



Integrating

Access and Benefit-sharing

into Biodiversity Finance



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Abbreviations

ABS	Access and Benefit-sharing
BBNJ	Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction
BCP	biocultural community protocol
BER	Biodiversity Expenditure Review
BFP	Biodiversity Finance Plan
BIOFIN	Biodiversity Finance Initiative
BMC	Biodiversity Management Committee
BMZ	German Federal Ministry for Economic Cooperation and Development
BSAP	Bioprospecting, Access and Benefit-sharing
CBD	Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
CBO	community-based organization
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNA	competent national authority
COFOG	Classification of the Functions of Government
DGEF	Directorate General of Environment and Forests
DSI	digital sequence information
FNA	Financial Needs Assessment
GBF	Global Biodiversity Framework
GBFF	Global Biodiversity Framework Fund
GEF	Global Environment Facility
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
KMGBF	Kunming-Montreal Global Biodiversity Framework
LEAP	Locate, Evaluate, Assess, and Prepare
MNICR	National Indigenous Board of Costa Rica
MSMEs	micro, small and medium enterprises
NBA	National Biodiversity Authority
NBSAP	National Biodiversity Strategy and Action Plan
NCA	national competent authority
NDC	nationally determined contribution
NPBD	National Policy on Biological Diversity
OECD	Organisation for Economic Co-operation and Development

PABS	Pathogen Access and Benefit-sharing
PGRFA	Plant Genetic Resources for Food and Agriculture
PIR	Policy and Institutional Review
RBB	results-based budgeting
RBC	results-based costing
RSPG	Plant Genetic Conservation Project
SBB	State Biodiversity Board
UNCTAD	United Nations Trade and Development
UTBC	Union Territory Biodiversity Council
VCS-I-ABS	Voluntary Certification Scheme for Incentivization of ABS
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

1. Executive summary



Access and Benefit-sharing (ABS) stands as one of the most promising yet underutilized solutions for closing the global biodiversity finance gap, currently estimated at up to USD 824 billion annually. As nations work towards achieving the ambitious targets of the Kunming-Montreal Global Biodiversity Framework (KMGBF, also referred to as the GBF), there is an urgent need for innovative and sustainable financing mechanisms that leverage resources from the public, private and community sectors. Mechanisms grounded in the fair and equitable sharing of benefits from genetic resources and associated traditional knowledge (often referred to as “aTK”) offer a unique opportunity to mobilize additional funding for biodiversity conservation.

The concept of ABS was developed globally to address historical inequities in how biodiversity benefits are shared. However, many conventional businesses—focused primarily on maximizing profits for shareholders—are often reluctant to embrace benefit-sharing obligations, particularly if they perceive that paying taxes alone fulfils their social responsibilities.

To this end, the principle of ABS has been covered in several important international agreements, including the Nagoya Protocol, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the High Seas Treaty (BBNJ Agreement), and the World Health Organization (WHO) Pathogen Access and Benefit-sharing (PABS) system. These frameworks are designed to ensure that both monetary and non-monetary benefits flow back to the countries and communities that provide genetic resources, paying particular attention to the rights and roles of Indigenous Peoples and local communities. Despite these efforts, all these frameworks face persistent challenges and criticisms. Rapid technological developments, especially the rise of digital sequence information (DSI), have enriched the ABS discussions by expanding the scope beyond physical genetic resources.

However, the failure or collapse of the current ABS system under such pressures risks reverting to previous unacceptable injustices—perpetuating the unfair use of biodiversity and traditional knowledge without adequate compensation or recognition.

Despite its promise, ABS is still not sufficiently integrated into national biodiversity finance strategies, plans and policy frameworks in many countries. While expectations for ABS remain high, overly complex legal frameworks, intricate procedures and lengthy consultations require considerable investments and efforts to make it work.

This publication emphasizes the types of investments required to develop a viable and impactful ABS process. It underscores that every stakeholder along the entire value chain has a critical role to play. A step-by-step approach is provided to guide the integration of ABS into the national biodiversity finance plans that countries are called to develop in alignment with Target 19 of the GBF.

By following these guidelines, countries are encouraged to identify, develop and strengthen finance solutions, including:

- instruments to support the enabling environment for ABS
- finance instruments to develop the ABS value chain (public sector)
- instruments that support ABS value chain development
- finance mechanisms to facilitate benefit-sharing

2. Introduction



Welcome to a journey into one of the most innovative—and often overlooked—solutions to closing the biodiversity finance gap: Access and Benefit-sharing (ABS). As countries around the world race to meet the ambitious targets of the Kunming-Montreal Global Biodiversity Framework (KMGBF, also referred to as the GBF),¹ the need for innovative and sustainable financing mechanisms has never been greater.

Public resources alone cannot close the biodiversity finance gap, estimated at up to USD 824 billion annually,¹ and contributions from members of the private sector who benefit directly from nature must be mobilized to preserve our biodiversity, as well as our economies and livelihoods. For this, clear, accessible and functional ABS processes should be implemented to support the mobilization of financial resources. Considering the requirements of all United Nations Convention on Biological Diversity (CBD) Parties to develop Biodiversity Finance Plans (BFPs), integrating ABS into this process represents a strong opportunity.

Historically, the development of ABS is rooted in the widespread practice of biopiracy, whereby genetic resources and associated traditional knowledge were accessed, often without consent, from developing countries, Indigenous Peoples and local communities, generating significant wealth in developed countries without fair compensation.² This inequity ultimately led to the establishment of early national ABS frameworks in the 1990s and the Nagoya Protocol in 2024 to ensure the fair and equitable sharing of benefits arising from the utilization of these resources.

Far from being a niche legal concept, ABS represents a practical and actionable pathway to align conservation with economic opportunity and to ensure that the value of biodiversity is recognized, respected and reinvested where it matters most. ABS is a principle under the CBD and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol) that governs how genetic resources are accessed and how the benefits arising from their use, whether monetary or non-monetary, are shared fairly and equitably with the countries or communities providing them.

As one of the three core objectives of the CBD, in force since 1993, ABS plays a central role in global biodiversity efforts by linking conservation and sustainable use with equity and justice. Its importance has been further reinforced under the GBF, where it is reflected as a dedicated goal, underscoring its relevance in advancing biodiversity finance and sustainable development.

- 1 A. Seidl, K. Mulungu, M. Arlaud, O. van den Heuvel, and M. Riva. Finance for nature: A global estimate of public biodiversity investments, Ecosystem Services, Volume 46 (2020), 101216, ISSN 2212-0416, <https://doi.org/10.1016/j.ecoser.2020.101216>.
- 2 Already in 1987, the report of the World Commission on Environment and Development “Our Common Future” referred to the transfer of genetic wealth from developing countries to rich countries, describing this as a “no-name” phenomenon at that time. It became later often referred to as “biopiracy”, with non-governmental organizations such as the Rural Advancement Foundation working to address this issue. For more information, please see <http://www.un-documents.net/our-common-future.pdf>.



Box 1: Goal C of the Kunming-Montreal Global Biodiversity Framework (Decision CBD15/4)

“The monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with Indigenous Peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed Access and Benefit-sharing instruments.”

Source: Goal C, Decision Adopted by the Conference of the Parties to the CBD15/4. Kunming-Montreal Global Biodiversity Framework (Convention on Biological Diversity, 2022). Available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>

International Agreements that regulate ABS

Today, ABS is governed by several international instruments, including the Nagoya Protocol, the ITPGRFA, the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement), and the Pathogen Access and Benefit-sharing (PABS) system of the World Health Organization (WHO) Pandemic Treaty (See **Boxes 1, 2, 3, 4, and 5**).

However, technology has fundamentally changed the landscape. With rapid advancements, scientists since the adoption of the CBD are increasingly sequencing genetic resources—such as DNA, RNA and proteins—and storing this information digitally. In other words, genetic information can be extracted from biological material and transferred to computers. This data can then be edited and manipulated to develop new products.

Due to this development, the scope of some national ABS laws and policies has been extended to genetic information, such as DNA and RNA sequences derived from physical samples. This is particularly true when access occurs within a bilateral relationship between the user and the provider, as defined under the national ABS law or policy. Today, in international policy discussions, such genetic information is commonly referred to as digital sequence information (DSI).

However, DSI also has been generated from genetic resources accessed under diverse national circumstances, including from countries without any existing or operational ABS laws or policies, and subsequently stored in public or private databases. In many cases, academic and publicly funded researchers, who often operate under fewer restrictions, generate and publish DSI as part of basic scientific research, making it openly accessible. Commercial entities can then use this freely available data without engaging in ABS processes, effectively bypassing national legal frameworks and avoiding benefit-sharing obligations. This creates a significant loophole, reducing incentives for life science companies to seek permits or establish mutually agreed terms (often referred to as “MAT”) with provider countries while undermining efforts to ensure that benefits arising from the use of genetic resources are shared fairly and equitably with the countries or communities providing them. This dynamic is particularly evident in sectors such as agriculture, pharmaceuticals and cosmetics, where innovation increasingly relies on digital genetic information.

In response, Parties to the CBD have raised growing concerns about how to ensure fair and equitable benefit-sharing from the use of large volumes of publicly available genetic data that cannot be effectively addressed through existing bilateral ABS frameworks. These considerations led the Conference of the Parties, at its sixteenth meeting in 2024 (COP16), to adopt Decision 16/2, initiating the development of a multilateral benefit-sharing mechanism for the use of DSI (see **Box 7**). In line with Decision 16/2, paragraphs 18 and 20, resources mobilized through the multilateral mechanism are intended to support the implementation of activities reflected in national biodiversity strategies and action plans (NBSAPs), contribute to biodiversity-related scientific research, and generate tangible benefits for Indigenous Peoples and local communities, including women and youth. The decision also encourages Parties to designate appropriate national arrangements, such as national biodiversity funds, to facilitate the receipt and channelling of resources at the country level. Over time, as the global fund becomes operational and begins to mobilize more substantial resources, this funding stream could play an increasingly relevant role in shaping broader biodiversity finance architectures at the national level.

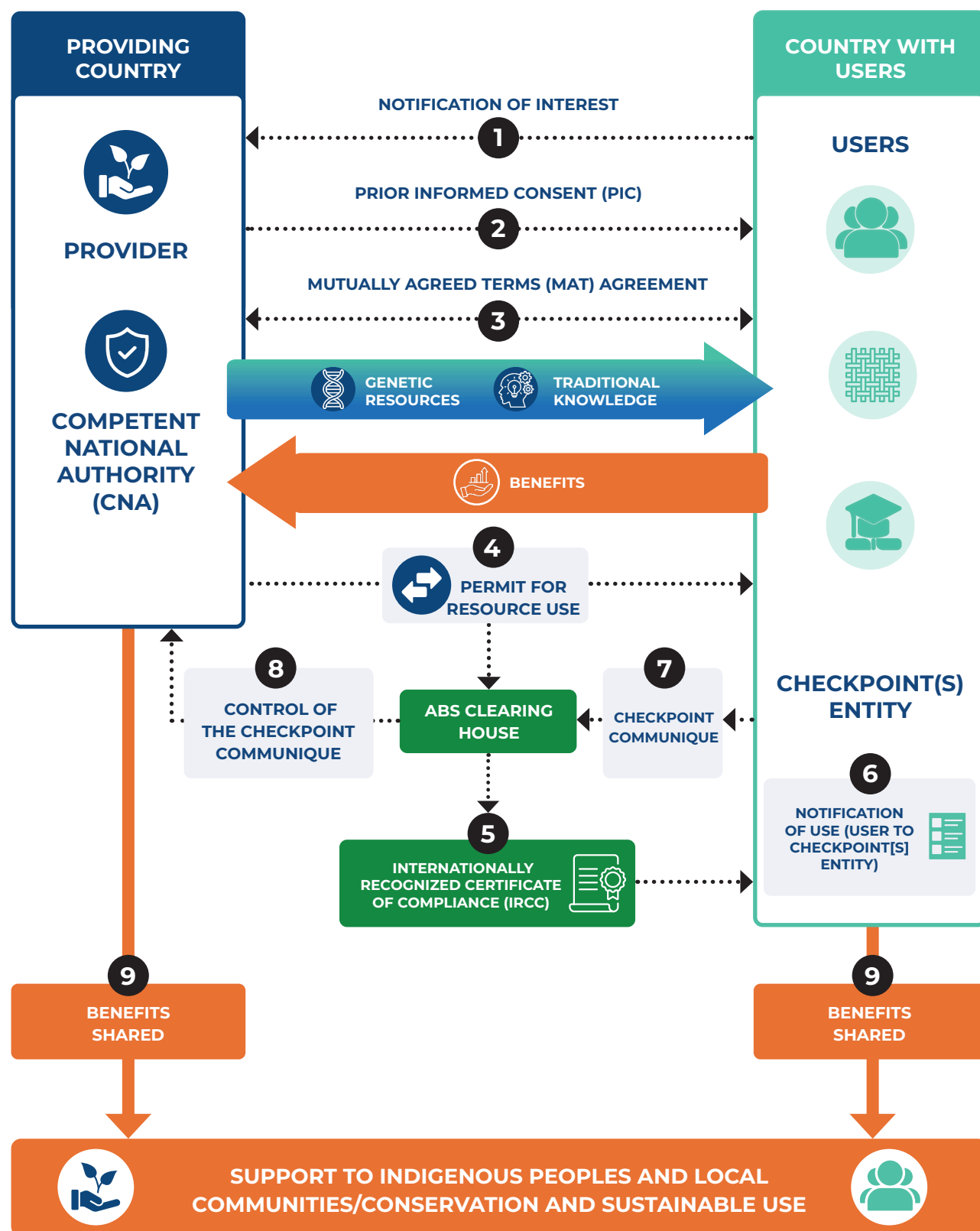
While DSI is an emerging and important topic, this publication primarily focuses on Access and Benefit-sharing of genetic resources within national and bilateral contexts. Other aspects such as ABS frameworks beyond national systems, including multilateral arrangements, and the role of databases, are addressed only briefly.



Box 2: The Nagoya Protocol

The Nagoya Protocol, which entered into force in 2014 under the Convention on Biological Diversity, establishes a legally binding ABS framework. Its strength lies in affirming national sovereignty over genetic resources and mandating equitable benefit-sharing for uses in research and development by public and private entities. It is implemented through national ABS laws or policies. Under this model, users—such as researchers or companies—must obtain prior informed consent and agree to mutually agreed terms with the provider country and Indigenous Peoples and local communities, as applicable, before accessing physical genetic resources or associated traditional knowledge. To formalize this process, benefit-sharing agreements must be signed between the user and the provider. These agreements outline the conditions for accessing and using the resources and specify how monetary and/or non-monetary benefits will be shared in a fair and transparent manner.

Figure 1: Simplified ABS workflow under the Nagoya Protocol



Source: Authors' own elaboration



Box 3: International Treaty on Plant Genetic Resources for Food and Agriculture

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA),ⁱ which entered into force in 2004, aims to conserve and sustainably use plant genetic resources for food and agriculture while ensuring the fair and equitable sharing of benefits arising from their use, in harmony with the Convention on Biological Diversity (CBD). Central to the treaty is its multilateral system (MLS),ⁱⁱ which facilitates access to a pool of plant genetic resources of key importance for food security, currently covering 64 crops and forages (listed in annex i) that are under the management and control of contracting parties and in the public domain. The MLS enables access to these resources for research, breeding and training for food and agriculture through a standardized and streamlined approach. In addition, natural and legal persons may voluntarily include their PGRFA in the MLS, subject to national legislation.

Access within the MLS is governed by a Standard Material Transfer Agreement, which sets out the terms for use and establishes benefit-sharing obligations, including both monetary and non-monetary benefits such as information exchange, technology transfer and capacity-building. Monetary benefits are channelled through the treaty's benefit-sharing fund,ⁱⁱⁱ which supports projects in developing countries aimed at the conservation and sustainable use of plant genetic resources for food and agriculture. The treaty is recognized as a specialized international ABS instrument under article 4 of the Nagoya Protocol.

Recent discussions under the treaty, including outcomes from the Eleventh Session of its Governing Body (GB11), have focused on enhancing the effectiveness of the MLS, including proposals to expand the coverage of crops beyond annex i and to improve the functioning of the benefit-sharing mechanism, particularly by exploring subscription-based systems to increase predictable financial flows. GB11 also continued deliberations on how to address digital sequence information (DSI) within the framework of the treaty, recognizing the growing importance of digital genetic resources and the need to ensure that their use remains aligned with the treaty's objectives of conservation, sustainable use, and equitable benefit-sharing.

Sources:

- i. *International Treaty on Plant Genetic Resources for Food and Agriculture* (FAO, 2026). Available at <https://www.fao.org/plant-treaty/en>
- ii. *The Multilateral System. International Treaty on Plant Genetic Resources for Food and Agriculture* (FAO, 2026). Available at <https://www.fao.org/plant-treaty/areas-of-work/the-multilateral-system/en>
- iii. *Benefit-sharing Fund. International Treaty on Plant Genetic Resources for Food and Agriculture* (FAO, 2026). Available at <https://www.fao.org/plant-treaty/areas-of-work/benefit-sharing-fund/en>



Box 4: High Seas Treaty / Agreement on the Conservation and Sustainable Use of Marine Biodiversity Beyond National Jurisdiction

The High Seas Treaty / Agreement on the Conservation and Sustainable Use of Marine Biodiversity Beyond National Jurisdiction, which entered into force on 17 January 2026, establishes a legally binding framework for marine biodiversity, including its genetic resources, beyond the national jurisdiction and thus also beyond the scope of the Convention on Biological Diversity (CBD) and its Nagoya Protocol. It was adopted in June 2023 under the United Nations Convention on the Law of the Sea.

The agreement aims to address governance gaps in the high seas, areas beyond national jurisdiction, by establishing mechanisms for the conservation and sustainable use of marine biodiversity. A key feature of the agreement is its provision for the fair and equitable sharing of benefits arising from the utilization of marine genetic resources, including digital sequence information (DSI). This includes both monetary and non-monetary benefits, such as access to research and technology transfer, particularly benefiting developing countries.



Box 5: WHO Pandemic Agreement

In May 2025, the international community adopted the landmark World Health Organization (WHO) Pandemic Agreement, only the second international legal instrument negotiated under article 19 of the WHO Constitution, creating a new framework for a more equitable, coordinated and resilient global response to future pandemics. At the heart of the agreement is the creation of a Pathogen Access and Benefit-sharing (PABS) system, a transformative mechanism designed to ensure that all countries—particularly developing nations—receive timely and fair access to critical health tools such as vaccines, diagnostics and therapeutics during public health emergencies.

The World Health Assembly resolution accompanying the agreement initiates a formal process to develop the PABS annex through an Intergovernmental Working Group, with adoption targeted for the 2026 Assembly. If the annex is approved and the agreement is ratified by at least 60 countries, the Pandemic Agreement, including the PABS system, will enter into force. PABS could represent a major breakthrough in global health equity by linking the rapid and transparent sharing of pathogens, including their genetic sequences, with guaranteed access to the benefits derived from their use. To support this system, Member States have launched processes to establish a Coordinating Financial Mechanism and a Global Supply Chain and Logistics Network, measures that could enable the effective, affordable and needs-based distribution of pandemic-related health products worldwide. Together, these efforts place PABS at the core of a fairer and more effective global pandemic preparedness and response architecture.

Why ABS matters for Biodiversity Finance

The GBF positions ABS as a mechanism that requires financial support but can also provide financial flows. As with all GBF targets, achieving the ABS-related targets will require significant resources. Target 13 specifically calls on countries to adopt “effective legal, policy, administrative, and capacity-building measures ... to ensure the fair and equitable sharing of benefits ... and by 2030 facilitating a significant increase of the benefits shared”. In addition, Target 19 requires a substantial and progressive increase in the level of financial resources from all sources, whereas targets 20 and 21 emphasize the importance of scientific cooperation and technology transfer and the availability and accessibility of data, information and traditional knowledge to build capacities required to operationalize ABS systems.

However, beyond requiring investments, ABS represents a critical opportunity to help close the biodiversity finance gap. Under Target 15, countries are encouraged to integrate ABS into corporate and financial institution reporting requirements, ensuring that businesses disclose compliance with ABS obligations. This not only reduces future enforcement and implementation costs but also creates stronger incentives for private sector accountability. Likewise, Target 19 explicitly identifies ABS as an innovative financing approach to be included in national Biodiversity Finance Plans (BFPs), listing it alongside instruments such as payments for ecosystem services, green bonds, biodiversity offsets and credits. Target 19 also anchors the global ambition to mobilize at least USD 200 billion per year by 2030, underscoring the relevance of ABS both as a mechanism for resource mobilization and as a source of predictable benefit flows for conservation.

Since the Nagoya Protocol entered into force, ABS has generated high expectations for mobilizing finance, particularly from rapidly expanding sectors that rely heavily on genetic resources. Industries such as pharmaceuticals (USD 1.48 trillion in 2022),³ biotechnology (USD 1.37 trillion in 2022),⁴ and agriculture (USD 12.97 trillion in 2025)⁵ depend on biodiversity and to some extent on its genetic resources. Even modest fractions of these sectors’ revenues shared through ABS have the potential to channel hundreds of millions of dollars annually into biodiversity conservation and sustainable use. Although quantifying the global value of benefits shared through ABS remains difficult due to the confidential and bilateral nature of agreements and despite reporting requirement of the CBD, it is evident that early expectations on benefits shared through agreements have not been met. The lack of national ABS frameworks (or them being too complex), weak enforcement of existing ABS frameworks, legal ambiguities, a lack of transparency regarding the (non-)existence of frameworks, and limited incentives and high costs (time and money) for both public and private stakeholders, among many other factors, have slowed progress. Yet, the underlying financial potential of ABS remains substantial, especially in light of the biodiversity finance gap, estimated at between USD 598 billion and USD 824 billion per year,⁶ which countries must urgently address.

Recognizing both the challenges and opportunities, UNDP-BIOFIN and GIZ developed this guidance to help countries integrate ABS more effectively into their national BFPs and their portfolios of prioritized financing solutions.

3 J. Stacciarini. *The Global Pharmaceutical Sector: numbers and dynamics*. 2024. 10.5281/zenodo.13891633.

4 2024 Report: Trends in Biotechnology – The Next Wave of Breakthroughs (TrendFeedr, 2024). Citing Grand View Research. Available at <https://trendfeedr.com/blog/biotechnology-trends-report/>

5 *Global Agriculture Market Report 2026* (The Business Research Company, 2026). Available at <https://www.thebusinessresearchcompany.com/report/agriculture-global-market-report>

6 A. Deutz, G.M. Heal, R. Niu, E. Swanson, T. Townshend, Z. Li, A. Delmar, A. Meghji, S.A. Sethi and J. Tobin-de la Puente. *Financing Nature: Closing the Global Biodiversity Financing Gap* (Paulson Institute, The Nature Conservancy, and Cornell Atkinson Center for Sustainability, 2020).

In this publication, ABS-related financing solutions are presented as supporting three interrelated dimensions. First, the access and use dimension focuses on strengthening the ABS framework itself and can be understood as a form of self-financing through investments in national legal and regulatory measures, permitting systems, compliance tools, research institutions and capacity-building. Second, these investments also underpin the benefits dimension by enabling resource mobilization for conservation and nature. Monetary benefits may include licence fees, upfront payments, per-sample payments, milestone payments and royalties derived from the commercialization of genetic resources. Third, financing solutions can support the benefit-sharing dimension by ensuring that both monetary and non-monetary benefits are shared fairly and equitably—particularly with Indigenous Peoples and local communities—and reinvested in a sustainable manner.

These three dimensions are complementary and should be considered together to ensure that an ABS system functions effectively, generates revenues and distributes benefits in a fair and equitable way.

To fully unlock the potential of ABS, these financial flows must be complemented by broader investments in sustainable biological value chains, supported by the public sector, private sector, and Indigenous Peoples and local communities alike. At the CBD, the multilateral negotiations expanded to DSI, with the newly established Cali fund to cover for DSI made publicly available. This report, however, will focus on the national processes, in particular ABS for physical genetic resources, while acknowledging that national ABS laws and policies in some countries also may apply to information or data associated with genetic resources.

Understanding the public and private finance landscape is essential to making ABS functional. Public finance underpins the enabling environment: Governments must design and maintain the regulatory, institutional and compliance systems that make ABS possible. This involves investments in legislation, permitting, monitoring, information technology systems, enforcement, research and national planning. Research institutions also contribute through foundational scientific work, inventories and knowledge generation.

Private finance is equally crucial. Companies involved in bioprospecting, ingredient manufacturing, research and development, and consumer product innovation invest in sourcing raw materials, conducting scientific research, maintaining regulatory compliance and commercializing new biodiversity-based products.

International public finance plays a complementary role, particularly for developing countries. The Global Environment Facility (GEF), as the CBD's interim financial mechanism, has long supported ABS development by funding legal frameworks, capacity-building, awareness-raising and mechanisms for benefit-sharing. The newer Global Biodiversity Framework Fund (GBFF) extends this support by prioritizing equity, rights-based approaches and sustainable use, offering competitive grants to governments, Indigenous Peoples and local communities, civil society and the private sector. The GBFF provides a platform for piloting innovative ABS financing models, scaling successful approaches and reaching countries and communities that might otherwise be left behind.

Together, these flows of national public finance, private investment and international funding are essential for operationalizing ABS and ensuring that the benefits derived from biodiversity—including from genetic resources—are shared equitably and sustainably. By aligning and scaling these resources, ABS can become a powerful mechanism to support biodiversity conservation, sustainable development and inclusive economic growth while contributing meaningfully to closing the global biodiversity finance gap.

**Box 6: Implementation of The Nagoya Protocol: Basecamp Research's Bilateral Agreements Framework**

Basecamp Research, a leading biotechnology company, recognizes that long-term scientific progress depends on clear, equitable and legally robust relationships with countries that steward biologically rich ecosystems. To support this goal, the organization has developed a portfolio of biodiversity partnerships that comply with national ABS legal frameworks across diverse regions, including agreements with countries such as Cameroon, Costa Rica, Hungary, Malawi and others, as well as collaborations in Antarctica, Chile, Portugal and the United States of America.

These bilateral agreements are aligned with national biodiversity laws and international frameworks such as the Convention on Biological Diversity (CBD) and the Nagoya Protocol. Each agreement defines the scope of research activities, conditions for access to biological resources, data governance principles—including the use of digital sequence information (DSI)—and mechanisms for equitable benefit-sharing.

Beyond legal compliance, the agreements formalize commitments to capacity-building and local participation. Provisions commonly include training programmes for local scientists, collaboration with national research institutions, and collaborative manuscript publication and data-sharing on partner-driven research interests. This ensures that scientific value generated through Basecamp Research's work contributes directly to domestic research ecosystems rather than flowing exclusively outward.

The agreements also clarify pathways for future value creation. By setting expectations around downstream research, commercialization and benefit-sharing triggers (including those related to the use of genetic data and DSI), they reduce uncertainty for both governments and researchers. This clarity enables faster collaboration while safeguarding national interests, as the collaboration includes downstream royalties to the partner country.

Collectively, Basecamp Research's bilateral agreements demonstrate a scalable model for conducting international biodiversity research—one that balances scientific ambition with respect for sovereignty, equity and durable international trust.

Many other examples of implementation of the Nagoya Protocol can be found in UNDP–GEF publications such as *ABS is Genetic Resources for Sustainable Development*,⁷ which illustrates how the Nagoya Protocol and national ABS frameworks have supported biodiscovery and sustainable development in over 25 countries, and *Access to Genetic Resources and Benefit Sharing: Theory to Practice under the Nagoya Protocol*,⁸ which provides concrete examples of how genetic resources can improve livelihoods and biodiversity conservation while outlining policy and legislative options. The CBD also compiled several case studies and national experiences under the ABS Clearing House mechanism and published early cases of bioprospecting within their CBD Technical Reports, e.g. in No. 38.⁹



Box 7: Digital sequence information and the Sixteenth Conference of the Parties of the Convention on Biological Diversity

The Sixteenth Conference of the Parties (COP16) of the Convention on Biological Diversity (CBD) adopted Decision 16/2 in 2024, launching the development of a multilateral benefit-sharing mechanism specifically for digital sequence information (DSI) stored in public databases. This decision recognizes that digital data on genetic resources is increasingly used in key sectors such as biotechnology, pharmaceuticals and agriculture, and that the resulting benefits must be shared globally and equitably. Decision 16/2 establishes a multilateral mechanism for the fair and equitable sharing of benefits from the use of DSI on genetic resources, including a global fund known as the Cali Fund. According to the decision, private companies using DSI should provide voluntary contributions to this fund. Contributors include large private entities operating in sectors such as pharmaceuticals, nutraceuticals, cosmetics, biotechnology, agriculture and animal breeding, laboratory equipment and digital technologies, including artificial intelligence, related to DSI.

The fund is administered by the United Nations Multi-Partner Trust Fund and aims to support biodiversity conservation and sustainable use in countries providing genetic resources, with a particular focus on benefiting Indigenous Peoples and local communities. To help ensure the transparent and equitable allocation of resources, Decision 16/2 outlines the establishment of a steering committee and a Secretariat, which are already operational, to oversee the fund's operations. The fund is already accepting voluntary contributions.

In this context, annex ii of Decision 16/2 outlines three indicative criteria to guide the future allocation of resources under the multilateral mechanism: biodiversity richness, the needs of developing countries, and the contribution of countries to the generation and provision of DSI. These criteria remain broad and non-exhaustive, reflecting the early stage of development of the mechanism, and will be further elaborated through the work of the Ad Hoc Technical Expert Group, which is tasked with developing recommendations on the design and operationalization of the fund, including options for equitable and effective disbursement.

While distributing funds from the Cali Fund is not the main focus of this publication, the finance solutions catalogues presented at the end of this report, especially those related to benefit-sharing, can also be utilized to direct Cali Fund resources.

7 *ABS is Genetic Resources for Sustainable Development* (UNDP, 2018). Available at <https://www.thegef.org/sites/default/files/documents/ABS%20Book%20Final%20Compressed%20File.pdf>

8 *Access to Genetic Resources and Benefit Sharing: Theory to Practice under the Nagoya Protocol* (UNDP, 2021). Available at <https://www.undp.org/publications/access-genetic-resources-and-benefit-sharing-theory-practice-under-nagoya-protocol>

9 *Access and Benefit-Sharing in Practice: Trends in Partnerships across Sectors* (Convention on Biological Diversity, 2008). Available at <https://www.cbd.int/doc/publications/cbd-ts-38-en.pdf>

Aim of this publication



This publication explores how access to genetic resources, coupled with fair and equitable benefit-sharing mechanisms, can unlock new streams of funding and support the closing of biodiversity finance gaps at national levels to reach national targets for biodiversity conservation.

These guidelines are addressed to any national stakeholders aiming to design finance solutions for biodiversity and any stakeholders interested in strengthening the ABS finance topic in national contexts.

After the introduction, this publication provides an overview of ABS finance, highlighting the various aspects and investments needed to make an ABS scheme work and generate revenues for conservation. The following section will be dedicated to mainstreaming ABS into BFPs, outlining key considerations related to ABS for each of the steps leading to a BFP—namely, the Policy and Institutional Review (PIR), Biodiversity Expenditure Review (BER) and Financial Needs Assessment (FNA). The BFP leads to the selection of finance solutions, and the relevant finance instruments to build those finance solutions are listed within the Catalogue of Finance Instruments section in different categories: those supporting the enabling environment of ABS, those finance instruments from the public sector focusing on developing the ABS value chain, other finance instruments alongside the ABS value chain, and finance instruments that facilitate benefit-sharing. The publication concludes with in-depth case studies from several countries.



Photo: ©UNDP Botswana/2020

3. The role of UNDP and GIZ in ABS



UNDP's Nature Pledge

The Nature Pledge is UNDP's global commitment to supporting more than 140 countries in delivering the ambitious targets of the GBF by driving a triple shift: 1) a value shift to place nature at the heart of development; 2) an economic and finance shift to value natural capital alongside financial and human capital; and 3) a policy and practice shift that emphasizes country-led action grounded in the knowledge and rights of local communities and Indigenous Peoples. This strategy makes a clear call to "foster genetic and crop diversity".

Since 2012, UNDP has driven efforts to promote access to genetic resources and the fair and equitable sharing of benefits derived from their use under the Nagoya Protocol. Through GEF-funded projects, UNDP has supported 47 countries in developing national ABS laws, empowering Indigenous Peoples and local communities, and facilitating collaboration among genetic resource users and providers. Pilot ABS agreements have enabled the research, development and commercialization of biodiversity-based products in sectors such as pharmaceuticals, cosmetics and agriculture. The collective impact and lessons learned from these efforts have been documented in two key UNDP publications: *ABS is Genetic Resources for Sustainable Development* (2018)¹⁰ and *Access to Genetic Resources and Benefit-Sharing: Theory to Practice under the Nagoya Protocol* (2021).¹¹

In addition to supporting ABS frameworks, UNDP plays a critical role in addressing the global biodiversity financing gap, estimated at USD 598 billion to USD 824 billion annually, through the Biodiversity Finance Initiative (BIOFIN). Launched in 2012, BIOFIN provides tools and methodologies to help countries design national BFPs, align financial flows with biodiversity goals, and improve the effectiveness of spending. The initiative currently supports 133 countries and has catalysed USD 2.7 billion for nature since 2018¹² through the implementation of finance solutions.

BIOFIN's approach, described in the BIOFIN Workbook 2024,¹³ includes the assessment of the current landscape of financing mechanisms in a country, the baseline measurements of biodiversity expenditures, and future financial needs. These assessments inform the country to prioritize the most adapted financial solutions for the country in the national BFP, which involve diverse actors such as local governments, ministries of finance, private sectors, civil society and more.

Several countries' results can be found on the BIOFIN website.¹⁴

10 *ABS is Genetic Resources for Sustainable Development* (UNDP, 2018). Available at <https://www.undp.org/publications/abs-genetic-resources-sustainable-development>

11 *Access to Genetic Resources and Benefit Sharing: Theory to Practice under the Nagoya Protocol* (UNDP, 2021). Available at <https://www.undp.org/publications/access-genetic-resources-and-benefit-sharing-theory-practice-under-nagoya-protocol>

12 *Global momentum for nature finance: UNDP's biodiversity finance initiative helps countries unlock over \$2.7 billion for nature* (BIOFIN, 2025). Available at <https://www.biofin.org/news-and-media/global-momentum-nature-finance-undps-biodiversity-finance-initiative-helps-countries>

13 *BIOFIN 2024 Workbook* (BIOFIN, 2024). Available at <https://www.biofin.org/knowledge-product/biofin-2024-workbook>

14 *Creating sustainable finance solutions for people & planet* (BIOFIN, 2026). Available at <https://www.biofin.org/>

GIZ's work on ABS

Since its inception in 2006, the ABS Capacity Development Initiative has supported capacity development for ABS. Hosted by the German Federal Ministry for Economic Cooperation and Development (BMZ) and co-funded by Denmark, France, Switzerland, The Kingdom of the Netherlands, Norway, the United Kingdom of Great Britain and Northern Ireland, the European Union and the Organisation internationale de la Francophonie, the multi-donor initiative has helped improve the conditions for successful cooperation among providers and users of biological resources—enabling fair and equitable benefit-sharing in support of biodiversity conservation, sustainable use and local livelihoods. It aligns with the Nagoya Protocol, the CBD's third objective and the GBF, especially Goal C and Target 13. It focuses on fostering partnerships among resource providers and users while integrating biodiversity into trade, economic and conservation policies.

The ABS Initiative, implemented by the German Development Cooperation (GIZ), collaborates globally—with partners including the African Union Commission, the United Nations Environment Programme (UNEP) and various research institutions—to develop tailored ABS approaches and tools that support the integration of fair benefit-sharing mechanisms into national frameworks. Key contributions include technical support on DSI, capacity-building for Indigenous Peoples and local communities, and guidance on implementing ABS systems aligned with the GBF.

Almost two decades of experience have enabled the ABS Initiative to advance policies, share best practices and support activities in countries such as Benin, Côte d'Ivoire, Kenya and South Africa. With a strong focus on good governance, gender equality and the empowerment of Indigenous Peoples and local communities, the ABS Initiative built capacities and generated scalable solutions for effective ABS implementation globally. It ended in December 2025.



Photo: ©Reagan Agyei Mensah/Pexels

4. Understanding ABS finance: necessary investments and potential benefits



At first glance, ABS appears to be a simple concept: providers of genetic resources and associated traditional knowledge—whether from individuals, communities or countries—require prior informed consent (often referred to as “PIC”) for non-commercial or commercial entities to access and use these resources and knowledge. Users then conduct research, develop products and share benefits arising from the use with the providers upon mutually agreed terms.

