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Policy Brief

ABS in Marine Microbiome Research

– Implications for policy, research and innovation

1. Executive Summary and Key Messages

Marine microbiomes – the vast communities of microorganisms in our oceans – hold immense potential for innovation in health, industry, and environmental sustainability. Harnessing this potential requires navigating international rules on **Access and Benefit Sharing** (ABS) of genetic resources. The Nagoya Protocol, in force since 2014, set a bilateral framework for ABS, aiming to ensure a fair sharing of benefits arising from the use of genetic resources and/or associated traditional knowledge. After almost 12 years of implementation, significant lessons have emerged, particularly in balancing access for research with equitable benefit-sharing.

A webinar was organized by research project "BlueTools" (GA-101081957) in collaboration with project "BlueRemediomics" (GA-101082304) about "ABS, DSI and open science; implications for microbiome and biocatalysis innovation", featuring speakers from national and European institutions as well as researchers from the public and private sectors. Over 200 worldwide attendees had the chance to share their experience on different aspects related to ABS, such as applying for access, compliance with regulations or the support they received in navigating the ABS landscape. This policy brief draws on insights from the above-mentioned webinar and other bibliography sources to inform stakeholders on how ABS frameworks can be strengthened to better support innovation while upholding principles of fairness and sustainability.

Key messages and recommendations include:

ABS Implementation – Streamline and Support:
Over a decade on, the Nagoya Protocol's bilateral approach has raised awareness and compliance, but diverse national ABS laws and procedures have created complexity, delays, and "jurisdiction shopping" by researchers.

Providing abundant and clear information to access seekers, simplifying access procedures and building capacity in provider countries are critical to make ABS work for both science and conservation.

2. ABS from the Use of Genetic Resources: Lessons from >11 Years of the Nagoya Protocol

2.1 Lessons Learned from >11 Years of Implementation of the Nagoya Protocol

The **Nagoya Protocol** (2010) is a supplementary agreement under the Convention on Biological Diversity (CBD) that provides a legal framework for **access to genetic resources and fair and equitable sharing of benefits** arising from their utilization. It entered into force on October 12, 2014 and has been ratified by 142 countries (including all EU Member States). The Nagoya Protocol is implemented in the EU by Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union. The Regulation addresses only the compliance pillar of the Protocol, establishing due diligence obligations (Art. 4) and monitoring checkpoints (Art. 7) for users (at the stages of research funding and at the stage of final development of a product) to verify compliance. Access to genetic resources and benefit sharing remains regulated at national level by provider countries. These **shared benefits** can be monetary (e.g. royalties, fees) or non-monetary (e.g. joint research, training, sharing materials and results

with scientists[1,2,3,4]), aiming to support conservation and sustainable use of biodiversity.

During a webinar organized by research project "BlueTools" (GA-101081957) in collaboration with project "BlueRemediomics" (GA-101082304) about "ABS, DSI and open science; implications for microbiome and biocatalysis innovation", **a survey was conducted among the >200 workshop attendees**, with a total of 57 worldwide respondents (among others, Spain, France, Germany, UK, Netherlands, Belgium, Norway, Croatia, Austria, Switzerland, India, Japan, China, Indonesia, South Africa,…); 72,8% of the participants work in public research organizations, including high education institutions, 16% in private research organizations and 9,1% are affiliated to governmental institutions; 21% of the polled reported having requested access to genetic resources in their own country, 31% from a different country, whilst 48% had never requested access to genetic resources; 24,3% of the applicants indicated having received assistance from a National Focal Point, 11% from their own organization, 13,5% through online resources (e.g. infographics, webpages, webinars, etc.) and 5,4% have received assistance from colleagues who have requested this access before.

The following lessons can be extracted from the past >11 years of application of the Nagoya Protocol according to speakers and attendees:

- **Diverse National Frameworks & Complexity.** Over the past decade, countries have implemented Nagoya with **widely varying national ABS laws, definitions of genetic resources and procedures [5,6].** The lack of uniformity results in users having to deal with multiple jurisdictions and often requiring local legal counsel to ensure compliance[7]. This is a relevant fact for 31% of the surveyed users who had requested access to genetic resources in other countries different than their own, both within and outside the EU (survey carried out during the above-mentioned webinar).
- **Administrative Burdens and Delays.** A shared experience among webinar attendees has been that **securing consent permits and terms for sampling can be very time-consuming** due to administrative hurdles. Moreover, access to **microbial community samples (composed by multiple species, some of them possibly unknown)** can magnify these difficulties, since describing the genetic resource precisely *ex ante* is not straightforward or even possible. Such burdens have led to **"jurisdiction shopping"**, where researchers choose to work in countries with no ABS requirements or simpler ABS workflows.
- **Limited Capacity and Awareness.** Many **provider countries face capacity constraints in implementing ABS and user countries face low awareness** in the scientific community. In the webinar survey (see above for description), 48% of respondents had never requested access to genetic resources. However, **awareness has grown through the obligation of legal compliance** with ABS legislation across the 27 EU member states. This compliance entails notifying funders of due diligence, publishers of the IRCC identifiers of samples used for the research described in publications and reversely, communicating dissemination actions and grants to the access-granting authorities. As an example of such increased awareness, the Nagoya Focal Point in Spain has seen a steady yearly rise in access requests and authorizations, according to webinar speakers from that Focal Point.
- **Positive Outcomes and Evolving Best Practices.** Despite challenges, evidence from ABS programmes and case studies worldwide shows that **benefit-sharing mechanisms have supported capacity-building programmes, research collaborations and, in some cases, biodiversity conservation initiatives**, for example through GEF-funded ABS projects and UNDP case studies across more than 20 countries[8]. However, quantitative data on the scale and conservation impact of these benefits remain limited and fragmented, highlighting the need for improved monitoring and reporting. Two specific examples of good practice mentioned in the webinar were the requirement to **reinvest benefits** in biodiversity built into Spanish laws, and the fast online registration system and benefit-sharing obligations only at commercialisation implemented in Brazil.
- **Maintaining Trust and Ethical Engagement.** Nagoya was born from developing countries' demand for fairness in biodiversity use. **Compliance with ABS is a commitment to equity and conservation.** The scientific community has an obligation to "deal with the system in a reasonable way" and contribute to biodiversity conservation, and legislators have an obligation to make sure the system is workable.

