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



The International Treaty
ON PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE

Item 6 of the Provisional Agenda

**INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

**THIRD MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE
GLOBAL INFORMATION SYSTEM**

Rome, Italy, 21 – 22 June 2018

Strengthening Partnerships, Collaboration and Capacity Building

I. INTRODUCTION

1. By Resolution 3/2015, the Governing Body adopted a Vision and a Programme of Work on the Global Information System (GLIS) in the context of Article 17 of the International Treaty. This document deals with Objective 5 - Communication and multidisciplinary collaboration (Activity a), and Objective 6 – Capacity development and technology transfer (Activities a, b, c, e, and f) of the Programme of Work.
2. This document provides an overview of the activities carried out on capacity building in the implementation of the Programme of Work and reports the progress made on the establishment of partnerships relevant to GLIS.
3. Section II provides an update on the activities carried out to strengthen or establish new partnerships and collaboration in relation to Objective 5. In particular, it refers to the preferential partnerships identified by the Committee and the Governing Body. It also provides information on groups and initiatives working in areas of interest for GLIS, and on some technical partnerships established. The section contains reference to the support provided to the Benefit-sharing Fund projects to ensure that material and data are placed in appropriate sites for conservation and sharing.
4. Section III provides an overview of activities carried out regarding documentation, training and capacity building and ongoing related collaboration as related to Objective 6 of the Programme of Work.
5. Finally, in Section IV, the Committee is invited to provide advice and recommendations on the development of partnerships and collaborations related to training and capacity building activities.

II. PARTNERSHIPS AND COLLABORATIONS

6. Establishing partnerships with existing information systems and initiatives will, on the one hand, comply with the Vision developed for Article 17 of the International Treaty and, on the other, provide significant benefits to the user communities based on the improved interconnection of such systems and their support activities. The description of the ongoing collaborations is presented in three main categories: preferential partners, relevant groups and technical partners.

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Preferential Partners

7. The systems and tools in this category are:
- *FAO WIEWS*, which provides access to accession-level information for material conserved in long-term storage conditions which is of relevance to the users of GLIS, as well as other information made available by countries for the monitoring of the Global Plan of Action;
 - *Genesys*. Through the collaboration between the Secretariat and the Global Crop Diversity Trust, a first level of integration has been already completed. When stakeholders publish or update new records in Genesys with Digital Object Identifiers (DOIs), Genesys automatically registers itself as one of the links associated to the DOI in GLIS. Additionally, GLIS now updates its own descriptors from Genesys. In 2018, the Secretariat of the International Treaty and the Global Crop Diversity Trust further consolidated their collaboration on Genesys and GLIS through the formal exchange of letters. They organized a joint planning session at the beginning of the year with both the heads and the relevant technical staff to develop a detailed roadmap of activities.
 - *GRIN-Global* is a widely adopted genebank management system (GMS) that has already been equipped with SMTA reporting functions using the XML protocol offered by Easy-SMTA. An additional function has been requested from users for them to easily register material or update existing records. The Secretariat has continued to promote GRIN-Global;
 - *Web-SDIS* is another example of GMS, developed by the Plant Genetic Resources Network of the Southern African Development Community (SADC), that is gaining significant adoption in the SADC region and that could be easily equipped with SMTA reporting and DOI registration and updating support. Thanks to the support of the Government of Germany, genebank managers and users of Web-SDIS are now familiar with DOIs and there is an ongoing collaboration to make the material of the network more visible to users and to other systems through GLIS;
 - *B4R* is a new Breeding Management System (BMS) developed by IRRI. Its role for GLIS is parallel to GRIN-Global, but for breeders, in an effort to bring them more in line with documentation systems strategies onto which further, advanced services can be built;
 - *CIARD RING* is a registry of data sources and datasets that can be very effectively plugged in GLIS for:
 - compiling the catalogue of information sources relevant to GLIS, as there are already many data sources listed there with their complete metadata and this would avoid duplication;
 - Providing more visibility to the datasets produced by the Benefit-sharing Fund projects;
 - providing a comprehensive description of the systems to which the GLIS links points to, such as:
 - owner of the system;
 - contact details of the system manager or focal point;
 - proper citation for use in publications or datasets;
 - types of information contained in the system;
 - formats and protocols offered for harvesting;
 - access to related data endpoints.