However, making this work in practice in a way that supports the conservation and sustainable use of biological diversity and improves the socioeconomic situation of the providers is a complex, case-specific and multifaceted undertaking requiring careful planning, strategic partnerships and substantial investments. How and by whom ABS activities are financed deeply impact subsequent ownership and power distribution in value chains. In this chapter, we provide an overview of key considerations to bear in mind when integrating ABS into national biodiversity financial planning, along with some illustrative case studies and examples.

Bioprospecting and biotrade: configuring ABS value chains

There are two main ways to turn genetic resources and/or traditional knowledge associated with genetic resources into shared benefits:

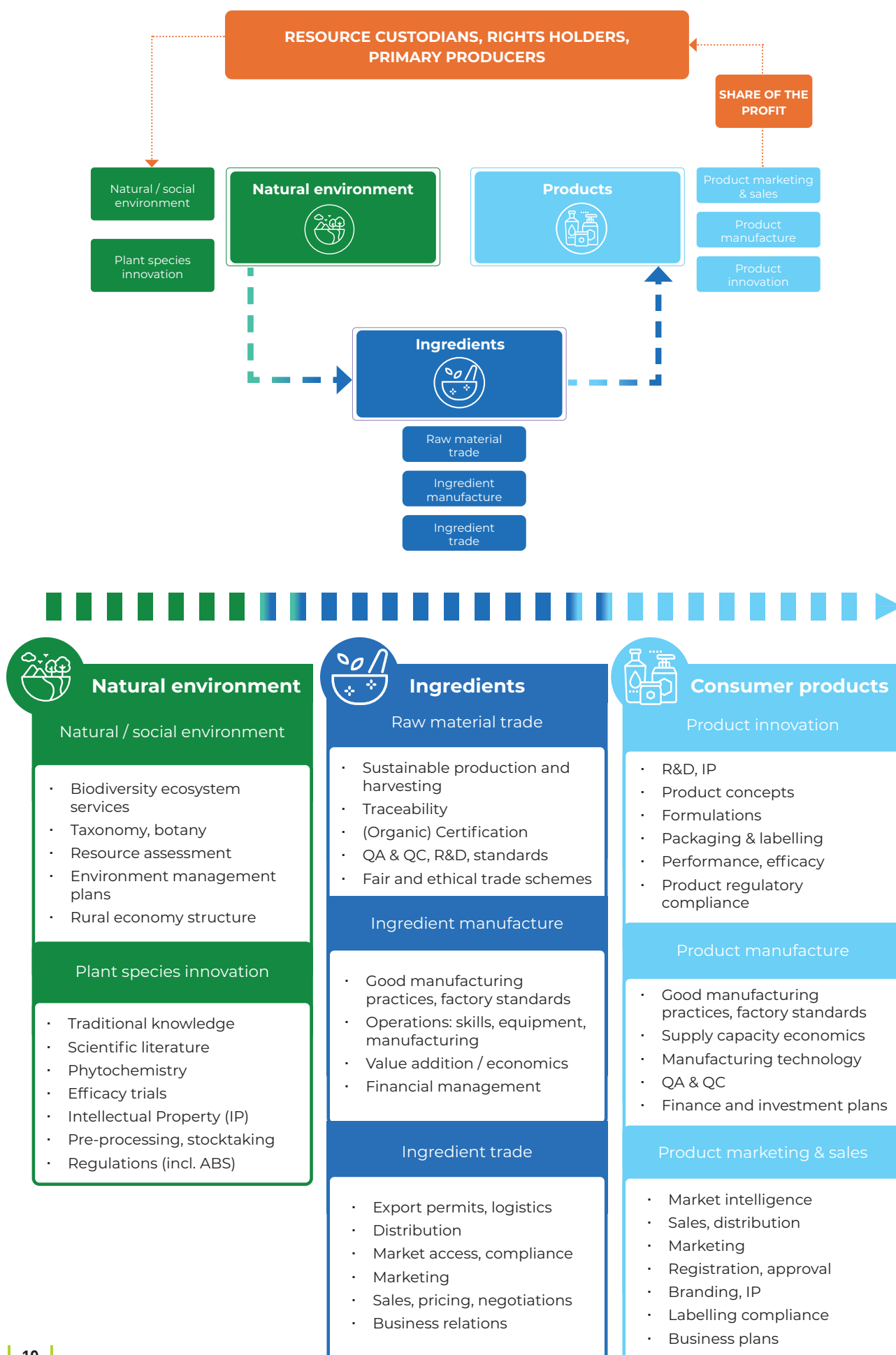
- One-off access, followed by research and development leading to commercialization—usually described as **bioprospecting**. For example, a microbe collected from a hot spring in a developing country, isolated and studied in a laboratory and then grown in large bioreactors to produce industrial enzymes, or a wild plant used to breed pest-resistance into a crop variety.
- Continuous and repeated access to raw materials, which are processed and marketed as consumer products—known as **biotrade**. For example, tree bark used to make a pharmaceutical extract, or wildcrafted perfume plants domesticated for essential oil production..

ABS aims to ensure a flow of benefits from users to providers, thereby supporting the conservation and sustainable use of biodiversity. For this to happen, all the components must be integrated into functional, well-regulated, fair and equitable value chains. [Figure 2](#) shows this concept as it applies to an indigenous fruit species used to produce a cosmetic oil for making skincare products.



Photos: ©UNDP Nature (chapter divider); ©hilyshao/iNaturalist (above)

Figure 2: Biodiversity-based value chain model (Source: Authors' own elaboration)



The model above shows a simplified value chain related to money flows of ABS, not considering other connections (as, for example, the flow of information—e.g. quality problems or rising or falling consumer demand—and other relational factors—e.g. cultural imagery or verifiable fair trade or sustainability claims).

Crucially, whether a biodiversity-based value chain is also an ABS value chain depends on national legal systems. Some countries do not regulate access to biological or genetic resources at all: Users are free to collect such resources (within other legal limits, such as having the permission of the landowners or not collecting protected species without a special permit) and utilize them without requiring permission—and without any obligations to share benefits. Other countries assert their sovereign rights to regulate access through national legal, administrative or policy measures. How benefits are to be shared is usually described in contracts, known as mutually agreed terms, which can be predetermined in legislation or negotiated among providers and users on a case-by-case basis.

Functional ABS value chains depend on collaboration among public institutions, private enterprises and grass-roots stakeholders such as primary producers, cooperatives and small and medium enterprises (SMEs), which can be providers, users or both, depending on national systems. By aligning objectives and assuming specific responsibilities, these groups can achieve the sustainable use of genetic resources, drive economic development and employment, conserve biodiversity and ensure fair and equitable benefit distribution. This requires functional regulatory systems, successful product development and overcoming market barriers (e.g. European Union Novel Food Regulations, European Union REACH regulations, European Union requirements around good agricultural and manufacturing practices, and all the other non-tariff barriers to trade used by developed countries to keep imports of products from developing countries out of their lucrative markets), which in turn needs adequate, timely investments in all the essential links at all levels of the value chain.

It also is important to distinguish between historic value chains developed long before the concept of ABS was encoded in international or national law and new “post-ABS” value chains based on biodiscovery, innovation and successful commercialization regulated by ABS.

The costs of establishing historic value chains were incurred by many market actors over decades or even centuries of trade; in such cases, ABS laws modify existing trade to shift the subsequent balance of power upstream and extract a levy for resource owners and knowledge holders (see, for example, the case of India in the end of this publication; the South African sectoral agreements on rooibos, buchu and honeybush; or the value chain with acai in Brazil).

Once ABS laws and regulations are in force, they change the processes and costs (for all actors involved) in establishing new value chains or expanding existing value chains by developing innovative products. Countries that decide to regulate ABS as a way to secure enhanced benefits and mobilize funds for biodiversity need to be aware of the implications of the choices they make when they implement this decision, design their systems to be as efficient and user-friendly as possible, reflect on and plan for the required investments, and pursue commercially workable collaboration strategies at all levels of the value chain. This interdependency, along with the associated costs and benefits, is illustrated in [Figure 3](#).

We will look at more details on expenditures and financial needs in more detail within the sections related to BERs and FNAs, with a view to guiding budgeting and financial planning. Actual costs will vary widely among national or local circumstances; readers are advised to use local knowledge to develop realistic budgets.



PUBLIC SECTOR



Upfront investments

- Develop and periodically update ABS measures (laws, regulations, policies, administrative procedures)
- Establish one or more National Competent Authorities (senior decision-making staff, administrative support systems)
- Raise public awareness, formulate guidance for providers and users
- Connect ABS to the National Biodiversity Strategy and Action Plan (NBSAP)
- Install IT infrastructure or other data management systems
- Develop online permitting systems



Running costs

- ABS staff and administrative support (minimum level of on-going expenditure required, regardless of volume of ABS cases)
- Oversee PIC & MAT negotiations (provide legal advice, draft model contracts)
- Monitor compliance (collect, analyse and verify reports)
- Verify sustainability (field surveys, ecological impact assessments)
- Enforce contracts when necessary (doing so foreign jurisdictions can be very expensive)



Monetary

- Cost recovery [partial?] via permit fees
- Benefit payments for genetic resources supplied by State
- Conservation or service levies on benefit payments made to providers



Non-monetary

- Monitoring and evaluation data for NBSAP (high value for authorities, low cost for users)
- Shared research and development (R&D) results (can stimulate further innovation)
- National research and development capacity (also useful for other purposes)
- Economic growth and diversification
- Job and income creation



ACADEMIA & RESEARCH



Costs

- R&D curricula development
- R&D programme planning and resource mobilisation (research grant applications)
- Research on GR and aTK, resource and knowledge surveys (staff time, infrastructure and equipment, laboratory consumables, transport, fieldwork expenses, data analysis)



Non-monetary

- Shared R&D results, co-publication
- Academic collaborations and exposure
- Advanced training (post-graduate; commercial internships)
- Equipment (important to consider on-going maintenance and running costs)
- Share of IP rights
- Societal benefits (educated citizens, national scientific and technical capacity)



BENEFITS



INVESTMENTS & COSTS

Source: Authors' own elaboration

RESOURCE CUSTODIANS, RIGHTS HOLDERS, PRIMARY PRODUCERS



Upfront investments

- Group formation, institutional development (biocultural protocols)
- Negotiating ABS agreements (legal support)
- Resource surveys, sustainable offtake rules (systems for monitoring and enforcement)
- Logistics capacity, including traceability systems (transport, record keeping systems)
- Harvest and post-harvest QA and QC (training)
- Infrastructure and equipment (harvesting and post-harvest processing equipment and containers, storage, scales, stationery)



Running costs

- Group management, admin, governance (transport, accommodation, food for meetings, gratuities for managers)
- Monitoring sustainability, predicting seasonal productivity, post-harvest surveys
- Raw material collation, transport, payment, storage, record keeping



Monetary

- Reliable sales at fair prices
- Premium for use of aTK or cultural imagery
- Investment in multipurpose facilities (storerooms, meeting venues, scales, ...)
- Benefit payments for GR supplied by State
- Profit retention in proportion to capital investment and risk sharing



Non-monetary

- Multipurpose institutions (social capital)
- Scientific verification of sustainability
- Pride in ownership (= incentive to conserve)
- Transferable skills to use for other development purposes



PRIVATE SECTOR



INGREDIENT MANUFACTURING



Upfront investments

- Raw material supply configuration (bioprospecting, identifying providers, negotiating ABS agreements, establishing logistics arrangements)
- Processing R&D (methods, workflows, packaging, storage)
- Creating Intellectual Property (patents, trade secrets, know-how)
- Efficacy & consumer safety testing, regulatory compliance dossiers
- Machinery & plant
- Securing markets



Running costs

- Traceability & certification
- Quality Control & Quality Assurance
- Maintaining Intellectual Property
- Managing volumes (seasonality)
- Working capital
- ABS compliance (permits, reporting)
- Product diversification (managing lifecycles)

CONSUMER PRODUCTS

Upfront investments

- Product formulation
- Packaging
- Creating IP (brands)
- Consumer safety compliance
- Machinery & plant
- Marketing logistics
- Managing product cycles

Running costs

- Traceability & certification
- QC & QA (consumer safety regulatory compliance and reporting)
- Distribution (wholesale, retail, stock turn, returns and recalls)
- Working capital
- ABS compliance (reporting, benefit distribution)
- Product diversification



Profit

Stakeholder roles in ABS schemes

Public authorities

ABS is a regulated system in which non-commercial and commercial actors (users and/or providers) must comply with specific rules and regulations in order to participate. States have sovereign rights over their natural resources and obligations to protect the rights of Indigenous Peoples and local communities under their jurisdiction.

The effective implementation of ABS requires upfront investments and incurs ongoing operational costs. In the following, the cost categories presented are indicative and intended to support national reflection; actual cost levels will vary depending on system design choices and national price structures.

Parties to the CBD, Nagoya Protocol and ITPGRFA (for crops in the MLS) have legal obligations to facilitate access to their genetic resources by users from other Parties. Some developed countries discharge these obligations by not regulating access at all; many developing countries have opted to establish ABS authorities to regulate ABS. In most cases, this choice fails to recover its implementation costs and therefore represents a net expenditure to the state, with shared benefits and positive impacts accruing to other parts of the society (resource custodians, national businesses, research). Biodiversity financial planning should therefore try to keep ABS implementation cost-effective while maximizing the monetary and non-monetary benefits supporting conservation, sustainable use, economic growth and justice.

Academia/research

Academic researchers from foreign countries are usually treated in a similar way to other foreign users, sometimes with simplified procedures for non-commercial research directly related to biodiversity conservation. In developing “provider” countries, however, academic and research institutions are typically publicly owned and funded. They can play an active and constructive role in ABS if adequately resourced, particularly by doing biochemical research to demonstrate commercial opportunities, ethno-ecological research to underpin sustainable use, and socio-economic research to improve development approaches. With good collaboration agreements and innovative strategies, they can also receive significant direct benefits from ABS, where they potentially act as both users and providers, and secure indirect benefits for the country through their education and training activities. Because these institutions are already publicly funded, they can make valuable contributions to national biodiversity programmes, including ABS aspects, at low incremental costs. Unlocking this potential requires better integration of their activities into NBSAP planning and implementation through an ABS lens; given such coordination, substantial impacts can be leveraged by relatively modest investments, harmonising biodiversity R&D with national conservation and development priorities and articulating clear pathways to commercial application.

Resource custodians, rights holders, primary producers, cooperatives, and local SMEs

The foundation, pinnacle or heart (depending on one's perspective) of most ABS value chains are the Indigenous Peoples and local communities who are owners of genetic resources and holders of associated traditional knowledge. Indigenous Peoples and local communities serve as day-to-day biodiversity custodians and therefore as the final interface between policy implementation and its impacts on nature. These grass-roots groups are fundamental to sustainable harvesting,

adaptive resource and ecosystem management, and chain-of-custody records for certification processes, and as such typically perform both public-sector (governance, monitoring and evaluation) and private-sector (logistics, trade) functions.

Indigenous Peoples and local communities are very often seen as “primary clients” by ABS authorities, to be protected from unfair business practices. They potentially can be involved at all stages of value chains, and they often aspire to this goal. Appropriate financial arrangements and ownership models could help communities rebalance power inequalities and redress iniquitous outcomes.

Undoubtedly, one of the biggest shifts in biodiversity governance over the past two decades has been the growing recognition of the central role played by Indigenous Peoples and local community resource custodians, their traditional ecological knowledge and practices, and their ongoing stewardship of nature. These are critically important considerations in biodiversity financial planning generally, and even more so in ABS. Within these communities, it is important to recognize that women often serve as primary knowledge holders and resource managers yet may face structural barriers in accessing land rights, finance and decision-making processes. Put simply, the more financial resources are channelled directly into the hands of Indigenous Peoples and local communities, the bigger the conservation impacts. As in the case of research and academia, existing ongoing investments in the capacities of Indigenous Peoples and local communities can be leveraged and/or supplemented relatively easily and cost-effectively to enhance ABS outcomes, thereby contributing to human development and nature protection at the same time: a real win-win for living in harmony with nature.

Private sector

Private-sector actors in ABS value chains can be national or foreign. Their primary objective is to make a profit, which they must do to be financially sustainable, but many also have some of the characteristics of social enterprises, such as being concerned about social justice, fair trade or supporting nature protection—and marketing these virtues to ethical consumers.

From a financial or business perspective, it is useful to distinguish between:

- *ingredient manufacturers* (more often national, active in business-to-business markets where innovation and functionality are prized, have limited price flexibility due to significant competition from equivalent ingredients); and
- *business-to-consumer enterprises* focused on marketing consumer products (often foreign or multinational, with higher price elasticity, sensitive to brand value, willing to pay for market differentiation).

This distinction is not always clear-cut in vertically integrated value chains. For example, in agricultural value chains, the seed sector can be integrated into the food industry, or a community-owned cooperative can harvest raw materials, make cosmetics and sell directly to consumers.

To the extent that growing the local and national private sector is an ABS policy objective, access to appropriate financial instruments is a key determinant of success. In this regard it is also important that finance providers (banks, development funds, venture capital) understand the additional expenses incurred for ABS compliance (permit applications, PIC and MAT negotiations, reporting for monitoring and evaluation).

Arguably the biggest source of problems in ABS is a misunderstanding between authorities and the private sector about finance, and the mutual mistrust it engenders. At the risk of caricature, this unfortunate situation can be described as government assuming business has an endless supply of funding which it is simply too stingy to spend because it is greedy, while businesses bemoan red tape and legal uncertainty creating unrealistic transaction costs and risks that make ABS value chains non-viable, unsustainable and uninvestable. Bridging this gap requires ABS authorities to be realistic about value chain development timeframes and required returns on investment, and enterprises to embrace the need for fairness, equity and transparency. As mentioned above, the best approach is one of partnership, cooperation and mutual trust, anchored in clear and enforceable contracts (which often go beyond “simple” mutually agreed terms, material transfer agreements, benefit sharing agreements or other typical ABS contracts to include more conventional commercial instruments like non-disclosure agreements, partnership agreement, intellectual property agreements and technology transfer agreements).

Against this background it bears repeating that ABS only works when all links in the value chain work. Benefits must be created before they can be shared and all value chain actors must share in the benefits for the value chain to become truly sustainable and have a positive impact on biodiversity. There are two aspects to consider when thinking about financing the role of the private sector in ABS:

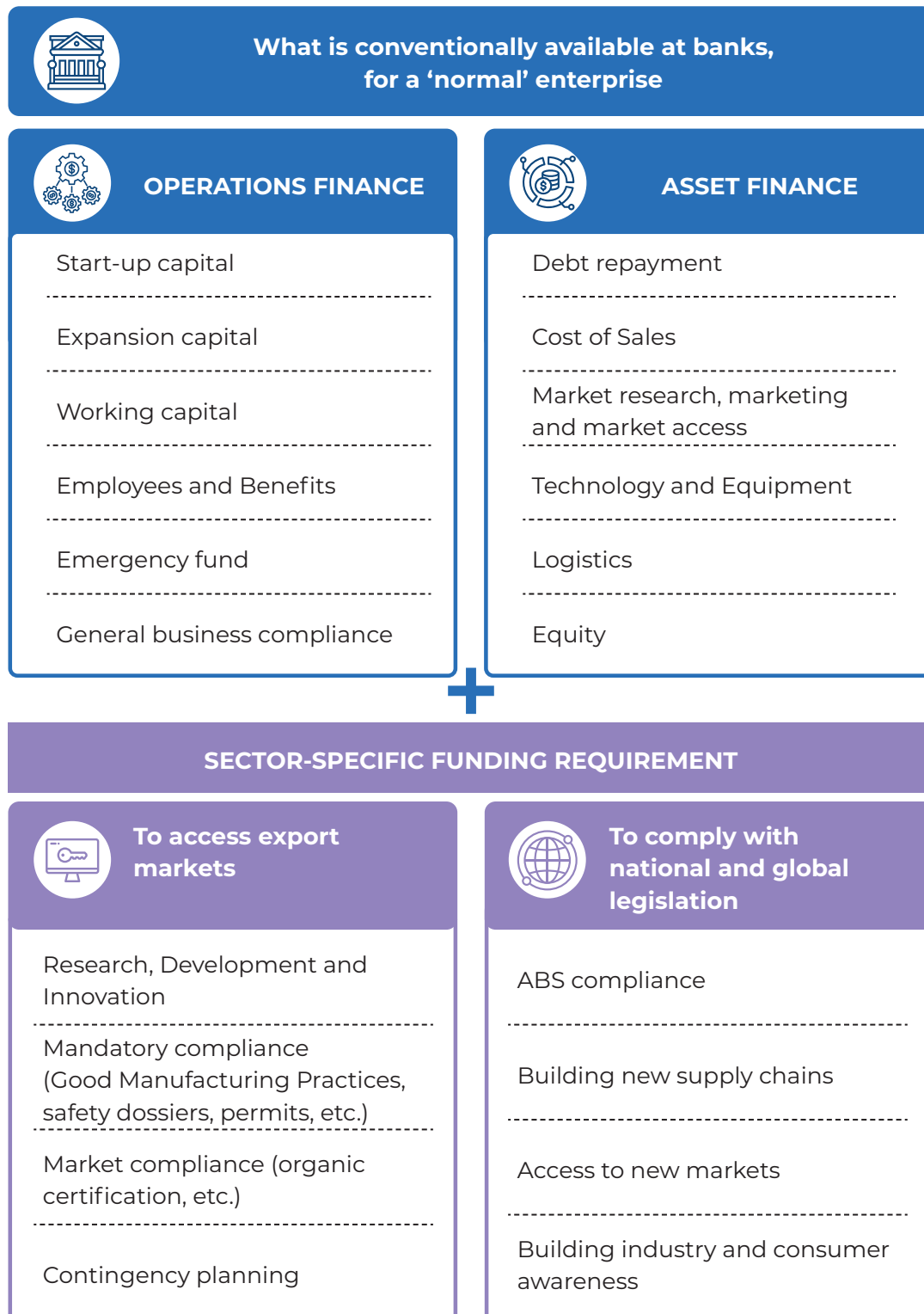
- All value chain *functions* must be in place and adequately resourced to be sustainable.
- The *ownership* and control of value chains functions impact value distribution.

A community that can take its genetic resources and traditional knowledge all the way to the final consumer market, with no involvement of market intermediaries, can theoretically capture 100 percent of the value and benefits. In reality, such vertically integrated ABS value chains are vanishingly rare, typically very small, and hardly ever sustainable. Nevertheless, increasing downstream ownership through investment and shared risk can substantially boost value capture by primary producers and should be kept in mind when planning ABS finance.



Photo: ©Reagan Agyei Mensah/Pexels

Figure 4: Conventional funding and the additional finance requirement for ABS/biotrade businesses





Box 8: India: Setting up an ABS system

The Access and Benefit-sharing (ABS) system in India is governed by the Biodiversity Act and updated regulations regulating access to biological resources and associated knowledge, including digital sequence information (DSI), through prior informed consent and mutually agreed terms. Fees and terms are set on a case-by-case basis. Implementation is handled by the National Biodiversity Authority, State Biodiversity Boards, Union Territory Biodiversity Councils, and nearly 278,000 Biodiversity Management Committees.

The annual budget of the National Biodiversity Authority is INR 16–18 crore (USD 1.9–2.1 million), funded by government grants, application fees and the retention of part of the benefit payments. ABS collections total INR 200 crore (USD 24 million), mainly from red sanders, agriculture, biotechnology, pharmaceuticals, and cosmetics.

Benefit-sharing slabs are based on annual company turnover, ranging from 0.2 percent to 0.6 percent, with high-value resources like red sanders subject to higher rates. Entities with turnover below INR 5 crore are exempt but must report resource use.

The National Biodiversity Authority distributes benefits to communities and stakeholders. Exemptions for cultivated medicinal plants and AYUSH practitioners, granted with certificates of origin, facilitate access for traditional sectors. Benefits include monetary rewards, technology transfer and joint research.

The country's biodiversity industry has an annual value of INR 4 lakh crore (USD 48 billion), with pharmaceuticals, agriculture, Ayurveda, and biotech as key sectors. Challenges include bureaucratic delays, limited awareness, industry resistance and concerns about the dilution of community rights due to exemptions and reduced Biodiversity Management Committee involvement.

Note: For more information, please visit BIOFIN for the full case study (available in [chapter 6](#)).

Photo: ©UNDP India/Dhiraj Singh



Box 9: Lessons learned from South Africa, Brazil and Cameroon

South Africa, Brazil and Cameroon each demonstrate distinct approaches to Access and Benefit-sharing (ABS) implementation (please find the three full case studies in chapter 6 of this publication). South Africa has pioneered sector-wide ABS agreements that facilitate benefit-sharing with Indigenous groups, yielding significant monetary and non-monetary returns but requiring tailormade adaptation for newer value chains. The national flat-rate ABS system in Brazil, managed through the SisGen platform, has improved compliance but faces challenges in tangible benefit delivery and system efficacy. Cameroon employs a case-by-case-negotiated ABS process that has high initial costs and limited short-term financial returns but emphasizes relationship-building, capacity development and long-term local empowerment.

The three case studies illustrate how ABS systems can take different institutional forms yet reveal a set of shared lessons about costs, benefits and the conditions under which ABS can deliver meaningful outcomes.

Across the three country case studies, ABS and traditional knowledge-based agreements show a consistent pattern: High initial short-term transactional costs, compliance and administrative costs for both public authorities and private users are contrasted with benefits for providers that are largely long term, non-monetary and difficult to quantify. Cost-benefit outcomes vary widely by country, sector and stage of implementation, but negative short-term balances are common, while positive outcomes depend on delayed, intangible and often conditional benefits.

Several cross-cutting lessons emerge:

System design strongly shapes outcomes

Sector-wide or framework agreements can substantially reduce transaction costs and increase legal clarity compared to multiple individual contracts, as illustrated most clearly in South Africa. However, although the case-by-case mutually agreed terms negotiations

Photo: ©UNDP Brazil/2021

in Cameroon are marked by the intense costs of early-stage implementation, particularly in pilot phases. They also highlight the approach's potential to build tailored, trust-based partnerships.

Non-monetary benefits are central

In all three cases, non-monetary benefits—such as the recognition of traditional knowledge, shared governance, capacity-building, legal literacy, community organization and empowerment—often outweigh monetary benefits in importance. These outcomes are critical for correcting historical injustices, strengthening stewardship of biodiversity and embedding ABS in sustainable value chains, even where cash flows remain limited in the beginning. Of course, non-monetary benefits incur a financial cost for the user company, even when they are not yet generating profits from the particular value chain. This means that the cost must be covered elsewhere and the benefits must be viewed as an investment in the new partnership.

Distributional justice remains a weak point

The South African rooibos case shows that even when substantial sector-level benefits are generated, internal distribution mechanisms may exclude marginalized actors such as smallholders or workers who are not formally recognized as traditional knowledge holders. This underscores the need for transparent, inclusive and context-sensitive benefit-sharing arrangements within communities and sectors.

Complexity can undermine objectives

The experience in Brazil shows that overly complex ABS systems with high compliance costs risk generating negative net returns, both financially and socially, while hindering research and development and the utilization of biodiversity. Similarly, Cameroon shows that without strong support, clear guidelines and expectation management, as well as realistic timelines, the initial transaction costs can outweigh the short-term gains and disappoint both communities and users.

Facilitation, capacity-building and trust are decisive

Especially in Cameroon and South Africa, effective facilitation, community training and long-term relationship-building emerged as prerequisites for successful ABS implementation. Investments in negotiation support, community protocols and governance structures, although costly, are essential foundations for future benefits.

Data gaps limit accountability and learning

Across the cases, limited transparency and incomplete data on costs, benefit flows and implementation outcomes constrain robust assessment and accountability. This is particularly evident in Brazil, where funds have been accumulated but only partially deployed, and in newer South African and Cameroonian agreements, where benefits have yet to fully materialize.

ABS is a long-term governance investment

Effective implementation depends on early preparation, streamlined procedures, legal certainty, the timely deployment of benefits, strong facilitation, community training and sustained trust building. While short-term financial returns are often modest or negative, well-designed systems can create lasting institutional and structural change.

The analysis deliberately avoids framing ABS in terms of whether it is “worthwhile” in a narrow economic sense. A purely monetary cost–benefit approach cannot capture core ABS values, such as the rights of Indigenous Peoples and local communities, participation in value chains, biodiversity conservation and sustainable use, intergenerational justice, and human rights enforcement. Moreover, available cost and benefit data are incomplete: Major private-sector investments in value chain development, research and development, and market access are excluded, and many monetary benefits have not yet materialized due to immature agreements and weak reporting mechanisms.

Overall, the evidence suggests that the true value of ABS lies in long-term governance transformation rather than immediate financial returns. However, to realize this potential, existing legal and regulatory frameworks require a reality check and simplification. Ambitious concepts and ethical goals must be aligned with what is feasible and proportionate. Enabling research and development and the development of value chains is essential for generating benefits, and managing expectations across communities, regulators and users is critical regarding what ABS can realistically deliver for individual actors and for biodiversity conservation.

Note: Please find full case studies on these countries in chapter 6: [South Africa](#), [Brazil](#) and [Cameroon](#).

5. Advancing the integration of Access and Benefit-sharing into national biodiversity strategies



Despite the significant potential of genetic resources and the benefits derived from their use, this critical topic has often been insufficiently integrated into national strategies. In May 2025, in the context of the Sixth Global Conference on Biodiversity Finance,¹⁵ organized by UNDP–BIOFIN in Chile, a survey was conducted to assess the level of integration of ABS in various national strategies. The survey covered the policy landscape, including how NBSAPs incorporate national processes to ratify and implement selected international agreements—e.g. the Nagoya Protocol, the ITPGRFA and the BBNJ Agreement.

Seventy-nine of the 111 total respondents have ratified the Nagoya Protocol, while 64 have ratified the ITPGRFA and 26 the BBNJ Agreement. A review of detailed responses confirms that ratification of treaties must be further supported by an enabling law. Most NBSAPs have included actions to support the development of ABS policies, but there might be a clear opportunity to accelerate action on optimizing ABS for resource mobilization through BFPs.¹⁶

Fifty-seven countries indicated having an ABS policy. Some of these policies are reflected in the presence of bioprospecting guidelines for research and commercial purposes and the presence of institutions or competent national authorities to manage ABS. The establishment of national checkpoints to monitor the utilization of genetic resources and adherence to prior informed consent is on the low side. The survey indicated an even lower recognition of DSI, as only 18 countries mentioned an incorporation of DSI elements into existing law.



Box 10: ABS integration into national strategies and priorities in Bhutan

Bhutan has established a strong and progressive Access and Benefit-sharing (ABS) framework through its Biodiversity Act 2022, Biodiversity Rules 2023 and ABS Policy 2015. These instruments regulate access to genetic resources and ensure that benefits arising from their use are shared fairly and responsibly. The country's biodiversity—including medicinal plants, traditional crop varieties and unexplored high-value wild species—plays a central role in rural livelihoods, cultural heritage and national sovereignty and holds significant potential for green enterprise development.

To unlock the true value of biodiversity as a national asset, Bhutan needed a dedicated financial mechanism capable of channelling ABS benefits transparently, consistently and directly towards conservation and community development and of positioning ABS as an effective biodiversity finance solution. The country established the Bhutan Access and Benefit-sharing (BABS) Fund, a dedicated finance mechanism supported by royalties, upfront access fees, user contributions and other payments arising from research and the commercial utilization of genetic resources.

Operating under the Biodiversity Act 2022, the National Biodiversity Centre, as the national focal point, collects ABS-related revenues and deposits them into the BABS Fund. Fund management is handled transparently in coordination with the guidelines issued by Ministry of Finance and overseen by the competent national authority within the Ministry of Agriculture and Livestock, ensuring strong accountability and alignment with national financial and ABS rules.

Key stakeholders include the Ministry of Agriculture and Livestock, the National Biodiversity Centre, the Ministry of Finance, sectoral agencies, local governments, community groups, traditional knowledge holders, and private-sector partners engaged in research or commercialization. Together, they create a coordinated structure that strengthens the fair and equitable sharing of benefits and positions ABS as a long-term biodiversity finance solution.

Photo (chapter divider): ©UNDP Nature

15 *Over 130 countries come together in Chile to boost nature finance and support global biodiversity targets* (BIOFIN, 2025). Available at <https://www.biofin.org/news-and-media/over-130-countries-come-together-chile-boost-nature-finance-and-support-global-0>

16 Additional results can be found in annex II.

Data management is a core element of an ABS and DSI system, helping ensure transparency and facilitating the monitoring of revenues and the actual benefits of transfer. Thirty-six countries have indicated that they have a clearing house for ABS, and fewer have indicated that they maintain a database of users of genetic resources and traditional knowledge that includes both domestic and international firms. Only 15 countries indicated they have data-sharing protocols on DSI.

As to the equitable sharing of genetic resources, more than half of the respondents stated that free, prior and informed consent is a recognized modality for community participation and that Indigenous Peoples and local communities are involved in national decision-making processes. Countries providing more detailed comments stated that the involvement of communities is more project based than institutionalized. Some countries reported the presence of training on ABS and awareness-raising, but others who recognize the gap. UNDP and GEF were often mentioned in the additional comments provided by countries as providers of technical support.

Traditional sources such as fees, corporate donations and philanthropy still dominate the space for resource mobilization. A few countries are doing voluntary certification schemes, trust funds and national transfers.

Furthermore, a review¹⁷ conducted by the ITPGRFA revealed a persistent gap in policy frameworks at the national level.

An analysis of key climate-related strategies—including 50 National Adaptation Programmes of Action (NAPAs), 22 National Adaptation Plans, and select NDCs—found no mention of international agreements such as the Nagoya Protocol and the ITPGRFA, despite their critical relevance. The latter is designed to facilitate conservation, sustainable use, facilitated access to PGRFA, and benefit-sharing. Moreover, none of the reviewed documents included activities related to technology transfer, capacity-building, or information systems to support the effective management and use of PGRFA.

In conclusion, the global and national policy frameworks for ABS largely exist, but operationalization needs improvement. More focus should be afforded to the twin ambitions attached to ABS: mobilizing new resources and using the same to incentivize biodiversity conservation. Many countries are developing or updating NBSAPs and BFPs, and this presents a clear opportunity to include ABS-related finance solutions.

17 *Integration of PGRFA in national development plans, budgets and priorities for donor support and external funding* (FAO and ITPGRFA, 2023). Available at <https://openknowledge.fao.org/handle/20.500.14283/cc5724en>

**Box 11: ABS integration into the Uganda national development plan**

According to the third National Biodiversity Strategy and Action Plan (NBSAP) from Uganda in 2024, the traditional knowledge and practices of Indigenous Peoples and local communities has not been integrated into national programme strategies. Recognizing this gap, Uganda is working on mainstreaming Access and Benefit-sharing (ABS) into the NBSAP through a national ABS project financed by the Global Environment Facility (GEF), implemented through the United Nations Environment Programme (UNEP) and the Uganda National Environment Management Authority. The project entails strengthening the legal and institutional framework for the ABS permit management and monitoring system, creating a system designed to enhance compliance and transparency, and protecting genetic resources.

Indigenous Peoples and local communities also have been empowered through established community protocols such as governing the use of medicinal plants and Indigenous knowledge in Kigezi and Karamoja. Furthermore, the development of the ABS gender mainstreaming sharing and communication strategy has promoted inclusive participation and equitable benefit-sharing, leading to the integration of ABS into key national development frameworks such as the fourth national development plan, emphasizing the foundation for sustainable financing in Uganda. The national Biodiversity Finance Plan 2025, under development, has captured the need to strengthen ABS compliance, supporting both ecosystem protection and livelihood transformation.

