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



**International Treaty
on Plant Genetic Resources
for Food and Agriculture**

Item 3.3 of the Provisional Agenda
INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE
FIFTH MEETING OF THE SCIENTIFIC ADVISORY COMMITTEE ON THE GLOBAL INFORMATION SYSTEM
Rome, Italy, 8–9 May 2023
DEVELOPMENTS REGARDING DIGITAL SEQUENCE INFORMATION / GENETIC SEQUENCE DATA

I. INTRODUCTION

1. At its Ninth Session, the Governing Body of the International Treaty approved the revised Programme of Work on the Global Information System 2023-2028 (PoW). Under the heading “Access to and Use of Information”, the PoW promotes the transparency on the rights and obligations of users for accessing, sharing and using PGRFA-associated information. To achieve such an objective, the PoW includes the monitoring of policy developments in international fora of relevance to the GLIS Vision and PoW, and the documenting of the scientific and technical impacts of national legislation related to accessing and using PGRFA-associated information, including digital sequence information / genetic sequence data (DSI/GSD), in the context of Article 17.
2. At its Ninth Session, the Governing Body again tasked the GLIS Scientific Advisory Committee (SAC) with considering scientific and technical issues of relevance to DSI/GSD, and considering national legislation, as appropriate (Resolution 5/2022).
3. This document presents a synthesis of the DSI/GSD-related outcomes arising from the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 15), as they relate to the PoW and SAC’s mandate.

II. DSI/GSD IN THE CONTEXT OF THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

4. COP 15 adopted the Kunming-Montreal Biodiversity Framework (Framework), which aims to catalyze, enable and galvanize urgent and transformative action by Governments, and subnational and local authorities, with the involvement of all of society, to halt and reverse biodiversity loss, to achieve the outcomes it sets out in its Vision, Mission, Goals (4) and Targets (23), and thereby contribute to the three CBD objectives and to those of its Protocols (section 4).¹
5. Goal C of the Framework refers to monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge

¹ The full text of the Framework is available at: www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.docx.

associated with genetic resources, as applicable, shared fairly and equitably and substantially increased by 2050, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

6. Target 13 of the Framework requires effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

7. COP 15 approved a monitoring framework for planning and tracking progress with implementation.² The indicators are divided in three categories, namely: headline, component and complementary. One of the complementary indicators for target 13 refers to the total number of transfers of crop material from the Multilateral System of the International Treaty, received in a country.

8. DSI is also the subject of a separate decision by COP 15.³ In the preambular paragraphs of the decision, among other matters:

- it is recognised that any solution for the fair and equitable sharing of benefits from the use of digital sequence information on genetic resources should be mutually supportive of and adaptable to other instruments and fora while recognizing that other fora may develop specialized approaches;
- it is acknowledged that the generation of, access to, and use of digital sequence information on genetic resources together with the fair and equitable sharing of benefits arising from its use would support research and innovation and contribute to achieving the three CBD objectives and sustainable development;
- the importance of capacity-building and development, technology transfer and technical and scientific cooperation to support generation of, access to, and use of digital sequence information on genetic resources, is emphasized;
- the value of depositing data in public databases is recognised, and the efforts of databases, including the International Nucleotide Sequence Database Collaboration, to encourage the tagging of records with information on geographical origin, are welcomed;
- the FAIR⁴ and CARE⁵ principles, the framework for data governance provided by the Organisation for Economic Co-operation and Development “Recommendation on Enhancing Access to and Sharing of Data”,⁶ and the recommendations set out in the United Nations Educational, Scientific and Cultural Organization “Recommendation on Open Science”,⁷ are acknowledged.

9. In the COP 15 DSI decision, parties to the CBD, among other matters, have:

- encouraged the depositing of more digital sequence information on genetic resources, with appropriate information on geographical origin and other relevant metadata, in public databases;
- recognized that tracking and tracing of all digital sequence information on genetic resources is not practical;

² The full text of the monitoring framework is available at: www.cbd.int/doc/decisions/cop-15/cop-15-dec-05-en.docx.

³ The full text of the decision is available at: www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.docx

⁴ Findable, Accessible, Interoperable, and Reusable, and their respective sub-principles.

