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Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE
THIRD MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE GLOBAL INFORMATION SYSTEM OF ARTICLE 17 OF THE TREATY
Rome, Italy, 21 – 22 June 2018
REPORT

I.   OPENING OF THE MEETING

1.   The third meeting of the Scientific Advisory Committee on the Global Information System of Article 17 of the Treaty (Committee) was opened by the Secretary of the International Treaty on Plant Genetic Resources for Food and Agriculture, Mr Kent Nnadozie, who welcomed the participants. The full list of participants will be issued as an information document and will be made available online.[1]

2.   In his opening statement, Mr Nnadozie recalled that the Governing Body had, at its Seventh Session, welcomed the progress made in the development of the descriptors and the Guidelines for the adoption of Digital Object Identifiers (DOIs). The Governing Body had emphasised the need to intensify efforts to use the DOI system as a central element of the Global Information System (GLIS), and to promote or facilitate its voluntary use by relevant users. He further recalled that the Governing Body had expanded the mandate of the Committee to consider scientific and technical issues of relevance to genetic sequence information, as far as it is generated from the use of PGRFA and related to the implementation of the GLIS. In this context, he indicated that the International Treaty was at a key moment in its enhancement process and that relevant scientific issues of potential impact to access and benefit sharing were under consideration in various international fora.

3.   Mr Nnadozie thanked the Government of Canada for the financial support provided for the organization of the meeting and the consultative efforts of the Co-chairs in the context of the implementation of the Programme of Work of GLIS. He also outlined the approach followed by the Secretariat since the Seventh Session of the Governing Body with the development of training materials, the organization of training workshops in developing countries, and the strengthening of the collaboration with the key partners prioritized by the Governing Body.

II. Agenda Item 1 – ELECTION OF THE CO-CHAIRS

4.   The meeting re-confirmed the Co-chairs elected in the previous biennium: Mr Axel Diederichsen (North America Region) and Mr Kuldeep Singh (Asia Region).

III. Agenda Item 2 - ADOPTION OF THE AGENDA

5.   The Committee adopted the Agenda as contained in *Appendix 1*.

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[1] http://www.fao.org/plant-treaty/meetings/meetings-detail/en/c/1099124/

IV. Agenda Item 3 - REPORT ON THE OPERATIONS AND IMPLEMENTATION OF THE PROGRAMME OF WORK

6.   The Secretariat introduced document IT/SAC- GLIS-3/18/3, *Report on the Operations of the Programme of Work*. The document provided an overview of the major activities undertaken under the Programme of Work of GLIS since the second meeting of the Committee.

7.   The Committee recalled that the use of the Digital Object Identifiers (DOIs) is voluntary and welcomed the progress made since the Second meeting, in particular with the publication of the Descriptors and the Guidelines and the development of the web-based Platform to assign DOIs. The Committee also encouraged the Secretariat, subject to the availability of resources, to continue in its efforts to build the capacity of relevant stakeholders, especially in developing countries.

Agenda Item 3.1 - Experiences and Refining Guidelines in the Application and Use of Digital Object Identifiers

8.   The Committee took note of the progress made in promoting the implementation of the Global Information System and the DOIs with users during the first few months of operations of the DOI's Module and the establishment of the connection with Genesys.

9.   The Committee recalled that the Vision for GLIS is that this System integrates and augments existing information systems and builds upon the work of existing networks, projects and initiatives. The Committee advised the Secretary to articulate GLIS primarily as a system of pointers. Furthermore, it advised to continue the collaboration with Genesys, the World Information and Early Warning System (WIEWS), GRIN-Global, the European Search Catalogue for Plant Genetic Resources (EURISCO) and the Documentation and Information System Southern African Development Community (Web-SDIS), among others, and to facilitate the mutual exchange of information while avoiding duplication of efforts.