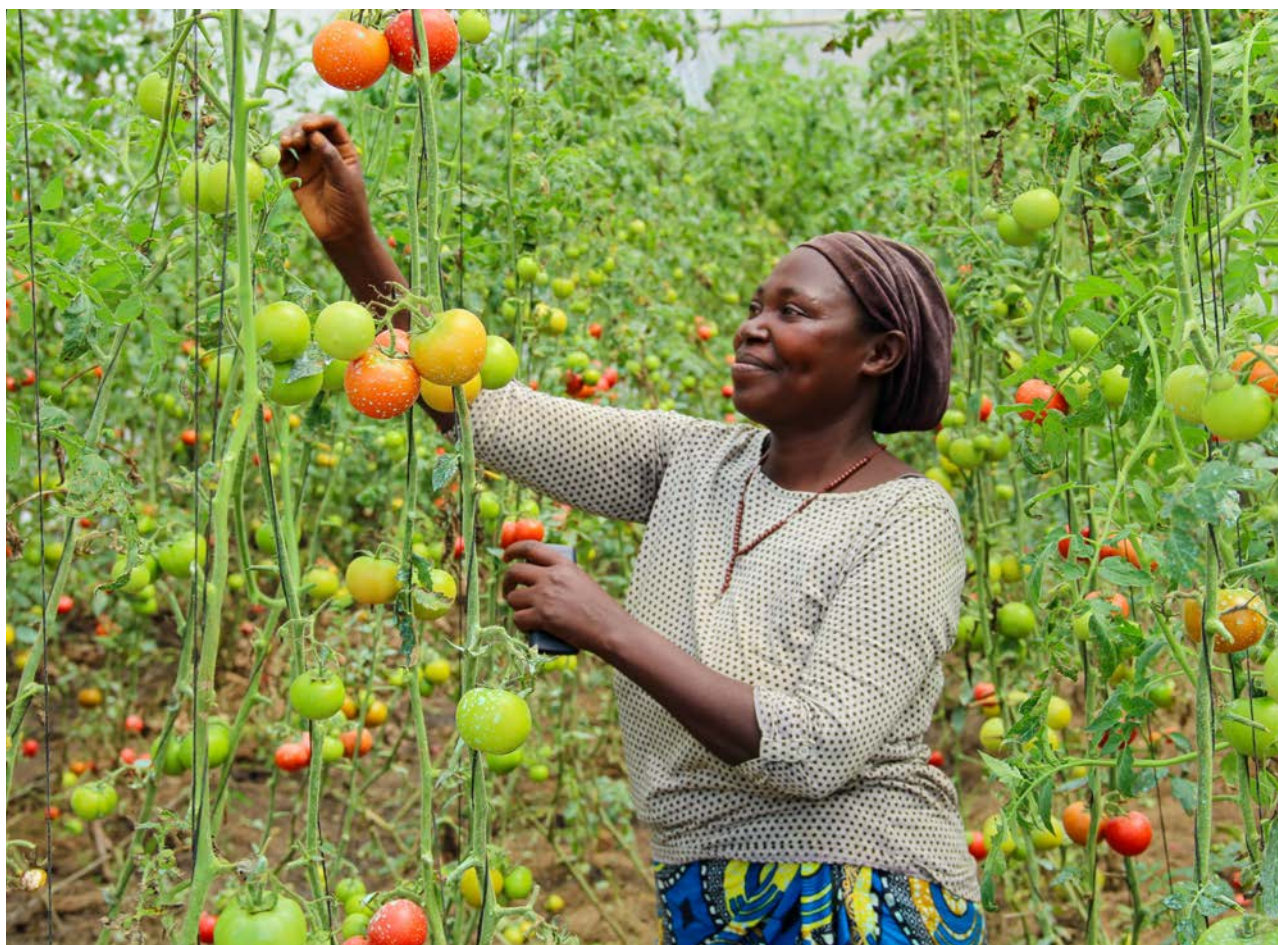


Photo: ©UNDP Uganda/2018

6. Mainstreaming ABS into national Biodiversity Finance Plans



The approach of developing a national Biodiversity Finance Plan, as outlined in the BIOFIN Workbook,¹⁸ unfolds through several steps. This chapter and the steps below aim to guide countries in integrating genetic resources into this process, either when developing a new BFP or when updating an existing one. Ultimately, this will support the prioritization and implementation of finance solutions linked to ABS.

Step 1. Setting the framework to develop national Biodiversity Finance Plans that integrate genetic resources

Biodiversity finance relates to a large universe of stakeholders, ranging from international development banks and organizations to national and subnational governments, central banks and other national enterprises, as well as local communities, Indigenous Peoples, women and youth in key biodiversity areas. Empowering civil society and community organizations considered critical supporters should be part of the primary engagement axes of any initiatives working on biodiversity finance.

Engaging with these actors and involving Indigenous Peoples and local communities as soon as possible in the process helps to:

- 1) build a shared understanding and vision among key stakeholders;
- 2) understand capacity gaps and respond accordingly; and
- 3) coordinate all related initiatives and lead technical debates.

Box 12: Doris Ríos, Indigenous BIOFIN champion

Doris Ríos, the vice-president of the National Indigenous Board of Costa Rica (MNICR), is a cabécar community leader from the China Kichá Indigenous territory. She was recognized in 2023 with the International Women of Courage Award by the United States of America Department of State.

Ms. Ríos and the MNICR have been pivotal strategic partners in initiatives supported by BIOFIN in Costa Rica that aim at the consolidation of sustainable tourism with Indigenous identity. The MNICR's involvement in the creation and piloting of the RAICES programme has facilitated the adaptation of innovative tools and the development of business models that align with the Indigenous vision and community principles of well-being for both people and Mother Earth.



Source: BIOFIN. BIOFIN Workbook 2024. Finance for nature. United Nations Development Programme (2024). Available at <https://www.biofin.org/knowledge-product/biofin-2024-workbook>

18 BIOFIN 2024 Workbook (BIOFIN, 2024). Available at <https://www.biofin.org/knowledge-product/biofin-2024-workbook>

Each country should, in theory, have a governing body in charge of piloting the development and design of the BFP. In most cases, this body is called the national steering committee. This committee is the formal decision-making body for the design and implementation of the plan, guiding the country's strategy and actions. The steering committee should be integrated by, at least, representatives from the Ministry of Finance and the Ministry of Environment. Dependent on country needs, other stakeholders could be included in the committee, such as representatives from other relevant ministries (e.g. agriculture), finance experts, representatives from the private sector and civil society, and subject matter experts. Supplementing the steering committee, countries may choose to form a technical working group, composed of technical and other experts in the field, to help guide and review BFP outputs.

In addition to the participation of Indigenous Peoples and local communities (see **Box 13**) in key national BFPs, such as via steering committees or technical working groups, it can be necessary to support the creation of a specific reference group related to ABS, if this is identified as a priority for the country. An early engagement of all relevant ministries and stakeholders on such complex topics can help increase the legitimacy of the discussions and mitigate potential political obstacles. It is necessary to ensure legitimate representation and provide support to those facing obstacles to participation. Such a group, especially if institutionalized, can serve as a national platform for dialogue, help identify key challenges and opportunities, and assist in the development of concrete projects that promote the generation and equitable distribution of benefits.

Such a reference group could gather, in addition to Indigenous Peoples and local communities, national technical focal points and representatives from national private companies using genetic resources, user organizations (universities and research institutions), and intermediary organizations playing a role in the collection, analysis, supply or sequencing of resources. Having such a platform of vibrant discussion can assist in identifying challenges, opportunities and potential finance solutions for integration into the BFP. However, one challenge of ABS is often the missing integration into other biodiversity discussions; therefore, the integration of ABS-relevant expertise within existing structures such as BFP steering committees and technical working groups might be the better option to mainstream ABS. A hybrid approach—inviting required expertise as needed—also might be a viable solution.



Photo: ©UNDP Colombia/2019



Box 13: The importance of involving Indigenous Peoples and local communities in national strategies and policies

Many of the world's key biodiversity areas overlap with the ancestral lands of Indigenous groups who play a leading role in the protection, management and sustainable use of the natural resources present on these lands. Indigenous Peoples and local communities protect at least 28 percent of the global land surface while representing only just 6 percent of the world's population.ⁱ Studies highlight that the quality of conservation is also increased when the area is managed by Indigenous Peoples and local communities, with increases to ecosystem services and carbon sequestration. There is a clear link between the traditional lifestyles of Indigenous Peoples and local communities and the conservation and sustainable use of biodiversity. Within these communities, Indigenous women often play central roles in biodiversity stewardship, including seed conservation, sustainable harvesting and the transmission of traditional ecological knowledge, yet they frequently face structural barriers in access to land rights, finance and participation in decision-making and benefit-sharing processes.ⁱⁱ

Thus, as highlighted in the United Nations Development Programme (UNDP) Nature Pledge,ⁱⁱⁱ national, subnational, and sectoral policies must align the needs of nature with the needs of people, embracing a whole-of-government and whole-of-society approach to deliver on the Global Biodiversity Framework (GBF). At the heart of these transformations must be the recognition and empowerment of Indigenous Peoples and local communities. They must have a central role in decision-making and action, alongside women and youth, ensuring that environmental governance is inclusive, rights based and gender responsive, as highlighted in Section C and Target 22 of the GBF.^{iv}

Indigenous Peoples have cultivated knowledge systems and customary practices for countless generations that are at the premise of the identification, access and use of genetic resources. They should be identified as custodians and owners of the genetic resources and the knowledge linked to these resources.

While the United Nations Declaration on the Rights of Indigenous Peoples integrate the notion of free, prior and informed consent that allows Indigenous Peoples to provide, withhold or withdraw consent at any point regarding projects impacting their territories, the Nagoya Protocol is strengthening the capacities of Indigenous Peoples and local communities in ensuring their rights through domestic frameworks and measures. For these reasons, Indigenous Peoples and local communities should be involved in all national policies and strategies, including national biodiversity strategies and action plans (NBSAPs) and national Biodiversity Finance Plans (BFPs).

Sources:

i. *The Indigenous World 2024* (IWGIA, 2024). Available at <https://www.iwgia.org/en/resources/publications/5508-the-indigenous-world-2024.html>

ii. *The Vital Role and Contributions of Indigenous and Local Community Women as Biodiversity Custodians* (CIDSE, 2024). Available at <https://www.cidse.org/2024/12/16/the-vital-role-and-contributions-of-indigenous-and-local-community-women-as-biodiversity-custodians/>

iii. *Nature Pledge* (UNDP, 2026). Available at <https://www.undp.org/nature/nature-pledge>

iv. *2030 Targets (with Guidance Notes)* (Convention on Biological Diversity, 2026). Available at <https://www.cbd.int/gbf/targets>

Key questions for Step 1.



- Are the national focal points for the Nagoya Protocol and/or ITPGRFA part of the national steering committee in charge of overseeing the development and implementation of BFPs/solutions?
- Are the national focal points for the Nagoya Protocol and/or ITPGRFA part of the technical committee/technical working group in charge of supporting the steering committee?
- Are Indigenous Peoples and local communities represented in the governance structure overseeing the development and implementation of the BFP?
- Are women and youth able to participate meaningfully in related BFP discussions?
- Are national private-sector actors that utilize genetic resources represented in the governance and technical bodies supporting the development and implementation of the BFP or specific reference group?
- Is there a parallel ABS working/reference group in the country? Is there a need to set up such a reference group? If yes, who should be the members?

Based on the answers to the questions above, the BFP team could provide recommendations on how to improve the governance structure of BFP development and implementation (steering committee) and technical and topic-specific support structures (technical working group, reference group), including whether such a reference group should exist or the required expertise to be integrated. For the composition of any of the groups, the following additional participants can be considered:

- Nagoya Protocol, ITPGRFA and other multilateral agreement focal points
- additional ministries and institutions, such as agriculture, trade, patent registration, rural areas, gender, etc., as appropriate
- focal points from Indigenous Peoples and local communities
- representatives from private sectors that could represent national users of genetic resources, etc.

Step 2. How can the Policy and Institutional Review identify challenges and issues at the strategic/policy level to support access to genetic resources and a fair sharing of benefits?

A PIR assesses the strengths and weaknesses of policies and institutions within a sector, focusing on policy adequacy, gaps, implementation and institutional functionality. It outlines the legal and institutional context for policy interventions.

This stage evaluates national strategies, legal frameworks, institutions, finance instruments and subsidies impacting genetic resource diversity and conservation. The goal is to provide recommendations to identify finance solutions following the BIOFIN methodology and the Nagoya Protocol e-learning module by the CBD Secretariat.¹⁹

a) Review national biodiversity strategies, sustainable development strategies and national policies related to genetic resources

Following the adoption of the GBF, all CBD Parties have been called upon and supported to update their NBSAPs in alignment with the new objectives and targets, including Target 4 aiming to protect genetic diversity, Target 13 aiming to increase the sharing of benefits from genetic resources, DSI and associated traditional knowledge, and Target 15 calling upon governments to ensure that companies “report on compliance with Access and Benefit-sharing regulations and measures, as applicable”.

The PIR should be an opportunity to assess the alignment of the NBSAP with these targets and to assess whether the national measures and regulations related to ABS and plant genetic resources, including for food and agriculture, are well integrated in the national biodiversity strategy. Based on the assessment, the national team responsible for developing or updating the PIR will provide recommendations on how to further mainstream activities that promote ABS and plant genetic resources into the action plan. The scope of the assessment also can be broadened to related strategies and action plans in other sectors or to cover international developments, such as those on DSI, particularly if the NBSAP has a quite narrow approach.

Examples of relevant policy documents to scope out could be:

- NBSAP and national reports
- national strategy or action plan on PGRFA and compliance reports to the ITPGRFA
- national ABS strategy or policy
- agricultural or food security strategies
- national seed policies or conservation frameworks
- other relevant sector strategies and policies, e.g. trade, research, etc.

¹⁹ Establishing measures to implement the Nagoya Protocol e-learning course (Convention on Biological Diversity, 2023). Available at <https://absch.cbd.int/en/kb/tags/elearning/Nagoya-Protocol-E-Learning-Establishing-Measures/64ff3f1b83fe089b22a68ae2>

Key questions for Step 2a.



- Does the NBSAP include specific targets and activities related to ABS and plant genetic resources? If yes, to what extent are they aligned with targets 4, 13 and 15 of the GBF?
- Does the country have specific strategies or policy documents on ABS and plant genetic resources? If yes, are these strategic documents mainstreamed within the NBSAP?
- Is there a need to expand the PIR, BER and FNA to these specific thematic strategic documents to complement the NBSAP?
- Are specific institutional arrangements clearly identified in these documents that could help map the responsible organizations?
- Are there any specific policy instruments related to ABS and genetic resources?


Box 14: Examples of policy instruments that contain plant genetic resources for food and agriculture

The ITPGRFA has developed several country profiles (for Colombia, Georgia, Nepal, Peru, Philippines and Uganda) that include examples of national policies, plans and strategies related to climate change, food and agriculture, environment and development that contain plant genetic resources for food and agriculture (PGRFA) among the priorities.

Below is a summary of these country profiles, showing the diversity of national documents that include PGRFA.

Area	Policy instruments
Climate change-related policies	• Nationally determined contribution (Georgia, Nepal, Uganda) • National Adaptation Plan (Nepal, Peru, Colombia) • Adaptation and/or risk management-related policies for the agricultural sector (Colombia, Nepal, Uganda) • National climate change policy or action plan (Nepal, Philippines, Uganda, Colombia, Peru) • Long-term climate strategy to comply with the Paris Agreement (Colombia) • National strategy for climate change (Peru)
Food and agriculture-related policies	• National seed policy (Uganda) • National seed strategy/vision (Uganda, Nepal) • Agricultural sector strategic plan (Uganda, Philippines, Georgia, Nepal, Peru) • National agricultural policy (Colombia) • Food and nutrition plan of action (Nepal, Peru)
Environmental policies	• National Biodiversity Strategy and Action Plan (Uganda, Philippines, Georgia, Nepal, Colombia) • National environmental act/policy (Uganda, Peru)
Development policies	• National development plan (Philippines, Nepal, Colombia, Peru) • Post-disaster recovery framework (Nepal) • National plan to promote research (Colombia)

b) Assess national legislation related to genetic resources

To implement the strategies and policies mentioned earlier, countries adopt policies, laws and regulations that need to be mapped, listed and assessed. The assessment should include suitability, impact on ABS/biodiversity and effectiveness of implementation (including, for example, private-sector involvement; whether it encourages or discourages research, use and trade; protection of biological and genetic resources; impact on Indigenous Peoples and local communities). Challenges should be identified, and recommendations should be provided accordingly. See **Box 15** for potential areas with direct and indirect links to ABS.



Box 15: Potential areas with a direct and indirect link with Access and Benefit-sharing, regulated by legislation

Areas with a direct link to Access and Benefit-sharing (ABS):

- Convention on Biological Diversity (CBD) implementation, in particular Article 15
- Nagoya Protocol implementation
- traditional knowledge associated with genetic resources and traditional medicine
- plant genetic resources conservation, seed production, certification and marketing, including community seed banks, seed fairs, and farmer-to-farmer exchange
- plant breeders' rights or plant variety protection, mostly linked to International Union for the Protection of New Varieties of Plants
- forestry (management of forest genetic resources), wildlife (governing access to animal genetic resources, hunting, breeding and conservation), protected areas (affecting the collection/use of genetic resources inside parks or reserves), fisheries
- farmers' rights under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

Areas with an indirect link to ABS and where reference to ABS compliance could be included:

- genetic engineering and biotechnology research
- pharmaceutical sector and legislation on the use of medicinal plants and genetic material
- food safety, covering genetic resource-derived products
- protection and application of traditional medicine and ethnobotanical knowledge
- patents covering inventions based on genetic resources (biotechnology, pharmaceuticals)
- trade and export of biological and genetic resources (permits, quotas, CITES-related laws)
- copyright/database protection for genetic sequence information (DSI)
- data laws and regulation related to biodiversity/genetic resources
- biosafety and the use, import or release of genetically modified organisms



Box 16: Legal and policy reforms in Zimbabwe: frameworks for strengthening Indigenous knowledge systems and Access and Benefit-sharing

Zimbabwe historically has regulated access to genetic resources through the Environmental Management Act and Statutory Instrument 61 of 2009, focusing on research and bioprospecting permits. However, the 2023 Zimbabwe Biodiversity Economy report highlighted gaps, such as the unregulated commercial use of indigenous species without adequate benefit-sharing arrangements. In response, Zimbabwe is reforming its Access and Benefit-sharing (ABS) framework through legal, institutional and administrative updates.

Under the newly launched BIOFIN project, a Policy and Institutional Review (PIR) will assess legislation to align national frameworks with the Nagoya Protocol, ratified in 2013. The PIR will serve as an opportunity to coordinate with stakeholders and provide recommendations on how to address gaps in benefit-sharing, develop tools such as a digital Indigenous knowledge systems database, etc. It also aims to strengthen institutional coordination among key agencies. These efforts will support a coherent ABS framework to promote sustainable biodiversity financing.

Final expected outcomes include enhanced institutional coordination, recognition of Indigenous knowledge as both a cultural and economic asset, and steps towards a national ABS Clearing House and Indigenous knowledge systems registry. By integrating ABS into biodiversity finance strategies, Zimbabwe aims to build a more equitable and transparent system for managing genetic resources while advancing commitments under the Kunming-Montreal Global Biodiversity Framework.

Photo: © Karin Schermbrucker/UNDP (Zimbabwe)

c) Review the current ABS National Framework

Even if most of the points may have already been covered in the previous step, a specific focus on the national ABS framework is necessary to tailor the recommendations to the country's context. A summary set of components is presented in **Box 17** to guide quick assessments, and a detailed methodology and questionnaire are provided by the ABS Capacity Development Initiative in the *Concept for National ABS Gap Analysis*.²⁰ As an additional step after the gap analysis, there also is the possibility of undertaking an ABS option analysis to make informed choices about which elements should be contained in the national ABS framework.²¹ Additional optional questions to further develop the assessment on the progress made to adopt the implementation of the Nagoya Protocol at the national level are available in [annex iii](#).



Box 17: Steps involved in a review of national Access and Benefit-sharing framework and Nagoya Protocol implementation

A review of the national Access and Benefit-sharing (ABS) framework and Nagoya Protocol implementation consists of the following steps:

1. Ratification and implementation of the Nagoya Protocol: Assess the country's progress in ratifying/ acceding to and implementing the Nagoya Protocol, including actions taken, stakeholders consulted and key obstacles encountered.

2. Legislative, administrative and policy measure: Review the national legal system and determining whether new or amended laws are required to domesticate the Nagoya Protocol. Assess whether a stand-alone ABS law or integration into broader frameworks is most effective. Examining sequencing of laws/regulations, possible interim measures, and links with international frameworks, e.g. the International Treaty on Plant Genetic Resources for Food and Agriculture and the World Health Organization Influenza Framework.

3. Institutional arrangements and permitting systems: Evaluate the designation and coordination of national focal points, competent national authorities and related institutions. Review the functioning of the free prior informed consent system, the role of Indigenous Peoples and local communities, the ABS Clearing House authority, and the transparency of application procedures (including online systems). Map institutions involved in the permitting process, the types of permits required, the scope of the ABS system, differentiation by resource type or source, and provisions for monitoring, research, emergencies and reporting.

4. Assessment of the status of Indigenous Peoples and local communities in the country: Provide concise recommendations for improving national implementation of the Nagoya Protocol, addressing legal, institutional and operational components.

20 *Concept for National ABS Gap Analysis* (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2016). Available at https://archive.abs-biotrade.info/fileadmin/media/Knowledge_Center/Publications/Concept_Gap_Analysis/Concept_-_National_ABS_Gap_Analysis_-_ABS-I_20161116.pdf

21 *ABS Implementation Options* (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2019). Available at https://archive.abs-biotrade.info/fileadmin/media/Knowledge_Center/Publications/Implementation_Options/Collection_-_Implementation_Options_-_ABS-I_-_201909.pdf

d) Assess the status of Indigenous Peoples and local communities in a country

Despite being the guardians of genetic resources, Indigenous Peoples and local communities are often—and incorrectly—overlooked as key actors in biodiversity finance. Their lack of participation is sometimes due to limited capacity to engage or a lack of opportunities to take part.

Even if not directly related to an existing finance solution, a specific assessment should be made of the legal status of Indigenous Peoples and local communities. Such an assessment would make it possible to recommend the appropriate nature of their involvement in existing finance instruments while also helping inform the design of new finance solutions to be prioritized in the BFP.

Key questions for Step 2d.



- Are Indigenous Peoples and local communities officially recognized in the country?
- Is there a regulatory complexity, including inconsistencies, overlapping laws, poor institutional coordination, and unclear legal frameworks around Indigenous Peoples and local communities and smallholder farmers?
- Is a customary tenure systems and resource rights existing for Indigenous Peoples and local communities and smallholder farmers?
- Which international instruments related to Indigenous Peoples and local communities has the country agreed to or ratified?



Photo: ©UNDP Nature



Box 18: Who are Indigenous Peoples and local communities?

Indigenous Peoples are culturally distinct groups with deep ancestral ties to collectively owned lands, unique knowledge systems, and governance reflecting precolonial histories. They assert rights of self-determination and stewardship over their territories, supported by instruments such as the Indigenous and Tribal Peoples Convention (International Labour Organization Convention 169), the United Nations Declaration on the Rights of Indigenous Peoples, and mechanisms such as the United Nations Permanent Forum on Indigenous Issues.

Local communities, in contrast, manage lands and resources collectively without identifying as Indigenous. Their rights stem from traditional usage and territorial connections, as recognized under such instruments as the United Nations Declaration on the Rights of Peasants and Voluntary Guidelines on Tenure and Small-Scale Fisheries. They reside in specific geographic regions and share a common identity and interests in local resources or livelihood strategies (e.g. riverine communities, artisanal fishers, pastoralists, seasonal non-timber forest product collectors, and small-scale or family farmers, among others).

Sources:

- ILO. C169 – Indigenous and Tribal People's Convention, 1989 (No. 169). International Labour Organization (1989). Available at https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::p12100_instrument_id:312314
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Box 19: The difficult situation of non-recognized Indigenous Peoples and local communities

The lack of involvement is exacerbated by the weak legal protections many Indigenous Peoples face, particularly the absence of formal legal recognition and titles for their collective and individual community lands.

This challenge is especially acute in countries that have not ratified International Labour Organization Convention 169 and where legal frameworks recognizing and protecting Indigenous Peoples and their lands are nearly non-existent. Even where such frameworks do exist, they are often poorly enforced or ignored entirely. As a result, Indigenous Peoples' collective lands are frequently perceived by state and government authorities as “empty” or “unused”, excluding them from discussions and agreements on land use and conservation.

However, in some cases, international precedents have inspired national laws recognizing the rights of Indigenous Peoples, including land co-management. For example, the Lao People's Democratic Republic adopted in 2023 a Decree on Protected Areas, creating “Guardian Villages” where Indigenous communities co-manage biodiversity-rich lands and participate in resource conservation decisions.

Source: IWGA. *The Indigenous World 2024*. International Work Group for Indigenous Affairs (2024). Available at <https://iwgia.org/en/resources/publications/5508-the-indigenous-world-2024.html>



Box 20: How Botswana strengthened policies and legal frameworks by creating biocultural community protocols

Under the United Nations Development Programme–Global Environment Facility Global Access and Benefit-sharing (ABS) Project, Botswana has established key baselines for an ABS regime, fostering collaboration among users and custodians of genetic resources and traditional knowledge. Achievements include legal framework assessments, gap analyses for Nagoya Protocol implementation, an ABS communication strategy, a traditional knowledge database, and capacity-building initiatives on ABS agreements.

Community involvement was prioritized through biocultural community protocols (BCPs). The Shakawe and Lerala community groups were trained on the components of BCPs, and the necessary information was gathered through a participatory rural appraisal process. Consultative and capacity-building sessions in Shakawe and Lerala helped support the development and validation of the BCPs. Community-level participants were also trained on prior informed consent and mutually agreed terms as part of the BCP development process. The Kgetsi ya Tsie Community Trust, bringing together 882 women from 26 villages, developed a BCP for sustainable use and benefit-sharing related to the morula tree and its associated traditional knowledge.

The BCP aligns with international and national ABS laws, setting conditions for conservation, resource management and stakeholder negotiations, including processes for prior informed consent and mutually agreed terms. Efforts focus on fully incorporating Nagoya Protocol principles into national legislation to deliver conservation and socioeconomic benefits.

Source: *Access to Genetic Resources and Benefit Sharing: Theory to Practice under the Nagoya Protocol* (UNDP, 2021). Available at <https://www.undp.org/publications/access-genetic-resources-and-benefit-sharing-theory-practice-under-nagoya-protocol>

e) Identify the link between Access and Benefit-sharing and important trends and drivers of biodiversity change in a country

Most of the NBSAPs should include the identification and prioritization of the main trends in biodiversity change (gain or loss). It will be a question here to identify specific points related to genetic resources diversity and Indigenous Peoples and local communities and, when possible, identify the levers of changes through a root cause analysis. BIOFIN is recommending a quick and easy-to-implement method to assess the root causes, called the “five why method”.²² The logic is to keep asking “why” until we identify a concrete problem that can be addressed practically.

For example:

Trend: Loss of seed genetic diversity in a country

- Why? Because farmers use only commercially bred and registered seeds.
- Why? Because the government is encouraging their use (through incentives or other supportive measures) or forbidding the marketing or sales of harvests from non-registered seeds.
- Why? Because local and export markets may favour uniform products (same size, shape, taste).
- Why? Because there are negative perceptions of native seeds.

This is a useful point to stop asking “why,” because it identifies a concrete problem that can be addressed in practice. In this example, we could recommend the implementation of a certification scheme and an advocacy campaign to promote products made from native seeds.

f) Review the current state of biodiversity finance

Map existing finance instruments and related legislations

While national stakeholders are often interested in designing and implementing new and innovative finance mechanisms, it is widely recognized that improving or scaling up existing instruments or legislation can often be more cost-effective in helping close the biodiversity finance gap.

In this regard, it is important to map and assess existing instruments currently implemented that are directly or indirectly related to ABS, the ITPGRFA and genetic resources more broadly. As in the BIOFIN Workbook, the term “finance instrument” in this publication is used flexibly and interchangeably with “finance tools”, “mechanisms”, “economic incentives”, “fiscal instruments”, etc.

While the BIOFIN Finance Solutions Catalogue lists more than 150 solutions for biodiversity finance, few of them have been identified as having a direct link to ABS, the ITPGRFA and genetic resources in general. Examples of these pre-identified finance instruments are presented in **Box 21** and further developed in the catalogue at the end of this report.

²² The number of “why” questions here is just indicative. A concrete problem that can be addressed could be identified in fewer or more “why” questions.

Finance solutions related to ABS can be grouped into four main categories:

- **Finance instruments to support the enabling environment for ABS:** Related to public-sector costs for developing, setting up and running the regulatory ABS framework of a country (legislation and regulation)
- **Finance instruments to develop the ABS value chain by the public sector:** Related to the next level of public investments, complementing the regulatory framework to operationalize ABS and its value chain, i.e. investment in advanced public research and research and development platforms, stakeholder support and small and medium enterprise support
- **Finance instruments alongside the ABS value chain:** Within this category, the instruments can be further divided into those where the financial flows go towards the public sector and those that are public–private initiatives. Overall, all instruments in this group are mainly financed by the user of genetic resources, including blended finance options (i.e. access, investments for commercial research and development, market access, ABS and other regulatory compliance on provider and user countries, quality assurance/quality control, intellectual property)
- **Finance instruments to facilitate benefit-sharing:** Related to mechanisms to channel and distribute the benefits derived from genetic resources



Box 21: Pre-identified finance instruments with a potential direct or indirect link to ABS

Finance instruments to support the enabling environment for Access and Benefit-sharing (ABS)

- Global Environment Facility (GEF) funding
- Results-based budgeting to increase direct budgetary allocation for ABS
- Reform of incentives harmful to genetic resources conservation

Finance instruments to facilitate and develop an ABS value chain by the public sector

- Biobusiness incubators, accelerators and facilities
- Positive subsidies and incentives along the ABS value chain

Finance instruments alongside the ABS value chain by the private sector

- Going to the public sector:
 - Penalties for unsustainable or illegal use of genetic resources
 - Bioprospecting and collection fees
 - Biobank/seed bank access fees
 - Licence fees
 - ABS certification (by the state)
- Joint initiatives:
 - Joint ownership of relevant intellectual property rights
 - Joint ventures
 - Corporate supply chain management
 - Blended finance

Finance instruments to facilitate benefit-sharing

- ABS royalties
- ABS trust fund
- Community finance
- Payment for ecosystem services

The overview also contains subsidies and incentives that are further explained in the next section, with a specific set of additional considerations. For all other instruments, during the assessment, the following questions should be considered:

Key questions



Answering these questions will allow the identification of key recommendations that could inform the prioritization of related finance solutions for early implementation and in the BFP.

- Is this instrument implemented in the country? At which level (national, regional, etc.)?
- What legislation, laws and regulations frame or relate to this instrument? Describe how the finance mechanism is integrated into the legal framework.
- Is this instrument directly related to the implementation of the Nagoya Protocol, the ITPGRFA or other protocols or strategies?
- Who is responsible for implementing this instrument?
- Is this instrument intended to generate revenues, realign expenditures, avoid future expenditures or deliver better outcomes?
- Is this instrument designed to mobilize revenues from the use of genetic resources or to distribute the benefits collected from such use?
- Who are the targeted beneficiaries (organizations, groups, companies, etc.)?
- What is the amount mobilized or realigned through this instrument, and what costs are avoided (in USD)?
- Is the revenue generated reinvested in biodiversity conservation or in capacity-building and programmes related to the conservation or sustainable use of genetic resources?
- For tax and non-tax instruments, when were they last imposed? Indicate whether updates are needed.
- What challenges or issues prevent the optimal implementation of this mechanism?
- What potential improvements and actions could be identified to overcome these challenges?

Qualitative data on revenues generated from genetic resource uses should be gathered and presented in a concise manner. To collect these data, budget ministry documents could be consulted on sources of revenue, which are usually presented as tax and non-tax sources. Data for specific ministries should be verified and details reviewed about the nature of each tax or fee. This helps clarify budget entries and provides details such as permits, certification and inspection fees. It also may be possible to assess their relevance to ABS and ITPGRFA.



Box 22: The Nagoya Protocol and ABS procedures in the Comoros

The Comoros is a party to the Nagoya Protocol. On 12 May, 2020, the country signed and promulgated the Law on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.²³ This law aims to regulate access to genetic resources and associated traditional knowledge and to ensure the fair and equitable sharing of benefits arising from their utilization, in accordance with the provisions of the Nagoya Protocol.

The law established a National Commission on Genetic Resources and Associated Traditional Knowledge, chaired by the national competent authority. The mission of this collegial and advisory body is to:

- review and give assent to applications for permits to access genetic resources and/or associated traditional knowledge
- ensure that the terms of the prior informed consent and the mutually agreed terms between the provider and the user of the genetic resources and/or associated traditional knowledge are in accordance with the requirements of this law and its implementing legislation
- ensure that the sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge is fair and equitable
- provide assistance on all matters related to the access to and use of genetic resources and associated traditional knowledge
- maintain strict confidentiality of information submitted to the national competent authority in accordance with the legislation in force when requesting access to genetic resources and/or associated traditional knowledge

ABS procedure: official steps (average duration of the process: 2 months)

1. Initial application: existing standard form and required documents (identity, local partnerships, detailed project, budget)
2. Examination by the commission: verification, possible request for supplements
3. Decision: refusal with reasons or issuance of the commission
4. Negotiation: with the involvement of stakeholders (local communities, sectors concerned)
5. Preparation of the final file: form, Checkpoint Communiqué, mutually agreed terms, sectoral permits, other documents
6. Issuance of the Access and Benefit-sharing (ABS) permit by the commission

²³ Law No. 21/001AU On the Access to Genetic Resources and the Just and Equitable Sharing of Benefits Derived from their Use (The Comoros, 2020). Available at <https://www.ampeid.org/documents/comoros/law-no-21-001au/>

7. Publication: registration in the ABS Clearing House and issuance of an Internationally Recognized Certificate of Compliance
8. Implementation: local use or export with additional authorizations (Convention on International Trade in Endangered Species of Wild Fauna and Flora, phytosanitary, etc.).
9. Sources of funding:
 - a. application fees and bank transfer required,
 - b. royalties provided for in the mutually agreed terms (royalties, milestone payments, commercial profit sharing)
 - c. non-monetary contributions (technology transfer, capacity-building)
 - d. taxes/penalties for non-compliance with the rules
10. Financial channel: Users → payments (via the national competent authority) → Direction Générale de l'Environnement et des Forêts (Directorate General of Environment and Forests) → redistribution
11. Redistribution of funds:
 - a. conservation projects (protected areas, ecosystem restoration)
 - b. research and innovation (universities, technical centres)
12. Governance: Shared oversight between the national competent authority, the Directorate General of Environment and Forests and the National Commission on Genetic Resources, ensuring transparency and fairness

Photo: ©Dimitri Dim/Pexels

Map existing incentives and assess their impact on genetic resources

While developing and implementing ambitious finance plans to close biodiversity finance gaps, countries continue to spend enormous amounts of public money on activities that negatively impact nature. A joint report from FAO, UNDP and UNEP highlights that the majority (87 percent) of USD 540 billion of support to agricultural producers is either price distorting or harmful to nature and health. Almost USD 500 billion is potentially harmful to the environment,²⁴ which represents by itself more than 70 percent of the annual estimated biodiversity finance gap. Although these subsidies often have well-intentioned objectives (e.g. food security, energy security), they often indirectly undermine those very goals, as socioeconomic objectives cannot be sustainably achieved without thriving biodiversity and healthy ecosystems.

To support this effort, BIOFIN has developed and implemented a step-by-step approach²⁵ to map subsidies, assess their effects on biodiversity and social and economic dimensions, and ultimately propose options to redesign and improve these subsidies to remove or reduce their negative impacts on nature. Concerning genetic resources, countries are specifically asked to focus on incentives and subsidies leading to genetic erosion or promotion and identify options to improve them. A list of subsidies potentially harmful or positive to nature is shared in **Box 23** to support this mapping.

24 *A multi-billion-dollar opportunity: Repurposing agricultural support to transform food systems* (FAO, UNDP and UNEP, 2021). Available at <https://doi.org/10.4060/cb6562en>

25 *The Nature of Subsidies: A step-by-step guide to repurpose subsidies harmful to biodiversity and improve their impacts on people and nature* (BIOFIN, 2024). Available at <https://www.biofin.org/knowledge-product/nature-subsidies-step-step-guide-repurpose-subsidies-harmful-biodiversity-and>


Box 23: Examples of subsidies with direct and positive impacts on genetic diversity

Subsidies with direct and positive impacts on genetic diversity include:

- Direct payments or tax incentives for on-farm conservation when farmers maintain traditional crop varieties or indigenous livestock breeds
- Financial support for ex situ conservation facilities, such as seed banks and gene banks
- Incentives for research and development that encourage innovation and the responsible and sustainable use of genetic resources
- Reduced patent fees or expedited intellectual property processes for inventions aligned with Access and Benefit-sharing (ABS) principles
- Preferential public procurement for products derived from sustainably sourced genetic resources.
- Concessional loan rates from public banks for companies complying with ABS principles
- Tax exemptions for revenues reinvested in biodiversity conservation or benefit-sharing initiatives.
- Market price support for products based on genetic resources following certain regulation

Other subsidies promote traditional knowledge that is directly linked to genetic resources and their use, such as community-based conservation payments to support and encourage communities to maintain the ecosystem.

These positive subsidies should be mapped, listed and described, and their impacts should be assessed. In addition, recommendations should be made on how to improve them or scale them up.