⁵ Collective benefit, Authority to control, Responsibility, and Ethics, and their respective sub-principles.

⁶ legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0463

⁷ unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

- agreed that a solution for fair and equitable benefit-sharing on digital sequence information on genetic resources should, inter alia, not hinder research and innovation, be consistent with open access to data, and mutually supportive of other access and benefit-sharing instruments;
- agreed that the approach to fair and equitable benefit-sharing from the use of digital sequence information on genetic resources set out in the present decision is without prejudice to national access and benefit-sharing measures;
- decided to establish, as part of the Kunming-Montreal Global Biodiversity Framework, a multilateral mechanism for benefit-sharing from the use of digital sequence information on genetic resources, including a global fund.

III. THE RELEVANCE TO GLIS

10. Key relevant concepts in the PoW are: interoperability among existing information systems, including through the creation of linkages between phenotypic and passport data with genomics data (section 2.a of the PoW); and, as specified above, transparency on the rights and obligations of users for accessing, sharing and using PGRFA-associated information (section 3 of the PoW).⁸

11. The new CBD regime intends to combine open access to data with monetary and non-monetary benefit-sharing from the utilization of DSI. The International Treaty will shortly resume negotiations on the enhancement of the Multilateral System and, as DSI is one item for early consideration, it is likely that the relationship with the new CBD regime will emerge as an issue, to be addressed through the concepts of specialized instruments, mutual supportiveness and adaptability. It is foreseeable that data management in information systems will be instrumental to applying the respective benefit-sharing solutions to different data sets hosted in a plurality of databases and, ultimately, to enabling transparency in rights and obligations of data users.

12. This leads to a functional interpretation of interoperability among information systems in the context of the underlying policy regimes, both international (e.g. CBD, International Treaty) and national (i.e. national access and benefit-sharing measures that already apply, and arguably, will continue apply to DSI/GSD by virtue of the COP 15 DSI decision). When applied in the context of resources that are subject to different - and mutually supportive - access and benefit-sharing regimes, interoperability relates to the ability to work across those regimes, both national and international, and the ensuing organizational boundaries and operational domains. Interoperability requires developing the ability to connect across databases hosting DSI/GSD and link the corresponding indexing and discovery tools to the respective solutions for benefit-sharing.

13. Interoperability solutions will also likely be instrumental to associating benefits to the access and use of DSI/GSD, in support of the monitoring framework that COP 15 has approved and to which the International Treaty, without prejudice to its specific mandate and governance, may contribute in the future.

14. The importance of data interoperability further emerges with the recognition of the common goal of enabling research and innovation as, arguably, the utility of DSI/GSD is realized only when they are discoverable and linked with other data across databases. The linkage between phenotypic and passport data with genomics data that is specified in the PoW, is an essential enabler of research and innovation and further aligns with the COP 15 decision elements referring to DSI metadata.

15. Before COP 15, the Secretariat of the International Treaty facilitated the development of a collaboration on scientific and technical issues related to interoperability in the context of DSI/GSD. In a contribution to a workshop and a publication led by the University of Exeter on “Responsible plant data Linkage: Data Challenges for Agricultural Research and Development”, experts from Oregon State University (OSU), The Alliance of Bioversity and CIAT and the CGIAR Big Data Platform

⁸ The full text of the PoW is available at: www.fao.org/3/nk240en/nk240en.pdf.

developed proposals for associating DSI/GSD to the plant genetic resources and reciprocal citations with data exchange. One proposed mechanism is based on the integration between the federated system of databases of the International Nucleotide Sequence Database Collaboration and the current tools that are available through the GLIS. Another proposed mechanism revolves around the new concept of Digital Genetic Object as a way to introduce a precise definition of DSI/GSD that is functional to interoperability among biological data systems. The Committee will receive more information through an in-session presentation on the topic.

IV. ADVICE SOUGHT

16. The SAC is invited to examine the synthesis of the DSI/GSD-related outcomes arising from COP 15 and consider the scientific and technical issues of relevance to DSI/GSD, including in relation to national legislation. The SAC may wish to provide the Secretary with advice on how to facilitate the continuous consideration of the issues of relevance, including by addressing the implications of COP 15 outcomes on the PoW.