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Access and Benefit Sharing – Fair and Equitable Cooperation?

A Provider Country Perspective on the Nagoya Protocol

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Authors

Dr. Nele Kampffmeyer
Oeko-Institut e.V.

Melanie Pietschmann
Oeko-Institut e.V.

With contributions from:
Lydia Gaus
Lena Morgenstern

Oeko-Institut e.V.
info@oeko.de
oeko.de

Office Freiburg
Merzhauser Straße 173
79100 Freiburg
Phone +49 761 45295-0

Office Berlin
Borkumstraße 2
13189 Berlin
Phone +49 30 405085-0

Office Darmstadt
Rheinstraße 95
64295 Darmstadt
Phone +49 6151 8191-0

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List of Abbreviations

ABS	Access and Benefit-Sharing
ABSCH	Access and Benefit-Sharing Clearing-House
BBNJ	Biodiversity Beyond National Jurisdiction
CBD	Convention on Biological Diversity
CNA	Competent National Authority
DSI	Digital Sequence Information
EU	European Union
GRULAC	Group of Latin American and Caribbean Countries
IPLC	Indigenous Peoples and Local Communities
IRCC	Internationally Recognized Certificate of Compliance
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MAT	Mutually Agreed Terms
NFP	National Focal Point
NGO	Non-Governmental Organisation
PAG	Project Advisory Group
PIC	Prior Informed Consent
R&D	Research and Development
SD	Standard Deviation
UNEP	United Nations Environment Programme

Abstract

More than a decade after the Nagoya Protocol entered into force, evidence remains limited on how providers of genetic resources and associated traditional knowledge experience the functioning of access and benefit-sharing (ABS) in practice. Using satisfaction as an analytical lens, this study examines how institutional representatives in provider countries perceive ABS negotiations and the subsequent implementation of benefit-sharing. Using a sequential mixed-methods design, it combines expert interviews with a global survey of National Focal Points and Competent National Authorities.

The findings indicate moderate overall satisfaction of institutional representatives in provider countries with ABS. While the Nagoya Protocol has strengthened the recognition of provider rights and contributed to fairer negotiation conditions and strengthened wider biodiversity governance, substantial implementation gaps remain. Limited institutional capacity, unequal bargaining conditions, difficulties in monitoring utilisation and only moderate satisfaction with compliance with mutually agreed terms constrain the delivery and verification of benefits, particularly once utilisation takes place across jurisdictions.

Based on these findings, the study formulates recommendations for provider states, user states and users, focusing on clear and capable national ABS systems, effective user compliance throughout the utilisation process and cross-border cooperation with user-states.

Keywords: *Access and Benefit-Sharing (ABS); Nagoya Protocol; Genetic Resources; Provider-country Satisfaction; ABS implementation*

Summary

Purpose and Background

The Convention on Biological Diversity (CBD) of 1993, and the Nagoya Protocol on Access and Benefit-sharing, that entered into force 2014, established access and benefit-sharing (ABS) as a core mechanism for ensuring that the utilisation of genetic resources and associated traditional knowledge generates fair and equitable benefits for provider countries and, where relevant, Indigenous Peoples and local communities (IPLCs). While the Nagoya Protocol sets out the international framework, its practical implementation largely takes place through national legislative, administrative and policy measures governing access, competent authorities, compliance and benefit-sharing. As of December 2023, 113 of the then 140 Parties to the Protocol had ABS measures in place, although many were still revising or developing their national frameworks (SCBD 2024). More than a decade after the Protocol entered into force, the sheer number of countries with national ABS measures in place and concluded agreements does not indicate whether benefit-sharing is experienced as effective, fair, or satisfactory by those who negotiate and implement it on the provider side.

This study addresses that gap by asking: How satisfied are provider countries of genetic resources and/or traditional knowledge with the negotiation and subsequent implementation of benefit-sharing under the Nagoya Protocol? “Provider countries” here refers to institutional representatives, from National Focal Points (NFPs), Competent National Authorities (CNAs) and related bodies. It does not reflect a country’s position as a whole, since the perspectives of other stakeholders, such as IPLCs, are not represented.