This same exercise should be made for incentives with negative or potentially negative effects on genetic diversity. To help this exercise, countries could refer to the list below and answer, for each of these subsidies, the following questions:

Key questions


- What is the available evidence of genetic erosion caused by the specific subsidy?
- Is the overall subsidy causing the impact or only a specific part? Why? Where?
- What are the annual average costs for the government and beneficiaries?
- Is the target group reached? What are the primary, secondary or other beneficiaries? What are the annual average financial benefits for beneficiaries?



Box 24: Examples of subsidies with direct and negative impacts on agricultural genetic diversity

Subsidies with direct and negative impacts on agricultural genetic diversity include the following:

- Seed subsidies that support only a limited number of commercial varieties replacing farmers' varieties
- Price support subsidies for the production and consumption of a narrow range of commercial crops
- Subsidies encouraging large-scale monocultures in areas where diverse, drought-resistant, local varieties could otherwise be grown
- Public procurement and distribution of hybrid seeds, which can displace traditional seed systems
- Incentives for exotic livestock breeds and artificial insemination programmes that rely on a narrow genetic pool
- Agricultural insurance programmes that cover only a few commercially important crops or breeds, discouraging diversification
- Credit lines tied to "certified" registered uniform seed varieties, which limit farmers' ability to use local or traditional seeds
- Aquaculture incentives focused solely on fast-growing, non-native species, leading to genetic homogenization
- Forestry incentives that favour the production of exotic tree species over native, genetically diverse species

In addition to the examples shown in **Box 24**, any subsidies supporting the use of genetic resources (e.g. research and development, bioprospecting, intellectual property processes) that do not include compliance with the national framework as a criterion or condition should be mapped, and the potential impact on genetic erosion of these subsidies should be assessed. To do so, the BIOFIN Workbook 2024 has proposed a template for recording information on these positive and negative subsidies (see [annex iv](#)).

g) Analyse the main institutions and organizations

The potential stakeholders related to genetic resources are diverse, requiring a comprehensive stakeholder analysis and an inclusive consultation process. This approach enables stakeholders to set realistic expectations about the potential benefits of ABS, identify key interests and opportunities, understand how ABS activities align with national objectives, and foster commitment to engage with the law once enacted. Building trust and consensus on a shared vision for ABS implementation is essential, as it engages communities and the private sector in meaningful roles during implementation.

Key stakeholders may include:

- Government authorities at local and national levels, particularly relevant ministries (e.g. environment, health, Indigenous affairs, fisheries, agriculture, exports).
- Indigenous Peoples and local communities such as ethnic groups, farmers, foresters and traditional healers.
- User organizations, including business associations, companies and scientific institutions from various sectors (e.g. pharmaceuticals, crop research, cosmetics, ornamental plants, herbal medicine).
- Intermediary organizations, which may include those involved in the collection, analysis and supply of biological samples, such as scientific organizations, universities and *ex situ* conservation facilities (e.g. botanical gardens, museums).
- Researchers, particularly universities, research institutions and scientific communities engaged in non-commercial research.
- Other stakeholders, such as NGOs, development finance institutions and private landowners holding legal rights over genetic resources.

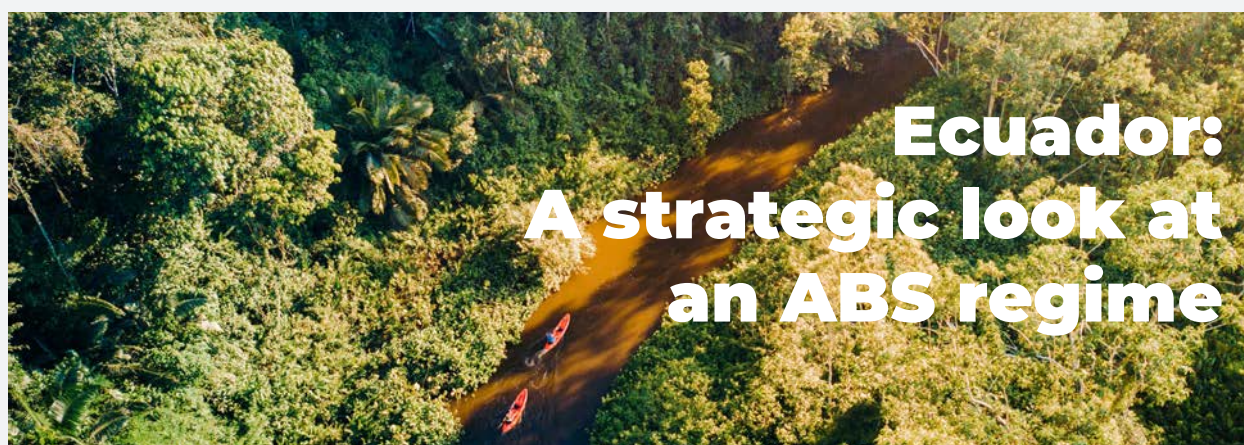


Box 25: Questions to help identify the appropriate stakeholders for consultation

To identify the appropriate stakeholders for consultation, consider the following questions:

- Which stakeholders have been involved so far in the development of this and other related laws and policies?
- What mechanisms are currently in place to ensure the participation of Indigenous Peoples and local communities in the process? Are they adequate and suitable?
- Which stakeholders are essential for achieving the policy objectives?
- Which stakeholders would be directly impacted by new or changed laws and policies related to Access and Benefit-sharing (ABS)?
- How will those new or changed laws and policies affect specific groups, such as Indigenous Peoples and local communities, women, youth and the elderly?
- Who is likely to actively oppose the new or changed laws and policies?
- Who will advocate for and support the new or changed laws and policies?
- Which stakeholders can influence public opinion regarding new or changed laws and policies?

After this mapping, the main institutions should be analysed and prioritized according to their interest on the topic and influence they could have. Following this, an exercise stakeholder engagement plan could be developed.



Box 26: A strategic look at the legal and institutional framework in Ecuador

The Access and Benefit-sharing (ABS) regime in Ecuador, which has evolved over nearly 30 years, is grounded in constitutional, Andean and domestic legislation. The 2008 Constitution protects biodiversity and requires equitable benefit-sharing, though perceived regulatory risks have sometimes deterred commercial research.

Major advances include the Social Knowledge Economy Code (2016), which redefined access criteria and gave the National Intellectual Rights Service oversight of intellectual property tied to genetic resources. The Nagoya Protocol was ratified in 2017, further aligning the Ecuador ABS framework with international standards, though commercial procedures remain restrictive.

In 2024, inter-institutional coordination improved via an ABS platform led by the Ministry of Environment and other agencies. This platform is a system designed to manage requests for access to genetic resources for scientific research purposes, standardizing processes, ensuring traceability and improving oversight under regulatory frameworks in force since 2025. This platform has made it possible to clarify procedures, reduce processing times and provide transparency regarding who conducts research, on what topics and for what purposes. Within this framework, the National Institute of Biodiversity plays a central role by providing technical and scientific support: It validates taxonomic information, safeguards biological collections and advises the authority, ensuring that ABS contracts for scientific research are based on reliable evidence and that researchers' obligations are fulfilled with rigour. However, article 408 of the Constitution continues to limit ABS research for commercial purposes, as it requires that the state should benefit at least as much as the company exploiting natural resources (including biodiversity and genetic resources).

Despite these obstacles, the country's strong legal framework and innovative platforms present opportunities to link ABS to sustainable development. To advance, commercial access rules should be updated, intersectoral cooperation strengthened, scientific capacity increased and Indigenous and local communities more fully involved in benefit-sharing.

Photo: ©UNDP Nature

Step 3. How the Biodiversity Expenditure Review can help countries identify their expenditures linked to Access and Benefit-sharing

While the PIR analysis helps identify relevant institutes, the BER helps show the level of resources those institutions and the private sector are committing to ABS. The BER helps explain trends and (missing) areas of investment and shows comparisons over time and by various actors. In most cases, expenditure focusing on ABS has been small in comparison to other primary biodiversity categories, such as protection and other conservation measures or sustainable use. While ABS will likely remain a category with lower expenditure, a dedicated analysis of this category is still useful to understand where the main gaps are located and what are the bottlenecks. There might be also surprises in identifying which institutions are contributing more or less to ABS.

As introduced in the section of this report on ABS finance, several expenditures related to ABS are public, and others are private. Hence, for the BER, both public and private reviews should watch for ABS-related expenditures. Even countries that didn't ratify the Nagoya Protocol or any other ABS-related agreement are likely to have some expenditures related to this topic, as it also is one of the objectives of the Convention and a target in the GBF. Therefore, the CBD national focal point (or, if existing, the Nagoya Protocol national focal point) should have an overview of organizations to potentially contact.

a) Prepare the ABS part of the BER and define the main parameters

ABS would be one part of the broader analysis of biodiversity expenditure. However, it is useful to dedicate time to defining the ABS scope within the country, in order to understand whether there are additional ABS-related stakeholders or data sources in addition to those identified for the overall BER. Also, as ABS might be not the main expertise of reviewers, it is important that they not overlook ABS-related expenditures within the data. In the following, there is some additional guidance on how to prepare and define for the ABS part of the BER:

Public expenditures:

Public expenditures within ABS relate to setting up the whole ABS system, including all rules and regulations with which the different actors must comply and the implementation and operation of those regulations and their control. There are costs related to the set-up of the system (e.g. due to Nagoya Protocol ratification, other treaties or adjustments made due to recent developments with DSI). Likely suspects of public expenditures are the Ministry of Environment, authorization bodies related to permits and patents, the Ministry of Agriculture and local decision bodies.

Overall, relevant institutions and ministries could be those fulfilling any of the following governmental functions, adapted from the Classification of the Functions of Government (COFOG):

- 01 – General public services (executive and legislative organs)
- 03 – Public order and safety
- 04 – Economic affairs (including research and development and intellectual property registration)
- 05.4–05.6 – Protection of biodiversity and landscape, including research and development
- 07.5 – Research and development health
- 10 – Social protection

For the public expenditure classification done in the BER, BIOFIN suggests the following subcategories for ABS:

- 1.01 – Bioprospecting/screening for biodiversity areas and establishing permitting processes: Regulating the screening for biodiversity areas and resources for commercial use and all processes that allow this research.
- 1.02 – Contractual arrangements: Arrangements between providers and users of genetic resources and associated traditional knowledge, the provider and the state, as well as the user and the state, that ensure legal certainty and transparency about access to genetic resources and the involvement of the local population, allow for research, and that govern how the monetary and non-monetary benefit of the use is shared. Compliance with arrangements needs to be supported.
- 1.03 – Benefit-sharing mechanism: The commitment to channel a fair share of the benefits accruing from the use of genetic resources, whether monetary or non-monetary, back to providers. Benefit-sharing mechanisms can be monetary or non-monetary.
- 1.04 – Nagoya Protocol: This focuses on the institutional structures necessary to implement the Nagoya Protocol and expenditures related explicitly to ratification and Nagoya-specific processes (e.g. designation of a national focal point, ABS Clearing House mechanism), in addition to capacity-building and awareness-raising. For those countries that didn't ratify the Nagoya Protocol, all measures related to preparing for the ratification can be counted here.

The [Global Biodiversity Expenditure Taxonomy](#) provides detailed information for each of these subcategories, including breaking it further down in expenditure programmes.

The **public expenditure** could entail:

Upfront investments:

- Develop and periodically update ABS measures (laws, regulations, policies, administrative procedures)
- Establish one or more competent national authorities (senior decision-making staff, administrative support systems)
- Raise public awareness, formulate guidance for providers and users
- Connect ABS to the NBSAP
- Install IT infrastructure or other data management systems
- Develop online permitting systems
- Train national authorities, including the court system

Running costs:

- ABS staff and administrative support (minimum level of ongoing expenditure required, regardless of volume of ABS cases)
- Oversee prior informed consent and mutually agreed terms negotiations (provide legal advice, draft model contracts)
- Monitor compliance (collect, analyse and verify reports)
- Verify sustainability (field surveys, ecological impact assessments)
- Enforce contracts when necessary (doing so in foreign jurisdictions can be very expensive)


Box 27: ABS expenditures in India, including the court system and capacity-building for lawyers

In India, the Biological Diversity (Amendment) Act of 2023 replaced criminal penalties with civil penalties of up to INR 1 crore (USD 120,000) and introduced adjudicating officers under Section 55A to handle violations of Sections 3, 4, 6 and 7. Adjudicating officers, required to be at least at the rank of Secretary to the State Government, incur salaries and administrative costs. Capacity-building for adjudicating officers involves training on biodiversity laws, the Nagoya Protocol and Access and Benefit-sharing (ABS) regulations. The establishment of a Grievance Redressal Cell at the National Biodiversity Authority and appeal mechanisms at the National Green Tribunal further increase costs. Specialized training programmes for adjudicating officers and National Green Tribunal judges, addressing complex biodiversity issues, likely cost lakhs of rupees (thousands of dollars) annually per state, depending on the scale and number of officers involved.

While some universities are private, ABS-related research, both within the country and abroad, is mostly funded via public sources. Thus, the following expenditures also should be considered:

- ABS-related research and curricula development
- ABS-related research and development programme planning and resource mobilization (research grant applications)
- Research on genetic resources and associated traditional knowledge, resource and knowledge surveys (staff time, infrastructure and equipment, laboratory consumables, transport, fieldwork expenses, data analysis)

To be able to participate in ABS negotiations and become party to ABS contracts, the people from the area—in many cases, Indigenous Peoples and local communities—often need to establish legally recognized entities. Sometimes, such structures already are in place in the form of legally recognized Indigenous Peoples and local community structures, local authorities, cooperatives or SMEs. This might also lead to costs, potentially supported by the government as well. Therefore, expenditures could be related to:

Upfront expenditures:

- Group formation, institutional development (biocultural protocols)
- Negotiating ABS agreements (legal support)
- Resource surveys, sustainable offtake rules (systems for monitoring and enforcement)
- Logistics capacity, including traceability systems (transport, record keeping systems)
- Harvest and post-harvest QA and QC (training)
- Infrastructure and equipment (harvesting and post-harvest processing equipment and containers, storage, scales, stationery)

Running expenditures:

- Group management, admin, governance (transport, accommodation, food for meetings, gratuities for managers)
- Monitoring sustainability, predicting seasonal productivity, post-harvest surveys
- Raw material collation, transport, payment, storage, record keeping

In many cases, countries cover Nagoya Protocol-related expenditures and collaborate with multilateral and bilateral organizations and donors via international cooperation projects. Those financial flows should be assessed and analysed within public or private expenditures, as appropriate, ensuring that there is no double counting of financial flows.

Private expenditures:

The BER focusing on the private sector aims to understand how many resources the private sector provides in relation to ABS, complementing the information from the public sector. Several companies base their business model on genetic resources—in particular, companies within the pharmaceutical or cosmetic sector. As described in the chapter on understanding ABS finance, those national, foreign or multinational companies will need to invest in their value chain in order to identify relevant genetic resources that can be used for a profitable product. Obtaining data from the private sector is usually more complicated than screening public budgets, as companies often don't disclose this information publicly. While this might change with countries implementing Target 15 of the GBF, in the meantime it might be possible to obtain data by engaging with relevant industry associations, running surveys or conducting interviews. The scarcity of information should not lead to double counting expenditures.

Table 1: Potential expenditures in the private sector

	Potential expenditures for ingredient manufacturing companies	Potential expenditures for business-to-consumer and consumer marketing companies
Upfront investments	• Raw material supply configuration (bioprospecting, identifying providers, negotiating accesses and benefit-sharing [ABS] agreements, establishing logistics arrangements) • Processing research and development (methods, workflows, packaging, storage) • Creating intellectual property (patents, trade secrets, know-how) • Efficacy and consumer safety testing, regulatory compliance dossiers • Machinery and plant • Securing markets	• Product formulation • Packaging • Creating intellectual property (brands) • Consumer safety compliance • Machinery and plant • Marketing logistics • Managing product cycles
Running costs	• Traceability and certification • Quality control and quality assurance • Maintaining intellectual property • Managing volumes (seasonality) • Working capital • ABS compliance (permits, reporting) • Product diversification (managing lifecycles)	• Traceability and certification • Quality control and quality assurance (consumer safety regulatory compliance and reporting) • Distribution (wholesale, retail, stock turn, returns and recalls) • Working capital • ABS compliance (reporting, benefit distribution) • Product diversification

b) Analyse the budget data related to ABS by assigning biodiversity attribution rates

The concept is the same as with the BER in general. The main question for an attribution rate would be: What is the objective? Is the aim of this expenditure to increase, protect and restore biodiversity; prevent biodiversity loss; or address the drivers that contribute to biodiversity loss or impede biodiversity gains?

The objective of an expenditure will also depend on who is executing it. In the case of bioprospecting, the biodiversity attribution rate could be:

- The Ministry of Environment, fulfilling a protection function, might have the objective of identifying species and their genetic resources worth protecting = 100 percent
- The Ministry of Economy, with some projects on research and development within a function of economic affairs, might do exactly the same activities but with the objective of economic development rather than the protection of biodiversity = 5 percent
- A private company doing bioprospecting to develop a new product probably has some inherent interest in the biological resources remaining available for additional/future research, but the main interest is economic feasibility = 1 percent or 5 percent

If the budget of the public institution provides enough detail to understand the objective of those expenditures, a country can easily assign biodiversity attribution rates directly. Otherwise, GLOBE provides information with suggested attribution rates.



Photo: ©UNDP Senegal/2017

**Box 28: Bottom-up approach in South Africa to the biodiversity expenditure review**

South Africa conducted a comprehensive biodiversity expenditure review in 2016 under BIOFIN, using a detailed bottom-up approach to assess expenditures from 2009 to 2015. Led by the National Department of Environmental Affairs, the process engaged a wide range of stakeholders—including national departments, provincial agencies, private sectors and non-governmental organizations—to gather financial data. A crucial tool implemented in this process was the application of attribution coefficients to isolate biodiversity-specific spending from budgets based on the primary intent of the activity.

For example, agencies with a direct conservation mandate—such as the South African National Parks—were assigned a 100 percent attribution rate. However, departments with mixed mandates applied lower percentages. The Department of Agriculture, Forestry and Fisheries used a 30 percent coefficient to exclude commercial forestry and climate change mitigation in the Forestry and Natural Resources Management programme. Similarly, the local government Cultural Service used a 5 percent coefficient to capture only botanical and zoological gardens. By using this methodology, the National Department of Environmental Affairs identified a total public biodiversity expenditure of ZAR 59.94 billion over the six-year period (approximately USD 6.31 billion), which represented approximately 0.93 percent of the consolidated government expenditure.

Step 4. How the Financial Needs Assessment can help countries identify financial needs to further develop ABS

The FNA aims to explain the costs associated with implementing national biodiversity targets. In the context of this publication, the goal is to identify clear costs for each national target related to the conservation of genetic diversity and benefit-sharing. The more concretely the targets are formulated—with clear objectives, means and measures of implementation—the easier it becomes to estimate financial needs. Following this, the results will be compared to the projected expenditures identified in the BER to assess the unmet financing required to achieve the national targets related to genetic resources. This approach seeks to answer the questions: “What financing is truly needed for the country to achieve its stated biodiversity targets, and what are the likely sources of financial support to achieve them?”

It is important to highlight that, in addition to helping tailor finance solutions based on the identified financing gap, the FNA—by establishing strong, detailed, justifiable and yearly cost estimates—will encourage the integration of these strategic activities related to genetic resources into the planning and budgeting processes of ministries and public entities. In doing so, the FNA helps transition strategies into concrete actions.

To do so, each national team implementing such exercises could follow these steps:

1. Confirm the scope and use a logical framework to structure and clarify actions and results

In the PIR, an initial assessment (see step 2a in chapter 6) has been conducted to determine whether the NBSAP includes specific targets and activities related to genetic resources and, if not, which other national strategies and documents could serve to establish the official national targets on this topic. Indeed, in many countries, a lack of ambition on specific topics has been identified, and in such cases, the document alone cannot provide a comprehensive overview of the financing needs required to achieve the specific and related targets. Once the scope for ABS targets based on all relevant genetic resource-related targets and strategies are agreed, this should be translated into a logical structure that is clear and quantifiable, with clear and costable actions. Reaching to the targets and the logical framework often requires a consultative process with stakeholders and partners.

For example, a strategy might include a general activity such as “strengthening the capacity on ABS of each local government”. It will then be necessary, in consultation with partners, to identify the inputs required to implement such an action and achieve the target and then to plan them in a time-frame. In this example, it would involve determining the number of training sessions needed (for how many people and the frequency), whether a consultant is required to develop training materials and facilitate the training (for how many working days), the associated travel costs (number of kilometres), and other related expenses.



A costing of the ABS component of the Thailand NBSAP

Box 29: The costing of the ABS component of the Thailand NBSAP

In 2022, the Kunming-Montreal Global Biodiversity Framework (KMGBF) was adopted at the Fifteenth Conference of Parties of the Convention on Biological Diversity, setting an ambitious global agenda to halt and reverse biodiversity loss by 2030 for the benefit of both people and the planet. Among its most important principles are the fair and equitable sharing of benefits from genetic resources and digital sequence information (DSI), as well as the protection of traditional knowledge (Goal C and Target 13). Thailand has eagerly risen to this challenge, striving to finance biodiversity and manage genetic resources towards Access and Benefit-sharing (ABS) mechanisms.

Thailand has rolled out its latest national biodiversity strategies and action plans (NBSAP 2023–2027), focusing on i) protecting and restoring ecosystems; ii) promoting the value of biodiversity and ecosystem services; iii) raising public awareness and improving resources management; iv) controlling invasive alien species; v) developing financial incentives and mechanisms for conservation; and vi) regulating the ABS of biological and genetic resources. Previously, the NBSAP 2015–2021 laid a strong foundation with ABS-specific funding—THB 51 million (approximately USD 1.5 million) for protecting genetic resources and THB 265.7 million (approximately USD 7.8 million) for research and development to boost the market value of biodiversity.

An evaluation of ABS capacity-building in Thailand will be carried out along with an implementation of the Fifth NBSAP and later NBSAPs (within the 2030 time-frame). The ABS capacity of Thailand will be evaluated against Target 13 of the KMGBF and will inform the ABS capacity-building road map of Thailand (2023–2030) and the long-term strategy for mainstreaming biodiversity management (2024–2050).

Because capacity-building activities require the availability of adequate financial resources disbursed in a predictable and timely manner, it also is encouraged to pursue innovative ways of mobilizing resources at the national level to support ABS capacity-building activities. These might include resource recovery mechanisms, access application fees, fundraising through voluntary contributions, support from foundations and, as appropriate, public-private partnerships.

Photo: ©UNDP Thailand

2. Conduct a desktop study and prepare initial costing tables

Once activities and quantities have been defined, it will be necessary to identify unit costs for each input. The unit costs should be based on government or business norms, research and published documents, and they should be peer reviewed or validated. By using official and government unit costs, the integration of FNA can be more easily incorporated into planning and budgeting exercises. Standard unit costs can be identified from several sources, such as previous budgets and budgeting exercises, standard government cost scales, historical costs, cost modelling and more.

At this stage, quantities can be multiplied by unit costs to generate preliminary costing tables. These tables should be divided into recurring and capital expenditures and distributed across multiple years. All costs should be linked to specific organizations or actors responsible for their implementation. Administrative costs should be attributed to individual actions and can either be assessed as a percentage of the total cost of the action or estimated directly. For instance, if an employee is responsible for duties related to three major strategies (e.g. restoration, conservation and ABS strategies), a percentage of the employee's salary should be allocated to each of these strategies accordingly.



Photo: ©UNDP Thailand



Box 30: Results-based costing in Bhutan

The results-based costing (RBC) approach links financial estimates directly to clearly defined results and implementation strategies. In Bhutan, cost estimates were developed using a structured desktop review of past project expenditures, government norms and published technical and financial reports. In addition, more than 200 biodiversity conservation project proposals supported by the Bhutan Trust Fund for Environmental Conservation were reviewed to establish realistic baseline unit costs for comparable activities.

The total estimated cost for implementing National Target 16 over a five-year period is BTN 121.5 million. This is broken down into ten specific costable actions covering policy and legislative reforms, institutional arrangements, awareness and piloting of ABS initiatives, establishment of a national ABS fund, and capacity assessments. A detailed breakdown of costable actions by thematic area is presented below:

- Policy and legislation: Reviewing the national ABS policy and the Biodiversity Act of Bhutan 2003 (BTN 12.5 million) and developing regulations to facilitate the act's implementation (BTN 25 million).
- Institutional framework: Identifying appropriate institutions and implementation modalities (BTN 5 million) and functionalizing those modalities (BTN 7 million).
- Awareness and piloting: Strengthening education and awareness of the ABS regime (BTN 20 million) and exploring/piloting ABS ventures at local, national and international levels (BTN 20 million).
- Bhutan ABS Fund: Conducting national and regional consultations (BTN 20 million), developing a framework (BTN 3.5 million) and creating an operationalization approach (BTN 3.5 million) for the fund.
- Capacity assessment: Identifying capacity gaps in the context of implementing the ABS regime (BTN 5 million).

Photo: ©UNDP Bhutan/2015

3. Refine costs with expert input

Once the initial costing models are established, they can be re-fined through an iterative process. Consultations with experts can be used to re-fine costing assumptions, base costs and unit numbers. These discussions with experts also can assess the most cost-effective alternative actions and approaches to achieving biodiversity results. After individual expert consultations, a workshop may be needed for specific actions. The workshop can be used to test, re-finalize and validate the assumptions, as well as the choices of costable actions, results, indicators, targets, etc.

4. Analyse costing results

Costing results can be summarized and analysed in various ways. First, the results should be presented to stakeholders, categorized by their organization, and further subdivided across activities and targets. Following this, more detailed analyses can be conducted. Three types of detailed cost analyses are described here: the relative distribution of different costs, comparisons of cost ratios for biodiversity priorities, and cost-effectiveness analysis.

The most efficient way to present costing results is through annual cost projections for each of the main national targets, organizations, categories and sectors. This analysis also should include a reality check on the expected costs and evaluate the relationship between costs and desired outcomes. Additionally, it should involve a quick review to determine whether there are alternative approaches to achieving the same results more effectively.

5. Estimate unmet finance needs

To estimate the unmet financial needs for genetic diversity conservation, a simple comparison between the results of the expenditure review and the FNA is not recommended. This is because the expenditure review includes all types of expenditures (public, private, civil society, direct and indirect expenditures, general management costs, etc.), whereas the activities listed in the strategies on which the FNA is based may focus only on additional/new activities to undertake (not including general costs needed to run the overall machine). For instance, the FNA might focus solely on public activities or new initiatives, without covering existing ones.

To avoid reaching misleading conclusions, it is recommended to use the activities listed in the FNA as a starting point and then attempt to align them with the corresponding activities identified in the expenditure review. It is through this matching exercise that a financing gap for specific activities can be identified and highlighted.

6. Identify conclusions and recommendations

Based on the assessment of the financial resources required to achieve the national targets for genetic resources conservation and the equitable sharing of related benefits, the country will be able to produce a series of recommendations for improving existing strategies. These may include identifying unrealistic actions and targets, proposing more cost-efficient activities to achieve desired results, and pinpointing unengaged institutions. Additionally, the assessment can help in identifying finance solutions directly related to the topic, such as integrating activities related to genetic resources into the budget planning of specific ministries or strengthening the financial capacities of certain institutions. All conclusions and recommendations should be effectively communicated to stakeholders and used to inform the prioritization exercise for finance solutions within the BFP.

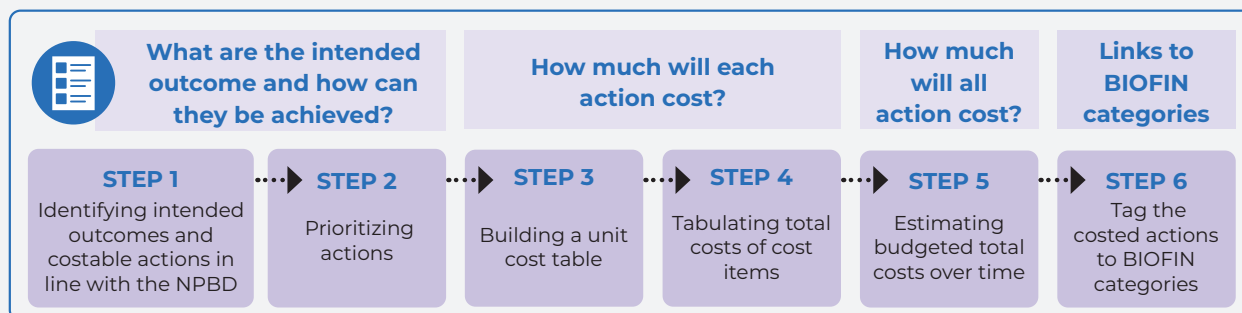


Box 31: Costing exercise in Malaysia

Malaysia costed its financial needs assessment (FNA) by adopting a results-based budgeting (RBB) approach, also known as results-based costing (RBC). This methodology was selected because it aligns with the Malaysian government's implementation of outcome-based budgeting and focuses on tracking performance relative to proposed outcomes and invested resources. The process involved building a budget from scratch to estimate the human resources, capital investments and financial resources required to achieve the targets of the National Policy on Biological Diversity (NPBD) 2016–2025.

Access and Benefit-sharing (ABS) is specifically linked with Target 14 of the NPBD. Within this, policy action 14.2 ("Enhancing capacity and awareness on ABS") was estimated to require USD 4.32 million, or MYR 17.6 million for 2018–2025. This figure was derived through a six-step localized methodology guiding organizations in identifying and costing relevant actions.

Figure 5: Six steps of the localized FNA methodology of Malaysia



Source: *Financial Needs Assessment - Malaysia* (BIOFIN, 2022). Available at <https://www.biofin.org/knowledge-product/financial-needs-assessment-malaysia>

The total cost was the sum of four planned, costable actions identified by participating organizations. These costs were categorized into two functional BIOFIN subcategories:

1. Nagoya Protocol: USD 3.36 million (MYR 13.7 million) associated with two actions
2. Bioprospecting: USD 761,016.52 (MYR 3.1 million) associated with two actions

Note: The discrepancy between the USD 4.32 million (MYR 17.6 million) total for NPBD Target 14 and the USD 4.12 million (MYR 16.8 million) total for the BIOFIN ABS category reflects differences in how actions are tagged across different functional frameworks. For each action, agencies built a unit cost table. This involved itemizing all physical and human resources, calculating staff emoluments proportionally to time spent on ABS activities (including shared overhead costs such as utilities and equipment), and multiplying unit costs by their annual frequency of use.

Once the annual cost for these four actions was determined, they were allocated across the eight-year time-frame (2018–2025). For agencies with plans ending before 2025, costs were extrapolated to cover the full NPBD time-frame, ensuring consistency in budgeting across all ABS-related activities.

Step 5. How to mainstream genetic resources into the Biodiversity Finance Plan

While detailed guidance is provided in the BIOFIN Manual 2024²⁶ on prioritizing financial solutions in the BFP and developing technical proposals, two specific components could be strengthened in relation to the use of genetic resources and the distribution of related benefits: respectively, investment cases and safeguards.

Component 1. Mainstream genetic resources into the vision and focus areas of the BFP while developing investment cases for related financial solutions

Depending on whether the country already possesses a BFP or a sustainable financing strategy, it will be necessary to evaluate how genetic resources and affiliated topics can be integrated into these strategic documents. Ideally, genetic resources should be included within the overall vision of the BFP, and the plan could feature a specific focus area dedicated to this topic, given its importance within the global biodiversity framework. Suggestions and recommendations should be made to include such a focus area in the existing document, either by proposing an amendment or by informing the next version of the strategic document. In cases where a BFP or similar documents are still under development, strong coordination and advocacy efforts will be needed to mainstream this key topic into them.

To support this advocacy work, a specific investment cases for related finance solutions should be developed. The investment cases can be adapted to different perspectives and interests based on different target audiences, as follows:

- The government is usually interested in economic and social returns. This includes the impact on gross domestic product (GDP) and jobs, development of local communities, etc., as well as resilience and avoided social and capital costs.
- The private sector is concerned about the topic due to its dependence on genetic resources, its brand image, its own engagement on disclosing impacts on nature, competitive advantage compared to other companies, and market opportunities (e.g. new products, labelling, etc.).
- Development partners usually seek to support global and national public goals such as the SDGs. They consist of other governments providing official development assistance, civil society organizations and faith-based organizations.
- Philanthropists usually seek to understand the social and environmental impacts of the finance solution. They also seek assurances on how the money will be spent and on transparency.

While collecting detailed data on the economic value of genetic resources is beyond the scope of this assessment due to the complexity of the task, existing evidence from previously conducted studies can be leveraged. In the absence of specific valuations, the economic importance of genetic resources can be illustrated by highlighting the significance of sectors that depend on them—such as the pharmaceutical and cosmetics industries and seed and agricultural companies. Raising stakeholder awareness about the extent to which their economies rely on genetic resources is crucial to securing their engagement and support in the development and implementation of targeted finance solutions. This assessment of business- and financial-sector dependencies could be aligned with the Locate, Evaluate, Assess and Prepare (LEAP) approach from the Taskforce on Nature-related Financial Disclosures (see **Box 32**).

26 BIOFIN 2024 Workbook (BIOFIN, 2024). Available at <https://www.biofin.org/knowledge-product/biofin-2024-workbook>

Photo (previous page): ©UNDP Nature



Box 32: The Locate, Evaluate, Assess and Prepare approach from the Taskforce on Nature-related Financial Disclosures

The measurement and valuation of a business or sector's dependencies and impacts can follow a standardized process such as the Natural Capital Protocol, which is aligned with the Taskforce on Nature-related Financial Disclosures risk and opportunity assessment approach, called Locate, Evaluate, Assess and Prepare (LEAP). This is a standardized framework for business or financial institutions to identify, measure and value their direct and indirect impacts and dependencies on natural capital. These approaches not only consider positive and negative impacts on biodiversity but also dependencies such as raw material sourcing, water use for production, and other often-ignored ecosystem services (e.g. pollination and flood mitigation).

In April 2025, the Taskforce on Nature-related Financial Disclosures released additional sector guidance for biotechnology and pharmaceuticals companies. The dependencies of the sectors for genetic material are “very high” for silviculture and forestry activities and seeds. Meanwhile, the dependencies are considered “high” for pharmaceuticals and medicinal chemical products and “medium” for research and experimental development on natural sciences and engineering.

In the report, the reputational risk of companies failing to engage with and respecting the rights of Indigenous Peoples and local communities is highlighted as significant.

Materiality ratings of ecosystem services on which the biotechnology and pharmaceuticals sector typically depends

	ISIC class/ group	Manufacture of basic chemicals	Silviculture and other forestry activities	Growing of cereals (except rice), leguminous crops and oil seeds	Manufacture of refined petroleum products	Fossil fuels energy production	Research and experimental development on natural sciences and engineering	Manufacture of pharmaceuticals, medicinal chemical and botanical products
Provisioning services	Other provisioning services- Animal- based energy	N/A	Low	Medium	N/A	N/A	N/A	N/A
	Biomass provisioning	N/A	Very high	Very high	N/A	N/A	Low	N/A
	Genetic material	N/A	Very high	Very high	N/A	N/A	Medium	High
	Water supply	Medium	High	High	Low	High	Low	High

Source: Reprinted with permission from Additional sector guidance — Biotechnology and pharmaceuticals (Taskforce on Nature-related Financial Disclosures, 2024). Available at <https://tnfd.global/publication/additional-sector-guidance-biotechnology-and-pharmaceuticals/#publication-content>

Studies and assessments that go beyond monetary valuation—highlighting the role of genetic resources in job creation, community livelihoods and social status, health (e.g. traditional medicine and food diversity) and cultural and Indigenous knowledge—can help underscore the broader significance of the issue and strengthen the investment case for targeted finance solutions.

Recognizing the growing importance of environmental stewardship in global supply chains, the European Union's Directive on Corporate Sustainability Due Diligence (CS3D) establishes clear expectations for businesses to minimize their impact on natural ecosystems (see **Box 33**). The directive draws on international agreements to ensure that biodiversity considerations are embedded in corporate due diligence requirements.



Box 33: European Union Corporate Sustainability Due Diligence Directive: implications for ABS compliance

On 5 July 2024, the European Union published its Directive on Corporate Sustainability Due Diligence, highlighting the need for companies “to avoid or minimize adverse impacts on biological diversity, interpreted in line with Article 10, point (b) of the 1992 Convention on Biological Diversity and applicable law in the relevant jurisdiction, including the obligations [...] of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity of 12 October 2014.”

To support developing such investment case, the responsible team could ask themselves the following questions:

Key questions



- Does an economic valuation of specific genetic resources exist in the country?
- What are the dependencies of domestic companies on genetic resources?
- How important are these companies to the national economy?
- Is there an estimate of the commercial benefits generated from the sale of final products derived from domestic genetic resources?
- What are the broader socioeconomic benefits of genetic resources?

