Joint submission of views on document CBD/WG2020/3/4 “Digital sequence information on genetic resources”

Dear Executive Secretary Elizabeth Maruma Mrema,

We appreciate the opportunity to submit views and relevant information on DSI policy options and modalities. We are also appreciative of the Secretariat’s consideration of our scientific expertise and previous contributions to this dialogue, such as, in the 2020 AHTEG on DSI (page 3, section B), the combined study on traceability and databases (CBD/AHTEG/DSI/2020/1/4, page 4, 16(a)), webinar series (see CBD/WG2020/3/4, page 4; III, 18-21), and online dialogue (page 4, III, 22-23).

In this context, we would like to draw your attention to the attached open letter from over 400 European scientists that support multilateral benefit-sharing approaches for DSI that safeguard open access. This letter resulted from two bottom-up workshops in May and June 2021 that brought together DSI and ABS experts and users. It provides constructive input on finding compromise and common ground that will enable benefit-sharing without damaging the scientific ecosystem that is so desperately needed to fulfill the goals of the Global Biodiversity Framework.

Also, as requested, we provide comments on CBD/WG2020/3/4 in section “IV. Elements of a recommendation”, and Annex III “Summary points on the online discussion on Digital Sequence Information on Genetic Resources” that build on or relate to this letter.
With regard to the Elements of Recommendation on page 5, item 26, we believe it is an accurate reflection of the informal DSI dialogue to place a strong emphasis open access to DSI via openly access databases has for scientists worldwide. We strongly concur “that any approach to address DSI should not prevent access to digital sequence information or significantly hinder scientific research and innovation” (page 5; 27 (a)). We are concerned that, despite this recognition and broad support amongst parties and stakeholder, points 7 and 10 in the “Co-leads summary of the discussion of the Contact Group” are contradictory and seem to regress on this area of convergence. We call for continued and integrated scientific expertise in the informal process to clarify how any regulatory elements could potentially be implemented without harming scientific integrity and reproducibility as well as generation and delivery of essential data, e.g., for biodiversity, conservation and public health.

This means if both, benefit sharing of commercial AND non-commercial users of DSI should be handled likewise through the proposed policy options, the proposed criteria need to be applicable for all sectors that use DSI.

We agree that DSI should be shared fairly and equitably by all users of DSI (page 5; 27 (b)). But, to be effective, this requires that “benefit-sharing” be decoupled from “access” to DSI. Otherwise the administrative costs for setting up and maintain respective systems will inevitably consume large parts of the envisaged monetary benefits. We think that quantification of shared benefits and increased visibility throughout the new indicators will promote the sharing of non-monetary and monetary benefits including for DSI.

DSI is of central importance to support the goals of the CBD and for the forthcoming post-2020 GBF monitoring. Scientific capacities and expertise needs to be increased, and it is worth noting that this point is explicitly referred to in section III, “Identification of Key Areas for Capacity building”. The DSI study of Paul Oldham commissioned by the EU is very clear that DSI is highly relevant for scientists (figure 11) and sequencing (figure 16-17) around the world. Moreover, the (i) top species of DSI datasets originate from model organisms (figure 2) and (ii) the geographic origin of the majority of DSI datasets is the US and China. The results of the combined study 2&3 on DSI databases and traceability also came to the same conclusions. This shows that the narrative of a North-South divide of DSI provision and use does not exist. This means: If a DSI mechanism focuses on individual DSI uses and transactionn than there will be many South-South users/uses that will need to be accounted for as well as south-using-North DSI where compliance will need to be considered.

We find it therefore encouraging that the importance of basic research in the sharing of non-monetary benefits for capacity-building is highlighted (page 5; item 27 (d)) and that there seems to

be progress towards (i) de-coupled multilateral policy options (cf. draft document CBD/WG2020/3/CRP.1 of the OEWG3) and (ii) a check of possible modalities to improve the visibility of shared and delivered benefits (see page 5; 27 (c)). Although we are not yet able to support the proposal under item 16 (a) in CBD/WG2020/3/CRP.1 without more information and clarity, we appreciate this forward-looking attempt to explore how the sharing of benefits via de-coupled multilateral mechanisms can be created to support conservation and sustainable use of biodiversity while simultaneously enabling open science and research.

For queries and further information, we are happy to provide additional input.

Yours sincerely.

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ATTACHMENT:
Open Letter “Keep digital sequence information a common good” (July 2nd 2021)
Keep digital sequence information a common good

Summary: The EU scientific community supports de-coupled multilateral options for access and benefit-sharing from digital sequence information.

July 2, 2021

The political debate surrounding digital sequence information (DSI) on genetic resources under the Convention on Biological Diversity (CBD) has garnered immense interest and raised concern across the international scientific community. At the last CBD Conference of the Parties (COP 14), parties formally “agreed to resolve their differences” and, thus, with COP 15 set for October 2021, a decision on DSI and access and benefit-sharing (ABS) approaches.

Scientific perspectives on the evolving DSI policy discussions

Disrupting the flow of open DSI has the potential to not only severely hinder basic research and biodiversity conservation, but also innovation more broadly. This includes science and technology that addresses challenges in food security, health, biodiversity loss, and climate change worldwide, which could ultimately undermine progress on the Sustainable Development Goals (SDGs). What’s at stake is best highlighted by the global SARS-CoV-2 pandemic: diagnostic kits within weeks of virus discovery, vaccines ten months later, and ongoing surveillance for variants, all possible thanks to rapid DNA sequencing and open DSI.