Satisfaction is used as an empirical lens on whether ABS negotiations and outcomes are perceived as fair, workable and responsive to provider expectations, covering the negotiation process, user conduct and compliance with mutually agreed terms (MAT), the distribution and use of benefits, power relations, and broader effects on biodiversity governance. The study was conducted by Öko-Institut e.V. between January 2024 and June 2026, commissioned by the German Federal Ministry for the Environment with support from the Federal Agency for Nature Conservation (BfN).

Methodology

The study followed a sequential, exploratory mixed-methods design. Twelve semi-structured expert interviews involving 18 individuals from ten countries – state actors, Nagoya Protocol experts, non-governmental organisations (NGO) and business representatives, and researchers – were conducted between August and November 2024 to identify key mechanisms and inform a global online survey. The survey, fielded between 28 July and 5 September 2025 in English, Spanish and French, targeted NFPs and CNAs of Parties that identify as provider or provider-and-user countries. 60 valid, anonymous responses were retained after data cleaning. Because respondents’ countries were not recorded to preserve anonymity, results should be read as evidence from knowledgeable institutional actors rather than as statistically representative of all Parties.

Key Findings

The survey results of this study indicate a moderate overall satisfaction among institutional representatives of provider countries. Respondents valued the Nagoya Protocol’s contribution to the recognition of provider rights and fairer ABS processes, while reporting continuing difficulties in securing and verifying benefits. This assessment reflects uneven implementation and often limited practical experience with realised benefit-sharing outcomes.

An established international framework still faces substantial implementation gaps

The Protocol has strengthened the basis for provider claims and the negotiation of benefit-sharing: 79% of survey respondents rated the contribution of the Nagoya Protocol to more equitable negotiations globally as medium to high. However, around two-thirds described their national ABS systems as being at an early implementation stage, and 25% reported no experience with MAT negotiations. Experience with commercial agreements, monetary benefits and long-term monitoring remains particularly limited. These findings point to a substantial gap between the establishment of an internationally recognised framework and its consistent application in practice. They also limit the extent to which satisfaction can already be assessed against concrete benefit-sharing outcomes.

Stronger biodiversity governance is an outcome in its own right

ABS implementation can strengthen biodiversity governance beyond the benefits generated by individual agreements. The survey respondents reported that the Nagoya Protocol helped to improve awareness, legal and institutional frameworks, coordination and the integration of biodiversity into wider policy processes. These gains can emerge as countries establish ABS institutions and clarify responsibilities, even before substantial benefits from successful MAT negotiations are received.

Workable national systems support cooperation and informed negotiation

Limited staffing and specialist expertise constrain provider authorities' ability to assess proposed uses, negotiate suitable benefits and follow up on agreements. Respondents reporting more advanced national ABS frameworks also tended to perceive users as more cooperative and transparent. This association suggests that the clarity and predictability of provider-country procedures matter for how cooperation works in practice. Standardised clauses, templates and indicative benefit options can help address uncertainty and capacity constraints. Their usefulness nevertheless depends on retaining sufficient flexibility to accommodate different resources, provider priorities, research activities and commercialisation pathways.

Fair processes require transparency and substantive participation

Respondents' assessments of negotiations gave considerable weight to transparency, trust, timely communication and participation, alongside the type and amount of benefits on offer. Incomplete information about intended uses and commercial prospects, pressure to accelerate procedures and excessive confidentiality were recurring concerns. Unequal bargaining conditions were also widely perceived as a serious structural problem, although the study does not establish their direct causal effect on negotiation outcomes or satisfaction.

Responses concerning IPLCs further underline the importance of substantive participation. The respondents perceived greater progress in formal recognition and consultation of IPLCs than in their direct involvement in negotiations and decision-making. This perceived improvement of recognition of IPLCs alone therefore provides limited evidence of whether IPLCs can influence access, benefit design or distribution. It is important to note that these findings reflect institutional assessments and cannot substitute for evidence from IPLCs themselves.

Reliable benefit-sharing requires sustained compliance across jurisdictions

Users were generally perceived as willing to meet ABS requirements, but the responding provider countries expressed only moderate satisfaction with users' subsequent adherence to MAT. Recurring concerns of the respondents included missing or delayed reports, limited transparency about intermediaries and downstream use, and changes of use without the required authorisation or renegotiation. The survey responses indicate that these shortcomings make it difficult for providers to track utilisation and establish whether agreed benefits are being delivered.