Component 2. Safeguards, monitoring and evaluation

If wrongly designed, a finance solution can have a negative impact on nature, economic development or special social groups. Considering that genetic resources have a direct link to highly important thematic issues such as sovereignty, Indigenous Peoples and local communities, food security and more, special attention should be paid to monitoring, evaluation and safeguards. Each finance solution proposal should include a component on the identification of risks and potential unintended impacts. For each prioritized finance solution, questions to ask include:

Key questions



- Can identified social risks stemming from the finance solution be avoided or mitigated?
- Can identified risks to biodiversity stemming from the finance solution be avoided or mitigated?
- Could the finance solution create unintended perverse incentives?

Solutions that have high level of risks that cannot be mitigated should be discarded, and appropriate finance solutions that might have scored slightly lower during the prioritization process can be moved up to the prioritized list. UNDP's Social and Environmental Screening Procedure²⁷ can be drawn on for guidance.

For the prioritized finance solutions, the responsible team should make sure that the following actions are undertaken:

Key actions



- Develop institutional frameworks with enforcement and evaluation mechanisms to ensure transparency and accountability and to help safeguard compliance.
- Incorporate biodiversity's intrinsic values and its role in supporting livelihoods and resilience into finance solution design and implementation.
- Clearly define stakeholder rights and responsibilities and ensure fair and inclusive participation, including prior informed consent of Indigenous Peoples and local communities.
- Ground safeguards in local and national circumstances, aligning them with country legislation, priorities and international agreements.

²⁷ UNDP's Social and Environmental Screening Procedure (SESP) (UNDP, 2021). Available at <https://www.undp.org/publications/undps-social-and-environmental-screening-procedure-sesp>

**Box 34: Examples of potential risks of finance solutions related to ABS**

- No respect of Indigenous Peoples and local communities' rights as rightsholders, including the right for free, prior and informed consent
- Absence of recognition of Indigenous Peoples and local communities' customary law
- Non-compliance with national ABS laws, the Nagoya Protocol, or international agreements
- Ambiguity or lack of clarity in legal frameworks governing access to genetic resources and benefit-sharing
- Conflicts between national policies and customary laws of Indigenous Peoples and local communities
- Lack of meaningful participation, consultation or prior informed consent from Indigenous Peoples and local communities, including Indigenous women
- Misinterpretation or disregard for traditional knowledge associated with genetic resources
- Disputes over benefit-sharing arrangements or distribution inconsistencies
- Overharvesting or unsustainable use of genetic resources, leading to biodiversity loss
- Inequitable distribution of benefits, marginalizing vulnerable communities
- Lack of mechanisms to ensure fair compensation for resource providers
- Exclusion of certain stakeholder groups or unequal power dynamics in decision-making
- Misappropriation or biopiracy of genetic resources and associated traditional knowledge
- Disputes over intellectual property rights and ownership of resources
- Inefficiency or misuse of financial resources intended for benefit-sharing
- Lack of transparency in financial flows, leading to mistrust among stakeholders
- Unsustainable financing models that fail to deliver long-term benefits
- Limited technical, institutional or administrative capacities to enforce ABS agreements
- Inadequate monitoring, enforcement and evaluation mechanisms for finance solutions
- Risks of non-compliance due to capacity challenges at local or grass-roots levels Reputational damage for investors, companies or governments if safeguards are poorly implemented
- Negative publicity or backlash from stakeholders due to perceived exploitation or inequity
- Missing integration of gender equality into benefit-sharing processes, failing to address that women often bear a higher cost related to safeguarding genetic resources while receiving fewer benefits
- Lack of effort to ensure that benefit-sharing processes are accessible for all groups, including small producers, rather those already receiving many advantages

To assess the success of a finance solution and evaluate the efficiency of its safeguards, a monitoring and evaluation framework should be established for each finance solution. This framework should enable national entities to monitor progress and propose adjustments if needed. For each finance solution, clear indicators, outputs, intermediate steps, tracking tools, reporting sources and other relevant elements should be defined.



Box 35: Biocultural community protocols to strengthen Access and Benefit-sharing schemes with Indigenous Peoples and local communities in Mexico

Although Mexico has been a Nagoya Protocol party since 2014, implementation at the national level has been uncertain in recent years, affecting users and providers of genetic resources and associated traditional knowledge and digital sequence information (DSI). While national authorities have established a clear domestic policy on Access and Benefit-sharing (ABS), one of the first issues to consider is how to ensure the participation of the custodians of biodiversity who have recognized rights over their lands, including Indigenous Peoples, local communities and Afrodescendants. In that sense, one of the main contributions of the Nagoya Protocol is the inclusion of community protocols for the national implementation of this agreement.

In the Mexican context, where biological and cultural diversity are inextricably linked, biocultural community protocols (BCPs) are critical to create legal certainty for providers and users of genetic resources and associated traditional knowledge. BCPs concentrate the international, national and customary legal framework needed to accomplish part of the due diligence established by the Nagoya Protocol, saving time in negotiations and preventing possible conflicts.

With the support of the Nagoya Protocol national capacity-building initiative, three BCPs involving Zapotec communities and one microregional biocultural protocol were developed in the state of Oaxaca in 2019 and 2020.

- Broad understanding of ABS procedures, the Nagoya Protocol, and Indigenous rights related to the conservation of nature by local people
- Deep knowledge of natural features in each community (e.g. soils map)
- Definition of rules not only for genetic resources but also for all interventions with potential risks for territory, cultural, natural or biocultural patrimony
- Recognition of Indigenous Peoples and local communities' own "biocultural patrimony"²⁸

²⁸ According to Shrumm and Jonas, "Collective biocultural heritage is the knowledge, innovations, and practices of Indigenous peoples and local and mobile communities that are collectively held and inextricably linked to traditional resources and territories, local economies, the diversity of genes, varieties, species and ecosystems, cultural and spiritual values, and customary laws shaped within the socioecological context of communities." H. Shrumm and H. Jonas, eds., *Biocultural Community Protocols: A Toolkit for Community Facilitators* (Cape Town, Natural Justice, 2012). <https://naturaljustice.org/wp-content/uploads/2015/09/Biocultural-Community-Protocols-Toolkit.pdf>

- Recognition of BCPs as Indigenous Peoples' rights in the local Constitution (the first worldwide)
- Creation of a Nagoya Protocol handbook for agave producers
- Community's interest in becoming "self-users" of genetic resources, for instance after engaging in partnerships with companies and academia that provided access to technology and financial resources

Some of the lessons learned from this process are:

- There is a need for long-term projects to ensure the appropriation and implementation of these instruments.
- Collective and diverse ways of capacity-building are important to create expertise in local participants.
- A gender-sensitive approach and intergenerational justice contribute to creating alliances within communities.

Around 9,822 inhabitants benefited from this initiative. As ABS is one of the best feasible ways to promote sustainable finance for biodiversity conservation and, in many cases, bring justice to the groups such as Indigenous Peoples and local communities who have been marginalized despite their contribution to nature conservation, BCPs are critical to guarantee due diligence in ABS initiatives involving those groups.

Additional resources: <https://naturaljustice.org/wp-content/uploads/2015/09/Biocultural-Community-Protocols-Toolkit.pdf>

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Box 36: Strengthening community-based natural resource management in Botswana

In Botswana, the Community-Based Natural Resource Management (CBNRM) programme, formalized in 2007, was designed to empower rural communities to benefit from local biodiversity, particularly wildlife. Through legally established community-based organizations (CBOs), communities are granted land-use rights in wildlife management areas, national parks and forest reserves. These rights enable them to engage in joint ventures with private tourism operators, generating revenue and employment while incentivizing conservation. The model has not yet been used for access to genetic resources, but it could be easily integrated.

- Allowing CBOs to retain 35 percent of natural resource income, with the remaining 65 percent directed to the National Environmental Fund, accessible to all CBOs through proposals
- Facilitating joint ventures that generate substantial local revenue—BWP 18.6 million (USD 1.5 million) in 2016 alone

Despite some success, several issues hinder equitable benefit-sharing:

- Governance gaps: Elite capture and lack of transparency in revenue allocation
- Disempowerment: The tourism land bank model sidelines communities from direct negotiations
- Revenue disparities: Not all CBOs benefit equally due to geographic and economic viability
- Policy ambiguity: Unclear institutional roles and inconsistent support mechanisms

The Natural CBNRM Bill 2025, recently passed by the Parliament of Botswana, introduces significant legislative reforms that strengthen the legal and institutional framework for community-led conservation and benefit-sharing. Key provisions of the bill include:

- Legal empowerment of CBOs through formal recognition and enhanced rights to manage natural and cultural resources
- Establishment of governance and accountability mechanisms, including mandatory financial audits and oversight of misappropriated funds
- Inclusion of two CBO representatives in the technical advisory committee, with a requirement that members have at least two years of managerial experience
- Introduction of public interest clauses that allow proceedings to be initiated in the interest of the public, enhancing transparency and responsiveness
- Clarification that trust property remains vested in the CBO, reinforcing community ownership

To strengthen the CBNRM reform in Botswana, it is essential to align it with international ABS frameworks, particularly the Nagoya Protocol under the Convention on Biological Diversity (CBD) and the Global Biodiversity Framework (GBF). The country's CBNRM model can be enhanced by embedding the principles of prior informed consent and mutually agreed terms and by establishing competent national authorities to oversee compliance and transparency.

Goal C of the GBF and Targets 13, 15, 19 and 21 provide a road map for integrating ABS into national biodiversity strategies. The CBNRM reform in Botswana can contribute to these targets by promoting legal and policy measures, enhancing data availability and ensuring benefit-sharing with Indigenous Peoples and local communities.

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7. Catalogue of finance instruments supporting ABS



To assist countries in identifying and prioritizing financial solutions related to ABS in their national BFPs or other national strategies, this publication provides a catalogue of potential financial instruments that could be implemented at the national level. Given the broad scope of activities related to genetic resources, the catalogue includes only instruments with a strong connection to genetic resources but can be complemented by additional finance mechanisms, as provided in the [Finance Solution Catalogue](#)²⁹ where necessary. The finance instruments below mostly do not work in isolation but need to be an integral part of the overall ABS scheme within the country.

The **finance instruments** presented in this chapter are grouped into the four categories, as introduced in [chapter 6.2](#) on the PIR:

Table 2: Catalogue of finance instruments supporting Access and Benefit-sharing

Category	Finance Instrument	Rationale
a. Finance instruments to support the enabling environment for ABS	GEF funding	Supports the development of national ABS legislation, institutional frameworks, and government capacity to implement the Nagoya Protocol.
	Access and Benefit-sharing (ABS) certification (voluntary)	Certification systems strengthen compliance, transparency and traceability in the use of genetic resources.
	Results-based budgeting/ performance-based budgeting to increase direct budget allocation for ABS	It helps to effectively plan and monitor and allocate relevant resources, based on the targets set.
	Reform of incentives harmful to genetic resources conservation	Redirecting harmful subsidies aligns financial incentives with biodiversity conservation and sustainable use and can generate public resources that support the enabling environment for ABS, including institutional capacity and regulatory implementation.
b. Finance instruments to develop the ABS value chain by the public sector	Biobusiness finance	Provides investment capital to enterprises that sustainably use biodiversity and genetic resources.
	Positive subsidies and incentives for bioeconomy	Public investment can stimulate biotechnology innovation, biodiversity-based enterprises, and sustainable value chains based on genetic resources.

29 *BIOFIN Catalogue of Finance Solutions* (BIOFIN, 2026). Available at <https://www.biofin.org/finance-solutions>

Photo (chapter divider): ©UNDP Nature

Category		Finance Instrument	Rationale
c. Finance instruments supporting the ABS value chain development	Going towards the public sector	Penalties for unsustainable or illegal use of genetic resources	Enforcement mechanisms deter biopiracy and ensure compliance with national ABS regulations.
		Bioprospecting and collection fees	Fees associated with bioprospecting activities can generate revenues that may be reinvested to support the development of a bioeconomy based on genetic resources.
		Biobanks access fees	Provide regulated access to stored genetic materials while supporting the maintenance of collections and research infrastructure.
		Licence fees (upfront payment, milestone payments, licensing fees)	Facilitate the commercialization of products derived from genetic resources while generating revenue and incentivizing innovation.
	Joint initiatives	Joint ownership of relevant intellectual property rights	Promotes collaborative research and innovation between provider countries and private or research partners willing to have shared ownership of intellectual property rights.
		Joint ventures	Enable partnerships among governments, research institutions and private companies to develop biodiversity-based industries.
		Blended finance	Combining public/philanthropic funds with private capital to de-risk investments in bioeconomy value chains.
		Corporate supply chain management	Tracing and tracking the ingredients with relevant due diligence can enforce ABS compliance.
d. Finance instruments to facilitate benefit-sharing		ABS royalties	Provide ongoing monetary benefits linked to commercial products derived from genetic resources.
		ABS Trust Fund	Collects and redistributes benefits generated through ABS agreements to governments, communities or conservation initiatives.
		Community finance	Channels financial resources directly to Indigenous Peoples and local communities providing genetic resources or traditional knowledge.
		Payment for ecosystem services	Rewards communities and land managers for maintaining ecosystems that host valuable genetic resources.

Source: Authors' own elaboration

1. Finance instruments to support the enabling environment for ABS

Related to public-sector costs for developing, setting up and running the regulatory ABS framework of a country (legislation and regulation).

Global Environment Facility funding

General description

The GEF is a multilateral financing mechanism established in 1991 to support developing countries in addressing global environmental challenges. It serves as a financial mechanism for several multilateral environmental agreements, including the Convention on Biological Diversity and its Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. The GEF brings together 180-plus countries, international institutions, civil society organizations and the private sector to provide financial resources and technical support for projects that generate global environmental benefits. In other words, the GEF contributes to the global commons. These benefits typically relate to areas such as biodiversity conservation, climate change mitigation and adaptation, international waters management, land degradation neutrality, and the sound management of chemicals and waste.

Within the GEF, ABS projects can be financed through two distinct funding windows: the System for Transparent Allocation of Resources (STAR) and the GBFF. The STAR includes country-based indicative allocations for focal areas that governments can programme according to their national priorities, including ABS. As a result, STAR-funded ABS projects are typically integrated into broader national biodiversity portfolios and often focus on strengthening legislation, institutional arrangements, compliance mechanisms and national ABS implementation systems. In contrast, the GBFF is a dedicated global fund created to support the implementation of the GBF, accessible via a competitive project submission process aligned with GBF targets. The GBFF also places a stronger emphasis on direct benefits for biodiversity conservation and equitable benefit-sharing, including a commitment to channel a significant share of resources to Indigenous Peoples and local communities. For ABS initiatives, GBFF funding can therefore support activities that strengthen benefit-sharing mechanisms, promote the equitable participation of Indigenous Peoples and local communities, and contribute directly to the implementation of GBF targets related to genetic resources and benefit-sharing.

Relevance and advantage for ABS

Establishing a functional ABS system typically requires significant public investment, particularly in the early stages. This includes drafting legislation, establishing competent national authorities, developing administrative procedures, building databases and training relevant stakeholders. GEF funding plays a key catalytic role in supporting these foundational elements for countries implementing the Nagoya Protocol and related biodiversity commitments.

In practice, GEF-funded ABS projects often support the development or revision of national ABS legislation and regulations, the designation and strengthening of competent national authorities, and the establishment of procedures for access to genetic resources. Funding also may support the creation of ABS information systems and databases, compliance and monitoring mechanisms, and national ABS Clearing House functions. In addition, GEF resources can finance technical studies, policy analyses, operational guidelines and stakeholder consultations needed to establish effective ABS governance systems.

b.

c.

d.

Capacity-building activities such as training government officials, negotiators, researchers and other stakeholders, as well as engagement with Indigenous Peoples and local communities, also are commonly supported. Through this catalytic grant financing and technical assistance, the GEF helps countries create the enabling conditions necessary for ABS frameworks to function effectively and contribute to biodiversity conservation, sustainable use and equitable benefit-sharing.

Advantages of using this finance solution

- **Grant-based financing:** GEF resources are provided primarily as grants, reducing the financial burden on governments during the initial establishment of ABS systems.
- **Catalytic role:** Funding can help initiate national ABS frameworks and unlock additional financing or technical cooperation from other partners.
- **Technical expertise:** GEF-supported projects often provide access to international expertise and knowledge-sharing on ABS implementation.
- **Alignment with global biodiversity goals:** Support is provided for countries in implementing the Nagoya Protocol and contributing to the objectives of the CBD, the GBF and NBSAPs.
- **Institutional strengthening:** This enables the creation or strengthening of national ABS authorities, compliance mechanisms and monitoring systems.

Challenges and attention points

- **Limited funding windows:** GEF funding (STAR and GBFF) is allocated through specific programming cycles and priorities, which may limit availability for ABS activities at certain times. While STAR resources are provided to countries through indicative national allocations, GBFF funding is accessed through a competitive project selection process, which means that proposals must compete with submissions from other countries.
- **Complex project preparation processes:** Developing GEF projects can require substantial time, coordination and technical preparation.
- **Dependence on external funding:** The long-term sustainability of ABS systems requires that governments eventually allocate domestic resources for continued operation.
- **Institutional coordination challenges:** Effective ABS implementation often requires coordination across multiple ministries and agencies, which can be difficult to establish.
- **Capacity constraints:** Even with funding, some countries may face challenges related to administrative capacity, enforcement and stakeholder engagement.

b.

c.

d.

Results-based budgeting

General description

Results-based budgeting (RBB) is an approach in which defined results are the starting point of a planning and budgeting process. It requires creating specific targets as the first step. In the case of ABS, the relevant ABS-related public institutions need to have results-based planning for setting up and implementing the ABS system, including regulation, execution, enforcement and monitoring. This finance instrument is not exclusively for supporting the enabling environment of ABS but also can be used to develop and maintain the ABS value chain. RBB can be done for various levels—for national or subnational governments, not only, but also for specific ministries or institutions.

The next step, integrating these targets into national and local-level budgeting frameworks, has been neglected in most countries in the past. This step is essential for adequate financing and implementation of national biodiversity actions. Around 80 percent of all finance for biodiversity is currently coming from public budgets. For the issue of biodiversity conservation, results-based approaches were piloted for protected areas—but less so when it comes to integrating biodiversity into agriculture, fisheries or other key sectors, which many countries have found to be among the highest spending priorities for biodiversity.

Relevance and advantage for ABS

The aim of RBB is to improve the effectiveness of available funds and increase transparency and budget acceptability. Concrete planned results help create a pipeline of public investments, as the outcomes and concrete results aimed for by the government and specific ministries are clearly articulated. This should lead to increased spending in the public sector to set up and maintain the ABS system. So, RBB can help attract additional investments for ABS.

Advantages of using this finance solution

RBB is a very integrated finance instrument; this doesn't stop at improving financial flows to ABS but also can improve overall target setting, budget planning and spending. It increases overall transparency in budget flows and helps align public finance flows with the desired biodiversity and ABS targets.

Challenges and attention points

The main challenges relate to its integrated and holistic approach. RBB will work only with the relevant buy-in of all necessary stakeholders within the government and ministries, relevant capacity-building (in particular with new colleagues and when changes of authorities occur), and follow-up and monitoring related to the results achieved from public spending.

Additional resources

BIOFIN: Results-Based Budgeting for Biodiversity. A guidebook: <https://www.biofin.org/knowledge-product/guidebook-2024-results-based-budgeting-biodiversity>



Box 37: The results-based budgeting approach: enhancing local livelihoods in Thailand through Access and Benefit-sharing

Thailand has integrated the global commitments from the Kunming-Montreal Global Biodiversity Framework (KMGBF) into its National Biodiversity Strategy and Action Plan (NBSAP) and is developing innovative financing solutions to ensure their implementation. One flagship approach is results-based budgeting (RBB) for biodiversity, which is designed to empower local governments to operationalize the KMGBF and foster nature-positive development at the grass-roots level.

This solution puts resources directly into the hands of more than 7,000 local government units, helping them drive community-led biodiversity action for:

- Budgeting for measurable with results: Local governments tie their “green budgets” to concrete biodiversity outcomes.
- Integrating climate and gender: The approach recognizes that truly effective conservation includes climate resilience and gender equality in decision-making.
- Repurposing harmful subsidies: By shifting funds away from harmful practices, RBB supports projects that benefit both biodiversity and ecosystems.

RBB for biodiversity, with a focus on ABS, is a performance-driven system that:

- aligns local government budgets with clear, measurable biodiversity outcomes, including ABS targets;
- integrates climate and gender considerations; and
- enables the repurposing of harmful subsidies towards activities that support biodiversity and the fair sharing of benefits.

Within the eight-step framework (see more details in the case study within harmful subsidies), the Plant Genetic Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn (RSPG) operationalized ABS at the community level across nine worksheet categories. Communities collect and contribute biodiversity data into the RSPG's database, which is then submitted to the Thailand Biodiversity Information Facility (TH-BIF). Benefit-sharing takes the form of structured research partnerships with network universities, enabling communities to co-develop local products from their genetic resources and traditional knowledge that generate revenue, with traceable income streams.

b.

c.

d.

The RBB is coordinated at the national level by the Office of Natural Resources and Environmental Policy and Planning (ONEP), which serves as the lead body for NBSAP implementation, working in close collaboration with the RSPG for biodiversity data management and the Department of Local Administration under the Ministry of Interior, which channels budget allocations to local administrative organizations. For the ABS component specifically, ONEP and RSPG coordinate with the National Biodiversity Committee to ensure compliance with Nagoya Protocol obligations and oversee benefit-sharing arrangements.

Thailand has signalled its intent to extend ABS tracking under the GLOBE Taxonomy. The most consequential gap lies at the intersection of ABS and community benefit measurement. While GLOBE includes ABS as a full primary category, its expenditure-tracking architecture cannot capture the flow that matters most for Nagoya Protocol implementation: whether benefits actually reach provider communities.

Key outputs include:

- training curricula, guidelines, materials; and
- the establishment of online learning platforms for self-directed capacity-building on RBB and ABS provisions for local officials, communities and institutions.

Reform subsidies harmful to genetic resources conservation

General description

Subsidies are financial incentives, tax breaks or direct payments provided by governments to support certain industries. Although the original intention may have been to promote economic growth or social, gender or climate improvements, these subsidies often (unintentionally) encourage overexploitation, monoculture and environmental pollution, resulting in the loss of biodiversity and genetic resources. Assessing the direct impact of subsidies for biodiversity is often challenging due to a lack of data or because of the multiple influences of several regulations, markets and consumer behaviour. However, once such harmful consequences for biodiversity are identified or suspected, they are usually referred to as harmful or perverse subsidies for biodiversity. Reforming or reducing these harmful subsidies is not only mandated by Target 18 of the GBF but also can lead to government savings and lower future environmental costs.

Relevance for ABS

While all subsidies harmful for biodiversity inherently also negatively impact genetic resources, some of them can have an even more direct link on genetic resources. Examples are subsidies that lead to (or don't stop) biopiracy, monocultures (reducing agrobiodiversity), and the destruction of the habitat of endemic/endangered species.

Agriculture is a good example of how governments introduce subsidies with the best intentions (e.g. food security, small farmer support) but in consequence destroy biodiversity. Subsidies might not only incentivize monocultures but also increased pesticide use, overexploitation of water resources or the selection of specific crops or livestock over others (e.g. seed support for certain limited varieties, support for exotic/high-yield species over traditional breeds). Similarly, all those measures can have a significant impact on a country's genetic variety.

ABS systems cannot work if the genetic resources on which they rely are destroyed by subsidized policies. For this reason, reforming these subsidies is a crucial protective measure to ensure that the original environment and genetic asset base are not damaged.

b.

c.

d.

Advantages of using this finance solution

Reforming harmful subsidies represents a massive opportunity to realign public expenditures that negatively impact nature to positive incentives that aim to promote genetic diversity and conservation. Doing so can free up massive amounts of public budget that can be sustainable funding for the development of ABS-related activities. Instead of asking for donor funding, countries can simply take the money already in their budget and use it to build the necessary systems for ABS, effectively turning a financial loss into a gain for nature.

Challenges and attention points

- Political economy challenges: Vested interests in sectors often lobby heavily against reform.
- Social risks: Removing subsidies on inputs can affect low-income people, which may cause demonstrations.
- Attention points: Reform gradually and use social safeguards and transitional supports to compensate relevant people.

Additional resources

- BIOFIN – The Nature of Subsidies: [The Nature of Subsidies: A step-by-step guide to repurpose subsidies harmful to biodiversity and improve their impacts on people and nature | BIOFIN](#)
- CBD – [Target 18](#): Reduce harmful incentives by at least USD 500 billion per year, and scale up positive incentives for biodiversity
- CBD: [Harmful Incentives and their Elimination, Phase Out, or Reform](#)



Photo: ©Zsuzsanna Schreck



Box 38: Case study: Repurposing harmful subsidies for nature-positive development in Thailand

Thailand has promoted the repurposing of harmful subsidies for nature-positive investment as part of its results-based budgeting for biodiversity (see related case study), engaging local governments across the nation.

The nature of subsidies in Thailand is primarily characterized by direct financial transfers from the national level to local levels, aimed at supporting biodiversity preservation. However, these subsidies can unintentionally accelerate biodiversity loss if local actors lack ecological knowledge and understanding. Those transfers therefore should be complemented by robust capacity-building programmes that educate and empower local communities about Access and Benefit-sharing (ABS).

Local governments often prioritize short-term economic gains from biological resources rather than pursuing long-term conservation. Consequently, direct-transferred funds are frequently used for projects such as constructing rigid infrastructure along river ecosystems or supporting poorly designed carbon credit schemes. These activities do not account for ecological complexity and can disrupt habitats and ecological processes.

Subsidies that promote nature-based solutions or development can reduce the loss of the species and genetic diversity that underpin ABS opportunities. When ecosystem integrity is compromised, the benefits available for access and sharing diminish—whether these are genetic resources, ecosystem services or traditional knowledge tied to healthy habitats. Such harmful subsidies thus directly undermine the premise of ABS, which is built upon the fair and equitable sharing of benefits derived from thriving and well-maintained ecosystems.

Moreover, if subsidies are not accompanied by capacity-building that fosters awareness and stewardship in local communities, there is a greater risk that resources will be exploited in ways that favour immediate economic return at the expense of future sustainable use, equity and biodiversity conservation. This not only jeopardizes ABS mechanisms but also erodes trust and fair benefit distribution among stakeholders. The work of the Plant Genetic Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn (RSPG) helps frame subsidies in the right direction.

b.

c.

d.

The RSPG has developed eight main activities to support the country's ABS framework and support local communities and reduce the harmful spending of direct financial transfers:

- Protection: Local volunteers help guard plants and raise biodiversity awareness.
- Survey and collection: Community teams record local genetic and cultural resources, contributing to the national biodiversity database (TH-BIF).
- Conservation: Gene banks and centres of excellence preserve threatened species nationwide.
- Utilization: Research drives sustainable and economic uses for native genetic resources.
- Information centres: Local databases support data-driven planning and management.
- Planning: Data guides planning on conservation for plants, animals and microorganisms.
- Community involvement: School botanical gardens engage youth and the wider public in conservation.
- Resource mobilization: Government and private-sector investments flow into nature-positive projects that link to ABS activities under the RSPG's Master Plan.

Through the initiatives of the RSPG, local governments are empowered to repurpose harmful subsidies and spearhead nature-positive development. This approach not only mitigates negative environmental impacts but also maximizes benefits for biodiversity conservation. Furthermore, strengthening the role of the RSPG as the lead agency reaffirms the country's commitment to supporting the implementation of ABS at both local and national levels.

b.

c.

d.

2. Finance instruments to develop the ABS value chain by the public sector

The next level of public investments complementing the regulatory framework to operationalize ABS and its value chain includes such efforts as investment in advanced public research and development platforms and stakeholder and SME support.

Bio-business incubators, accelerators and facilities

General description

Biobusinesses use renewable genetic resources, including the traditional knowledge and practices associated with them, to develop biobased products and services.³⁰ Depending on the product and the relevant legislation within the country, biotrade might be under the scope of relevant ABS legislation. Focusing on the Nagoya Protocol, a biobased products would be covered (including with the obligation of benefit-sharing) if the research and development involves the genetic and biochemical composition of genetic resources. However, the scope of national legislation might be wider or have separate legislation for biotrade in place. Biobusinesses may emerge from entrepreneurship efforts by Indigenous Peoples and local communities, fostering local economic development linked to biodiversity conservation. Nonetheless, limited financial resources and technical capacity, reliance on research and development activities, and barriers to accessing markets and understanding legal ABS frameworks pose challenges to biobusiness entrepreneurship.

Initiatives such as biobusiness incubators, accelerators and facilities typically provide capacity development and financial assistance through direct funding (e.g. seed capital) or matchmaking with external funders, helping start or strengthen a biobusiness.³¹ In addition, databases facilitate access to genetic resource data and provider information, lowering research and development costs for bioproduct development.³²

Relevance for ABS

Initiatives that support biobusinesses might facilitate access to genetic resources (if required for the businesses) and can help ensure effective compliance with legislation relevant to ABS and biotrade. Indigenous Peoples and local communities that successfully develop their own biobusinesses directly benefit from using genetic resources to enhance their livelihoods.

30 S. Solaymani, M. Gaugler, T. Barnard and A. Dunningham. What Is the Scale of the Bio-Business Sector? Insights into Quantifying the Size of the New Zealand Bioeconomy. *Sustainability*, 17(16), 7565 (2025). Available at <https://doi.org/10.3390/su17167565>
A. Kuckertz, E. S.C. Berger and L. Brändle, Entrepreneurship and the sustainable bioeconomy transformation, *Environmental Innovation and Societal Transitions*, Volume 37 (2020). Available at <https://doi.org/10.1016/j.eist.2020.10.003>
Global Bioeconomy Summit Communiqué. *Innovation in the Global Bioeconomy for Sustainable and Inclusive Transformation and Wellbeing* (Global Bioeconomy Summit, 2018). Available at <https://www.biooekonomierat.de/media/pdf/archiv/international-gbs-2018-communicue.pdf>

31 BIOFIN Catalogue of Finance Solutions (BIOFIN, 2026). Available at <https://www.biofin.org/finance-solutions>

32 Genetic databases articles from across Nature Portfolio (Nature, 2026). Available at <https://www.nature.com/subjects/genetic-databases>

KEGG: Kyoto Encyclopedia of Genes and Genomes (KEGG, 2026). Available at <https://www.genome.jp/kegg/>

Advantages of using this finance solution

- Foster biodiversity conservation, economic development, supply chain resilience, capacity development, innovation, research and development and knowledge-sharing.³³
- Strengthen local entrepreneurship and livelihoods.³⁴

Challenges and attention points

- Finance gap for biobusiness incubation, highlighting the need to strengthen blended finance and other de-risking mechanisms to attract more private finance.³⁵
- Governmental and market barriers to technological innovation.³⁶
- Challenges in developing in-house expertise for research and development and product development,³⁷ even with technical assistance and facilitated access to genetic resource data.



Photo: ©UNDP Nature

33 *Financing instruments and policy levers to harness biomanufacturing for climate, biodiversity and growth* (OECD, 2025). Available at https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/12/financing-instruments-and-policy-levers-to-harness-biomanufacturing-for-climate-biodiversity-and-growth_cff8722c/48bec995-en.pdf

34 A. Kuckertz, E. S.C. Berger and L. Brändle, Entrepreneurship and the sustainable bioeconomy transformation, *Environmental Innovation and Societal Transitions*, Volume 37 (2020). Available at <https://doi.org/10.1016/j.eist.2020.10.003>

35 *Financing instruments and policy levers to harness biomanufacturing for climate, biodiversity and growth* (OECD, 2025). Available at https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/12/financing-instruments-and-policy-levers-to-harness-biomanufacturing-for-climate-biodiversity-and-growth_cff8722c/48bec995-en.pdf

36 *The Bioeconomy to 2030. Designing a policy agenda* (OECD, 2009). Available at https://www.oecd.org/content/dam/oecd/en/publications/reports/2009/04/the-bioeconomy-to-2030_g1gha07e/9789264056886-en.pdf

37 *The Digitalisation of Science, Technology and Innovation. Key developments and policies* (OECD, 2020). Available at https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/02/the-digitalisation-of-science-technology-and-innovation_fe2855a5/b9e4a2c0-en.pdf



Box 39: Proposal: The ABS Business Facility

The ABS Business Facility is a proposal under exploration by UNDP that is designed to promote fair and equitable benefit-sharing from the use of genetic resources. It aims to support biodiversity conservation and foster sustainable ecosystem management, in alignment with the goals of the Nagoya Protocol. By addressing gaps in financial and technical capacity, the proposal seeks to advance the implementation of Access and Benefit-sharing (ABS) principles in biodiversity-rich countries.

The ABS Business Facility would focus on providing targeted support to users and providers of genetic resources committed to complying with national ABS regulations. It aims to serve as a bridge between stakeholders, facilitating partnerships, mobilizing resources and fostering sustainable innovation in ABS practices. The proposed facility has nine key objectives:

- Mapping genetic resource users and providers: Develop a comprehensive database to identify industry players, map ABS projects and enhance collaboration and knowledge-sharing.
- Facilitating partnerships as an honest broker: Build trust and transparency among stakeholders, strengthen supply chains and ensure sustainable sourcing practices in ABS transactions.
- Mobilizing financial resources: Engage with financial institutions to tailor funding mechanisms for research and development, biodiversity conservation and compliance with ABS regulations while supporting business models and market analyses.
- Supporting small-scale enterprises and Indigenous/local communities: Ensure fair market access and provide tailored financial and capacity-building support for their participation in ABS-related activities.
- Offering technical and legal assistance: Help stakeholders navigate complex national ABS frameworks and permitting processes and negotiate fair benefit-sharing agreements.
- Enhancing technical and scientific capacity: Foster international partnership opportunities, promote knowledge exchange and integrate traditional knowledge with modern scientific approaches to add value to genetic resources.
- Driving behavioural and policy change: Advocate for ABS as a sustainable business model through economic scenario analysis and evidence-based communication, encouraging investment and broader policy reform efforts.
- Strengthening digital tools: Explore innovative solutions such as blockchain for improved transparency, traceability, compliance tracking and the secure management of ABS transactions.
- Monitoring and evaluating ABS impacts: Establish systems to assess the economic, social and environmental outcomes of ABS activities, ensuring accountability and continuous improvement through performance indicators



Box 40: From biodiversity to the market: Indigenous business incubators for the bioeconomy with an ABS approach in Ecuador

Ecuador has ratified the Convention on Biological Diversity (1995) and the Nagoya Protocol (2017), reaffirming its commitment to conserving biological diversity, ensuring the sustainable use of its components, and promoting the fair and equitable sharing of benefits arising from the utilization of genetic resources. These objectives were incorporated into the Constitution of Ecuador (2008) and the Organic Code of the Environment (2017) to support the implementation of biotrade, the bioeconomy, and nature-based bioentrepreneurship.

Within this framework, it is important to highlight that Indigenous bioentrepreneurs in the Amazon have historically faced significant barriers in accessing financing and formally establishing ventures that integrate their traditional knowledge.

The Incubator of Indigenous Bioeconomy Companies for the Amazon Region project, funded by the Inter-American Development Bank with USD 1 million in 2022, emerged as a response to this challenge. The mechanism operates as a bridge between ancestral knowledge and modern business management tools, supporting productive initiatives based on biological resources and traditional practices. Several entities have collaborated on the project, such as Indigenous community organizations, non-governmental organizations, international cooperation and multilateral banking, to achieve successful implementation. The project selected 15 pilot initiatives in Colombia, Ecuador and Peru to strengthen business activities by valuing the ancestral knowledge of Indigenous populations and promoting fair benefit-sharing.

In Ecuador, the selected companies (Ally Guayusa, Sacha Waysa, Asotexkich, and Ruku Kawsay PKR) involve activities such as the harvesting of native plants with local consent, the use of associated traditional knowledge in product development, and the implementation of benefit-sharing agreements with local communities. The mechanism has generated substantial impact, with more than 1,000 Indigenous families improving their incomes as a result of the project. Moreover, the project has strengthened communities' capacity to navigate the ABS legal framework, helping ensure that benefits derived from biological resources, including their genetic resources, return to the communities in the form of technical training, access to fair markets and biodiversity conservation.

Photo: ©UNDP Ecuador/2019

Among the lessons learned, the importance of participatory governance and the cultural adaptation of financial mechanisms stand out. The success of the project lies in its flexible approach, which respects community timelines and prioritizes collective decision-making. The experience also underscores the need to simplify administrative procedures to improve financial inclusion for Indigenous communities and remove barriers to accessing the traditional financial system, highlighting the role of community-based savings groups and cooperatives within the popular and solidarity economy.

