

# POLICY OPTIONS FOR ACCESS AND BENEFIT SHARING AND DIGITAL SEQUENCE INFORMATION

APRIL 2021

## SUMMARY OF WEBINAR

### BACKGROUND

At the request of the Co-Chairs of the Open-Ended Working Group on the Post 2020 Global Biodiversity Framework, the Secretariat for the Convention on Biological Diversity (SCBD) organized a webinar on policy options for access and benefit sharing and digital sequence information on genetic resources (DSI). The webinar took place on 11 February 2021 from 9:00 to 10:30 am EST and was attended by 330 participants. This webinar was the third in the [webinar series on digital sequence information on genetic resources](#).

The first webinar offered a technical overview of the production, distribution and use of DSI and was organized in partnership with the ABS Capacity Development Initiative. The second webinar was organized by the SCBD in collaboration with the Co-Chairs of the DSI Ad Hoc Expert Group (AHTEG) to present the process and recent outcomes related to digital sequence information on genetic resources under the CBD ([see AHTEG report for more information](#)). Videos and presentations are available on the [CBD website](#), with the 3<sup>rd</sup> webinar available in English, French and Spanish.

The objective of the webinar series was threefold as follows:

- a) Considering the prevailing conditions created by the Pandemic and the resulting uncertainties and impact on timelines, maintain momentum on the discussion around the issue of DSI
- b) Assure that all stakeholders are on the same page in terms of understanding the basics and technical issues that will lead to the development of potential policy issues
- c) Ensure that all this is done in the spirit of fostering understanding and bringing together the different perspectives and not initiating negotiations in any way

This document summarizes the content of the third webinar which focused on presenting a typology of the policy options proposed to date. It is intended to provide ease of reference on the content of the webinar in line with the objectives above.

### CATEGORIZING THE POLICY OPTIONS

In preparation for the webinar an exercise was undertaken to organize and categorize the policy options from different sources and present them in a simple and practical manner. The list of options presented is not exhaustive. It is based on the studies that the SCBD was able to compile and consider by January 2021. Additional studies or ideas may exist that have not been taken into consideration while new options could still emerge.

***Points of consideration regarding the policy categories:***

1. The list of studies and publications taken into consideration in this summary can be found in Annex I. They are numbered, and the section “more information” under each policy option refers to the publication number.
2. The options are not mutually exclusive, and in some cases, two or more options or components of options could be combined.
3. There are variations within each option as proposed policies have been grouped into higher policy archetypes (“buckets”).
4. The options are being presented in a neutral manner, without judgement on their viability, cost-efficiency, enforceability, or capacity requirements.

***What this synthesis is not covering:***

5. This work does not address operational aspects for distributing benefits through the proposed options. While some mechanisms are proposed in a few publications, they are not considered here.
6. While this synthesis includes, in a later section, some initial criteria for the consideration of the options at a later stage, the policy options are not being assessed against these criteria which are considered preliminary at this stage.
7. While traditional Knowledge associated with genetic resources can be an important aspect of DSI, we are not aware of studies that have been published on this topic. Thus, this topic is not covered here.