Moreover, provider authorities reported limited practical means to monitor or enforce obligations once utilisation takes place abroad. The findings therefore highlight the importance of user-state compliance systems and cross-border cooperation that support substantive implementation of agreements beyond verifying that PIC and MAT documents exist. Reliable benefit-sharing thus depends on complementary responsibilities across provider authorities, users and user states throughout the period of utilisation.

Recommendations

Improving provider-country satisfaction cannot be achieved through a single measure or by one group of actors alone. Effective benefit-sharing depends on a chain of interdependent responsibilities: provider states must establish clear and workable national frameworks; user states must create credible incentives and compliance mechanisms; and users must plan for ABS from the outset and fulfil their obligations throughout the utilisation process. The full set of recommendations is set out below.

Recommendations for Provider States

The recommendations for provider states are directed primarily at governments, NFPs, CNAs, checkpoints and other institutions responsible for national ABS implementation. Depending on the national framework, implementation may also require the involvement of subnational authorities, biodiversity agencies, research institutions, IPLC institutions and other legitimate provider representatives.

The first priority is to create a national system that is understandable, predictable and sufficiently resourced. The study indicates that clearer and more advanced national frameworks are associated with more cooperative and transparent interactions with users. Improving national implementation therefore supports both regulatory effectiveness and the quality of negotiations.

- **Clarify national frameworks and responsibilities.** Provider states should adopt, complete or further clarify legislation, administrative procedures and institutional mandates. Users and provider representatives should be able to identify the competent authority, applicable requirements, necessary documentation, procedural steps and decision criteria.
- **Build multidisciplinary and practice-oriented capacity.** NFPs, CNAs and legitimate providers need access not only to biological expertise but also to legal, economic, financial and accounting knowledge. Applied support should cover contract drafting, value-chain analysis, royalties and licence models, milestone payments, audit rights, reporting formats, confidentiality and long-term monitoring.
- **Provide guidance without replacing case-specific negotiation.** Model clauses, checklists, differentiated templates and indicative monetary and non-monetary benefit options can reduce uncertainty and transaction costs. Such tools should remain adaptable to the resource, intended use, commercialization prospects, associated traditional knowledge and the priorities of the legitimate provider. Change-of-intent and renegotiation clauses should be used where future utilization is uncertain.

National systems must also address what happens during and after negotiation. PIC and MAT should not be treated as the endpoint of ABS. Satisfaction depends on whether participation is meaningful, obligations can be followed over time and benefits reach their intended recipients.

- **Ensure early and meaningful participation of IPLCs and other providers or rights-holders recognised under applicable national law.** Where IPLCs hold relevant rights, they should be able to influence access decisions, benefit design, delivery arrangements and monitoring rather

than being consulted only after key terms have been determined. Community protocols, representative institutions and access to independent legal and technical advice can support informed participation.

- **Institutionalize monitoring after MAT negotiations.** Agreements should contain clear reporting schedules, milestones, contact points, documentation requirements and proportionate consequences for non-compliance. Authorities should assign responsibility and resources for follow-up, supported where appropriate by systems that record deadlines, reports, transfers, changes of use and both monetary and non-monetary benefits.
- **Establish transparent and context-sensitive benefit-distribution mechanisms.** Provider states should clarify how benefits will be received, managed, allocated and reported before substantial payments arise. Distribution arrangements should connect conservation and sustainable-use objectives with the rights and priorities of providers or rights-holders recognised under national law – including IPLCs where applicable - rather than assuming that a single allocation channel is appropriate in every case.
- **Use confidentiality proportionately and strengthen institutional learning.** Confidentiality should be limited to genuinely sensitive information and should not prevent responsible authorities or providers from monitoring obligations. Where legally possible, anonymized lessons, recurring clauses and implementation experiences should be documented and exchanged through national or regional networks.
- **Use ABS implementation to strengthen wider biodiversity governance.** Provider states should connect ABS institutions and procedures with national biodiversity strategies, relevant development-planning and environmental-assessment processes. Environmental authorities should coordinate with subnational authorities, IPLC institutions, research ministries, funding bodies, universities, collections, patent offices, customs and other checkpoints. Practical channels for cooperation with user-state authorities should also be established where monitoring or enforcement abroad is required. These measures should be sequenced according to national circumstances. Countries in earlier implementation stages may need to prioritize legal clarity, mandates and basic case-management systems, while more experienced systems may focus increasingly on valuation, substantive monitoring, benefit distribution and cross-border enforcement.