A number of initiatives have highlighted the concerns of the international scientific community and explained why DSI must remain openly accessible (see references). However, maintaining open access to DSI and benefit-sharing are not necessarily mutually exclusive and can even become reinforcing objectives. **Our recommendation to policymakers is to pursue multilateral options supplemented by international scientific cooperation:**

1. **Multilateral and decoupled.** Benefit-sharing for DSI must be multilateral rather than bilateral and decoupled from access to DSI. This significantly reduces the transaction costs that make bilateral options unworkable, maintains open access, and facilitates legal certainty. It is also an opportunity to redirect investment in regulatory compliance towards scientific capacity building. Additionally, opt-in mechanisms for genetic resources (GR) could be offered for countries wishing to simplify their current GR access procedures.

2. **Universal.** Biodiversity monitoring as well as many scientific questions can only be answered by analysing DSI from multiple countries or outside of national jurisdictions. From a scientific perspective, a “universal DSI solution” is needed which harmonizes ABS arrangements for DSI under the Convention on Biological Diversity and all other relevant international policy fora (terrestrial, marine, plant, pathogen, etc.). Coordination at the highest level is necessary to avoid excessive regulatory burden and create a level playing field for compliance.

3. **Existing infrastructure.** To be viable, policy options must synergize and work with the existing technical infrastructure (i.e., the International Nucleotide Sequence Database Collaboration, INSDC). Data must continue to flow and the amount and visibility of non-monetary benefit sharing needs to increase. The DSI “wheel” should not be re-invented.

4. **Biodiversity.** DSI policy must support biodiversity research and global biodiversity targets. DSI policy should incentivize rather than complicate the generation of
biodiversity data and directly support the goals of the post-2020 Global Biodiversity Framework (GBF) and the SDGs.

5. **Future-proof.** Because of the relentless pace with which DSI-based science evolves, any policy option for DSI must be sustainable, fit for purpose, and future-proof, meaning that it can evolve to meet technical requirements to 2050 and beyond.

The scientific community supports benefit-sharing from DSI

The ABS status quo can be improved to better align with the third objective of the CBD. Yet scientists are cautious after experiencing significant challenges in recent years during the implementation of the Nagoya Protocol (including EU Regulation 511/2014). The fragmented regulatory framework for ABS globally and the unresolved status of DSI creates legal uncertainty for scientists worldwide that needs to be resolved. However, we do not support benefit-sharing from DSI at all costs.

**Bilateral mechanisms have enormous transaction costs and huge complexity**

Any mechanism that requires an access permit or benefit-sharing arrangement to be negotiated on a bilateral basis for DSI, or which requires tracking and tracing, is unworkable on the basis of the transaction costs this would generate. The DSI data ecosystem is huge: composed of 1.5 billion sequences in the core DSI infrastructure, downloaded 34 million times per year, used by 10-15 million unique users, and connected to nearly 2,000 databases downstream of the INSDC that pull and push data in and out of the system. The dataset doubles in size roughly every two years and is linked to hundreds of thousands of publications that, on average, cite 44 sequences per publication. DSI use will continue to increase (exponentially) and touch new fields of research. Bilateral systems that require permission for *individual* sequences and transactions would be prohibitively complex for users and providers, ill-suited for generating knowledge, result in significant friction amongst databases, affect data interoperability, and have transaction costs that could paralyze the scientific ecosystem.

**Bilateralism also creates competition between providers of DSI**

Even simplified bilateral systems (e.g. standardized licenses where more than one option is available) will incentivize jurisdiction shopping where users preferentially use DSI from more favourable access jurisdictions and avoid less favourable conditions elsewhere. Any handling of DSI in subsets (free data vs. conditioned data) will create perverse incentives to avoid researching with some countries’ DSI. This is an under-appreciated challenge given that the conserved nature of biodiversity means that for any given genetic material of interest, alternative sources are typically readily available. This means that ultimately our understanding of biological diversity in more restrictive countries would significantly decrease (in opposition to the GBF). From the scientific perspective, all options that include bilateral mechanisms for benefit sharing must be taken off the table during international discussions.

**Multilateral options should prioritize maximal benefits with minimal transaction costs**

From our viewpoint, multilateral options that establish de-coupled, globally standardized DSI access and benefit-sharing conditions must be prioritized. Critical for the scientific community will be to avoid point-of-service charges that create a “paywall” and thus cause significant data friction for users, disrupt thousands of downstream databases, and disadvantage scientists in low- and middle-income countries. Monetary benefit generation does not need to be linked to access to DSI at all. It can and should be de-coupled. Monetary benefits could
be collected, for example, via charges to ancillary services to DSI or downstream on bio-based commercial products.

**DSI capacity-building should be an integral component of any multilateral option**

Finally, DSI capacity-building must be integrated into multilateral options to maximize non-monetary benefit sharing. Such efforts must be practical, directly relate to the goals of the CBD and the GBF, and should attempt to “match-make” technical/scientific cooperation in a standardized, quantifiable manner, partnering with existing scientific bodies such as national academies for agenda-setting.

As the policy process evolves and decisions are made in the next few months, exchange between scientific and policy experts is essential to avoid unintended consequences.

References:

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[Genetic Improvement and Adaptation of Mediterranean and Tropical Plants](#)
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260. Dr. Samuel Iglesias, Museum national d'Histoire naturelle, France
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267. Prof. Joël Minet, Muséum National d'Histoire Naturelle, France
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275. Pr. Jean-Lou Justine, Muséum National d'Histoire Naturelle, France
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383. Prof. Dr. Florian Leese, University of Duisburg-Essen, Germany
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389. Dr. Annick Wilmotte, University of Liège, Belgium
390. PhD student Charly Robert, University of Liège, Belgium
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414. Prof. Dr. Bernhard Misof, ZFMK, Germany
415. Dr. Peter Grobe, Zoological Research Museum Alexander Koenig, Germany