Relevant Groups

8. The Secretariat is collaborating with other stakeholders and groups:
- The *CGIAR Genebank Platform* is the reference initiative for genebanks in the CGIAR system, which is a strategic partner for GLIS. Close collaboration with this initiative has

proven to be effective in the registration of DOIs and in the promotion of DOIs with plant breeders and researchers;

- The *CGIAR Excellence in Breeding Platform* (EiB) is also very relevant because it offers a single and most effective point of entry to the breeding community. The Platform has a module bioinformatics, biometrics and data management which identifies and documents user experiences of existing software and breeding design approaches, works with the optimizing breeding schemes, genotyping and sequencing and phenotyping components to identify and prioritize informatics gaps, and to develop new software tools and informatics pipelines that can support the breeding and research schemes of Platform members. Of particular interest for GLIS is BrAPI, a powerful protocol and format specification for exchange of information among systems.
- *Research Data Alliance* is the worldwide reference forum where topics about research data collection, storage, exchange and organization are discussed. The participation of GLIS in this forum has facilitated access to information on current cutting-edge practices for open data sharing.

Technical Partnerships

9. Other partnerships of more technical nature have also been established:

- The *FAO Information Technology Division (CIO)* provides hosting services to GLIS and collaborates with the Secretariat in the development of the Integration Toolkit;
- *DataCite* is the DOI Registration Agency providing DOI registration services to GLIS. Through DataCite, DOIs assigned by GLIS are published on the Global DOI System. DataCite is also working on a few initiatives that are potentially relevant for GLIS:
 - *EventData* is a collaboration with Crossref, another DOI Registration Authority, that will allow GLIS to automatically harvest publications in which GLIS DOIs are cited;
 - *MakeDataCount* focuses on setting a standard for usage metrics. This would be useful to extract interesting indicators about, for instance, GLIS PGRFA that are most viewed or accessed;
 - *Onyar* is a new joint initiative of DataCite, Crossref and ORCID aiming at establishing a standard for organization identifiers.

Benefit-sharing Fund Projects

10. During their operations, the Benefit-sharing Fund projects may produce new materials or a variety of information products that are valuable and should be made available to users. New guidelines are being developed to make sure that both materials and information are placed in appropriate sites for conservation and sharing.

11. These projects are obliged to include new material in the Multilateral System of the Treaty (MLS), usually as the result of evaluation or breeding work. In most cases, the inclusion is done through the deposit in a genebank that already has collections in the gene pool of the International Treaty, together with the corresponding passport information.

12. Other information produced by the projects in the form of datasets, documents and multimedia must be stored and made available in a suitable repository. The Secretariat is assessing the suitability of several such repositories, beside CIARD RING mentioned above, for some of these datasets, such as:

- Dryad
- Edinburgh Datashare
- Figshare
- GBIF
- GigaDB
- Harvard Dataverse
- IPK's !eDAL

- PANGAEA
- Zenodo

III. TRAINING AND CAPACITY BUILDING

13. Since the last meeting of the Scientific Advisory Committee, the Secretariat has continued to identify priorities for capacity building activities relevant to GLIS and taking due consideration of priority partners as advised by this Committee.

14. One theme identified by the Secretariat that is instrumental for the conservation and sustainable use of PGRFA is the documentation of crops in a standardized way. This is one of the needs highlighted by users as essential for improving the quality of documentation and a key tool for exchanging PGRFA data.

15. In this regard, in May 2018, the Secretariat participated in the “Genebank Operations and Advanced Learning (GOAL)” workshop,¹ organized by the Global Crop Diversity Trust and funded by the Norwegian Government. The regional workshop was held in Costa Rica and aimed at supporting Latin American genebanks to adopt best practices and to achieve excellence. The Secretariat trained participants on international standards development and promotion, namely: (i) the descriptors required to assign DOIs in the Global Information System; (ii) golden standards for passport data (MCPD 2.1), and (iii) standards to document characterization and evaluation data.