Recommendations for User States

User states have a particular responsibility where genetic resources or associated traditional knowledge are utilized within their jurisdiction. Their role is not limited to informing users that provider-country requirements exist. They should create a regulatory and institutional environment in which lawful access, compliance with MAT and cooperation with provider authorities are expected and practically supported.

- **Establish clear and binding user-compliance duties.** Domestic rules should require relevant users to exercise due diligence and demonstrate that access and utilization comply with applicable PIC and MAT. The EU due diligence regulation (Regulation No. 511/2014) was mentioned as a positive example. Responsibilities should cover universities, research institutes, companies, collections and other actors involved in utilization, with proportionate sanctions or corrective measures where obligations are breached.
- **Move beyond formal document checks.** Checkpoints should not be limited to verifying that PIC and MAT documents exist. Within their legal mandate, user states should use risk-based approaches to identify possible non-compliance with reporting duties, transfer restrictions,

changes of use and benefit-sharing commitments, particularly in cases involving commercialization or downstream actors.

- **Provide channels for cross-border cooperation and enforcement support.** Provider authorities should have accessible contact points through which they can request information or assistance in substantiated cases. Procedures should support timely communication, clarification of user conduct and, where appropriate, enforcement of contractual obligations.

User-state measures should also prevent non-compliance before it occurs. Funding, institutional governance and advisory services can ensure that ABS is considered at the beginning of research and innovation rather than after key budgets and timelines have already been fixed.

- **Integrate ABS into research funding and project approval.** Funding applications and institutional approval processes should require early consideration of access requirements, permits, provider and community participation, expected benefit-sharing, reporting and realistic timelines. Eligible project costs should include legal advice, translation, consultation, travel, data management, agreed benefits and long-term follow-up.
- **Strengthen awareness, advice and organizational responsibility.** User states should promote sector-specific guidance and encourage universities, research organizations, collections and companies to designate ABS contact points. These structures should advise projects early, preserve documentation and monitor reporting and benefit-sharing commitments over time.
- **Improve traceability across value chains and transfers.** Users should be required or encouraged to document transfers, intermediaries, affiliated entities, licences and changes in utilization. Reporting and checkpoint systems should make it possible to connect downstream activity to the relevant PIC and MAT while respecting legitimate confidentiality and data-protection requirements.
- **Support provider-country capacity through demand-driven cooperation.** Technical assistance and peer exchange should respond to priorities identified by provider countries and IPLCs, including negotiation, valuation, audit rights, accounting, reporting, traceability and enforcement. Support should strengthen durable institutional capacity rather than depend exclusively on short-term projects or individual experts.

Taken together, these measures would make user-state responsibility more substantive. They would also reduce the current imbalance in which provider authorities are expected to monitor utilization and enforce agreements despite having little practical leverage outside their own jurisdiction.

Recommendations for Users

The recommendations for users apply to researchers, universities, research institutions, companies, collections, intermediaries and other actors that access or utilize genetic resources or associated traditional knowledge. Users are responsible not only for obtaining authorization but also for maintaining transparent and reliable cooperation throughout the full period of utilization.

- **Plan for ABS from the outset.** Potential requirements should be assessed before resources are collected, received, transferred or utilized. Project schedules and budgets should allow for permits, legal advice, translation, provider and community participation, benefit-sharing, reporting and long-term follow-up. ABS should not be treated as an administrative step to be addressed only after funding or commercial timelines have been fixed.
- **Engage early and respect provider decision-making.** Users should contact the relevant NFP, CNA and legitimate provider before access or utilization begins. They should allow sufficient time

for national and community procedures and should not pressure authorities, partners or communities to accelerate decisions because ABS was omitted from earlier project planning.

- **Provide complete and continuously updated information.** Information should cover the proposed purpose and methods, participating organizations, resources and traditional knowledge involved, expected outputs, possible intellectual property claims, commercialization prospects, intermediaries, third-party transfers and foreseeable changes in use. Relevant changes should be communicated throughout the project.

