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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

FOURTH MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE GLOBAL INFORMATION SYSTEM

20 – 21 April 2021

ACCESS AND USE OF PGRFA INFORMATION THROUGH THE GLOBAL INFORMATION SYSTEM AND OTHER RELEVANT DEVELOPMENTS

I. INTRODUCTION

1. This document relates to the component of the vision of the Global Information System (GLIS) dealing with the promotion of transparency of rights and obligations related to accessing, sharing and using information associated with germplasm, and the establishment of ways to exercise those rights and obligations within the GLIS. Objective 4 of the Programme of Work that accompanies the vision, foresees the analysis of the institutional, organizational, policy and legal factors related to access, sharing and use of PGRFA information in the context of the provisions of the International Treaty, in particular Articles 12 and 13 on the Multilateral System.

2. At its Eighth Session, the Governing Body thanked the stakeholders and users who submitted information on the application of digital object identifiers (DOIs) to digital sequence information /genetic sequence data (DSI/GSD).[1] It requested this Committee to continue considering scientific and technical issues of relevance to DSI/GSD and national legislation, as appropriate.[2] DSI/GSD also feature in the Multi-Year Programme of Work that the Governing Body approved.[3]

3. This document also provides the Committee with updates on the consideration of DSI/GSD in the context of the Convention on Biological Diversity (CBD) and other fora. The document further refers to other developments of relevance to the GLIS, its vision and Objective 4 of the Programme of Work.

II. DIGITAL SEQUENCE INFORMATION / GENETIC SEQUENCE DATA WITH RESPECT TO PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

4. It will be recalled that the 14th meeting of the Parties (COP 14) to the CBD decided to establish a science- and policy-based process on digital sequence information on genetic resources and established an extended *Ad Hoc* Technical Expert Group (AHTEG). It is also expected that the Open-ended Working Group negotiating the Post-2020 Global Biodiversity Framework will consider the outcomes of the AHTEG and make recommendations to COP 15 on how to address digital sequence information on genetic resources in the context of the post-2020 global biodiversity framework.

[1] The Governing Body has not yet decided on the official terminology for digital sequence information/genetic sequence data and therefore uses "DSI/GSD" until new terminology is agreed.
[2] Resolution 4/2019, available at: http://www.fao.org/3/nb782en/nb782en.pdf.
[3] Resolution 13/2109, available at: http://www.fao.org/3/nb791en/nb791en.pdf.

5. The AHTEG met virtually on 17-20 March 2020 and considered the concept and scope of DSI, traceability and databases, and domestic measures.

6. With a view to providing conceptual clarity, the AHTEG developed options for both operational scope and terms.

7. With regard to operational scope, the AHTEG determined that three cumulative groups of genetic and biochemical information could be considered as DSI, namely: 1) DNA and RNA; 2) proteins and epigenetic modifications; and 3) metabolites and other macromolecules. A fourth group, comprising traditional knowledge associated with genetic resources and other information variously described as contextual, associated, or subsidiary information, was considered as not pertaining to DSI. The AHTEG provided examples of "granular subject matters" under each of the four groups.

8. The AHTEG noted the importance and value of passport data in traceability, such as the provider country – understood as the country of origin or the Party that has acquired the genetic resource in accordance with the CBD – where the biological sample was collected, coordinates of sample collection, sample collection date, accession number or other unique identifiers, collector, etc., as exemplified by the minimum information about a genome sequence specification by the Genomics Standards Consortium.

9. With regard to terminology, the AHTEG discussed potential terms for the proposed groups, as summarized in the table below:

Group 1	*Group 2*	*Group 3*
Nucleotide sequence data; Genomic sequence information; Genomics information; Nucleotide sequence information; Genetic Resource Sequence Data; Digital sequence data; Data on the genomic DNA (or RNA) of a sample genetic resource.	Genomic and proteomic sequence information; Genomic and proteomic sequence information Nucleotide sequence information; Genetic information; Sequence data; Nucleotide and amino acid sequence data; Nucleotide and amino acid sequence and structural information; Nucleotide and amino acid sequence, structural and functional information; Functional digital information of nucleotide sequence data; Proteomic data; Genomic and proteomic sequence information; Data on the macromolecular composition of a sample genetic resource.	Genomic, proteomic and metabolomic information; Genetic and "omic" information; Metabolomic data; "Omic" information Genomic, proteomic and metabolomic information; Data on the biochemical and genetic composition of a sample genetic resource.