10.   The Committee recalled that the use of DOIs is voluntary, as indicated in the Guidelines, and advised the Secretary on the list of user and stakeholders, contained in *Appendix* 2, to document experiences on the application of DOIs by early adopters and gather information on the expectation from DOIs by other potential users, as well as other cases identified.

11.   Regarding the GLIS Catalogue of sources, the Committee reviewed the list of keywords used for the classification of systems and sources of information as contained in *Appendix 3*. In developing the Catalogue, the Committee advised the Secretary to make it interactive and easily searchable, where possible, reusing existing mechanisms.

12.   The Committee advised the Secretary to develop further the concept of the DOI Index, for instance, taking into account descriptors like the "MLS Status" and the number of linkages associated to the DOI.

Agenda Item 3.2 - Development and Promotion of Standards as Outlined in Objective 3 of the Programme of Work on the Global Information System

13.   The Secretariat introduced document IT/SAC-GLIS-3/18/4, *Development and Promotion of Standards as Outlined in Objective 3 of the Programme of Work on the Global Information System*.

14.   The Committee highlighted the importance of crop descriptor lists. It invited the Secretary to circulate to the Committee a broader and more detailed document listing existing crop descriptors useful information that may help in the assignation of priority for their development or review. The Committee will review the list through electronic means, and provide recommendations that the Secretary could transmit to the Governing Body for its consideration.

15.   The Committee noted the usefulness of controlled vocabularies and crop ontologies, and their use by the bioinformatics community in developing new systems and tools for plant breeders and genebank curators. In this context, the Committee advised the Secretary to support the

conversion of existing crop descriptors into ontologies and to further explore the use of stable ontologies through the Global Information System.

Agenda Item 3.3 - Masterplan for the GLIS Portal

16.   The Secretariat introduced document IT/SAC-GLIS-3/18/5, *Masterplan for the Development of the GLIS Portal*, containing a description of the functionalities of the GLIS Portal.

17.   The Committee reviewed the Masterplan as contained in *Appendix 4* and advised the Secretary to develop model cases illustrating the effectiveness of connecting existing information systems through GLIS.

V.   Agenda Item 4 - ACCESS AND USE OF PGRFA INFORMATION THROUGH THE GLOBAL INFORMATION SYSTEM

18.   The Secretariat introduced the document, IT/SAC-GLIS-3/18/6, *Access and Use of PGRFA Information through the Global Information System*. The document provided an update and an analysis of developments that occurred in relevant international processes regarding digital sequence information (DSI) or genetic sequence data (GSD),[2] in line with the mandate and terms of reference that the Committee received from the Governing Body at its Seventh Session.

Agenda Item 4.1 - Genetic Sequence Data with Respect to PGRFA

19.   The Committee focused its consideration of the issue on the on-going implementation of the GLIS. In that regard, the Committee was of the view that applying DOIs to PGRFA information could be a useful starting point to address uses of information, including DSI/GSD, generated from the use of germplasm in the Multilateral System.

20.   The Committee was of the opinion that DOIs could be a tool to link DSI/GSD to the source germplasm.

21.   The Committee considered exploring scientific and technical issues in the use of DOIs for linking material and information, such as the development of quality standards for DOI relationships.

22.   The Committee advised the Secretariat to gather more information from GLIS users, including CGIAR Centres and other institutions managing crop germplasm repositories, on the current application of DOIs to crop germplasm in the Multilateral System of Access and Benefit-sharing for which DSI/GSD is available in GLIS compatible information systems.

23.   In relation to the current development of the GLIS portal, the Committee considered it useful to include pointers to relevant major global DSI/GSD databases.

24.   In relation to capacity development, the Committee considered that, in the future, GLIS Portal could offer pointers to practical tools, such as GSD analysis tools. It advised the Secretary, subject to the availability of financial resources, to facilitate technology transfer and training on GLIS and on genebank data management systems, e.g., GRIN-GLOBAL, as a benefit for developing countries.

25.   The Committee advised the Secretary to compile and analyse the information that countries will submit in response to the invitation made by the Governing Body.