## TYPOLOGY OF POLICY OPTIONS/ARCHETYPES

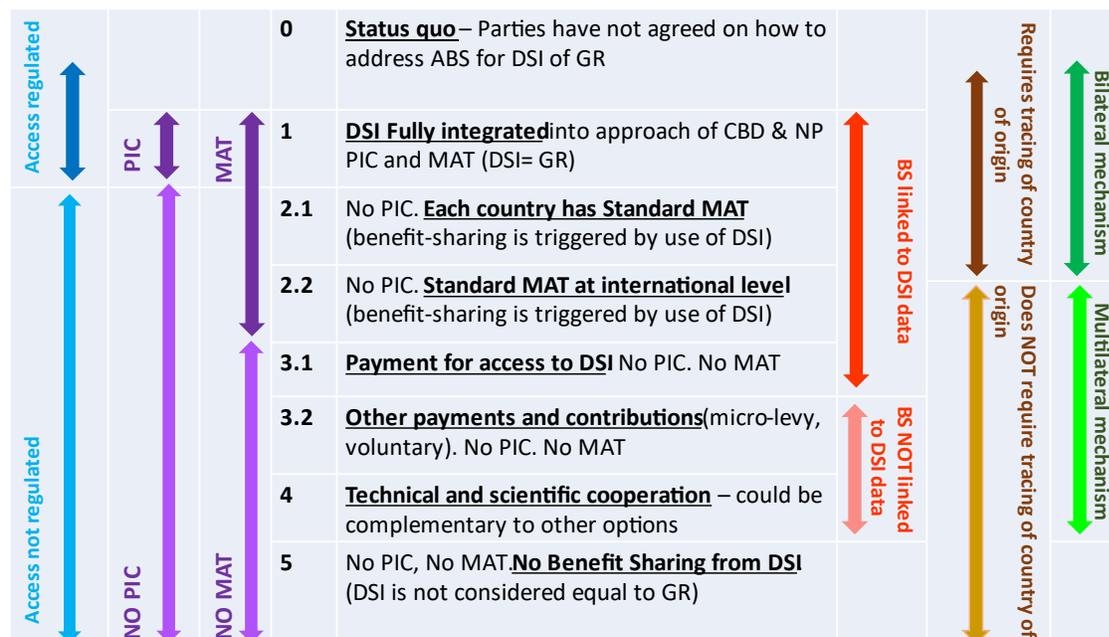


Figure 1: High level classification of policy options according to limited characteristics. These characteristics were selected according to their prevalence in the literature and subjective logic. However, other characteristics can be used to classify policy options according to their importance to various stakeholder groups. The short labels for the characteristics are used for convenience and are further explained below.

### **Explanation of characteristics used in Figure 1:**

**Access regulated:** access to the DSI is not open but is regulated in some way. Note that “access not regulated” does not mean that there are no conditions associated with access; it is not necessarily free of charge.

**PIC:** Prior and Informed Consent is required to access DSI.

**MAT:** Mutually Agreed Terms, or Standard License, are negotiated to share benefits from the use of DSI. A MAT can include the necessity for PIC but is not always the case (see option 2).

**BS linked to DSI data:** the sharing of benefits from the use of DSI is linked to the specific product or service stemming from that particular DSI, as opposed to a general contribution by users of DSI.

**Requires tracing to the country of origin:** it is necessary for the policy option proposed to be able to identify the country of origin of the genetic resource from which the DSI came from.

**Bilateral mechanism:** the policy option requires an agreement between the provider and the user countries to set the terms of benefit sharing and sharing those benefits back from the user country to the provider country of DSI, as opposed to the benefits from the use of DSI being channeled through a multilateral fund or mechanism. **Option 0: Status Quo**

Characteristics: Uncertain access, uncertain mechanism, uncertain tracing, and uncertain benefit sharing link to data access.

In this option, parties have not agreed on how to address ABS for DSI. Some Parties may decide to include measures on access to DSI and/or benefit-sharing from DSI use as part of their domestic ABS system, and for some, open access to DSI in databases is considered to be a sufficient form of non-monetary benefit-sharing.

More information: see publications 3 and 12 (see Annex I for full citation)

### **Option 1: DSI fully integrated into the Convention on Biological Diversity and the Nagoya Protocol**

Characteristics: access regulated, PIC and MAT present, bilateral mechanism, requires tracing, and benefit-sharing is linked to DSI data.

In this case, ABS is subject to each country's legislation, it is the traditional bilateral approach to ABS. Access is regulated similarly to the genetic resources under CBD and the Nagoya Protocol, meaning that depending on national legislation, access to DSI could be subject to PIC and MAT (i.e., essentially, GR = DSI). The utilization of DSI is to be regulated by MAT, as well as benefit-sharing obligations. MATs are negotiated for each DSI access. According to the study on ABS measures made available for the consideration of the AHTEG on DSI, some countries are already including DSI within the scope of their national ABS measures, and more are planning to do so in the near future.

