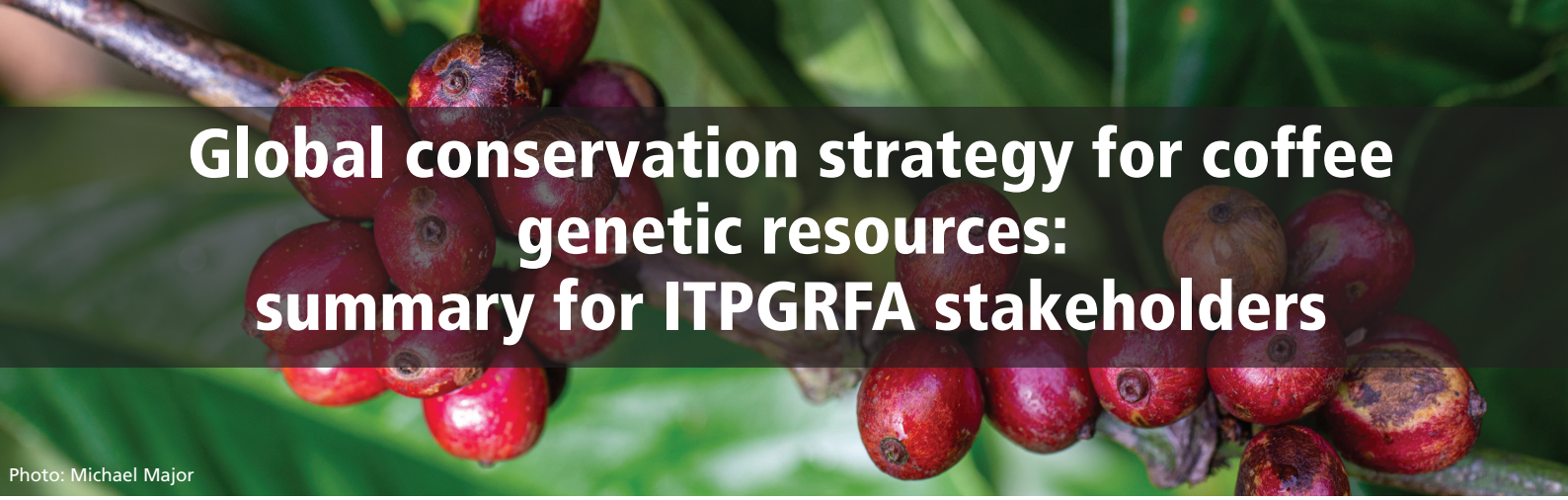

Global conservation strategy for coffee genetic resources: summary for ITPGRFA stakeholders

Photo: Michael Major

This document is a concise summary of the Global Conservation Strategy for Coffee Genetic Resources (Bramel et al. 2017). The strategy was based on a background study on the vulnerability of coffee genetic resources conserved in genebanks and in the wild, a survey of the status of 16 major coffee genebanks, a costing study of a genebank holding coffee collections, and visits to seven key genebanks. Its aim is to support decision making by the stakeholders of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) by providing evidence-based information on this genepool in an accessible format.

Crops covered by the strategy
Coffea arabica L. and *Coffea canephora* A. Forehner
These are not Annex 1 crops as of the time of writing.

International organization conserving collection of crops covered by the strategy
Centro Agronómico Tropical de Investigación y Enseñanza (CATIE)

Global system for the conservation and use of coffee genetic resources

The current global system for the conservation and use of coffee genetic resources includes origin collections, breeding collections, and user collections.

Origin collections primarily hold accessions collected from farmers' fields or forests in coffee centers of origin. The origin collections reported in the strategy are the Choche Field Genebank (Ethiopian Biodiversity Institute – EBI; Ethiopia), Fofifa Kianjavato Coffee Research Station (FOFIFA; Madagascar), Centre National de la Recherche Agronomique Coffee Genebank (CNRA; Cote d'Ivoire). The role of the origin collections in the global conservation system is to secure the long-term conservation of a significant portion of local genetic diversity and have direct connection with users. A special case is CATIE (Centro Agronómico Tropical de Investigación y Enseñanza), which conserves international accessions and is the only Article 15 collection conserving coffee genetic resources.