Transparent engagement should continue through negotiation and implementation. The objective is not only to secure access, but to establish terms that are workable, fair and capable of being monitored over time.

- **Negotiate in good faith and use adaptive terms where needed.** Users should explain uncertainties and constraints, allow providers sufficient time for consultation and legal review, and avoid exploiting differences in information or bargaining power. Where future uses or values are uncertain, milestones, review procedures and renegotiation clauses are preferable to one-sided allocation of risk.
- **Agree on benefits that are relevant, realistic and verifiable.** Monetary and non-monetary benefits should respond to priorities identified by legitimate providers and, where applicable, IPLCs. Commitments concerning training, technology transfer, data sharing, co-authorship, equipment or cooperation should specify recipients, timelines and expected outputs so that delivery can be assessed.
- **Establish internal systems for lifecycle compliance.** Organizations should assign responsibility for ABS, maintain records of PIC, MAT, permits, transfers, deadlines, reports and benefits, and use reminders or review procedures to ensure continuity when staff or project teams change. Users should fulfil obligations without depending on repeated reminders from provider authorities.
- **Disclose transfers and changes of use.** Before resources, information or relevant rights are transferred, users should confirm that the transfer is permitted and that applicable obligations are passed on. New uses, commercialization opportunities or significant changes in the utilization pathway should trigger notification and, where required, renewed consent or renegotiation before proceeding.

Users should ultimately approach benefit-sharing as a continuing relationship rather than a one-time exchange. Regular communication, shared review of project developments and reliable fulfilment of commitments can build trust, improve the quality of cooperation and strengthen willingness to engage in future research and innovation.

Recommendations for future research

The study addresses an important gap by examining satisfaction with ABS from the perspective of state institutions in provider countries across different stages of the ABS process. At the same time, its exploratory and cross-sectional design identifies areas in which the evidence base remains incomplete. Future research should move beyond documenting legislation, permits or agreed benefit types and examine how negotiations, compliance and benefits develop over time and how they are assessed by different actors.

Several priorities are particularly important for strengthening the evidence base:

- **Establish repeated and longitudinal measures of provider-side satisfaction.** Future cross-country studies should use consistent measures of expectations, negotiation quality, MAT

compliance and realized benefits. Repeated surveys or panel designs would make it possible to distinguish temporary implementation difficulties from longer-term changes and to examine whether satisfaction improves as national systems gain experience.

- **Examine the wider governance effects of ABS implementation.** Future research should investigate whether and how implementation of the Nagoya Protocol strengthens institutional coordination, stakeholder and IPLC participation, legal and policy frameworks, and the integration of biodiversity into national and subnational planning. It should examine how these effects emerge, under which conditions they are sustained, and whether and how they ultimately contribute to the conservation of biological diversity and the sustainable use of its components.
- **Strengthen independent and participatory research with IPLCs.** The assessments of state institutions cannot be treated as a proxy for the experiences of IPLCs. Research should therefore examine consultation, consent, participation, benefit priorities and distribution from community perspectives, using methods that support meaningful participation and respect community governance, knowledge and data rights.
- **Assess when standardization is useful and when flexibility remains necessary.** Further research should explore in which contexts standardized tools can reduce transaction costs and improve predictability without limiting fairness or the ability to respond to case-specific circumstances.
- **Assess whether the DSI multilateral mechanism complements or crowds out bilateral ABS.** As implementation experience accumulates, research should examine whether the mechanism creates sufficient incentives for corporate participation, generates predictable benefit flows and provides legal certainty for providers and users. Particular attention should be paid to whether it strengthens the wider ABS system or diverts political attention, administrative capacity and user engagement from bilateral ABS without delivering equivalent benefits.

1 Introduction

Access to genetic resources is essential for research and innovation in fields such as agriculture, medicine and biotechnology, while the conservation and sustainable use of these resources are fundamental to their continued availability. **Access and benefit-sharing (ABS)** seeks to connect these objectives by ensuring that research and development can use[1] genetic resources while benefits are shared fairly with the countries and communities that provide or conserve them. The international ABS regime emerged particularly in response to demands from biodiversity-rich provider countries, many of them in the Global South that benefits arising from the use of resources originating within their jurisdictions should be shared more equitably and thereby create incentives for conservation and sustainable use.