26.   The Committee's further advice on this agenda item is contained in the Master Plan attached as *Appendix 4* to this Report.

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[2] The term "digital sequence information" is utilized interchangeably with "genetic sequence data" in this report, without any prejudice to the possible definition of terminology by the Governing Body.

VI. Agenda Item 5 - DEVELOPMENT OF PARTNERSHIPS, COLLABORATION AND CAPACITY BUILDING

27.   The Secretariat introduced document, IT/SAC- GLIS-3/18/7, Strengthening *Partnerships, Collaboration and Capacity Development.* The Co-chairs invited several participants to deliver presentations on their work of relevance to GLIS.

28.   Mr. Luigi Guarino (Global Crop Diversity Trust, Crop Trust) presented Genesys as the online entry point to data on crop diversity maintained *ex situ* worldwide. Mr. Guarino explained that Genesys is now connected to GLIS. He also confirmed that the collaboration on information systems had been formalized between the Crop Trust and the Secretariat of the International Treaty. The Committee noted the role of Genesys as the entry point for *ex situ* information and advised the Secretary to continue this partnership.

29.   Mr. Stefano Diulgheroff (FAO) presented the new website of the World Information and Early Warning System (WIEWS) on PGRFA and explained the way in which users can access the information provided by countries under the reporting processes for the indicator 2.5.1 of the Sustainable Development Goals and for the Second Global Plan of Action on Plant Genetic Resources for Food and Agriculture. Mr. Diulgheroff noted the ongoing discussion for the connection of WIEWs and GLIS planned for the second semester of this year. The Committee advised the Secretary to complete the connection in due time and underlined the value of the on-farm information contained in WIEWS and to jointly assess possible overlaps with data available in other systems. It also advised the Secretary to explicitly articulate overlaps and uniqueness among accessions and data available in Genesys and WIEWS.

30.   Ms Elisa Bellucci (Università delle Marche) presented the Bean Adapt and the BRESOV projects and their use of DOIs to connect passport with phenotypic data. The Committee welcomed the presentation and advised the Secretary to collaborate in the documentation of the experience of the project in the use of DOIs.

31.   Mr Nigel Maxted (University of Birmingham) updated the Committee on a recent consultation with members of the European *in situ* network regarding the DOIs Guidelines and presented the Farmer's Pride Project where the CAPFITOGEN tools of the International Treaty are used by several stakeholders. The Committee expressed concern about the lack of consistent standards for documentation of in situ material, and recommended that the issue be addressed by the appropriate forum.

32.   Ms Marta Lopes Da Silva (CIMMYT), presented the project funded by the Benefit-sharing Fund "Development of a new database, to identify Resilient Wheat (RESWHEATDATA) that targets superior germplasm tested under low rainfall high-temperature environments", and described the use of DOIs as a means to connect information across repositories.

33.   Ms Valeria Pesce (FAO) presented the CIARD RING and its relevance for the setting up of the Catalogue of sources of information for GLIS and for the provision of metadata about the source system linked to by GLIS.

34.   Mr David Marshall (The James Hutton Institute) made a presentation on recent developments in the Germinate 3 portal of relevance to GLIS, in particular, the data visualization and analysis tools linked to underlying experimental data.

35.   The Committee advised the Secretary to strengthen collaboration with all the networks, information systems and databases described in the document, including DivSeek and the National Center for Biotechnology Information (NCBI).

36.   The Committee also advised exploring the integration in GLIS of breeding interfaces and tools, such as BrAPI. It also advised the Secretary to make CAPFITOGEN available for online data analysis by users. It further advised the Secretary to adopt a comprehensive approach to capacity building and to make training resources and e-learning materials available online.

37. The Committee expressed concerns about the lack of consistent standards for the documentation of *in situ* collections and recommended that the issue should be addressed by the appropriate forum.