1 https://www.dcceew.gov.au/sites/default/files/documents/access-biological-resources-stat-dec-form.docx
2 http://nbaindia.org/uploaded/pdf/Guidelines_for_Designated_Repositories.pdf
3 https://www.ifi-id.com/wp-content/uploads/2024/12/BRIN-Research-Permit-for-Foreign-Science-Technology-Institutions-and-Foreigners-in-Indonesia-June-2022.pdf
4 https://absch.cbd.int/api/v2013/documents/AC33787F-4DE3-45A3-403D-DC8032E58A87/attachments/212610/Decree%2059-2017-ND-CP_on%20ABS.pdf
5 J. Knight *et al.*, "Compliance with the Nagoya protocol in the Southern African Development Community", South African Journal of Botany, Vol 159, p 302-318, 2023. DOI: 10.1016/j.sajb.2023.06.015
6 M. Heinrich *et al.*, "Access and Benefit Sharing Under the Nagoya Protocol—Quo Vadis? Six Latin American Case Studies Assessing Opportunities and Risk". Front. Pharmacol. Vol 11, p 765, 2020. DOI: 10.3389/fphar.2020.00765
7 D. Faggionato *et al.*, "Policy in Practice: How to do the Nagoya Protocol: common misconceptions, challenges and best practices for access and benefit-sharing compliance", Sustainable Microbiology, Vol 3(2), qvag007, 2026. DOI:10.1093/sumbio/qvag007
8 https://www.thegef.org/projects-operations/database

2.2 Policy Recommendations for ABS from the Use of Genetic Resources

To strengthen ABS for genetic resources, European and Member State policymakers should pursue actions that simplify processes, enhance capacity, and foster compliance:

1. **Streamline Access Procedures.** Simplify and harmonize ABS permit processes to reduce unnecessary burdens. This includes clearer guidance and single-window, fast, online application systems to navigate different countries' requirements, expedite processing, reduce delays. and discourage "jurisdiction shopping".
2. **Build Capacity in Provider Countries.** Increase support for **capacity-building** and legal infrastructure in biodiversity- rich countries. Through capacity building in aspects such as development aid, technical training and increased exchange programs, the EU can help provider countries establish effective ABS frameworks (e.g. trained staff, databases of national genetic resources, clear guidelines for applicants).
3. **Promote Best Practices and Legislative Coherence.** Policymakers should study and disseminate examples like Brazil's ABS law revision, which demonstrates how easing access (while maintaining benefit obligations) can increase compliance. The ABS frameworks of member states could incorporate flexibility in access request for microbial research, in particular reducing the *ex ante* level of description of samples, which are complex mixtures of individual microbial strains with low commercial value.
4. **Enhance ABS and Compliance Support.** 54 % of the participants (both from EU and Non-EU States) in the webinar survey who have requested access to genetic resources required assistance of some type, either through National Focal Points, online resources and/or colleagues. This indicates that there is a need for helpdesks or online resources to develop awareness in researchers and helping them meet their obligations[7,9,10,11]. The current controls of compliance can be maintained (e.g. ABS compliance declarations when publishing or exploiting research from genetic resources), but should not be increased. Moreover, **regular dialogues** between competent authorities, research institutions, and industry can identify "pain points" in access, benefit-sharing and compliance and update guidance accordingly.
5. **Link Benefits with Conservation and Communities**. Policymakers should reinforce the principle that benefits shared are reinvested in conservation and local communities. Embedding this principle into laws (e.g. Spain) and, promoting **non-monetary benefits** (collaborative research, technology transfer, training) can build both trust and scientific capacity in provider countries.

By implementing these recommendations, EU and Member State policymakers (each within their purview) can help ensure that the Nagoya Protocol's second decade delivers greater l**egal certainty, fairness, and scientific collaboration** – protecting biodiversity while enabling innovation.

9 ABS: a practical guide for researchers in the EU. https://data.europa.eu/doi/10.2779/0071515
10 The EMBRC Guide To ABS Compliance: Recommendations To Marine Biological Resources, Collections' And Users' Institutions. https://www.embrc.eu/documents/EMBRCGuideABS.pdf
11 Brazil. Easy ABS guide. https://acortar.link/YZNRXZ

3. About the Authors

BlueTools is a research Project funded by Horizon Europe to advance functional metagenomics, microfluidics, microbial ecology, and synthetic biology. It will accelerate sampling/culturing of marine microorganisms, enhance bioinformatics pipelines, and demonstrate microbiome based products in a wide array of applications. BlueTools promotes a sustainable, and equitable exploration of marine genetic resources, works closely with sibling Project BlueRemediomics, and engages policy/stakeholder fora—such as the ABS/DSI webinar underpinning this brief.

Sources: This policy brief draws on discussions and insights from the BlueTools–BlueRemediomics ABS/DSI webinar (May 2025), the text of the **(CBD/COP/16/2) Decision on DSI,** the **German Research Foundation (DFG) statement on DSI**, and other relevant international documents, journal references and national case studies, as mentioned throughout. It is intended to inform European and national policymakers and stakeholders in navigating the complex but crucial interface of biodiversity policy, research and innovation.

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