A central insight gained through the process was recognizing that Indigenous biobusinesses do not seek to replicate external models. These are enterprises rooted in the territory, translating ancestral knowledge into products with their own cultural identity and requiring close, context-sensitive support. The UNDP Small Grants Programme and CONFENIAE played a critical role in maintaining dialogue between technical considerations and cultural priorities, ensuring that the ventures remain grounded in their origins.

This effort ultimately underscores that biobusinesses are not only sources of income but also instruments for preserving the cultural and environmental heritage of Indigenous Peoples. The project demonstrates that the bioeconomy can become a driver of sustainable and inclusive development when built from, and for, the communities themselves. Its replicability depends on sustaining an intercultural perspective, strengthening multi-stakeholder alliances, and ensuring that economic benefits are reinvested in collective well-being and the conservation of nature.

In this context, Ecuador has advanced the legal framework governing the use and sustainable exploitation of biodiversity for bioentrepreneurship, regulated by Ministerial Agreement MAATE-2025-0054 and the National Plan for the Promotion of the Sustainable Use of Biodiversity (2025). BIOFIN Ecuador played a key role in the participatory development of these legal instruments, which are fundamental for the advancement of Indigenous biobusinesses. These instruments aim to ensure that Indigenous communities, guardians of vast ancestral knowledge on biodiversity, receive recognition and equitable compensation for their contributions to sustainable development. Thus, BIOFIN Ecuador already integrates expenditure analyses and financing alternatives, recommends including ABS within the national biodiversity financing strategy, and evaluates fiscal and non-fiscal instruments. They also identify harmful subsidies that should be reformed. This provides a technical opportunity to introduce ABS incentives within national fiscal and budgetary frameworks.

Sources:

- *Project RG-T4155: Indigenous Business Incubator for the Bioeconomy in the Amazon Region (BID Lab, 2022).*
- *Indigenous enterprises selected for the Amazon Incubator (CONFENIAE, 2024).*
- *White Paper on the Sustainable Bioeconomy of Ecuador (UTPL and MAE, 2023).*
- *Launch of the Indigenous Enterprise Incubation Pilot in the Amazon (NESST, 2024).*
- *Support for community biobusinesses in Ecuador (UNDP Small Grants Programme, 2024).*
- *Territorial initiatives for sustainable development in the Amazon (ProAmazonía, 2024).*

Positive subsidies and incentives for ABS

General description

The World Trade Organization (WTO) defines a subsidy as “a financial contribution by a government, or agent of a government, that confers a benefit on its recipients” for the purposes of the Agreement on Subsidies and Countervailing Measures.³⁸ The CBD defines a positive incentive measure as “an economic, legal or institutional measure designed to encourage beneficial activities. Positive incentive measures can include, for instance, incentive payments for organic farming, agricultural land set-aside schemes as well as public or grant-aided land purchases or conservation easements, and payments for ecosystem services”.³⁹

Relevance for ABS

Governments may provide incentives (direct payments, different tax schemes, etc.) to facilitate compliance with ABS requirements (for bioprospecting, initiating the value chain, setting up mutual agreements, benefit-sharing, etc.) or try to encourage a bioeconomy that conserves and restores biodiversity. Current ABS legislation usually results in significant upfront costs for the actors engaged.

Furthermore, positive incentives could be provided to national entities to strengthen their capacities to prospect for, identify and sequence genetic resources, while also supporting them in negotiating agreements with external and commercial entities.

The nature of these incentives could be broad. Below are some examples:

- **Direct transfers of funds:**
 - Support for research of genetic resources (for science or commercial purposes), e.g. medicinal plants or agricultural species
- **Indirect transfers (income or price incentives):**
 - Price interventions, including price support to encourage the consumption of products compliant with ABS regulations or to discourage the consumption of products that are not compliant
- **Fiscal incentives:**
 - Tax credits or deductions for research and development and innovation activities using genetic resources when compliant with ABS agreements. This type of incentive can be based on output, inputs or factors of production.
- **Transfer of risk to government:**
 - Subsidized loans to encourage investment in the ABS value chain and reduce the risk of engaging in prospecting or the use of genetic resources (see also blended finance options and the government providing guarantees).

³⁸ *Agreement on Subsidies and Countervailing Measures* (World Trade Organization, 1986). Available at https://www.wto.org/English/docs_e/legal_e/24-scm.pdf

³⁹ *Positive Incentive Measures* (Convention on Biological Diversity, 2026). Available at <https://www.cbd.int/incentives/positive.shtml>

Advantages of using this finance solution

- Support compliance with ABS regulations
- De-risk investments
- Foster innovation and research
- Strengthen national capacities

Challenges and attention points

Sometimes, well-intended incentives, if poorly designed, can have unintended negative impacts on biodiversity, people and economies. It is important to integrate strong safeguards and indicators that enable the assessment and monitoring of the impacts of these incentives and to propose improvement actions when necessary. A step-by-step approach to assessing and suggesting improvement actions is explained in the report *BIOFIN – The Nature of Subsidies*.⁴⁰

Additional resources related to subsidies and incentives in general

- BIOFIN – The Nature of Subsidies: <https://www.biofin.org/knowledge-product/nature-subsidies-step-step-guide-repurpose-subsidies-harmful-biodiversity-and>
- CBD: <https://www.cbd.int/incentives/positive.shtml>
- CBD: <https://www.cbd.int/doc/publications/cbd-ts-56-en.pdf>
- OECD: https://www.oecd.org/en/publications/scaling-up-biodiversity-positive-incentives_19b859ce-en.html

3. Finance instruments alongside the ABS value chain

Within this category, instruments can be further divided into those where the financial flows go towards the public sector and those that are public–private initiatives. Overall, all instruments in this group are mainly financed by users of genetic resources, including blended finance options, i.e. access, investments for commercial research and development, market access, ABS and other regulatory compliance on provider and user countries, quality assurance/quality control, and intellectual property.

First, we will look at finance instruments alongside the ABS value chain with financial flow towards the public sector.

⁴⁰ *The Nature of Subsidies: A step-by-step guide to repurpose subsidies harmful to biodiversity and improve their impacts on people and nature* (BIOFIN, 2024). Available at <https://www.biofin.org/knowledge-product/nature-subsidies-step-step-guide-repurpose-subsidies-harmful-biodiversity-and>

Penalties for unsustainable or illegal use of genetic resources

General description

This describes compensation paid by companies and/or individuals for the illegal use of genetic resources. It requires relevant legislation, monitoring of access to and use of genetic resources, and the control and persecution of offences. The amount of the penalty usually is directly determined by the law (or the law establishes clear criteria to determine the penalty).

Relevance for ABS

Penalty systems can be set up in both genetic resource user and provider countries. In both cases, the aim is to ensure and control that users strictly follow the rules of the ABS framework or share benefits according to ABS contracts. These penalties are payments in the event of the infringement of relevant laws and are not related to benefit-sharing. If set up right (i.e. penalties are not too low, actual persecution exists) such penalties can help increase compliance with national ABS legislation. Penalties also can help Parties to the Nagoya Protocol fulfil their obligation to take measures to ensure that users within their jurisdictions respect the ABS requirements of the country in which genetic resources and/or associated traditional knowledge are accessed (Art. 15, 16 of the Nagoya Protocol).

Advantages of using this finance solution

- **Revenue generated for conservation:** Revenues from penalties and fines can be allocated to habitat and biodiversity protection.
- **Negative incentive:** The threat of penalties can make companies follow the rules.
- **Fairness market:** With penalties for illegal ABS activities, law-abiding companies can be protected and fair market conditions supported.

Challenges and attention points

- **Fragmented institutional coordination:** Penalties of governance involve multiple distinct departments, making data sharing and enforcement inefficient.
- **Difficulty in monitoring and detection:** Law enforcement capacity is very limited, and the cost of monitoring resources is high, especially in remote areas.
- **Barriers to earmarking revenue:** Environmental penalties are directly included in the government budget rather than being designated for biodiversity protection.

Bioprospecting/collection and permit fees

General description

Bioprospecting involves the systematic search for genetic material and research on the biochemical and genetic components for pharmaceutical, agricultural, cosmetic, biotechnology or similar applications.

A bioprospecting fee is any payment made by a company, researcher or commercial entity to access genetic resources from nature with the intent of carrying out research on the active properties of genetic resources, including for developing commercially valuable products. While

small, the monetary benefits gained from this fee can either be partially or fully directed towards biodiversity conservation, depending on national ABS policies, or could be allocated to self-fund the ABS scheme nationwide.

In many administrations, the issuance of permits comes with a fee that the applicant must pay. The fees usually flow into the budget of the issuing institution and thus cover some of the operational costs. Permit fees are usually rather modest, but in the case of ABS permits for foreign and commercial applicants, they can be more than USD 1,000.

Relevance for ABS

Under appropriate regulation, bioprospecting and permit fees can support covering the costs of the overall ABS scheme and ABS-related administration. To certain extent, a fee also signals the economic value of genetic resources, making resource users pay for what was previously “free”. They are a predictable, upfront form of funding that promotes legal compliance in the use of genetic resources.

When implemented effectively, bioprospecting fees should ensure that local communities and holders of traditional knowledge are part of the process. Under ABS agreements, commercial entities accessing genetic resources for bioprospecting must secure prior informed consent and mutually agreed terms with resource holders. While most of the fees remain at the governmental level to support the ABS scheme, ideally, a portion of the fees can then be shared with communities, serving as a financial incentive to conserve biodiversity.

Advantages of using this finance solution

The advantage of this instrument is that it secures financing at an early stage of product development, and the funding is guaranteed regardless of whether the product is eventually commercialized. It supports the process and encourages the further pursuit of the establishment of a full and functional ABS scheme.

Challenges and attention points

Since the current market size for bioprospecting is limited and revenues from fees are modest, the financial benefits may not cover the costs of negotiating and managing agreements and may only provide limited conservation incentives. Systems are needed to track the use of resources and payments to ensure that fees reach the intended beneficiaries. In addition, bioprospecting and permit fees should not be so high as to discourage stakeholders from exploring opportunities.



Box 41: Application fees in the Comoros

In accordance with the circular note on the setting of the administrative fee for services rendered, issued pursuant to Law No. 20-001/AU of 21 May 2020 on access to genetic resources and the fair and equitable sharing of benefits (ABS), all applicants for access permits are subject to mandatory administrative fees corresponding to the formalized processing of the file.

Purpose/Use	Natural persons	Legal persons
Business purposes	EUR 1,000	EUR 2,000
Non-commercial purposes	EUR 300	EUR 800
Transfer of results	-	EUR 7,000

These fees are fixed and non-variable, regardless of the type of project, and can be updated only by means of a new official circular note. Comorian nationals (natural or legal persons, including locally initiated partnerships) are exempt from these fees, provided that the mutually agreed terms specify the specific terms and conditions of their participation.

The royalties are paid by bank transfer to the dedicated account managed by the national competent authority, represented by the Direction Générale de l'Environnement (Directorate General of Environment and Forests) and are governed by the principles of public accounting. The amounts collected are used exclusively for the formalized processing of files and for the conservation of biological diversity.

Biobank/seed bank access fees

General description

Biobank/seed bank access fees are charges that users need to pay to cover the operational costs of accessing biological samples or data. This financial solution serves as a cost-recovery mechanism, ensuring that the repository can offset its daily maintained costs without treating biological resources as commercial products. Most public gene banks do not charge for access to samples for research or breeding, but commercial use usually requires a material transfer agreement or an access fee.

Relevance for ABS

Biobank/seed bank access fees help ensure the sustainability of ABS activities. With these fees, seed banks can keep the seeds or samples alive for future use. In addition, it helps make access much fairer for everyone. When commercial entities pay for the services they use, these funds can be used to recover the operating costs of the whole biobank. This allows the biobank to let students or researchers get what they need at a lower price or for free, which helps ensure that valuable genetic resources are accessible to everyone, rather than a luxury commodity available only to wealthy entities.

Advantages of using this finance solution

- **Reliable income:** With biobank access fees, there is a steady stream of cash income to maintain the working of biobanks.
- **Less waste:** If samples are 100 percent free, people may use these resources without limitations, which creates loss. The access fees might convince people to think twice and take only what they need.
- **Fairness:** Charge more from the commercial biobank and less from the researchers or non-profit users, which can promote the broader and fairer use of resources

Challenges and attention points

- **Blocking people using resources:** Some people will think that the price of accessing resources is expensive, which makes them give up on researching this problem. It is essential to set up a reasonable and fair price for the resources.
- **Manage funds:** It is necessary to set up an efficient, fair and transparent fund management department to maintain the daily working of biobanks.
- **Legal complexity:** Different countries have conflicting laws on whether charging a fee counts as “selling” genetic resources or just recovering operational costs. This creates a legal minefield for biobanks, as the collection of a simple service fee for foreign samples could be considered a violation of the strict sovereign rights of the country from which the sample originally came.

License fees, upfront payments or milestone payments

General description

Licence fees for certain uses of genetic resources in the context of ABS are payments from third-party users made to the user who is party to an ABS agreement to obtain authorization to access and use genetic materials for scientific research, product development or commercialization. These fees are typically stipulated in legally binding agreements or contracts that outline the terms and conditions of access, use and benefit-sharing in compliance with national ABS legislation.⁴¹

The licence fees may include:

- **upfront payments** (initial payments made when the ABS agreement is executed). These are typically a fixed amount that compensates for access and initial rights to use genetic resources. Upfront fees are often provided for in agreements for genetic resource research or initial development phases; and
- **milestone payments** (conditional payments based on specific achievements or targets during the development or commercialization of a product derived from genetic resources).

We distinguish between licence fees, which are paid regardless of the commercialization of the final product, and royalties, which are calculated based on the level of sales. Royalties are considered here as a separate financial instrument (see chapter 7.4).

41 World Intellectual Property Organization. *A Guide to Intellectual Property Issues in Access and Benefit-sharing Agreements* (WIPO, 2018). Available at https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1052.pdf

Relevance for ABS

The licence fees are negotiated between the first and subsequent users (if the ABS agreement does not stipulate differently). A part of the fees will be paid to the provider, based on the conditions in the ABS agreement. This money regularly goes into a national ABS fund to be spent for biodiversity purposes.

Licence fees play a crucial role in the control of commercial access and use of genetic resources by national authorities. It concretizes monetary transfer to make official the authorization of access and use indifferent to the commercial result of the product developed at the end of the process.

Advantages of using this finance solution

- Engages the legal responsibility of stakeholders.
- Provides monetary benefits even if research and development with the genetic resources do not lead to commercial sales.
- Offers certainty and security for both providers and users.

Challenges and attention points

The licensing of genetic resources products requires a strategic approach to balance commercial objectives with societal and biodiversity benefits. The World Intellectual Property Organization (WIPO) highlights that the licensing process begins by defining clear goals, whether to ensure broad accessibility, generate income, accelerate development via collaborations or secure exclusivity for high-cost industries such as pharmaceuticals.⁴² Following these goals, different type of licences can be chosen (exclusive licences, non-exclusive licences, open licensing pledges).

Licence agreements must define territorial rights, scope of use and sublicensing permissions carefully. Equitable benefit-sharing, including monetary returns and non-monetary contributions, is vital to ensure the ethical and sustainable use of genetic resources.

By tailoring licensing frameworks to specific objectives and operational needs, stakeholders can optimize the commercial potential of genetic resources while fostering fair access and shared benefits.

It should be noted that whether and how subsequent users will be included in benefit-sharing with the provider is entirely case specific; there are no established rules governing this situation.

Advantages resources

- A Guide to Intellectual Property Issues in Access and Benefit-sharing Agreements: <https://www.wipo.int/publications/en/details.jsp?id=4329>
- WIPO Database of Contracts Related to Intellectual Property and Genetic Resources and Data: <https://www.wipo.int/en/web/traditional-knowledge/databases/contracts/index>

⁴² World Intellectual Property Organization. *A Guide to Intellectual Property Issues in Access and Benefit-sharing Agreements* (WIPO, 2018). https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1052.pdf



Box 42: Bioprospecting and Access and Benefit-sharing in Kazakhstan: the ZerdeFito Liquorice case

Context

Kazakhstan joined the Convention on Biological Diversity (CBD) in 1994 and acceded to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits (ABS) on 15 September 2015. The Environmental Code emphasizes the conservation and sustainable utilization of genetic resources, providing a policy foundation for ABS.

The United Nations Development Programme and Global Environment Facility project “Strengthening Human Resources, Legal Frameworks and Institutional Capacities to Implement the Nagoya Protocol” supported Kazakhstan between 2015 and 2021. At project start, Kazakhstan lacked specific ABS legislation. The project helped draft a national ABS policy. Two partnerships were facilitated:

1. a research partnership between the Institute of Botany & Phytointroduction and Konju National University (Republic of Korea); and
2. a community-based partnership where LLC “ZerdeFito” cooperated with local communities for the cultivation and processing of medicinal herbs.

The second partnership became the first benefit-sharing agreement in Central Asia involving local communities and the private sector.

Biodiscovery case: ZerdeFito LLC and liquorice root⁴³

ZerdeFito LLC, a phytotherapy company in Kazakhstan, uses traditional knowledge about liquorice (*Glycyrrhiza glabra*) to produce wound healing and anti-inflammatory extracts:

ZerdeFito LLC, a phytotherapy company in Kazakhstan uses traditional knowledge about liquorice (*Glycyrrhiza glabra*) to produce wound healing and anti-inflammatory extracts:

- Bioprospecting and benefit-sharing agreement: ZerdeFito recognized the fundamental role of traditional knowledge in identifying medicinal plants and sought an ABS permit. The permit was formalized through a benefit-sharing agreement between the company, a Chinese pharmaceutical firm, and local communities in southern and southeastern Kazakhstan. This agreement became the first ABS agreement in Central Asia with local communities.

⁴³ ABS is Genetic Resources for Sustainable Development (UNDP, 2018). Available at <https://www.thegef.org/sites/default/files/documents/ABS%20Book%20Final%20Compressed%20File.pdf>

- Monetary and non-monetary benefits: Community contracts specify prepayments for the cultivation and conservation of medicinal herbs and final payments when the community delivers the plants. Non-monetary benefits include the provision of equipment, training and technology transfer to improve conservation and management.
- Economic and social impact: The project created jobs across the value chain. Around 1,200 people, 71 percent of them women, were employed in cultivation, processing and recultivation sites. Incomes for 211 farmers increased by 15–61 percent due to improved productivity.
- Legal and policy environment: Kazakhstan ratified the Nagoya Protocol in 2015 and issues bioprospecting permits under Bioprospecting, Access and Benefit-sharing (BSAP) regulations adopted in 2015 pursuant to the Environmental Code of 2007.

Sources:

• *ABS is Genetic Resources for Sustainable Development* (UNDP, 2018). Available at <https://www.thegef.org/sites/default/files/documents/ABS%20Book%20Final%20Compressed%20File.pdf>

• *Final Evaluation of the Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol Project* (UNEP, 2018). Available at https://www.unevaluation.org/member_publications/final-evaluation-strengthening-human-resources-legal-frameworks-and



Photo: ©UNDP Nature

ABS certification by the government

General description

According to the BIOFIN Finance Solutions Catalogue,⁴⁴ these tools are voluntary, usually third-party-assessed, norms and standards related to environmental, social and ethical issues adopted by companies to demonstrate the performance of their organizations or products in areas related to product specifications and business processes.

Sustainability standards and certifications define environmental and social criteria and verify compliance through independent certification. They are recognized as tools for promoting responsible sourcing in supply chains.

Relevance and advantage for ABS

Sustainability standards and certifications help companies meet ABS obligations by certifying responsible sourcing, origin traceability and ethical engagement with Indigenous Peoples and local communities. These tools are crucial in promoting transparency and good governance in biodiversity-related value chains.

Sustainability standards and certifications function as enablers, as they help strengthen documentation, due diligence and supply chain traceability. In addition, these standards facilitate benefit-sharing practices by promoting reinvestment into local communities and biodiversity conservation.

Advantages of using this finance solution

United Nations Trade and Development (UNCTAD) indicated in its toolkit on Voluntary Sustainability Standards⁴⁵ that these tools increase market access for compliant products, improve transparency, support biodiversity protection, encourage community participation and equitable practices, and provide credibility for companies.

Challenges and attention points

These effective tools to ensure sustainable practices have some challenges and attention points involved, as reported by various organizations. The first challenge is that the certifications can be costly for small companies and producers. The second challenge is the lack of compliance risk if robust auditing processes are not in place. Third, these standards and certificates require careful alignment with ABS frameworks to be effective.

44 *BIOFIN Catalogue of Finance Solutions* (BIOFIN, 2026). Available at <https://www.biofin.org/finance-solutions>

45 *Voluntary Sustainability Standards* (UNCTAD, 2026). Available at <https://unctad.org/topic/trade-and-environment/voluntary-sustainability-standards>



Box 43: The ABS-RD Seal: Integrating ABS into biodiversity financing in the Dominican Republic

The Dominican Republic (see full case studies near the end of this report) has strengthened its legal framework for access to genetic resources and benefit-sharing (ABS) with measures based on the 2024 Constitution, Law 64-00, Law 333-15, and complementary regulations, updated in 2023, supporting compliance with the Nagoya Protocol.

In 2024, the Ministry of Environment launched the ABS-RD Seal, supported by GIZ, to recognize good practices in the conservation and sustainable use of biodiversity. The seal rewards researchers, universities, companies and organizations that comply with ABS contracts and ensure fair benefit-sharing.

To date, 10 ABS-RD Seals have been granted, distributed as follows: three companies, four universities, one botanical garden and one non-profit organization. The Universidad Autónoma de Santo Domingo (UASD) was awarded the ABS Seal in two editions (2024 and 2025) for two different research projects.

Applicants must have a valid ABS contract, at least one year of compliance, and no serious violations. They submit a formal letter and report to the ministry. Through the follow-up and monitoring of contract compliance, the ministry evaluates which beneficiaries are eligible to receive the ABS-RD Seal. Criteria apply equally to all contract types.

Additional resources:

Access to Genetic Resources contracts are published on the ABS Clearing House platform under the Convention on Biological Diversity: <https://absch.cbd.int/en/countries/DO>

Photo: ©Marc Coenen/Pexels

Next, we look at private–public finance instruments alongside the ABS value chain.

Joint ownership of relevant intellectual property rights

General description

Intellectual property includes creations of the mind, such as inventions, designs and artistic works. Intellectual property rights are intended to reward creativity, promote innovation and enable creators to benefit from their work. Intellectual property can take various forms, including patents, trademarks, copyrights and trade secrets. However, not all creations of the mind are eligible for intellectual property rights, and different types of intellectual property rights have specific criteria for protection, as well as distinct rights and limitations.

Joint ownership can be considered to acknowledge the contributions of multiple stakeholders in the creation of the intellectual property and to facilitate the equitable distribution of benefits derived from its commercialization or use.

Relevance for ABS

Intellectual property plays various roles in ABS agreements, including stimulating innovation, facilitating benefit-sharing and supporting joint ownership, as outlined in the Bonn Guidelines and Nagoya Protocol. For example, research involving genetic resources may result in patentable or copyrightable inventions, and ABS agreements can define rules related to intellectual property applications arising from such research, e.g. information regarding the provider before the application for a patent.

Users of genetic resources may pursue patents to enhance market positions, licence commercialization or mitigate risks through collaborative research and development, given the uncertainty of bioprospecting success. Providers, on the other hand, may request the sharing of licence fees. Alternatively, both Parties may agree on joint ownership of intellectual property, acknowledging their contributions and rights to the innovation.

Advantages of using this finance solution

Joint ownership of intellectual property can act as capital in a joint venture between the user and provider for commercializing the innovation. It can also simplify benefit distribution to the provider if the intellectual property is sold or licensed to a third party. However, it is unlikely that a government would co-own the patent in such cases. Therefore, ABS contracts must address what happens to revenues allocated to entities such as national universities.

Challenges and attention points

One major challenge lies in the allocation of revenues generated from jointly owned intellectual property. By default, these funds are often absorbed into general budgets of the public owner, such as those of universities, without dedicated provisions for biodiversity conservation or capacity-building related to genetic resources.

Uncertainty in research outcomes makes it challenging to anticipate intellectual property matters during early negotiations in ABS agreements. Confidentiality is crucial to protect intellectual property, as premature disclosure can jeopardize patent applications due to prior art. Variations in grace periods across jurisdictions further emphasize the need for confidentiality clauses.

ABS agreements should address intellectual property implications, particularly for research aimed at developing commercial products or processes. Ownership terms must ensure equitable benefit-sharing, acknowledging contributions from users and providers, including traditional knowledge and scientific input. Agreements should also clearly define responsibilities for patent management and commercialization.

Strategic decisions regarding patent jurisdictions should align with market and manufacturing opportunities, while commercialization models—such as licensing, assignments or joint ventures—should be clearly established, including plans for engaging third-party partners post-research.

In the context of benefit-sharing, it is important to consider that the owner of a patent must pay annual fees under each jurisdiction in which the patent was filed to keep it valid. Co-ownership might bring costs to the provider country before any benefits can flow.

Additional resources:

- WIPO Guide to Intellectual Property Issues in Access and Benefit-sharing Agreements (2018): <https://www.wipo.int/publications/en/details.jsp?id=4329>
- WIPO Database of Contracts Related to Intellectual Property and Genetic Resources and Data: <https://www.wipo.int/en/web/traditional-knowledge/databases/contracts/index>

Joint ventures

General description

A joint venture is a business association between two or more independent organizations to achieve a shared goal or undertake a common project. In innovation-focused joint ventures, parties share risks and pool resources, including financial and intellectual capital, towards research, development, production, marketing and commercialization. Intellectual property plays a key role, requiring clear agreements on ownership, rights, contributions and responsibilities from the outset.

Joint ventures can follow two models: the contractual model, used for short-term, specific collaborations such as research projects, and the entity model, for long-term partnerships with broader goals, often involving the creation of a separate legal entity such as a company. Successful joint ventures depend on selecting appropriate partners, considering their goals, resources, expertise, commercialization experience and market reputation. This initial analysis helps determine the optimal structure and scope of the partnership, whether for short-term objectives or enduring collaboration.

Relevance for ABS

Joint ventures can serve as an effective mechanism to pool resources, expertise and intellectual property while fostering mutual benefit. Joint ventures can facilitate partnerships between organizations such as research institutions, private companies and provider countries, allowing them to combine financial, intellectual and technical resources to promote innovation and development. It can allow a private entity to access genetic resources, while universities or public research institutes could benefit from the technologies and materials of the partner.

Advantages of using this finance solution

Joint ventures offer a significant advantage for the providing country or entity by enabling it to retain control over the use and commercialization of innovations derived from genetic resources. This collaborative framework facilitates technology and knowledge transfer, strengthening national capacities and enhancing local expertise. Additionally, joint ventures help ensure the effective monitoring of benefits and provide control over the benefit-sharing process, fostering transparency and equitable distribution. This approach not only supports sustainable development but also empowers the providing entity to actively participate in shaping the outcomes of innovation and commercialization efforts.

Challenges and attention points

However, this arrangement is not without risks. A joint venture requires significant expenditures and commitments from both parties even before they are able to confirm the commercialization potential of a product. Upfront costs include those related to research and development investments, legal arrangements and infrastructure building. However, if the venture is not commercially viable or fails to meet its objectives, these initial expenditures could result in unrecoverable financial losses for both parties.

If the provider struggles to meet its expected contributions—whether financial, intellectual or resource-based—it could face penalties or lose influence within the joint venture.

Agreements must clearly outline financial commitments, intellectual property management, benefit-sharing mechanisms and contingency plans in the event of failure. Regular monitoring, transparency measures and equitable risk allocation are also critical to reducing the potential downsides of joint ventures.

Additional resources

- European Innovation Council and SMEs Executive Agency (2024): <https://op.europa.eu/en/publication-detail/-/publication/36796314-94de-11ef-a130-01aa75ed71a1/language-en>
- WIPO Guide to Intellectual Property Issues in Access and Benefit-sharing Agreements (2018): <https://www.wipo.int/publications/en/details.jsp?id=4329>

Blended finance for SMEs supporting ABS-compliant supply chains

SMEs—especially in so-called providing countries—undertaking research and development on genetic resources or using indigenous biological resources with ABS obligations face a structural financing gap. Conventional financial products do not accommodate their long pre-commercial compliance timelines, niche risk profiles or community-based ownership models. Development funding remains the dominant source of support, yet it is bound by time and cannot substitute for sustainable financing.

General description

Blended finance combines concessional public or philanthropic capital with private-sector investment to reduce perceived risk and attract commercial financing to markets that would otherwise be overlooked. It typically includes layered instruments—grants, concessional loans, guarantees and equity—structured so that public funds absorb first-loss risk, enabling private investors to participate at acceptable returns.

Relevance and advantage for ABS and ABS-compliant supply chains

ABS compliance under the Nagoya Protocol requires that respective SMEs incur significant upfront costs (USD 10,000 to USD 150,000) over long timelines (two to eight years) before any revenue can be generated. Conventional debt finance cannot cover these non-revenue-generating compliance phases. Blended finance directly addresses this bottleneck by providing grant or concessional capital to cover ABS-related (negotiating benefit-sharing agreements, obtaining prior informed consent, securing permits and identifying holders of traditional knowledge) or other market access-related upfront investment costs (commercial research and development, intellectual property, certification, consumer safety regulations like the United States of America Food and Drug Administration, Novel Food or REACH) while simultaneously building investor confidence for the later commercial phase.

Advantages of using this finance solution

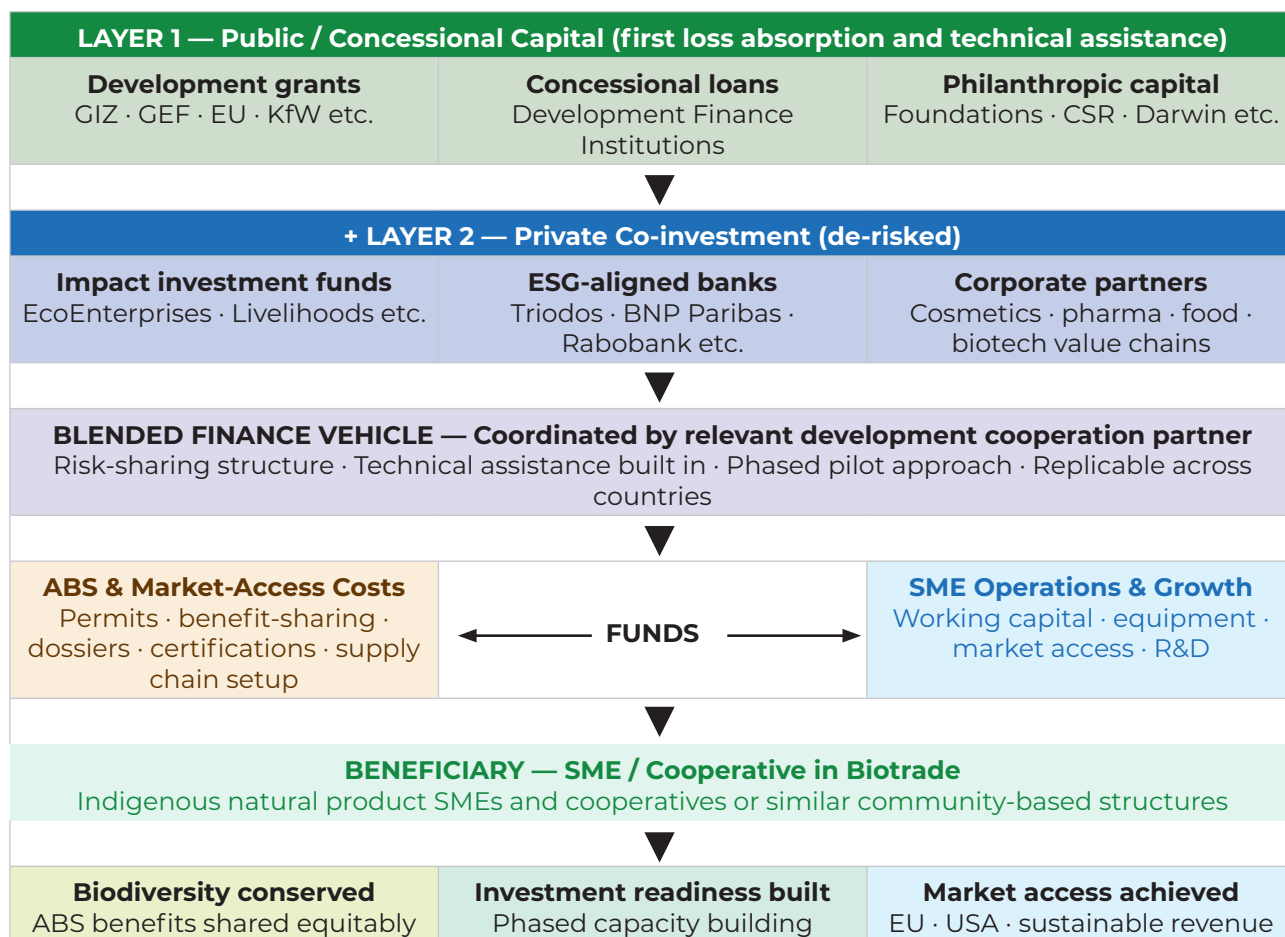
- Bridges the “missing middle” gap: SMEs too large for microfinance but too risky for commercial banks gain access to structured capital.
- Unlocks private capital for a sector currently dependent on time-bound donor cycles.
- Longer investment horizons: Capital aligns with slow biological resource development cycles (tailor-making financial products).
- Supports Indigenous Peoples and local communities: Enables Indigenous Peoples and local communities and cooperatives to act as viable economic actors not recognized by conventional banks.
- Aligns with global frameworks, including the GBF, SDGs, and UNCTAD or Union for Ethical BioTrade (UEBT) BioTrade Principles
- Replicable and scalable: Pilots in regional contexts can provide a model for other countries on the same continent and beyond.
- Risk mitigation: De-risks investment for private actors in niche, biodiversity-based markets.
- Holistic support: Bundles technical assistance with capital, improving SME investment readiness.
- Catalytic effect: Every public dollar invested can mobilize multiple private dollars.
- Positive precedents exist in adjacent sectors (agroforestry, fair trade, organic) that can inform structure.

Challenges and attention points

- Blended finance structures for ABS-compliant value chain development do not yet exist broadly and must be purpose-built.
- Community structures (cooperatives, Indigenous Peoples and local communities) often are not recognized by financial institutions as creditworthy entities.
- Fragmented regulatory environment and high mandatory compliance costs create bottlenecks.
- Market uncertainty: High innovation does not always translate to quick market uptake leading to high transaction costs.
- Lack of collateral and credit history limits access to commercial lending.
- Lack of agreement on nomenclature (“biodiversity finance”, “nature-based solutions”, “sustainable finance”) makes sector communication to financiers difficult
- Investors often do not recognize or adequately value the sector’s potential.
- Financial institutions lack biodiversity-specific risk-assessment tools and sector knowledge
- Requires strong coordination among public development agencies, private investors and community actors.
- Bank “ticket sizes” of existing blended instruments are often too large for MSMEs (minimum thresholds commonly exceed USD 500,000)
- SMEs themselves often lack the financial literacy, investment-readiness documentation and credit history required to participate.
- Guarantee schemes and export credit facilities are absent in many countries for this sector.
- A phased pilot approach is required to proof various principles—involving national and international agencies, selected SMEs and financial intermediaries—with lessons documented for replication.

Blended finance model — capital stack diagram

The diagram illustrates how grant capital (top) absorbs initial risk, allowing Development Finance Institutions (middle) to provide guarantees, which ultimately unlocks private commercial capital (bottom) for biotrade SMEs.



Note: The diagram illustrates how grant capital (top) absorbs initial risk, allowing development finance institutions (middle) to provide guarantees, which ultimately unlocks private commercial capital (bottom) for biotrade small and medium organizations (SMEs).

Source: Authors' own elaboration

Table 3: Proposed implementation road map (12–24 months)

Months 1–3 Stakeholder identification Map potential lenders and investors. Identify and segment small and medium organizations (SMEs) by business model and financial need. Organize round tables among financial institutions and SMEs.
Months 4–6 Risk assessment Assess financial institutions' risk appetite. Identify key SME risks (collateral gaps, seasonality). Develop risk-sharing mechanisms, including guarantees and blended finance models.
Months 7–12 Product development and capacity building Design financial products suited to SMEs (blended finance instruments, working capital loans, trade finance). Develop investment-readiness training. Establish advisory platform.
Months 13–18 Digital and alternative finance Integrate fintech solutions for SME credit assessment. Train SMEs on digital financial tools. Develop mobile-based financing solutions.
Months 19–24 Implementation, monitoring and policy integration Roll out financing programme. Track SME financial performance and repayment trends. Create monitoring framework. Document lessons for replication.