17. The five-day workshop gathered 40 experts from 12 countries and 13 national genebanks. Contracting Parties, stakeholders and PGRFA users re-emphasized that capacity development activities on international standards and on the Treaty activities, were a priority in the Latin America and Caribbean region.

18. Other workshops and training activities undertaken includes:²

- ✓ **SADC: GLIS Workshop in Southern African Region,**³ 12 – 14 December 2017, South Africa (Cape Town, South Africa), Strengthening national capacities on plant genetic resources in the Plant Genetic Resources Centre of SADC in the context of the Global Information System under Article 17 of the International Treaty.
- ✓ **Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development. (ICABIOGRAD).** *International Training on Software Testing to Support DOI implementation.* From 22 April to 2 May 2018. Bogor, Indonesia. The training activities, funded by the Benefit-sharing Fund of the International Treaty, focused on rice genetic resources management and exchange in the context of GLIS.
- ✓ **Instituto Nacional de Innovación Agraria (INIA) de Perú y el Centro Internacional de la Papa (CIP).** National Workshop on capacity building: “Desarrollo de capacidades sobre el Sistema mundial de información sobre los recursos fitogenéticos para la alimentación y la agricultura (GLIS)”. February 2018, Lima, Peru.
- ✓ **Global Open Data for Agriculture and Nutrition (GODAN):** Two webinars held, one on DOIs in general and the other on the application of DOIs to PGRFA and GLIS. The total audience of the two webinars was 43 participants, all from developing countries.

19. The Secretariat provided access to training materials for capacity development through making the documents on the Descriptors and the Guidelines available online, and in May 2018, a

¹ <http://www.fao.org/plant-treaty/news/news-detail/en/c/1137667/>

² A comprehensive list of meetings and events attended is provided in Appendix 1.

³ <http://www.fao.org/plant-treaty/meetings/meetings-detail/en/c/1061441/>

printed booklet,⁴ which includes both documents was published in English, French and Spanish (E/F/S). The Arabic version is currently being finalized.

20. In April 2017, the Secretariat produced 200 USB keys containing all the information relevant to GLIS such as: selected documentation; standards for passport data; reports on the consultations, surveys and meetings conducted for the development of the DOIs; videos and presentations; background study papers, and useful links to partner systems including Genesys, WIEWS and EURISCO. Some of the USB keys were distributed during the GOAL Workshop. The Secretariat has made a compilation of selected resources available online, as reflected in *Appendix 2*.

21. The Frequently Asked Questions⁵ (FAQs) were revised after the Second meeting of the Committee and published online in 2017, in three languages (English, French and Spanish). This document has proven to be extremely useful for PGRFA users regarding the assignment of DOIs in GLIS.

22. The Secretariat has also developed and made available to users, technical documentation to help users to register their material in GLIS.

23. Additional capacity building and promotion material that the Secretariat has made available include video presentations on GLIS, as follows:

- ✓ The big challenge: what do DOIs identify?
(<https://www.youtube.com/watch?v=2Qjjcqbex8A&feature=youtu.be>)
- ✓ Managing PGRFA relationships between DOIs
(<https://www.youtube.com/watch?v=J0WiuHUG5pw&feature=youtu.be>)
- ✓ Global Information System on Plant Genetic Resources.
https://www.youtube.com/watch?time_continue=4&v=o2Gg4H2QxWo

IV. ADVICE SOUGHT

24. The Committee is invited to note the information provided in this document and provide any additional advice on the development and strengthening of partnerships and collaborations, including for the improvement of the support to users and the planning and organization of training and capacity building activities.

