing genetic diversity indicators, particularly in developing countries. The acknowledgment of this need underscores the importance of providing support to facilitate the practical understanding and application of genetic diversity indicators on a global scale. This support is critical for ensuring the successful realization of international commitments to safeguarding genetic diversity for the benefit of current and future generations.

## **Chapter V. Transforming global governance**

**Build and apply supportive policies and regulations:** An enabling policy environment is critical to empower genebanks and their users to harness crop diversity effectively. Governments should develop supportive laws, policies and regulations that prioritize the conservation and use of annual, perennial and tree crops, and protect natural habitats containing crop wild relatives and other useful wild species. Multilateral organisations can support with the development and global implementation of clear intellectual property rights frameworks, access and benefit sharing mechanisms, and biosafety regulations that balance commercial interests with the public good are necessary. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), one of the key existing international instruments referring to future generations, is particularly relevant in this regard, as it provides the policy infrastructure to elevate the profile of genebanks, for equitable benefit-sharing, for facilitated exchange of crop diversity, and for collaboration across borders in conservation and sustainable use<sup>9</sup>. There needs to be more support for the full, proactive implementation of the ITPGRFA at national and regional levels.

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