The adoption of the **Convention on Biological Diversity** (CBD) in 1992 marked a central turning point in international biodiversity governance by affirming States' sovereign rights over their natural resources and placing the authority to determine access to genetic resources with national governments. The CBD established three objectives: (1) the conservation of biological diversity, (2) the sustainable use of its components, and **(3) the fair and equitable sharing of benefits arising from the utilisation of genetic resources**. Here, articles 8(j) and 15 provided the basic international framework for ABS by addressing traditional knowledge, access to genetic resources and the sharing of benefits arising from their utilisation (Convention on Biological Diversity 1992, Arts. 1, 8(j) and 15).

To give more concrete effect to its third objective, the **Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization** was adopted in 2010 and entered into force on 12 October 2014. As a legally binding supplementary agreement to the CBD, it aimed to provide greater legal certainty and transparency for providers and users and to ensure the fair and equitable sharing of benefits, thereby contributing to biodiversity conservation and sustainable use (Secretariat of the Convention on Biological Diversity 2011). The Protocol established a bilateral system in which access may be subject to Prior Informed Consent (PIC) under the applicable domestic legislation, while the conditions of access, utilisation and benefit-sharing are set out in Mutually Agreed Terms (MAT). The **benefits** agreed in MATs may be monetary or non-monetary, ranging from up-front payments, royalties and licence fees to research cooperation, technology transfer, capacity-building, employment and the sharing of research results. The Protocol also covers traditional knowledge associated with genetic resources and, where recognised under domestic law, genetic resources held by Indigenous Peoples and local communities (IPLCs).

The political relevance of benefit sharing has been reinforced by the **Kunming-Montreal Global Biodiversity Framework** (KMGBF), adopted in 2022. Goal C provides that monetary and non-monetary benefits from genetic resources, associated traditional knowledge and digital sequence information should be shared fairly and equitably and substantially increased by 2050. Target 13 calls for effective legal, policy, administrative and capacity-building measures and seeks a significant

[1] "Utilization of genetic resources" is defined in Article 2(c) of the Nagoya Protocol as research and development on the genetic and/or biochemical composition of genetic resources. This report generally uses "use" as a broader, non-technical term; "utilization" is retained where the wording or legal scope of the Protocol is specifically addressed. References to "use" should therefore not be understood as a legal classification under Article 2(c).

increase in shared benefits by 2030 (Conference of the Parties to the Convention on Biological Diversity 2022).[2]

More than a decade after the Nagoya Protocol entered into force, implementation remains uneven. National ABS systems differ substantially, institutional capacity is often limited, and responsibilities and procedures are not always clearly defined (Heinrich et al. 2020; Knight et al. 2022; Sirakaya 2019). A body of research reflects criticism from the user perspective, particularly concerning legal uncertainty, overlapping requirements, transaction costs and administrative burdens associated with compliance (e.g. Hennicke, Qasem, and Gent 2024; Kamau 2024). Assessing outcomes of benefit sharing is difficult because benefits may arise only years after access, involve multiple actors and are not systematically monitored or reported. An analysis of existing agreements confirms that benefits can take a wide variety of forms (Beumer and Roskam 2026).

Overall, research to date has partly examined legal frameworks, individual cases, IPLC rights and user compliance, but evidence on implementation effectiveness and realised benefits remains limited (Morrison, Humphries, and Lawson 2021). In addition, comparatively little recent cross-country research examines how provider-country institutions assess the ABS process as a whole and whether their concerns are as pronounced as those articulated from the user side. The present study addresses this gap through a social-science assessment of provider-side satisfaction. The Nagoya Protocol's emphasis on equity and fairness in MAT negotiations provides the normative basis for this study's central question: whether provider countries experience these negotiations as fair and equitable in practice.

Against this background, the study asks:

How satisfied are the provider countries with the negotiations and implementation of benefit-sharing under the Nagoya Protocol?

This study does not attempt to calculate the total economic value of ABS benefits. Instead, satisfaction is used as an empirical lens for examining whether institutional actors consider ABS negotiations and outcomes fair, equitable and responsive to their expectations.