10. The AHTEG discussed other additional terms, including the following: digital sequence information, natural information; digital genetic resource information; digital genetic resource data and information; genetic resource data and information; genetic information; all data on a sample (genetic resource) and *in silico.*

11. With regard to traceability and databases, the AHTEG reiterated the value of open access and noted that publicly accessible databases operate under "differing terms and conditions of use". According to the AHTEG, potential ways to improve traceability in databases would be the

inclusion of relevant passport data as well as information regarding the genetic resource, and the link to journal publications with genetic resources stored in *ex situ* collections. The AHTEG also noted the potential complexity and cost of developing systems that could be used to trace and monitor the use of digital sequence information along the value chain, and that more consistent use of country tags in the International Nucleotide Sequence Database Collaboration and enhanced passport data could enhance traceability.

12. In considering existing and prospective domestic measures, the AHTEG acknowledged that some countries are currently regulating digital sequence information and noted that different ABS national frameworks addressing digital sequence information pose challenges for users, including those involved in basic non-commercial research, academic research and small and medium-sized enterprises. The AHTEG further noted the importance of a concerted and cost-effective international approach, including measures at the time of access (e.g., flat-fee access or creative commons licensing approaches, database access agreements), open access with benefit-sharing triggered by utilization or commercialization, and a possible multilateral approach.[4]

13. Following the AHTEG deliberations, the CBD Secretariat, in collaboration with the ABS Capacity Development Initiative, organised a series of webinars on DSI, one of which provided an overview of DSI access, sharing and use through genomics databases.[5] A number of research projects are also on-going on benefit-sharing options for DSI/GSD within the value chain that would maintain open access to sequence databases.[6] There are proposals, being made in literature, for an international multi-stakeholder committee on DSI under the auspices of the United Nations, which would comprise database representatives.[7]

III. OTHER RELEVANT DEVELOPMENTS

14. In the context of the evolving digital transformation of agriculture, global institutions are appraising data governance as a central issue. According to a study by OECD, data governance systems need to provide stakeholders with the institutional, regulatory and technical tools that they need to deliver value while maintaining trust in the use of digital technologies.[8] Another recent study by OECD has explored farmers' concerns around access, sharing and use of agricultural data and noted that fragmented and unclear data governance arrangements might reduce the availability and accessibility of agricultural data, including on-farm crop seed data, for the agricultural innovation system.[9]

15. In FAO's documentation on the development of a data protection policy for the recently held 130th session of the Programme Committee, it was noted that, in light of technological intensification towards data-driven agriculture as well as FAO's commitment to digitalization and agricultural innovation, the value of agricultural data, including genetic information derived from crop germplasm, to contribute to sustainable innovation is rapidly increasing.

16. FAO's Legal Office, jointly with the Secretariat of the International Treaty, formulated and commissioned a study on agricultural data policy and management, which is being undertaken in partnership with the Global Open Data for Agriculture and Nutrition Initiative (GODAN) and the University of Ottawa. The study under preparation is intended to develop knowledge and insights into existing legal and policy structures of agricultural data ownership, control and management, including intellectual property rights, and addresses the case of crop germplasm in particular.

17. The study has a dual focus on open data to expedite research and innovation in food and agriculture, and equity issues related to developing country capacities and collaborations,

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[4] The full report of the AHTEG is available at: https://www.cbd.int/doc/c/911e/cc8b/de7d7fba3a8374ba4a2fbf53/dsi-ahteg-2020-01-07-en.docx.
[5] https://www.cbd.int/article/dsi-webinar-series-2020
[6] For example, see: https://www.dsmz.de/collection/nagoya-protocol/digital-sequence-information.
[7] https://nph.onlinelibrary.wiley.com/doi/epdf/10.1002/ppp3.10186
[8] https://dx.doi.org/10.1787/059814a7-en.
[9] http://dx.doi.org/10.1787/53ecf2ab-en.

including with reference to DSI/GSD in the context of genetic resources frameworks. The study is intended as a first conceptual analysis to initiate a reflection on a strategic vision and policy leadership of the management of agricultural data for digital agriculture innovation and, accordingly, the possible exercise of a normative function by the Organization, subject to the guidance of its Governing Bodies.[10]

IV. ADVICE SOUGHT

18. With regard to DSI/GSD, the Committee is invited to take note of the information provided and provide its advice on the scientific and technical aspects, and national legislation, as appropriate, in preparation for the Ninth Session of the Governing Body.

19. The Committee may consider the other information provided in this document in order to analyse and provide advice, as foreseen in the GLIS Programme of Work, on the institutional, organizational, policy and legal factors regarding access to, sharing and use of PGRFA information in the context of the provisions of the International Treaty.

20. The Committee may also wish to indicate how the Secretariat might further assist it with any additional information or technical inputs that it may require to facilitate its work or to assist the Governing Body in the consideration of the issues related to the GLIS and the Programme of Work.

[10] http://www.fao.org/3/ne847en/ne847en.pdf.