In this option, researchers have to comply with national ABS requirement when accessing DSI through a database, trace each DSI back to the country of origin and negotiate with multiple and different ABS requirement for each country, each having a different MAT, potentially.

More information: 1, 3 and 8 (see Annex I for full citation)

### **Option 2: Standard MAT**

This more general grouping of options recognizes the obligation to share benefits after DSI has been used, but in a way that is not linked to the access to DSI itself (there is no PIC). The obligation to share benefits can be triggered by determined milestones along the value chain. Access is therefore not restricted, but the obligation to share benefits is determined by some type of standard MAT/license/SMTA/Terms and Conditions. The fact that the MAT is standardized implies that there is no need for individual negotiation of contract for each DSI utilization, but one or a limited number of standard contracts. This category of policy options requires downstream monitoring of DSI use for enforcement and monitoring. The difference between the two sub-options is the way that MATs are dealt with, either at the national or the international level.

#### **Option 2.1: Each country has a standard MAT/license**

Characteristics: Access is not regulated, no PIC, MAT present, bilateral mechanism, tracing required, benefit-sharing linked to DSI data.

In this scenario each Party establishes a system of with one or a limited number of standard MAT/licenses that users need to comply with when the obligation to share benefits is triggered. This system goes through each country's domestic legislation. Triggers can occur at commercialization, for example, and the benefits would be shared bilaterally. This is the approach taken by the latest ABS measures in Brazil, where the benefit-sharing obligations are communicated at the point of registration of a pattern, and kick-in after successful commercialization of a product developed or produced using DSI. Researchers must comply with the national system and trace the DSI back to the country of origin of the genetic resource. If a researcher uses multiple DSI from different countries, he/she is required to comply with potentially different MAT/licenses, depending on which standard MAT/license the country has decided upon for their DSI.

*Note:* a variant of this approach is the adoption of a standardized system for all countries that would simplify compliance. Each country would have a similar system in place for DSI, which would still go through each country's ABS system. The standard MATs would correspond to a limited number of internationally recognized models.

More information: 7, 9, 12 and 13 (see Annex I for full citation)

### **Option 2.2: Standard MAT/license at the international level**

Characteristics for classification: Access is not regulated, no PIC, MAT present, multilateral mechanism, tracing required, benefit-sharing linked to DSI data.

This option addresses benefit sharing at the international level, in contrast with each country dealing with it at the national level as presented under option 2.1. One or more standard licenses are agreed upon and the terms and conditions depend on the license attached to the DSI. The benefits from the use of DSI are handled by an international system that redirects them to the country of origin of the genetic resource. This means the researcher/user does not have to approach each country individually.

This option offers the possibility to integrate the licenses in the DSI database itself, and the terms and conditions are communicated to the user at access (for example, obligations for commercial and non-commercial uses of DSI). Another possibility is the integration of the terms and conditions or licenses in the Intellectual Property system (for example, when seeking intellectual property protection, on the basis of a disclosure requirement on the use of DSI). This option is explored in the "bounded openness over natural information" (11), where benefits consist of pre-negotiated fixed royalties on the successful commercialization of a product.

A collaboration with journals, patent offices, databases, or any other point in the value chain of DSI will help enforce the reporting back to the DSI provider. In this case the user is responsible for complying with the license terms and conditions, and a downstream utilization tracking/monitoring mechanism will ensure the enforcement of these ABS measures.

More information: 1, 3, 8, 9, 10, 11, 12 (see Annex I for full citation)

### **Option 3: No PIC, No MAT**

This more general grouping of options requires a payment or contribution to go into a multilateral fund. It avoids the need for tracing the origin of the genetic resource the DSI is coming from, or the need to monitor the downstream utilization of the product or service derives from DSI. This option includes various possible forms of payments and contributions, the first sub-option being linked to the digital sequence information itself, and the second sub-option not being linked to the information itself.