Table 4: Demand versus supply: summarized financial gaps

Aspect	SME demand side	Financial institution supply side
Finance types	Working capital; Access and Benefit-sharing (ABS) compliance; market access; research and development	Conventional lending; short-term instruments; no biotrade-specific products
Eligibility	Limited collateral; informal structures; community cooperatives	Substantial collateral required; proven track record; formal incorporation
Interest rates	Affordable rates reflecting social/environmental value	Higher rates reflecting perceived risk; standardized terms
Risk	Recognition of lower risk from sustainable practices; risk-sharing needed	High perceived risk; limited use of mitigation tools
Alternative finance	Impact investment; green bonds; crowdfunding; fintech	Traditional models dominate; limited sustainability adaptation

Note: This table contrasts what biotrade small and medium organizations (SMEs) need with what financial institutions currently offer, identifying where blended finance must bridge the gap.

Source: Authors' own elaboration

Examples of institutions to engage

Development finance and donors

- Germany: GIZ, Import Promotion Desk, Sequa, export promotion agencies
- the Kingdom of the Netherlands: CBI
- United Kingdom of Great Britain and Northern Ireland: Foreign, Commonwealth & Development Office (FCDO)
- European Union:
 - various programmes that support the implementation of free trade Economic Partnership Agreements
- France:
 - FFEM (Fonds Français pour l'Environnement Mondial)
- GEF: blended finance and non-grant instruments
- EEP Africa (Nordic, Swiss, Finnish, Norwegian and Austrian government funds)
- European Investment Bank, KfW, and other development finance institutions (DFI Impact Investors and ESG-aligned banks, for example)
- EcoEnterprises Fund (e.g. UEBT technical partner)
- Livelihoods Fund, Moringa Fund, EcoEnterprises Fund, other
- Triodos Bank, BNP Paribas Green Finance, Rabobank, Julius Baer Bank corporate social responsibility fund
- Conservation International CI Ventures, World Wildlife Fund, and other nature-based solutions development agencies or NGOs, foundations or corporate social responsibility investors

National Institutions: examples from Namibia and South Africa

- Environmental Investment Fund of Namibia: community blended finance intermediary
- Industrial Development Corporation: Natural and Indigenous Products Fund pilot, South Africa
- Green Fund, from the Development Bank of Southern Africa
- GEF and Green Climate Fund national partner institutions
- BioPANZA Finance Cluster, South Africa

Corporate supply chain management

General description

Corporate supply chain management turns ABS compliance into a standard part of the commercial procurement process. Companies use traceability systems to track exactly where the ingredients come from and who provided them, establishing robust due diligence processes to verify the origin of biological resources.

Relevance for ABS

Through corporate supply chain management, companies embed ABS obligations into supplier contracts and ensure that benefits can reach the original providers of the genetic resources, which helps conservation and community development, as agreed in the mutually agreed terms.

Advantages of using this finance solution

- Reduce biopiracy: Corporate supply chain management stops unauthorized resources from entering companies, which helps prevent biopiracy by verifying the origin and ABS compliance of all resources.
- Stable supply: By building fair relationships with Indigenous Peoples and local communities, companies can acquire a stable supply of genetic resources for the long term.
- Brand reputation and value: An ethical supply chain is a powerful marketing tool. Customers are willing to buy organic or fair trade products even with higher prices.

Challenges and attention points

- Complexity and opacity: Supply chains are very long and involve many intermediaries, which makes it difficult to trace and monitor the whole process.
- High costs: Setting up traceability systems requires a lot of money and time.
- Risk of greenwashing: Without independent verification mechanisms, the supply chain lacks transparency, leading to the risk of greenwashing.⁴⁶

Additional resources

- International Chamber of Commerce – “Towards a new implementation strategy for access and benefit-sharing”: <https://iccwbo.org/news-publications/policies-reports/towards-a-new-implementation-strategy-for-access-and-benefit-sharing/>
- Union for Ethical BioTrade Sourcing Standard: <https://uebt.org/resource-pages/standard>

⁴⁶ “Greenwashing”, according to the United Nations, is the act of misleading the public to believe that a company or entity “is doing more to protect the environment than it is”. Greenwashing – the deceptive tactics behind environmental claims (United Nations, 2026). Available at <https://www.un.org/en/climatechange/science/climate-issues/greenwashing>



China: Securing flea grass raw materials for value chain

Box 44: Securing flea grass raw materials for a value chain in China

DR Plant is a leading domestic cosmetic company in China. The company has made efforts in both in situ and ex situ conservation, as well as community development, with support from the United Nations Development Programme and Global Environment Facility Access and Benefit-sharing (ABS) project. On 21 June 2021, DR Plant signed a contract with Manyuan Village in Yunnan, China, for the utilization of a traditional fumigation prescription. Another contract was signed with Daka Village on 23 June 2021 for the use of a fragrance species.

In case of Manyuan Village, urbanization had previously put flea grass (*Adenosma buchneroides Bonati*) at risk of extinction. This plant is traditionally used by local communities to repel mosquitoes. Experts explored sustainable usage and collaborated with companies to develop anti-mosquito products. DR Plant supported a pilot initiative to encourage local communities to restore the planting of this traditional plant near their homes, allowing it to be sold to enterprises at reasonable prices. Furthermore, DR Plant assisted in the industrialization of these products. Manyuan Village has received both monetary (in the form of cash returns) and non-monetary (including skills training) benefits from Novozymes and DR Plant.

Additionally, monk fruit growers in Guangxi benefit from high-yielding varieties provided by the company Jifusi, and owners and local communities of Huangjin tea (Golden Camellia) have seen their annual incomes increase due to higher market prices.

As a result, Manyuan Village has successfully restored the ecological environment of Longshan by planting local Dai medicinal plants such as dendrobium. This initiative has promoted local ecotourism and significantly improved the villagers' lives. The flea grass planting project has also thrived in Daka Laozhai and Gongbing New Village, expanding the planting area and giving rise to industrial chains, including the deep processing of ecological tourism and other industries. By the end, 84 households have increased their income by over CNY 3 million (approximately USD 429,000), with female participation exceeding 50 percent.

Many private companies with which the international consultant team engaged reiterated their commitment to the contractual agreements made with local communities and expressed their intent to continue investing their own funds. For instance, as part of the co-financing for the UNDP–GEF ABS project, UNDP China and DR Plant extended their partnership to 2027 and is conducting a second phase of the UNDP–DR Plant ABS project.

4. Finance instruments to facilitate benefit-sharing

Related to mechanism to channel and distribute the benefits derived from genetic resources.

ABS royalties

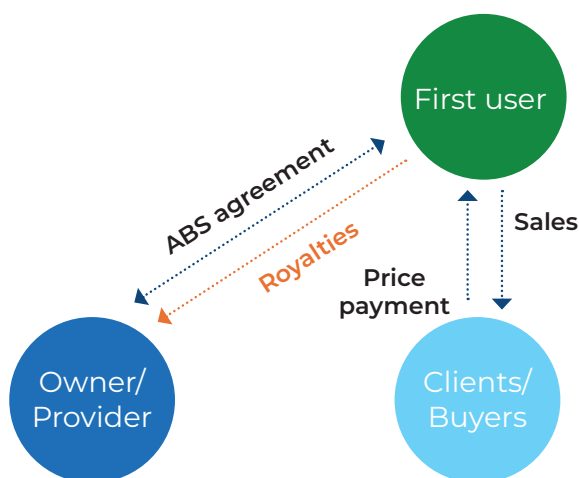
General description

A royalty is a continuing payment based on revenue generated from the use and sale of a product derived from genetic resources. The use of royalties is a form of benefit-sharing from the commercialization of a product based on mutually agreed terms between the provider and the user, e.g. a percentage of revenue once the commercial product reaches the market.

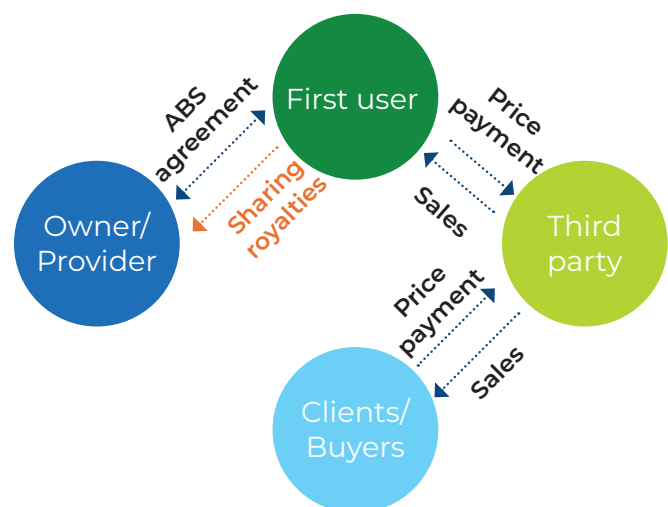
While details will vary depending on the mutually agreed terms, those scenarios are likely:

- Scenario 1: The first user is directly selling the product. In this case, the royalties are directly paid to the owner/provider of a resource, following the terms of the ABS agreement.
- Scenario 2: The first user is selling/licensing the product/innovation to a third party, who will commercialize it. In this case, the royalty is paid first from the third party to the first user and only in a second step will be partly shared to the owner/provider of the resources. Third-party transfer and extending benefit-sharing to third-party users is a challenge in ABS contracts; these need to be well drafted and executed to be effective in terms of benefit-sharing.

Scenario 1: First user is selling directly



Scenario 2: First user is selling to a third party



Source: Authors' own elaboration

Relevance for ABS

It is the ABS contract and the user's compliance with its terms that guarantee the equitable sharing of benefits in the form of royalties. When included in an ABS contract, royalties can serve as a mechanism for sharing monetary benefits arising from the commercial use of genetic resources or traditional knowledge. When properly implemented and enforced, such agreements recognize the value of traditional knowledge holders and support custodians with tangible monetary benefits. They also encourage the responsible use of genetic resources and the conservation of biodiversity by linking commercial success with provider benefits.

Advantages of using this finance solution

ABS royalties can create a continuous and long-term revenue stream, as payments continue for the duration of profit generation. Royalties can boost trust between resource providers and users through predictable payments. Royalties can be channelled towards longer-term initiatives such as funding conservation programmes and community development.

Challenges and attention points

One of the challenges is that there is often high uncertainty about whether research efforts will achieve commercial success. Additionally, commercialization may take many years, extending the timeline of the reception of benefits. Revenues also depend on market dynamics, so changes in demand or competition may have an effect. Royalty rates must be set fairly, according to legal and technical expertise.



Box 45: ABS royalties in Bhutan

Since the institution of its Access and Benefit-sharing (ABS) regime in 2009, Bhutan has entered into 21 ABS and bioprospecting partnerships with national and international users. These agreements have mobilized nearly BTN 20 million (approximately USD 300,000) for the Bhutan Access and Benefit-sharing (BABS) Fund through royalties, access fees and other contributions. Local communities have participated not only as custodians and providers of genetic resources but also as direct beneficiaries of fair and equitable benefits.

Reinvestments from the fund have supported community livelihood initiatives, biodiversity-based enterprises, sustainable harvesting training, value-addition projects, etc. Beneficiaries include women's groups, youth cooperatives, community-based organizations and local institutions working with high-value biological resources.

Early impacts demonstrate increased community engagement in biodiversity management, improved awareness of ABS principles, and stronger incentives for responsible and sustainable resource use. Environmentally, the mechanism reinforces conservation by ensuring that utilization contributes meaningfully to biodiversity conservation rather than depletion. Collectively, these results illustrate how ABS is evolving into a practical and effective biodiversity finance solution that delivers both social and ecological co-benefits.



Box 46: ABS royalties in the Comoros

In the Comoros, a process for benefit-sharing through mutually agreed terms has been established. Mutually agreed terms cover royalties and non-monetary contributions such as technology transfer and capacity-building. Fees and payment terms are negotiated directly among resource users, the Directorate General of Environment and Forests (DGEF)—the national competent authority—and relevant stakeholders.

Users make payments to the DGEF, which manages and redistributes funds according to each contractual agreement. Financial oversight is provided by the ABS focal point, the director, and the financial officer of the DGEF, ensuring transparency and traceability. Benefits are allocated to conservation and research projects, with selection and allocation criteria set by each agreement rather than through formal calls for proposals.

So far, royalty payments remain limited, and efforts are under way to strengthen financial monitoring within DGEF.

ABS trust funds

General description

A trust fund is a legally established financial mechanism to manage and allocate resources exclusively for a designated purpose, ensuring long-term sustainability and accountability.⁴⁷ Trust funds should include rigorous project approval and implementation processes, monitoring and evaluation frameworks, and control over assets.⁴⁸ This financial mechanism is commonly used in areas such as environmental conservation, social development, research and humanitarian assistance, among others.

Types of trust funds:⁴⁹

- Endowment trust fund: Uses earnings from invested capital to support activities indefinitely, keeping the amount initially invested (principal) preserved.
- Sinking fund: Created for a fixed-term purpose, disbursing capital over time until depletion.
- Revolving fund: Replenished regularly by revenue streams (e.g. user fees, taxes) as existing resources are used, maintaining continuous funding.
- Grant-making trust fund: Distributes funds to projects or organizations through grants based on pre-defined criteria.

47 K. Mikitin, Issues and Options in the Design of GEF Supported Trust Funds for Biodiversity Conservation (The World Bank, 1995). Available at <https://library.sprep.org/sites/default/files/g-fundissues-gef.pdf>

48 BIOFIN Catalogue of Finance Solutions (BIOFIN, 2026). Available at <https://www.biofin.org/finance-solutions>

49 K. Mikitin, Issues and Options in the Design of GEF Supported Trust Funds for Biodiversity Conservation (The World Bank, 1995). Available at <https://library.sprep.org/sites/default/files/g-fundissues-gef.pdf>

Relevance and advantage for ABS

Trust funds, which can be fully or partially capitalized by ABS-related revenues, can enable the framework needed for ABS, financing research, capacity-building and other related activities permitted under the legislation that established the fund.

Trust funds can support equitable benefit distribution. A well-established and well-governed trust fund allocates resources for specific purposes and beneficiaries. This provides a transparent and structured approach to distributing benefits (financial and non-financial) among stakeholders, including local communities, research institutions and conservation initiatives.

Advantages of using this finance solution⁵⁰

- Transparency and accountability: These reduce the risk of mismanagement and corruption, helping ensure funds are used for their intended purposes.
- Flexibility and adaptability: Funds can be structured as endowments or revolving funds, adapting to national priorities and community needs.
- Attracts co-financing and partnerships: Trust funds can leverage ABS funds to attract additional investments from donors, NGOs and the private sector.
- Strengthens legal and institutional frameworks: Supports the development of policies and regulations for ABS governance.
- Ensures community empowerment: Provides long-term financial security to Indigenous Peoples and local communities engaged in ABS agreements.

Challenges and attention points

- Governance and institutional challenges, given high administrative costs, administrative complexity and the need for a strong legal and institutional framework for the fund.⁵¹
- Ensuring long-term financial sustainability, depending on the fund's type and objectives.⁵²
- Exposure to market volatility, which can result in capital losses.⁵³

50 B. Spergel and P. Taïeb, *Rapid Review of Conservation Trust Funds* (Conservation Finance Alliance, 2008). Available at <https://www.cbd.int/financial/trustfunds/g-rapidassess.pdf> and *How Conservation Trust Funds are Driving Progress for Nature* (GEF, 2024). Available at https://www.thegef.org/sites/default/files/documents/2024-10/GEF_Conversation%20Trust%20Fund%20f300dpi%2010.28.24.pdf

51 B. Spergel and P. Taïeb, *Rapid Review of Conservation Trust Funds* (Conservation Finance Alliance, 2008). Available at <https://www.cbd.int/financial/trustfunds/g-rapidassess.pdf>

52 Ibid.

53 Ibid.



Botswana: ABS trust fund

Box 47: ABS trust fund in Botswana

The legal foundation for regulating access to genetic resources and ensuring the fair and equitable sharing of benefits is the Access and Benefit-sharing of Biological Diversity Act from 2022. Since the act's adoption, the country has focused on developing supporting regulations and strengthening institutional arrangements to fully operationalize the ABS framework.

The proposed mechanism is a national ABS Benefit-Sharing Trust Fund designed to collect revenues such as royalties, access fees, milestone payments and other ABS-related financial benefits arising from the commercial or research use of genetic resources. Funds would be collected by the government through the competent national authority and transferred into the fund.

The mechanism would operate by allocating an agreed proportion of revenues directly to local communities, including community trusts and village development committees, who act as custodians of genetic resources and associated traditional knowledge. Remaining funds would support national biodiversity conservation, research, monitoring and institutional strengthening, in line with recommendations from the country's BIOFIN finance plan.

Key stakeholders include:

- Government of Botswana (as fund collector and regulator)
- Competent national authority and interim ABS committee
- Local community trusts and village development committees (primary beneficiaries)
- Researchers, private-sector bioprospectors and biotrade enterprises
- Conservation and research institutions

While there are no financial flows as of now, Botswana is experiencing an increasing number of ABS-related requests from universities, bioprospecting initiatives and emerging biotrade enterprises, signalling a strong future potential for revenue generation once systems are fully operationalized.

Challenges persist due to limited institutional capacity, slow processing of ABS applications and the absence of a formal mechanism for reinvestment. These constraints delay the realization of both monetary (royalties, research support) and non-monetary (technology transfer, capacity-building) benefits. The envisioned fund aims to channel future revenues towards biodiversity conservation, community livelihoods and sustainable development, consistent with BIOFIN's recommended finance solutions.

A major lesson from the country's experience is that strong institutional capacity is critical to effective ABS implementation. Capacity-building for the competent national authority, supporting authorities and sector regulators is essential for handling permits, negotiating ABS terms and monitoring compliance.

The establishment of interim governance structures such as the interim ABS committee has been a key success factor, enabling continuity while awaiting full operationalization of the act. Clear legal frameworks, intersectoral coordination and the involvement of communities are fundamental conditions for a successful ABS financial mechanism.



Photo: ©UNDP Nature



Box 48: The benefit-sharing fund of the International Treaty on Plant Genetic Resources for Food and Agriculture

The benefit-sharing fund (BSF) of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) is a financial mechanism for the fair and equitable sharing of benefits arising from the use of plant genetic resources for food and agriculture (PGRFA) accessed through the treaty's multilateral system of Access and Benefit-sharing (ABS). Voluntary contributions, together with the monetary and non-monetary benefits generated through the multilateral system, are channelled to the BSF to support the conservation and sustainable use of PGRFA in developing countries. The fund also is an essential element of the treaty's funding strategy, which includes a wider set of funding channels that support implementation of treaty objectives.

The BSF operates by funding single and multi-country projects that enhance the on-farm management, conservation and sustainable use of plant genetic diversity, with a focus on small-scale farmers. It supports participatory approaches, including participatory plant breeding and farmer-led innovation, and promotes the strengthening of local seed systems and value chains. Through these activities, the BSF contributes to improving food security, livelihoods, resilience and adaptation to climate change while fostering the maintenance and use of diverse genetic resources.

Funding is allocated through project cycles, each involving a call for proposals, an independent appraisal process and disbursement. Since its establishment in 2009, the BSF has invested over USD 35 million in five funding cycles and has supported more than 100 projects in nearly 80 developing countries, benefiting more than 1 million people. It has created a global network of more than 500 institutions, enabling the exchange of knowledge, technologies and good practices related to PGRFA. This collaborative community strengthens capacities among stakeholders—including farmers, breeders, researchers and policymakers—and facilitates the integration of traditional knowledge and scientific approaches.

Each project cycle incorporates lessons from previous cycles, improving efficiency and impact. Key learnings from the BSF highlight the effectiveness of participatory and locally adapted approaches in addressing the interconnected challenges of biodiversity loss, food insecurity and climate change. The fund demonstrates that targeted, small-scale investments can generate significant impacts when aligned with local priorities and supported by strong institutional partnerships and consortia. At the same time, experience underscores the need for sustained and diversified financing, as well as stronger national policy support, to scale up and mainstream successful approaches. The BSF thus provides a practical model for operationalizing international ABS commitments, delivering tangible support to countries while enhancing objectives and strengthening global collaboration on PGRFA.

Source: *What is the BSF? International Treaty on Plant Genetic Resources for Food and Agriculture* (FAO, 2026). Available at <https://www.fao.org/plant-treaty/areas-of-work/benefit-sharing-fund/bsf-overview/en/>

Community finance

General definition

Community finance—often considered part of microfinance—is of particular relevance for the communities living in or close to protected areas, including Indigenous communities. Financial providers have a stated mission to deliver financial solutions for people in a defined community. Lending practices include community revolving funds and credit unions. The community itself is often the main shareholder of those institutions and can be the sole source of capital, such as in village savings and loans.



Photo: ©Lorena Martinez/Pexels

Under national ABS frameworks, monetary and non-monetary benefits generated from the utilization of genetic resources and traditional knowledge can be directed to community-led projects. These are the initiatives conceived, designed and implemented by Indigenous Peoples and local communities. The benefits arising from the use of these resources can be channelled into funds or mechanisms that directly support the priorities of provider communities.

Relevance and advantage for ABS

Financing community-led projects ensures that communities exercise agency over the use of shared benefits, strengthen their role as custodians of biodiversity, and secure long-term socioeconomic development aligned with their values and traditions.

Advantages of using this finance solution

Advantages include the support for the right to self-determination in development, contributing to the social legitimacy of ABS work, improved and sustained conservation outcomes, strengthened local governance, and enhanced social inclusion and equality of Indigenous Peoples and local communities.

Challenges and attention points

Communities might need capacity-building for fund management with ensured transparency. Projects must align with social safeguards, as per the UNDP Social and Environmental Standards. Moreover, national ABS legislations should be in place to ensure the sustainability of financing.

8. Case studies



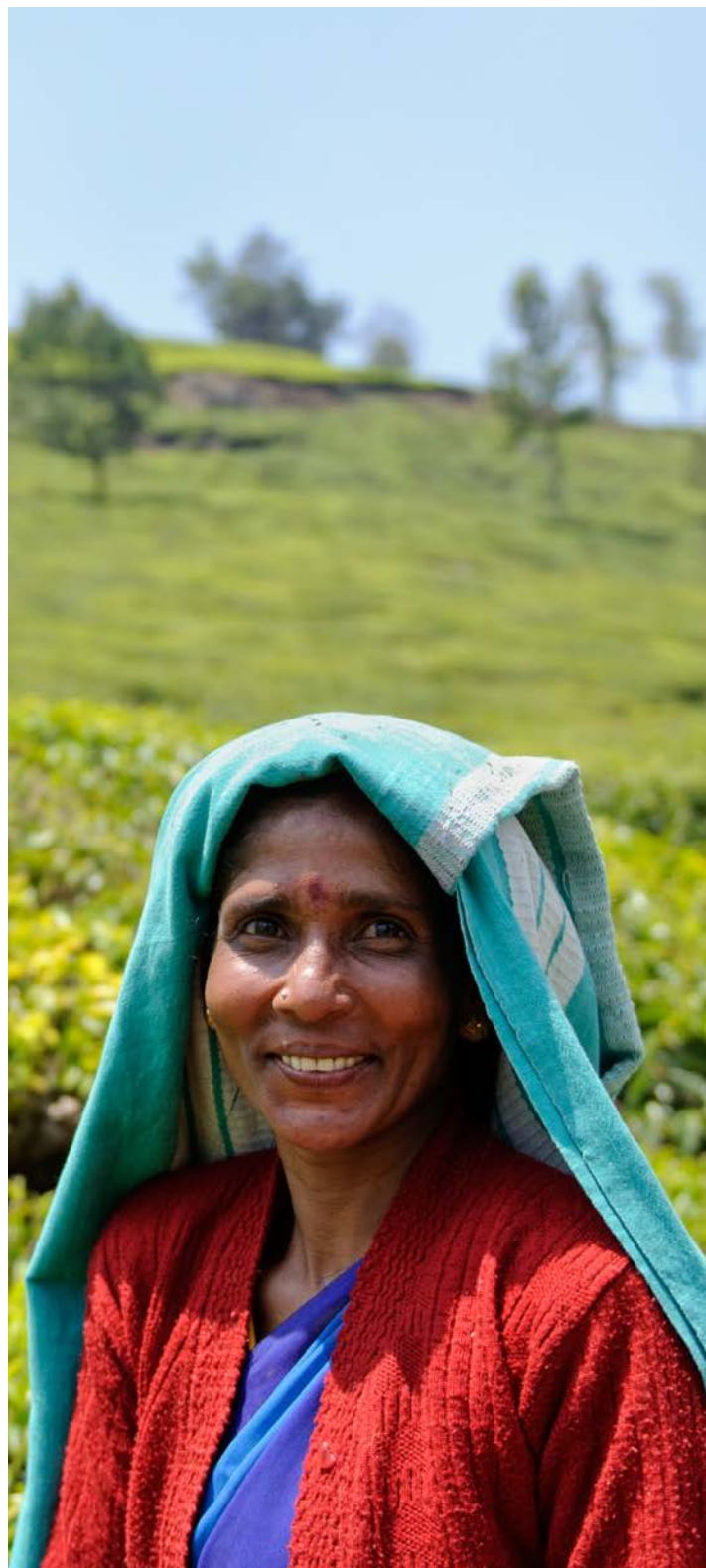
India

India: Setting up an ABS system⁵⁴

The ABS system in India—governed by the Biological Diversity Act of 2002 (amended in 2023), the Biological Diversity Rules of 2024 and the Biological Diversity (Access to Biological Resources and Knowledge Associated Thereto and Fair and Equitable Sharing of Benefits) Regulations of 2025—is a robust framework designed to ensure compliance, conservation and equitable benefit-sharing. The system regulates access to biological resources and associated knowledge, including traditional knowledge and DSI, for activities such as research, commercial utilization, biosurveys, bioutilization, intellectual property rights, and the transfer of biological resources outside India, requiring prior informed consent and mutually agreed terms. The 2025 ABS Regulations introduced a turnover-based benefit-sharing model to promote equity, particularly for MSMEs, and streamlined processes with deemed approvals within 15 days.

Costs and needs for the ABS system

The operational budget for the ABS system in India supports a decentralized structure involving the National Biodiversity Authority (NBA), 28 State Biodiversity Boards (SBBs), eight Union Territory Biodiversity Councils (UTBCs), and approximately 277,688 Biodiversity Management Committees (BMCs). Key activities include processing applications, issuing certificates of origin, monitoring compliance and maintaining digital infrastructure.



Photos (above) ©UNDP;
(chapter divider) ©Allan Gichigi / UNDP Kenya office

⁵⁴ Further information is available at <https://www.biofin.org/news-and-media/access-and-benefit-sharing-turning-biodiversity-fair-and-sustainable-finance-india>

The NBA, headquartered in Chennai, developed an end-to-end [ABS digital portal](#), operational since the end of 2025, to streamline ABS applications and approvals. This initiative, supported by BIOFIN under the finance solution to enhance resources through ABS, also includes the world's first Voluntary Certification Scheme for Incentivization of ABS (VCS-I-ABS), developed with the Quality Council of India to encourage business compliance.



Budget and funding

The NBA's annual budget is approximately INR 16–18 crore (USD 1.9–2.1 million). This is funded through government grants, application fees, and 10–15 percent of benefit-sharing payments retained for operational expenses. Application fees vary by entity type: INR 2,000 (USD 24) for individuals and INR 5,000 (USD 60) for companies for general applications, with higher fees of INR 10,000–20,000 (USD 120–240) for commercial utilization. Training programmes for SBBs and BMCs, particularly for issuing certificates of origin for cultivated medicinal plants and maintaining digital records, add to the costs.

Sectoral contributions

The ABS system has collected INR 200 crore (USD 24 million), with sector-wise contributions as follows: red sanders wood (60 percent), agriculture and allied sectors (20 percent), biotechnology and nutraceuticals (10 percent), pharma/AYUSH (5 percent), and cosmetics (5 percent). Additionally, 15 SBBs have collectively collected INR 55 crore (USD 6.6 million), with significant contributions from Andhra Pradesh (INR 11.93 crore, USD 1.43 million), Uttarakhand (INR 10.28 crore, USD 1.23 million), and Madhya Pradesh (INR 6 crore, USD 720,000).

Benefit-sharing slabs

- Turnover-based model: For entities with an annual turnover above INR 5 crore (USD 600,000), benefit-sharing is calculated as a percentage of the annual gross ex-factory sale price (excluding taxes):
 - INR 5–50 crore (USD 600,000–6 million): 0.2 percent
 - INR 50–250 crore (USD 6–30 million): 0.4 percent
 - Above INR 250 crore (USD 30 million): 0.6 percent
- Exemptions: Entities with turnover below INR 5 crore (USD 600,000) are exempt but must submit annual reports on resource use.
- High-value resources: For resources such as red sanders, sandalwood and threatened species, benefit-sharing is at least 5 percent of the sale or auction amount, increasing to 20 percent if DSI or associated knowledge is used.

Implementation and distribution

- **Distribution:** The NBA facilitates benefit distribution to local communities, SBBs and BMCs. For resources accessed from multiple SBB jurisdictions, benefits are apportioned proportionately. The NBA has distributed INR 60.50 crore (USD 7.26 million), including INR 34.50 crore (USD 4.14 million) to the Andhra Pradesh Forest Department and INR 3.80 crore (USD 456,000) for red sanders research by institutions such as the Institute of Forest Genetics and Tree Breeding, Council of Scientific and Industrial Research and Institute of Wood Science and Technology.
- **Exemptions:** Cultivated medicinal plants, codified traditional knowledge and AYUSH practitioners are exempt, provided that a certificate of origin is obtained from BMCs, simplifying access for traditional medicine industries while ensuring conservation.
- **Monetary and non-monetary benefits:** Benefits include royalties, upfront payments, technology transfer and joint research, as mandated in ABS agreements.

Sectoral impact

The biodiversity-based industry in India generates an annual business volume of INR 4 lakh crore (USD 48 billion), with key sectors including:

- **Pharmaceuticals:** INR 2.08 lakh crore (USD 25 billion)
- **Agriculture and allied sectors (seeds):** INR 30,000 crore (USD 3.6 billion)
- **Indian System of Medicine (Ayurveda):** INR 25,000 crore (USD 3 billion)
- **Biotechnology, Cosmetics, Nutraceuticals, and others (e.g., red sanders, cattle embryos, seaweeds, microorganisms).**

Challenges

- **Bureaucratic Hurdles:** Implementation faces delays due to complex coordination across NBA, SBBs, UTBCs, and BMCs.
- **Public Awareness:** Limited awareness among industries and communities hinders compliance.
- **Industry Resistance:** Compliance costs deter businesses, though the 2025 Regulations aim to address this through streamlined processes.
- **Community Rights:** Concerns remain about potential dilution of community rights due to exemptions for AYUSH industries and reduced BMC roles in ABS negotiations, which may conflict with the Nagoya Protocol's principles of free, prior, and informed consent.

South Africa

Sector-wide ABS agreements in South Africa

Background

Since 2004, South Africa has had a well-established ABS system under the National Environmental Management: Biodiversity Act and its Bioprospecting, Access and Benefit-sharing (BABS) Regulations implementing the CBD. The country has pioneered sector-wide ABS agreements covering entire industries such as rooibos (2019), buchu (2023) and honeybush (2025).⁵⁵ These sector-wide agreements have been concluded with the Khoikhoi and San peoples, recognizing their traditional knowledge and creating benefit-sharing mechanisms for the commercial use of these indigenous biological resources. In addition to the industry-wide approach, various bilateral agreements on ABS exist within industries such as those involving *Pelargonium sidoides*, *Aloe ferox*, Marula and Baobab.

Budget lines for investments and transaction costs

Private-sector cost lines (excluding shared benefits) include negotiation and legal costs, compliance system set-up, and the annual administration of industry-wide processes for the collection and administration of collective benefit-sharing, as well as ongoing reporting and monitoring. Additional costs arise from supply chain adjustments, opportunity costs resulting from delays, and shared industry coordination budgets.



Photo: ©UNDP Nature

⁵⁵ Traditional Knowledge Holders collaborate with Industry to form common ground in Biodiversity (GIZ, 2025). Available at <https://www.giz.de/en/regions/africa/south-africa/news/traditional-knowledge-holders-collaborate-industry-form-common>

Monetary benefits

Although industry-wide agreements vary in their structure and approach, they all share a common attribute: Systems are developed to generate benefits at one point in the supply chain. This significantly reduces the burden on industry, government and traditional knowledge holders while ensuring that all volumes in the sector are covered.

Rooibos generates the largest and most transparent flows, fluctuating between 8,700 tonnes and 10,800 tonnes per year. Benefits are shared through a 1.5 percent levy on the price paid to farmers by the rooibos processors. As the levy is linked to the price, it fluctuates according to the rooibos pricing cycle, ranging from USD 295,650 to USD 723,160 per year. Since 2019, the industry has shared a total of USD 2,512,352 of benefits. These benefits are distributed on a 50/50 basis to the San people, represented by the San Council of South Africa, and the Khoikhoi people, represented by the National Khoi and San Council.⁵⁶

The 2023 buchu agreement includes an obligation for all buchu processors to pay 1.2 percent of their annual net sales revenue. Although the total volumes are far lower than those of rooibos, the majority of buchu is processed into essential oil, which is a high-value product at the point of sale. Payments are ongoing.

As the honeybush agreement was only recently signed (in 2025), no benefits have yet been shared. However, the industry is making good progress in putting the necessary systems in place. The details of the agreement have not yet been widely shared. It is not known what the levy percentage is or on which products it is levied. It also is unclear whether downstream processors, extract manufacturers and retail brands are exempt from the sector-wide agreement.

Non-monetary benefits

All three agreements deliver significant non-monetary benefits, including formal recognition of traditional knowledge, shared governance, capacity-building, legal literacy and knowledge protection, sector development and sustainability, reduced transaction costs through standardized compliance, and reputational and market access benefits. They also have strong symbolic and precedent-setting value.

Conclusions and final remarks on the ABS approach in South Africa

In South Africa, the cost–benefit profile varies significantly by sector. Rooibos generates the highest quantified monetary returns and strong symbolic value as the first industry-wide traditional knowledge-based ABS agreement. However, the agreement has often been criticized for excluding smallholder farmers and workers, as these groups are not part of recognized traditional knowledge holder groups and therefore do not share in the benefits. Meanwhile, honeybush shows promising potential for greater fairness and transformation, and buchu stands out as the most replicable model for structuring Nagoya-compliant agreements in complex global value chains.

It is important to note that all three value chains were established under colonial-style trading arrangements, long before the concept of ABS existed, and that recent benefit-sharing agreements primarily represent a post-apartheid social justice achievement for traditional knowledge holders. Therefore, this approach would require modifications and/or additional steps to be replicated in de novo ABS value chains based on the subsequent commercialization of “new” genetic resources and associated traditional knowledge.

⁵⁶ As Exports Grow Rooibos Maintains Course Amid Climate And Trade Pressures (South African Rooibos Council, 2026). Available at <https://sarooibos.co.za/as-exports-grow-rooibos-maintains-course-amid-climate-and-trade-pressures/>

Brazil

National flat-rate ABS system in Brazil

Background

The ABS framework in Brazil was established in 2000 and substantially revised in 2015. The system now relies primarily on user compliance through registrations, notifications and benefit-sharing mechanisms, which are managed via the SisGen platform. This facilitation has led to a notable increase in interest in research and development in Brazilian genetic resources, as well as an enhancement in the level of benefit-sharing. While prior to the revision the framework had collected extensive compliance data on operations by scrutinizing users and applications, it encountered at the same time persistent regulatory, administrative and effectiveness challenges, especially regarding the provision of incentives for research, innovation and biodiversity conservation.

Budget lines of investments and transaction costs

Private-sector ABS related costs primarily arise from compliance and transaction requirements. These include legal analysis, internal compliance systems, registering data in SisGen, negotiating benefit-sharing agreements, retaining documentation, and managing risks related to potential fines and sanctions. Additional indirect costs stem from regulatory uncertainty and delays, the requirement for local intermediaries to assist foreign users, and the negative impact on R&D investment. Markets, from communities to export structures, are established before the development of the ABS value chain.

Public-sector ABS costs include operational expenditure on staffing and running the Genetic Heritage Department in the Ministry of Environment and Climate Change, developing and maintaining the SisGen system, travel and meeting expenses, and building the capacity of enforcement agencies such as IBAMA. Additional costs may be incurred through public awareness promotion, education and training for users and providers, among other things.



Photo: ©UNDP Brazil

Budget lines of investments and transaction costs

Private-sector ABS-related costs primarily arise from compliance and transaction requirements. These include legal analysis, internal compliance systems, registering data in SisGen, negotiating benefit-sharing agreements, retaining documentation and managing risks related to potential fines and sanctions. Additional indirect costs stem from regulatory uncertainty and delays, the requirement for local intermediaries to assist foreign users, and negative impacts on research and development investment. Markets, from communities to export structures, are established before the development of the ABS value chain.