⁴ <http://www.fao.org/publications/card/en/c/I8840EN>

⁵ <http://www.fao.org/plant-treaty/areas-of-work/global-information-system/faq/en/>

*Appendix 1***Training, outreach and coordination events⁶**

- CultiVar and GAIA. COURSE in English. Genome editing in agriculture, engaging in policy, legal and institutional issues (International Thematic School). From 23 to 25 May 2018 in Montpellier, France. This thematic school is free of charge. Please note that CultiVar provided a number of PhD students or teachers from developing countries with limited financial support (airfare and/or accommodation).
- Research Data Alliance XI Plenary Meeting. From 21 to 23 March 2018. Berlin, Germany (<https://www.rd-alliance.org/plenaries/rda-eleventh-plenary-meeting-berlin-germany>). As a collateral event, the meeting of the Interest Group on Agriculture Data (IGAD), from 19 to 20 March (<https://docs.google.com/document/d/1huqhmoh0AHeq2L0MbBAuMXYC2eXV2YwvsQ7pKbJu3WY/edit>).
- European Cooperative Programme for Plant Genetic Resource (ECPGR), 15th Steering Committee from 15 to 17 May 2018 in Thessaloniki, Greece.
- IICA y el GCDDT. Taller sobre operaciones y aprendizaje avanzado en bancos de germoplasma. Costa Rica. Del 14 al 18 de Mayo 2018. Tipo de capacitación GOAL para América Latina, con un enfoque en la mejora de la calidad, gestión de datos y nuevas tecnologías, así como en adquisición, conservación, regeneración, caracterización, evaluación y distribución de RFAA.
- EUCARPIA Genetic Resources 2017 - CROP DIVERSIFICATION IN A CHANGING WORLD. Mobilizing the green gold of plant genetic resources, Montpellier, France, 08-11 May 2017 (<https://symposium.inra.fr/eucarpiageneticresources2017>).
- Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development. (ICABIOGRAD). International Training on Software Testing to Support DOI implementation. From 22 April to 2 May 2018. Bogor, Indonesia. The training activities, funded by the Benefit-sharing Fund of the International Treaty, focused on rice genetic resources management and exchange in the context of GLIS.
- Genesys Catalog partners meeting. From 5 to 7 March 2018 in Bonn, Germany.
- Convention on Biological Diversity. Meeting of the Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources. From 13 to 16 February 2018 in Montreal, Canada.
- Instituto Nacional de Innovación Agraria (INIA) de Perú y el Centro Internacional de la Papa (CIP). Taller nacional “Desarrollo de capacidades sobre el Sistema mundial de información sobre los recursos fitogenéticos para la alimentación y la agricultura (GLIS)”. El 8 de febrero de 2018 en Lima, Perú.
- PIDapalooza, 2nd Permanent Identifier Festival. 23-24 January 2018. Girona, Spain (<https://www.pidapalooza.org>). An event presenting numerous sessions on a wide range of topics related to PIDs.
- GODAN - Building Synergies in Capacity Development at IGAD Pre-Conference Meeting, April 3-4, 2017, Faculty of Library and Information Science of the University of Barcelona, Spain (<http://www.godan.info/events/new-attend-building-synergies-capacity-development-igad-pre-conference-meeting>).
- SADC - Strengthening national capacities on plant genetic resources in the context of the Global Information System of Article 17 of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), Cape Town, South Africa, 12-14 December 2017.

⁶ <http://www.fao.org/plant-treaty/areas-of-work/global-information-system/externalmeetings/en/>

Appendix 2

Selected documentation and links related to the Global Information System⁷

Other Standards

- MCPD v.2.1 - FAO/Bioversity List of Multi-Crop Passport Descriptors – v2.1 (<http://www.bioversityinternational.org/e-library/publications/detail/faobioversity-multi-crop-passport-descriptors-v21-mcpd-v21/>)