38. The Committee advised the Secretary to give more visibility to DOIs and promote the activities of the Programme of work on GLIS paying special attention to the documentation of PGRFA that might still be on paper records or in offline local databases. The Committee also advised the Secretary to place a high priority on liking to scientific publications and supporting users to incorporate such information into information management systems that are internet-accessible and backed-up to safeguard and provide ready access to it.

VII.   Agenda Item 6 - OTHER MATTERS

39. The Committee thanked the Government of Canada for the financial contribution for the organization of the meeting. It also thanked the Government of Germany for the financial support it had thus far provided towards the implementation of the Global Information System and encouraged other donors to consider providing additional support. In doing so, it advised the Secretary to follow up with other interested donors to secure additional funding for the implementation of the Programme of Work.

VIII.   Agenda Item 7 - ADOPTION OF THE REPORT

40. The Committee adopted this Report and its appendixes.

Appendix 1

THIRD MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE GLOBAL INFORMATION SYSTEM OF ARTICLE 17 OF THE TREATY
Rome, Italy, 21 – 22 June 2018
AGENDA

1)   Election of Co-Chairpersons

2)   Adoption of the Agenda and Timetable

3)   Report on the Operations and Implementation of the Programme of Work

   3.1   Experiences and Refining Guidelines in the Application and Use of Digital Object Identifiers

   3.2   Development and Promotion of Standards as Outlined in Objective 3 of the Programme of Work on the Global Information System

   3.3   Masterplan for the GLIS Portal

4)   Access and Use of PGRFA Information through the Global Information System (GLIS)

   4.1 Genetic Sequence Data with Respect to PGRFA

5)   Development of Partnerships, Collaboration and Capacity Building

6)   Other Matters

7)   Adoption of the Report

Documentation of Users' Experiences and GLIS Expectations

Type of user	Title or acronym
National genebanks (At least two)	- CGN (the Netherlands) - LARI (Lebanon) - NBPGR (India) - NGB (Tunisia)
CGIAR Centers (At least two)	- AfricaRice, Bioversity International, CIAT, CIMMYT, CIP, ICARDA, IITA, ILRI, and IRRI
Benefit-sharing Fund projects	- W3B-PR-18-Turkey - W3B-PR-29-Indonesia: Multi-country Construction of a Test Platform for the Development and Allocation of Unique Identifiers to Rice Germplasm, linking the MLS information infrastructure and the DivSeek repository
Multi-country evaluation project	Bean_ADAPT Project - Università Politecnica delle Marche, Italy
Research institute	- CATIE - The James Hutton Institute
Regional Genebank Networks	EURISCO Web-SDIS
Priority entry-point systems at global level	- WIEWS - GENESYS
Others	-IPK Gatersleben -GRIN Global -PGRC Canada -The Excellence in Breeding Platform (EBI) -The International Seed Federation (ISF)

Appendix 3

Initial List of Keywords for the Classification of PGRFA Information in GLIS

Code	Keyword
1	Passport data
2	Phenotypic data
3	Genomics data
4	Publications
5	Multimedia

MasterplanAccess Points to PGRFA through GLIS

The design of the GLIS Portal will facilitate access to PGRFA information **(including phenotype, genotype and environment data)** following this initial structure:

    i. Main Navigation Menu

    ii. Topic Browsing

        (a) *Modules*

            1) Module 1: *Ex situ*
            2) Module 2: *In situ*
            3) Module 3: On-farm
            4) **Module 4: Research data**

        (b) *Model cases[3]*

        (c) *Types of resources*: DOIs, institutions, contacts, publications, databases and information systems

        (d) Crop list

        (e) Country

    iii. Search Box for free text searches (available directly in the homepage)

    iv. Advanced Search Form with entry points available in the DOI detail pages (linked from the homepage)

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[3] Model cases describe the use of information systems and tools to address plant breeders, farmers and research needs, eg. linking research information to the source material in conservation, or increasing the value of the material through improved characterization or evaluation information. The aim of the model cases is to produce proof-of-concept and prototypes, which may benefit GLIS users after enhancement.