### **Option 3.1: Payment for access to DSI**

Characteristics: Access is not regulated, no PIC, no MAT, multilateral mechanism, tracing not required, benefit sharing linked to the DSI data.

Here the principle of a payment for access to the sequence itself is central and can be set up in several ways. One way is to require a membership fee to access DSI in the databases. This fee can be determined following pre-negotiated criteria, such as research application, sector of research, revenue, or a flat rate annual fee.

Another way is to require a very small payment for the access to individual DSI in the database. An account is set up and each sequence download charges this account a pre-determined fee.

Finally, a different arrangement is to provide free access to the sequence data itself, including some minimal data around it, such as species name, but require a fee be paid on the associated data resulting from the analysis and processing of the data, such as protein function or gene association, as this associated data is estimated to be more valuable for research and development. The BioSample database currently links sequence data with other data associated with the sequence itself, or the genetic resource it comes from. In this policy sub-option, the BioSample database would charge for access.

More information: 1, 3, 8, 9, 12 (see Annex I for full citation)

### **Option 3.2: Other payments and contributions**

Characteristics: Access is not regulated, no PIC, no MAT, multilateral mechanism, no tracing required, benefit sharing not linked to DSI data.

Several ways in which payments and contributions can be established to be paid into a multilateral fund for benefit sharing from the use of DSI have been proposed in the literature. One proposal includes payment for a DSI-related service where a series of services around storage, processing, expertise, and analysis of the sequences could be offered in return for a payment.

A levy is imposed on products or services associated with DSI. One example is the imposition of a micro-levy on laboratory equipment linked with the production of DSI, while another is on the cloud-computing space rented for the purpose of sequence storage and/or processing.

Biodiversity bonds have been proposed while experiences from other fields such as payments for use of wildlife images, or climate change green bonds, could be used to inform options for DSI. Another option involves a marketing program where a label or badge is used on products to boost their sale and convey an idea around biodiversity conservation, while the companies selling these products would commit to redirecting a negotiated percentage of benefits to a multilateral fund.

Finally, voluntary contributions could fuel a multilateral fund and come from the private sector, database users, countries, private donors, etc.

More information: 1, 3, 7, 8, 9, 12 (see Annex I for full citation)

#### **Option 4: enhanced technical and scientific cooperation**

Characteristics: access not regulated, no PIC, no MAT, multilateral mechanism, no tracing required, benefit sharing not linked to DSI data.

Under this option, technical and scientific cooperation becomes a systematic and mandated part of DSI policy. Enhanced capacity support for developing countries will democratize the access and use of DSI, making it more equitable so that each country has the capacity and opportunity to access and use DSI to its full potential. This could take the form of research collaborations, training, knowledge platforms, technology transfer, technology co-development, and more. This option is almost always presented in combination with other policies.

More information: 1, 3, 8 (see Annex I for full citation)

#### **Option 5: No Benefit Sharing from DSI**

This option does not consider that benefit sharing from the use of DSI of genetic resources is necessary and thus no mechanisms are proposed to be implemented.

More information: 3, 8 (see Annex I for full citation)

#### **POINTS OF CONSIDERATIONS/CRITERIA**

The Parties could decide to choose one of the options or combine two or more options into a solution. For example, a combination of monetary and non-monetary benefits, and/or a bilateral system to share benefits as well as a multilateral one, and/or combining voluntary contributions with mandatory sharing of benefits. Complementary policies would then offer a solution that would satisfy the most Parties and stakeholders.

In terms of the options, it is useful to keep in mind some of the considerations raised in the literature, including the following:

- A bilateral approach is dependent on the ability to trace each DSI back to the country of origin while a multilateral approach requires a governance structure and a system for receiving and distributing benefits.
- Options proposing a change in existing practices in DSI databases depend on the databases and their users to adhere to these changes.
- Some options may be more involved in terms of compliance, monitoring and/or enforcement.
- Transaction costs need to be taken into consideration in thinking through the costs and benefits of an option.
- Upfront cost/access costs could potentially have an impact innovation and research.