Public-sector ABS costs include operational expenditure on staffing and running the Genetic Heritage Department in the Ministry of Environment and Climate Change, developing and maintaining the SisGen system, travel and meeting expenses, and building the capacity of enforcement agencies such as the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA). Additional costs may be incurred through public awareness promotion, education and training for users and providers, among other things.

Monetary benefits

Under the Brazilian ABS regime, monetary benefits consist mainly of a 1 percent levy on net revenues from commercialized products derived from genetic heritage or associated traditional knowledge. This levy is paid into the national benefit-sharing fund. Micro and small businesses are exempt from benefit-sharing in Brazil. Approximately BRL 35 million reais (around USD 6.5 million) has been allocated for benefit-sharing in Brazil relating to resources derived from access to, and the sharing of benefits from, activities carried out up to the 2024 financial year. The fund has already committed or distributed around BRL 7 million (approximately USD 1.3 million) in benefit-sharing instruments.⁵⁷

Non-monetary benefits

Non-monetary benefits are structured as benefit-sharing agreements between users and either the federal government or traditional knowledge providers. These agreements are intended to support capacity-building, technology transfer and conservation-related initiatives. While several agreements had been signed and assigned nominal values by August 2022, none of the projects had been fully implemented, meaning the total amount of non-monetary benefits due up to that point had not yet been received by local communities or biodiversity conservation efforts. Until the 2024 financial year, around BRL 23 million (USD 4.4 million) had been assigned as destined to non-monetary benefit-sharing in the near future by companies using Brazilian biodiversity.⁵⁸

Conclusions and final remarks on the Brazilian ABS approach

From a narrow and short-term cost–benefit perspective, the Brazilian ABS system could be discussed as generating negative net returns, as public operational expenditures and international contributions may still be calculated as outweighing directly observable monetary and non-monetary benefits. However, this assessment significantly underestimates both the efficiency gains introduced by the regulatory revision and the nature of the benefits generated by ABS, many of which are structural, long-term and systemic rather than immediately quantifiable.

The revision of the Brazilian ABS framework has reduced transaction costs, increased legal certainty and improved compliance incentives, particularly through simplified procedures, clearer user obligations and better alignment with innovation cycles. These changes already

⁵⁷ Genetic Heritage Department (Brazilian Ministry Of the Environment, 2026).

⁵⁸ Ibid.

have improved the cost-effectiveness of the system and are likely to translate into higher realized benefits as accumulated resources are progressively deployed and the framework is more broadly implemented.

Importantly, part of the public cost associated with ABS reflects a baseline regulatory duty of the state—namely, safeguarding biodiversity, traditional knowledge and sovereign rights over genetic resources. Such functions are intrinsic to environmental governance and should not be treated solely as variables in a cost–benefit equation but rather as necessary public administration expenditures that enable fairer markets and socioenvironmental-friendlier business models.

The mere existence of ABS rules has strengthened the bargaining position of primary producers and associated traditional knowledge holders and reinforced expectations of fairness and prior recognition. These outcomes, while difficult to monetize, are central to inclusive bioeconomy strategies.

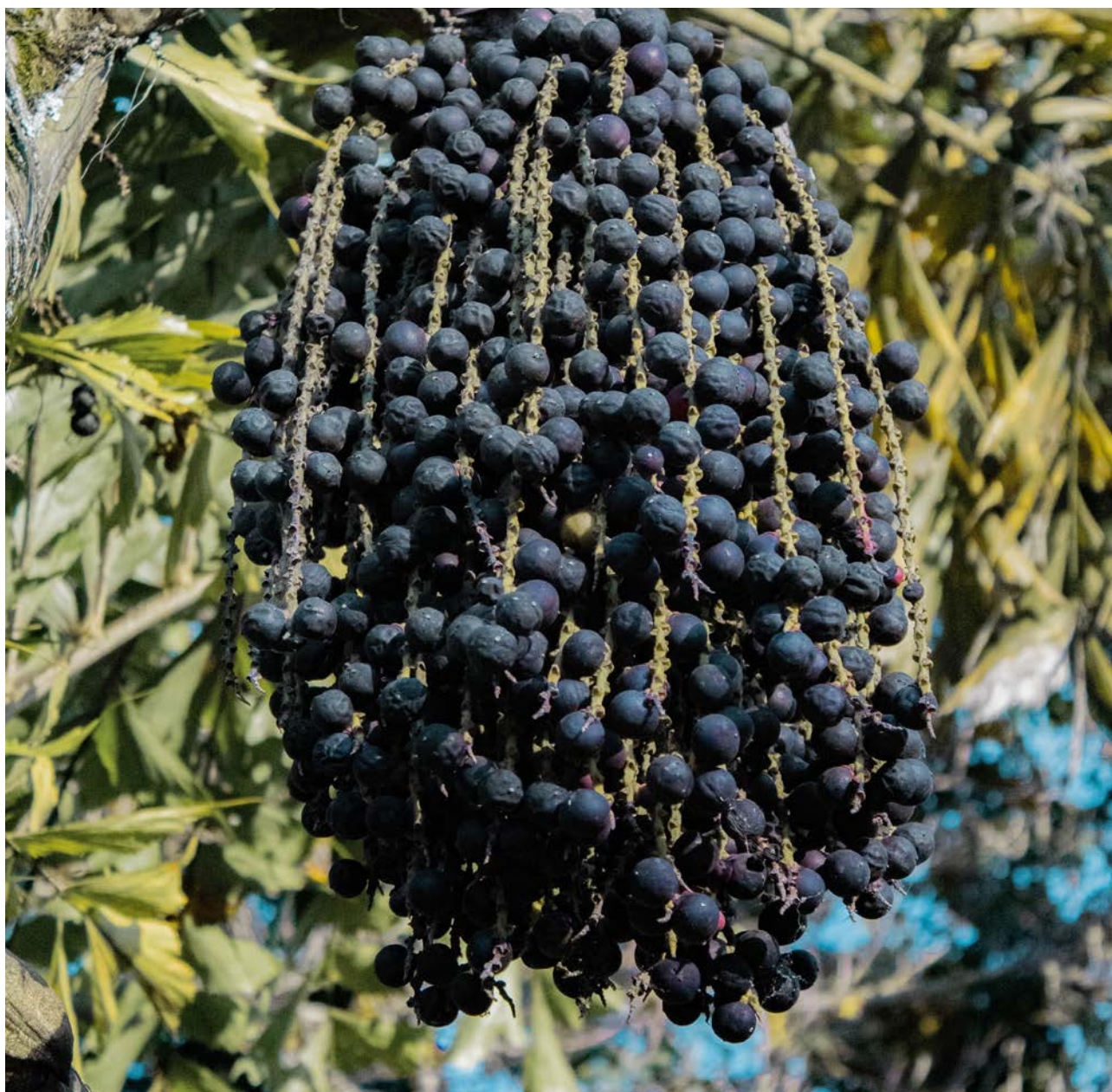


Photo: ©Saidis/Pexels

Cameroon

Case-by-case mutually agreed terms negotiations in Cameroon

Background

The ABS framework in Cameroon was formalized through the adoption of national ABS legislation between 2021 and 2023, starting with the law and subsequently its texts of application. The framework promotes access to genetic resources and the fair and equitable sharing of benefits arising from the use of genetic resources and associated traditional knowledge, achieved through direct negotiations between providers and those seeking access. The analysed cases represent the initial pilot experiences of negotiating ABS agreements between private companies and local communities. These cases highlight the practical complexities involved in implementing ABS in real-world partnerships.

Budget lines of investments and transaction costs

Costs related to ABS in the private sector mainly arise before any benefits are generated, consisting largely of transaction and compliance expenditure. This includes the time and resources spent on understanding national ABS rules and preparing and submitting access requests. An ABS access request from a foreign company with a commercial interest costs around USD 900.⁵⁹ If a company or research institute is interested in a specific resource but does not know its location, a local community must be identified. In the case studies, missions costing about USD 2,000 each were funded by donor projects.⁶⁰ However, if there is no project, users must expect to pay for this themselves. Other costs include funding community training, hiring facilitators and moderators and conducting ABS contract negotiations. In the pilot cases, these processes took about 12 months, on average, but this is expected to decrease once the system is well under way.



Photo: ©UNDP Cameroon/2020

⁵⁹ Cameroon (Access and Benefit-Sharing Clearing-House, 2026). Available at <https://absch.cbd.int/en/countries/CM>

⁶⁰ BioInnovation Africa project (GIZ, n.d.)

ABS processes are particularly expensive in pilot contexts due to uncertainty, administrative delays and the requirement for intensive facilitation. Since the law came into force, Cameroon has produced manuals and guidelines and a visualization of the ABS procedure. These greatly facilitate understanding for potential users and providers of genetic resources and traditional knowledge. Once mutually agreed terms are in force, further costs arise from setting up a sustainable supply chain and product traceability systems and covering administrative costs from mandatory reporting. When the agreement expires, usually after three years, new negotiations are required, generating further transaction costs.

Public-sector ABS-related costs include the operation of ABS governance structures, including convening ABS committee meetings, reviewing access requests, coordinating with communities, and preparing communities for negotiations. For instance, training communities for ABS negotiations can cost between USD 8,000 and USD 15,000 depending on the circumstances.⁶¹ Negotiation costs for public administration include overseeing and facilitating the negotiation process. While these costs are partially offset by project support from donors, they still represent significant administrative, coordination and capacity-building investments for competent national authorities, particularly during the initial implementation of a new ABS system. One of the most expensive and still-unresolved cost centres is the development of a (biocultural) community protocol, as set out in the Nagoya Protocol and the Cameroonian legal framework. However, there are no clear financing or cost-recovery mechanisms in place. Finally, during the implementation of the mutually agreed terms, public authorities must coordinate reporting and manage renewed negotiations once agreements expire.

Monetary benefits

Monetary benefits under ABS agreements in Cameroon are envisaged as payments linked to access to genetic resources (such as a premium price for raw materials), future commercialization (such as 1.5 percent of the net sales generated by the marketing of products paid to the local community) or other contributions, as defined in the mutually agreed terms. However, in the pilot cases, no payments based on commercialization have yet been made apart from an annual minimum lump sum paid in advance. This sum is transferred directly to local communities and is primarily used for biodiversity conservation, sustainable use and local development.

This reflects the early stage of the partnerships and the fact that commercial value may only be generated long after access is granted and negotiations are concluded. In addition, reporting has proven much more difficult than expected, due to the difficulties communities have experienced in handling the provided reporting templates and delays by companies in disclosing documents to the authorities that would justify benefit calculations. The companies inform that, although they have signed commercialization mutually agreed terms, they continue to invest significant resources in product development and business-to-business activities and therefore cannot be reporting benefits.

61 BioInnovation Africa project (GIZ, n.d.)

Non-monetary benefits

Non-monetary benefits played a central role in the negotiated agreements. These benefits included community training, capacity-building (e.g. on traceability systems), support for organizational structures such as cooperatives, studies on biodiversity conservation, infrastructure investments (e.g. drying facilities), and the strengthening of community participation in value chains. These benefits were particularly important for building trust, empowering communities and establishing the foundations for the long-term sustainable use and biodiversity conservation outcomes of value chain partnerships.

Conclusions and final remarks on the Cameroonian ABS approach

In Cameroon, the short-term cost-benefit balance is negative due to high initial transaction and facilitation costs and limited immediate financial returns. However, a large proportion of these costs can be viewed as investments in relationship-building, trust, legal certainty and value chain development. The anticipated benefits are primarily long term and contingent on successful commercialization and sustained partnerships. This shows a potential for positive future returns, provided that early pilot investments lead to long-lasting institutional and commercial arrangements. Product quality and market responsiveness are key to the consolidation of value chain partnerships.



Dominican Republic

The ABS-RD Seal: Integrating the benefits derived from the utilization of genetic resources into the national biodiversity financing plan

Context

The Dominican Republic has made progress in creating the legal and institutional framework for regulating access to genetic resources and the fair and equitable sharing of benefits, in compliance with the Nagoya Protocol. The country has a strengthened regulatory framework based on the 2024 Dominican Constitution, which establishes in article 14 that non-renewable resources located within the territory and in maritime areas under national jurisdiction, genetic resources, biodiversity, and the radio spectrum are the patrimony of the nation. Law No. 64-00, the General Law on the Environment and Natural Resources, establishes the governing body for the management of the environment, ecosystems and natural resources and sets forth in Chapter IV of Title IV the restrictive and protective measures for biological diversity. The Sectoral Law on Biodiversity 333-15 aims to guarantee the conservation and sustainable use of biodiversity, regulate access to genetic resources and their derivatives, and ensure fair and equitable sharing of the benefits arising from the utilization of genetic resources. The Regulation on Access to Genetic Resources, Traditional Knowledge, and Fair and Equitable Distribution of Benefits Arising from their Utilization (2023) establishes the requirements and procedures for the research, use and transfer of genetic resources and associated traditional knowledge, and—together with the Policy on Recognition of Best Practices and the Sustainable Use of Genetic Resources—forms part of the national legal framework.

Initiative description

In 2024, the Ministry of Environment and Natural Resources launched a project to strengthen the application of the principles of access to genetic and biochemical resources derived from biodiversity and the sharing of benefits. This triangular project between Costa Rica and the Dominican Republic was financed by the German Development Cooperation (GIZ) through the Biodiversity and Business in Central America and the Dominican Republic programme, with a total budget of EUR 705,000.

As a result of this project, the ABS-RD Seal was developed and launched as an incentive for good practices in the conservation and sustainable use of biodiversity. Awarded by the Ministry of Environment and Natural Resources of the Dominican Republic, it recognizes best practices by researchers, academic institutions, non-governmental organizations and private companies that use genetic resources derived from biodiversity, comply with environmental regulations and mutually agreed conditions, and ensure the fair and equitable sharing of the benefits obtained from their use.

The ABS-RD Seal may be granted to those who possess and comply with their access to genetic resources and fair and equitable benefit-sharing agreements for conservation, research and/or commercialization purposes. The Ministry of Environment and Natural Resources is responsible for its operation and implementation.

To date, 10 ABS-RD Seals have been granted, distributed as follows: three companies, four universities, one botanical garden and one non-profit organization. The Universidad Autónoma de Santo Domingo (UASD) was awarded the ABS Seal in two editions (2024 and 2025) for two different research projects.

Implementation and certification process

Researchers can apply for the ABS-RD Seal if they meet the following requirements:

- Hold a valid contract for access to genetic resources
- Have at least one year of implementation and compliance with the contract terms
- Have not incurred any serious violations as defined in the national regulations:
 - o Regulation on Access to Genetic Resources and Associated Traditional Knowledge and Fair and Equitable Sharing of Benefits (Code MA-VPB-RT-002-2024)
 - o Regulation Establishing the Procedure for Requesting Contracts for Access to Genetic Resources, Associated Traditional Knowledge, and Fair and Equitable Sharing of Benefits (Code MA-VB-RG-001-2023)

Criteria for awarding the seal

Applicants must submit a formal letter to the Minister of Environment expressing their intention to obtain the ABS-RD Seal. The letter needs to include:

- a. Reason for the request
- b. Project name and researcher(s)
- c. Contract code(s)
- d. A descriptive report detailing achievements, progress and the impact of results in relation to the objectives and compliance with the mutually agreed terms in the access contract

These criteria apply uniformly to all types of contracts; there are no variations by contract type.

Additional resources

Access to Genetic Resources contracts are published on the ABS Clearing House platform under the Convention on Biological Diversity: <https://absch.cbd.int/en/countries/DO>

Conclusions

ABS represents a transformative opportunity to close the global biodiversity finance gap and advance the objectives of the GBF.

Realizing the potential of ABS requires sustained and targeted investments from all stakeholders—including governments, the private sector, Indigenous Peoples and local communities—to build a robust and sustainable value chain for genetic resources.

These investments are essential for strengthening legal and institutional frameworks, enabling equitable participation and enhancing research, development, compliance and capacity at every stage of the ABS process.

Countries must identify, adapt and prioritize innovative finance instruments that can secure the long-term sustainability of ABS schemes. Such instruments are needed not only to support the enabling environment but also to drive the development of resilient ABS value chains and ensure the fair and transparent distribution of benefits. A comprehensive financial architecture for ABS helps create incentives, foster trust among stakeholders and ensure that the conservation of biodiversity directly benefits those who have traditionally protected and stewarded these resources.

Thanks to the GEF and its partners, supported by UNDP-BIOFIN, more than 130 countries are currently developing or updating their national BFPs to address pressing resource and finance needs for nature. We hope this publication provides practical guidance and inspiration for the identification and prioritization of finance instruments specifically related to ABS. Our aim is to empower countries to build well-functioning, sustainable and inclusive ABS systems that channel investments into conservation outcomes and equitable benefit-sharing—helping to ensure a future in which biodiversity is valued, protected and reinvested for generations to come.



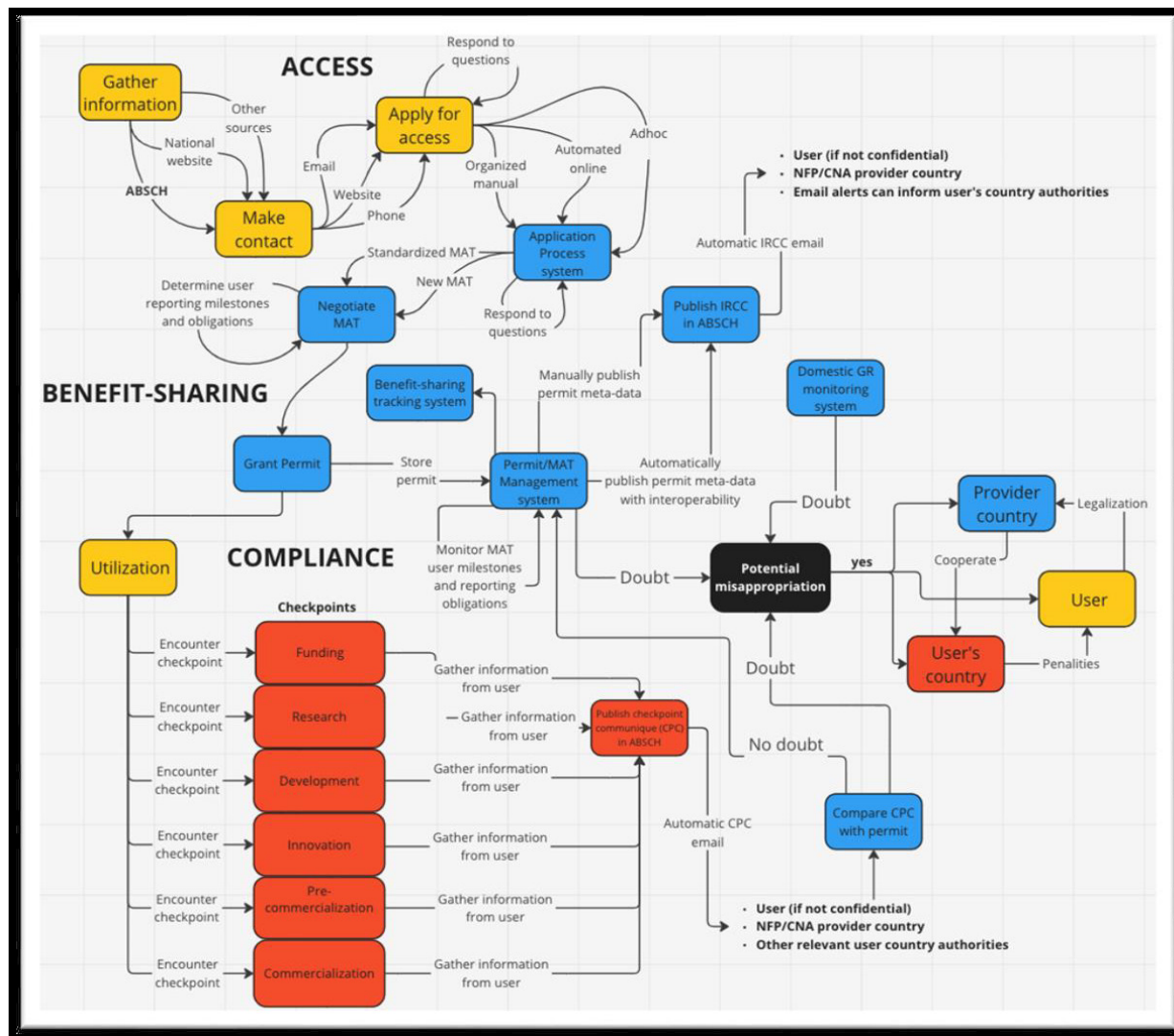
The failure of the ABS scheme is simply not an option. We cannot accept a return to the situation where the use of biodiversity and traditional knowledge occurs without control, consent or the sharing of benefits with the rightful owners and stewards of these resources.

Our aim is to empower countries to build well-functioning, sustainable, and inclusive ABS systems that channel investments into conservation outcomes and equitable benefit-sharing—helping to ensure a future where biodiversity is valued, protected, and reinvested for generations to come.



Annexes

Annex i: General Access and Benefit-sharing workflow (CBD)

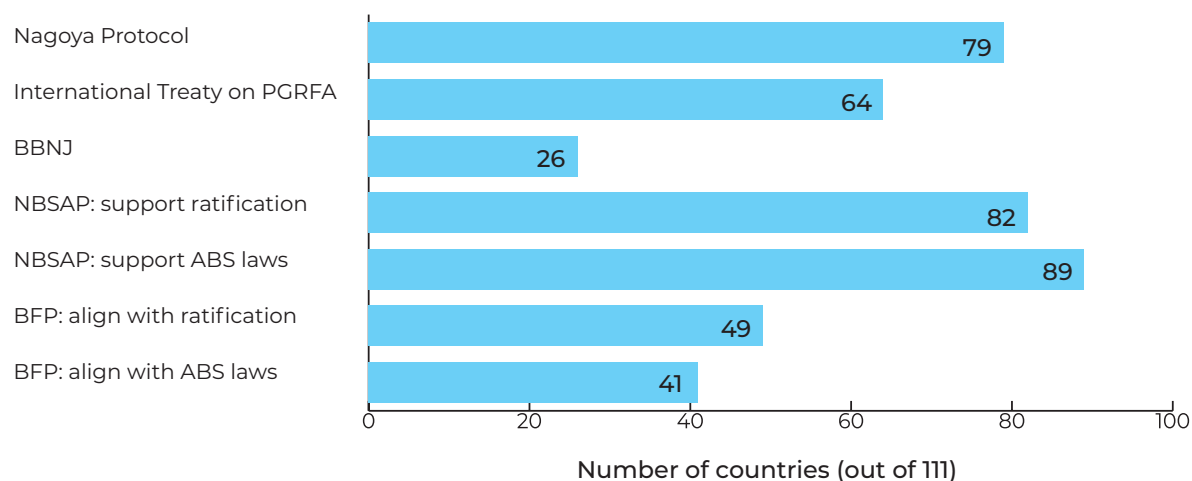


Source: Global capacity-building workshop on operationalizing access and benefit-sharing national frameworks under the Nagoya Protocol (Convention on Biological Diversity, 2024). Available at <https://www.cbd.int/doc/c/51c3/01b4/fef841e274f1f8e661bd1ddb/np-cb-ws-2024-01-01-add1-en.pdf>

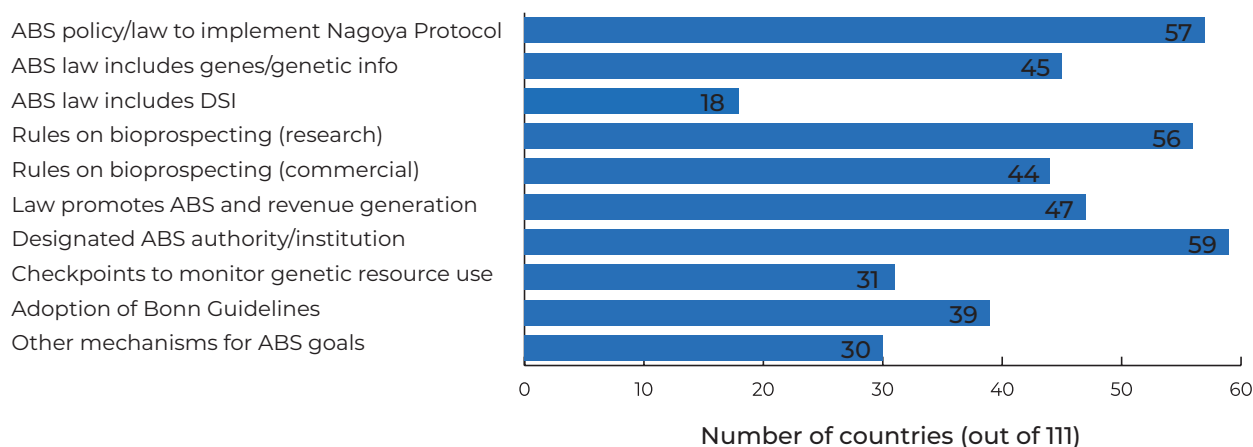
Annex ii: ABS country survey results

Results of the survey conducted among the 133 countries implementing BIOFIN regarding the level of integration of genetic resources into national strategies.

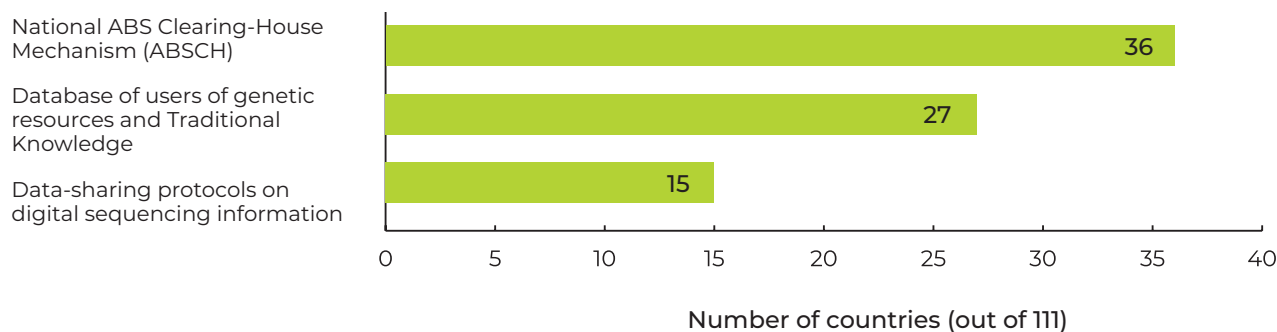
Are there national policies or laws that implement the following protocols/agreements?



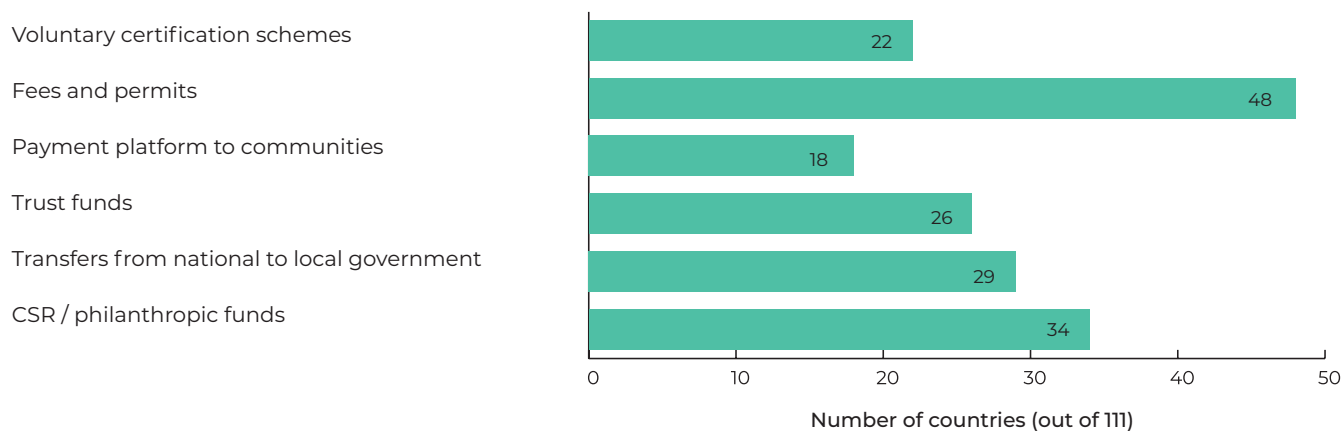
Is there an ABS regulatory framework established in the country?



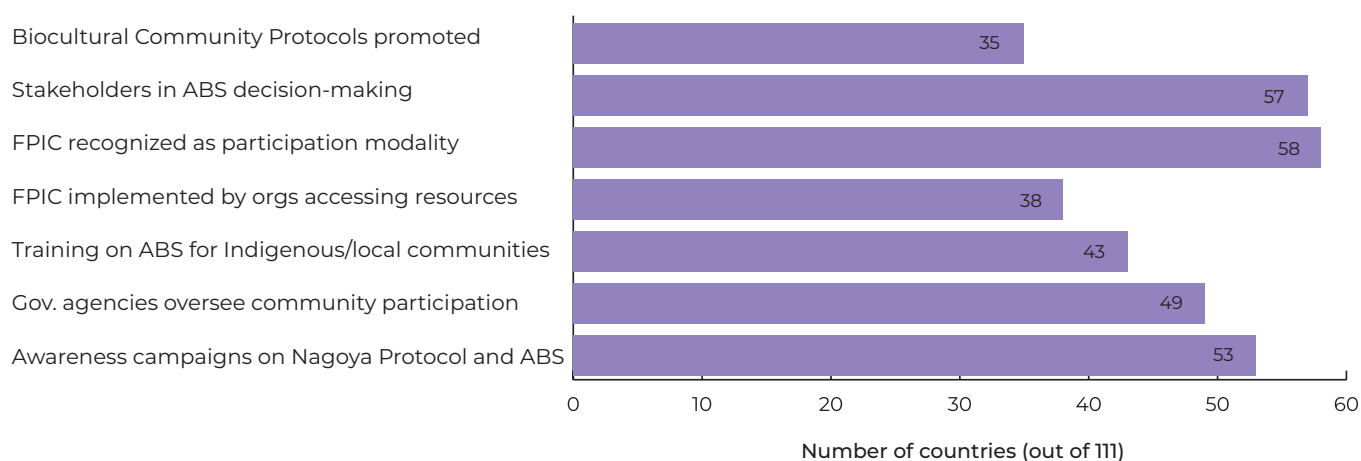
Is data management and sharing of genetic resources available in your country?



Are there mechanisms that generate finance resources and/or facilitate benefit-sharing?



Are there mechanisms to engage with Indigenous Peoples, local communities and owners of genetic resources?



Annex iii: Detailed optional questions regarding Nagoya Protocol implementation at the national level

Part A: General situation in the country: steps towards ratification/ accession and implementation of the Nagoya Protocol

- What steps have been taken to accede/ratify the Nagoya Protocol in the country?
- What steps have been undertaken to implement the Nagoya Protocol in the country?
- Which group of stakeholders have been consulted in these processes?
- What are the main obstacles encountered so far through these processes?

Part B: General situation in the country: legislative, administrative and policy measures on ABS

- Describe briefly the legal system of the country in question. Is the legal system based on civil law or common law, or is it a mixed jurisdiction?
- Describe whether a national law is necessary for the Nagoya Protocol to be domesticated and whether the process to develop new or amend existing laws or regulations has commenced.
- Is there a need for a stand-alone law in ABS or can ABS be integrated/regulated in broader laws? What would be the most efficient way of going about this?
- If there is no need for a stand-alone law, describe the policy, institutional or regulatory mechanisms in place that could be adopted for the domestication of the Nagoya Protocol.
- Describe what can be done through laws and regulations and how best the development of a law and regulation can be sequenced.
- Is there any merit in considering adopting interim measures to cover the period in which specific legislation/regulations will be adopted/developed?
- If the country is a party to the ITPGRFA, which PGRFA have been put under the MLS and which will be regulated through the Nagoya Protocol system? Describe the existing system to access PGRFA under the MLS. What is the number of PGRFA accessions that have been granted by and to the country since it became a Contracting Party?
- Has the country requested or granted access to genetic material under the World Health Organization Influenza Preparedness Framework? Describe the existing system and, if relevant, inform about the benefits received.

Part C: General situation in the country: institutional arrangements/measures and permitting systems

Designation of national focal points and competent national authorities

- Describe whether a national focal point is in place and its functions. Do the functions of the national focal point include providing information as required under article 13 of the Nagoya Protocol?
- Describe whether the country has designated one or more competent national authorities on ABS. Has the country established a system of “lead agencies” working under the competent national authority (or authorities), e.g. for the implementation of sectoral ABS regulation?
- What coordination mechanisms exist between the national focal points and competent national authorities in receiving ABS applications? From the ABS permitting system in place, is it clear to whom an application for access is submitted?
- Describe the prior informed consent system that is laid out within the ABS system.
- Are the characteristics and procedures of the ABS system transparent for an applicant, e.g. through the Internet page of the competent national authority (or authorities)?
- Does an online application system exist?
- Describe the role of Indigenous Peoples and local communities in granting prior informed consent and whether the process of obtaining prior informed consent is well set out, understood and clear.

ABS Clearing House publishing Authority

- Has an ABS Clearing House publishing authority been designated?
- Which information was already transmitted to the ABS Clearing House?

Permitting systems

- List all the institutions in the country that are involved in the ABS permitting process. Describe the role of each institution listed and whether there are formal or informal interaction channels between them in the ABS permitting process. If the institutions have a mutual agreement explaining the role and responsibilities of each in the ABS permitting process, indicate as much.
- Which other permits (e.g. research permits, sanitary permits) are necessary as preconditions for the ABS permit and the exportation of genetic resources? Establish a flow chart of the current system.
- What is the scope of the ABS permitting system in place? Please describe the policy, law or regulation how and to which extend they address:
 - o All genetic resources within the scope of article 15 of the CBD
 - o Associated traditional knowledge within the scope of the CBD
 - o Access for which type of use, taking into account the different approaches of the CBD and the Nagoya Protocol
- Does the ABS permitting system provide for the differentiation of access to genetic resources based on the nature of sources (e.g. wildlife, animal, PGRFA, marine, together with associated traditional knowledge), where they occur (forest, farmland, marine areas, protected areas, etc.) and are there different systems for access to each? Describe briefly.
- How does the ABS permitting system deal with access to private genetic resources on private land and access by one user to multiple private providers?
- What are the elements of the ABS permitting system that currently enable the monitoring of utilization? Which elements could be used for a future monitoring system?
- Does the ABS permitting system contain provisions based on special considerations with regard to access for:
 - o non-commercial research purposes, taking into account the need to address a change of intent for such research?
 - o purposes in relation to cases of present or imminent emergencies that threaten or damage human, animal or plant health?
 - o the importance of PGRFA and their special role for food security?
 - o reporting requirements by the user?

If such provisions with respect to access for the aforementioned special purposes are in place, briefly describe the same.

Part D: Gives recommendations to countries for national implementation of the Nagoya Protocol

- Provide brief recommendations touching on each of the three components assessed.

Source: Concept for National ABS Gap Analysis (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2016). Available at https://archive.abs-biotrade.info/fileadmin/media/Knowledge_Center/Pulications/Concept_Gap_Analysis/Concept_-_National_ABS_Gap_Analysis_-_ABS-I_20161116.pdf

Annex iv: Template to record information on subsidies

Heading	Description
Existing subsidy	<i>Name of the subsidy analysed</i>
Responsible stakeholder/ organization/agency	<i>Stakeholders/organization and agency involved or related to the subsidy</i>
Sector/government activity codes	<i>Relevant sector(s)</i>
Drivers	<i>Describe the motivations explaining the introduction and continuation of the subsidy</i>
Direct or indirect	<i>Is it a direct or indirect subsidy?</i>
Financial value	<i>Financial value of the subsidy (if this information is already available)</i>
Intended objective and beneficiaries	<i>Describe the main objectives of the subsidy and the intended beneficiaries</i>
Benefits (social, environmental, economic)	<i>Describe the different benefits that the subsidy has and will have on social, environmental and economic aspects</i>
Genetic diversity benefits	<i>How does genetic diversity benefit biodiversity?</i>
Genetic erosion impact	<i>What harmful impacts on genetic diversity can be expected or are known?</i>
Related legislation	<i>Describe the main laws and regulation creating the subsidy</i>
Links to additional studies	<i>Describe different sources of analysis related to the subsidy (e.g. any economic justification)</i>
Additional notes	<i>Other information</i>

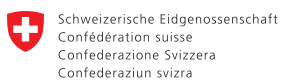


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