Table 1. Summary of key metrics for coffee genetic resources.

Key metrics	Data source	Value
Estimated global number of accessions ex situ	Survey[1] (2016)	21,026
Number of accessions with DOI	GLIS portal (2025)	1,909
Number of accessions notified as available in the MLS	GLIS portal (2025)	1,786
Number of accessions notified as available in the MLS conserved in Article 15 genebanks	GLIS portal (2025)	1,784

[1]16 institutes answered the survey

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Breeding collections primarily focus on coffee breeding but also maintain collections as part of their breeding programs. The breeding collections reported in the strategy include the Colombian National Research Center of Coffee, the Coffee Research Institute of Kenya, and the Insituto Agronômico do Paraná (Brazil).

The key role of the **user collections** in the global system is to contribute to secure conservation through safety duplication and global sharing of information on accessions. User collections facilitate the development of the global system for conservation and use through their interactions and activities.

Composition and gaps in *ex situ* collections

Among the genebanks surveyed, a total of 21,026 accessions were documented. Fifty-seven percent of accessions are *Coffea arabica*, 3% *C. canephora* and 40% other *Coffea* species. Some of the gaps identified were Mascarocoffea species, domesticated materials from Yemen, and leaf rust differentials. Also, wild *Coffea* species need to be collected from Kenya, Madagascar, Papua New Guinea, India, Côte d'Ivoire, Réunion and Ethiopia.

Routine operations, regeneration, and safety duplication

Among the genebanks surveyed most accessions are conserved in field collections, and on average 71% of these accessions are represented by 2 to 10 trees, and 11% are only represented by one tree in the field. Five genebanks reported conserving a part of their accessions using cryopreservation.

Among the genebanks surveyed, seven have accessions with trees that are more than 30 years old. FOFIFA (Madagascar) has more than 75% of the accessions more than 30 years old.

The proportion of accessions safety duplicated in a collection range from 1 to 60%. Eight genebanks reported having safety duplication in another field site in the country, but none outside the country. Three institutions use long-term seed storage as safety duplication strategy.

Documentation and information systems

Most of the surveyed genebanks reported having a database to store passport data, taxonomic information, characterization and evaluation data. Twelve of the surveyed genebanks reported conducting morphological characterization of the material in the field. A few genebanks also reported conducting molecular characterization of their material. Currently[2], only CATIE and CNRA have publicly available data through Genesys.

Distribution and obstacles to use

Coffee accessions are mainly distributed as seeds. Ten of the surveyed genebanks reported distributing accessions; two of these indicated the use of the SMTA and five others the use of institutional MTAs. Annual reported distributions are respectively 8% and 1%, domestically and internationally, relative to the country of the distributing genebank. The CATIE international collection is a key source of germplasm for research and breeding programs. Users of coffee collections reported challenges in navigating policies and regulations transferring germplasm between countries.

Priority actions required

1. **Securing stable funding for long-term conservation.** The annual cost of the routine conservation operations of the four origin collections and CATIE is estimated to be USD 1 million.
2. **Upgrade facilities and capacity.** There is a need to upgrade facilities and build capacity to meet international standards (FAO 2014) in both the origin and the user collections.
3. **Access and benefit sharing for germplasm exchange.** To ensure the long-term conservation of the origin collections, a key priority is to establish a legally binding ABS regime aligned with the Nagoya Protocol.
4. **Linking collections through partnerships and information sharing.** A global platform for collaboration should initially focus on facilitating global-sharing of accession-level information through Genesys.
5. **Safety duplication.** All conserved accessions should be safety-duplicated. Cryopreservation or other complementary strategies for safety duplication should be explored and researched.
6. **Complementary *in situ* conservation.** Genebanks should engage with *in situ* conservation.

Bibliography

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Acknowledgements

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[2]This information was updated, as in 2017 only CATIE published its data in Genesys.