- Distinguishing commercial and non-commercial research at access raises questions on how to address changes of intent through the value chain, public/private partnerships, amongst others.
- Finally, some options have a longer time lag before the generation and receiving of benefits, as well as the likelihood of a potential commercialization.

## **Conclusions**

This paper aims to advance the understanding and insight of the various policy options that have emerged to date in the literature, notwithstanding the fact that other options may emerge. It is important thus to note that each policy archetype (“bucket”) and each variation within them presents advantages and disadvantages and further analysis is required. Work around the complete list of criteria representing characteristics important to each Party and stakeholder would enable a full assessment of the policy options. These assessments would in turn enable informed and educated discussions for Parties to find consensus.

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*Annex I: List of publications considered in this report.*

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1. ABS Capacity Development Initiative. [First Global Dialogue on Digital Sequence Information on Genetic Resources](#) (Report in EN and FR), 6 – 8 November 2019, Pretoria, South Africa (November 2019) – organized in partnership with the Norwegian Government and the South African Department of Environment, Forest, and Fisheries
2. Aubry, S., C. Frison, J. C. Medaglia, E. Frison, M. Jaspars, M. Rabone, A. Sirakaya, D. Saxena, E. van Zimmeren. [Bringing access and benefit sharing into the digital age](#) (2021) People and Planet, in press
3. DEFRA, contract by ICF Consulting Services Limited. [Digital Sequence Information: An Evidence Review](#) (14 August 2020) Note: the review does not represent the UK position on DSI but is intended to help progress knowledge and considerations around DSI for parties and stakeholders.
4. EU-China Environment Project Report (prepared by: C. Lyal, F-W. Zhao). [EU – China Workshop on ABS and DSI Report Access and Benefit Sharing and Digital Sequence Information 28-29 May 2020](#) (2020)
5. International Chamber of Commerce. [Digital Sequence Information and Benefit Sharing](#) (2 May 2019)
6. Laird, S., R. Wynberg, M. Rourke, F. Humphries, M. Ruiz Muller, C. Lawson. [“Rethink the expansion of access and benefit sharing”](#) (13 March 2020)
7. Lawson, C., F. Humphries, M.F. Rourke. [The future of information under the CBD, Nagoya Protocol, Plant Treaty, and PIP Framework](#) (2019)
8. Morgera, E., S. Switzer, M. Geelhoed. [Study for the European Commission on ‘Possible Ways to Address Digital Sequence Information – Legal and Policy Aspects’](#) (December 2019)
9. Oldham, P. [Digital Sequence Information - Technical Aspects](#) (2020)
10. Ruiz Muller, M., K. Angerer, J.H. Vogel and J.C. Acabá-Torres. [“Common Ground, Cause and Sense for Users, Providers and Agents: Bounded Openness over Genetic Resources” In response to Invitation to submit views and other information on ‘Digital sequence information’ \(NCP GB8-016 MYPoW/DSI\) for the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture](#) (2019)
11. Ruiz Muller, M., J.H. Vogel, K. Angerer. Presentation : [“Modality 3: “Open Access – Multilateral” Building on the First Global Dialogue on DSI\) A Policy Option, Variant II: “Bounded Openness over Natural Information”](#) (November 2019)
12. Scholz, A.H., U. Hillebrand, J. Freitag, I. Cancio, et al. [Finding compromise on ABS & DSI in the CBD: Requirements & policy ideas from a scientific perspective](#) (7 October 2020). The white paper is the integrated outcome of a scientist-focused stakeholder process initiated by several public research institutes in Germany. These institutes sought and received funding from the German Ministry for Research and Training (BMBF) for the [WiLDSI research project](#).
13. Sollberger, K. [Digital Sequence Information and the Nagoya Protocol - Legal expert brief on behalf of the Swiss Federal Office for the Environment \(FOEN\)](#) (7 April 2018)