Consultations, Surveys and Meetings

- Second Meeting of the Scientific Advisory Committee on the Global Information System of Article 17 (SAC-GLIS-1), Rome, Italy, 13 – 14 June 2017 (<http://www.fao.org/plant-treaty/meetings/meetings-detail/en/c/853660/>)
- First Meeting of the Scientific Advisory Committee on the Global Information System of Article 17 (SAC-GLIS-1), November 2016 (<http://www.fao.org/plant-treaty/meetings/meetings-detail/en/c/414978/>)
- Report of the First Meeting of the Scientific Advisory Committee on the Global Information System of Article 17 of the Treaty. FAO, 2016 (<http://www.fao.org/3/a-bq811e.pdf>)
- Report of the Global survey on descriptors required to register material in the Global Information System on PGRFA. FAO, 2016. (<http://www.fao.org/3/a-bp470e.pdf>)
- The Vision and the Programme of Work on the Global Information System, contained in Resolution 3/2015 of the Sixth Session of the Governing Body (<http://www.fao.org/3/a-bl140e.pdf>). FAO, 2015.
- Report of the First meeting of the Expert Consultation on the Global Information System on PGRFA. IT/COGIS-1/15/Report. (<http://www.fao.org/3/a-be664e.pdf>)
- Summary Report of the Task Force on Permanent Global and Unique Identifiers for PGRFA in the context of the Global Information System of Article 17. FAO, 2015. (<http://www.fao.org/3/a-bq555e.pdf>)
- Consultation on the Global Information System on PGRFA - Technical Options to Facilitate the Establishment of Data Links in the Field of Plant Genetic Resources for Food and Agriculture. San Diego, USA, January 2015. IT/COGIS-1/15/3 (<http://www.fao.org/3/a-be643e.pdf>)

Video presentations on descriptors

- [The big challenge: what do they identify](#)
- [Managing PGRFA relationships](#)
- [DOIs in a nutshell](#)

Background Study Papers

- BSP-10. The Global Information System and Genomic Information: Transparency of Rights and Obligations. FAO, 2016. (<http://www.fao.org/3/a-bq620e.pdf>)
- BSP-5. Plant Genetic Resources and Genomics: mainstreaming agricultural research through genomics. FAO, 2014. (<http://www.fao.org/3/a-be655e.pdf>)

⁷ <http://www.fao.org/plant-treaty/areas-of-work/global-information-system/links/en/>

Notifications on GLIS for the 2016-2017 biennium

- Descriptors and Guidelines for the Assignment of Digital Object Identifiers within the Global Information System. 17 October 2016. (<http://www.fao.org/plant-treaty/notifications/detail-events/en/c/447440/>)
- Update and inputs for the implementation of the Global Information System. 9 June 2016. (<http://www.fao.org/3/a-bp423e.pdf>)

Other useful links

- ABSCH- Access and Benefit-sharing Clearing-house Platform of the Nagoya Protocol (<https://absch.cbd.int/>)
- Benefit-sharing Fund project coordinated by Indonesia "Multi-country construction of a test platform for the development and allocation of globally unique identifiers for rice germplasm: (W3B-PR-29). (<http://www.fao.org/plant-treaty/areas-of-work/benefit-sharing-fund/projects-funded/bsf-details/en/c/359491/?iso3=IDN>)
- CAPFITOGEN (<http://www.fao.org/plant-treaty/initiatives/capfitogen/en/>)
- CGIAR Open Access and Open Data (<http://www.cgiar.org/resources/open-access/>)
- CGIAR Research Program and Platform (<http://www.cgiar.org/consortium-news/cgiar-research-program-platform-full-proposals-submitted-for-review/>)
- Cyverse (<http://www.cyverse.org/>)
- DataCite (<https://www.datacite.org/>)
- DivSeek (www.divseek.org)
- ECPGR - European Cooperative Programme for Plant Genetic Resources (<http://www.ecpgr.cgiar.org/>)
- Eurisco (<http://eurisco.ipk-gatersleben.de>)
- GBIF - Global Biodiversity Information Facility (<http://www.gbif.org/>)
- Genesys Portal (<https://www.genesys-pgr.org/>)
- Global Open Data for Agriculture and Nutrition (<http://www.godan.info>)
- GRIN-Global (<http://www.ars-grin.gov/npgs/gringlobal/>)
- IBP - Integrated Breeding Platform (<https://www.integratedbreeding.net/>)
- IRIS - International Rice Information System (<http://irri.org/tools-and-databases/international-rice-information-system>)
- The DOI® System (<http://www.doi.org/>)
- WIEWS - World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (<http://www.fao.org/wiews/en/>)