The present analysis covers negotiation processes, user conduct, compliance with MAT, benefit distribution and use, power relations and perceived effects on biodiversity governance. The user perspective is deliberately not examined as a separate empirical perspective. User-related factors are considered only insofar as they affect provider-side experiences. In this report, the term “provider countries” is used as shorthand for the perspectives of the National Focal Points (NFPs), Competent National Authorities (CNAs), checkpoints and other institutional representatives who are involved in ABS procedures at the country level. This focus does not imply a uniform national position and cannot substitute for research conducted directly with IPLCs or other providers.

Methodologically, the study is based on a sequential exploratory mixed-methods design. Twelve formal semi-structured expert interviews involving 18 participants from ten countries were conducted to identify relevant mechanisms, expectations, challenges and good practices. These findings informed a global online survey directed primarily at NFPs and CNAs in countries acting as providers or as both providers and users of genetic resources and associated traditional knowledge. The

[2] Digital sequence information forms part of this broader policy context but is not examined in this study.

survey produced 60 analysable responses. The interviews provide contextual depth, while the survey offers comparative evidence on the distribution of provider-side experiences and assessments.

In this report, chapter 2 reviews the existing research and conceptual framework. Chapter 3 presents the methodology and limitations. Chapter 4 reports the expert-interview findings, and Chapter 5 presents the survey results in context with interpretations taken from the expert interviews. Chapter 6 provides a conclusion on the research question, while chapter 7 derives recommendations for provider states, user states, users and future research.

By providing a recent assessment from the provider perspective, this study contributes to a better understanding of current challenges and good practices in ABS implementation and of whether the system can deliver not only formal compliance, but also greater equity and fairness between providers and users. By examining how regulatory frameworks seek to reconcile continued access to genetic resources with distributive justice, the study also contributes to broader debates on just sustainability transitions.

The project was conducted by the Öko-Institut e.V. from January 2024 to June 2026 with support from the German Federal Agency for Nature Conservation and funding from the German Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety.

2 State of Research and Conceptual Foundations

State of Research and Delimitation of the Study's Focus

The existing ABS literature examines several issues that are relevant to the present study without directly answering its central research question. A substantial body of research addresses national implementation of the Nagoya Protocol. It considers, for example, legal clarity, institutional responsibilities, transparency, human and technical capacities, and the design of access and authorization procedures. Based on provider-country regulations and stakeholder assessments, Sirakaya (2019) identifies predictability, fair negotiations, capacity-building, and incentives for biodiversity conservation as important assessment criteria. Shikongo (2015) identifies factors that are critical to effective ABS implementation at the national and international levels. These studies therefore describe key conditions under which ABS can function. Their primary focus, however, is on institutional design and implementation effectiveness rather than on the satisfaction of representatives from provider countries as a distinct subject of research.

Other studies examine agreed benefits and observable outcomes. They show that benefit-sharing can take many forms. In addition to monetary payments, relevant benefits may include research cooperation, training, technology transfer, the sharing of data and research findings, co-authorship, infrastructure, or long-term partnerships. Merely describing these benefits, however, reveals little about whether they correspond to providers' expectations and priorities. At the same time, confidentiality provisions, the absence of reporting obligations, long development periods, and limited possibilities for tracking agreements make it difficult or even impossible to comprehensively document the benefits that have actually been realized (Muñoz-García, Lago, and Scholz 2024; Núñez-Vega et al. 2025).

A substantial body of ABS literature addresses traditional knowledge, the rights and experiences of IPLCs, and questions of procedural and distributive justice (Morgera, 2015; Morrison, Humphries, and Lawson 2021). This literature shows that formal consent and contractually agreed benefits alone do not necessarily ensure meaningful participation, adequate representation, or the effective and fair realization of benefits. Analyses of ABS cases in Latin America, for example, point to stalled consultation processes, weak institutional support, and benefits that frequently remain unrealized (Heinrich et al. 2020). Kloppenburg, Calderón, and Ané (2024) similarly illustrate how closely benefit-sharing may be connected to participation, representation, and confidentiality. Such studies are normatively important and help identify relevant dimensions of justice. Their unit of analysis, however, differs from that of the present study: Case studies of IPLCs participation and perspective cannot automatically be interpreted as evidence of how representatives of provider countries assess the ABS system. Conversely, the perspectives of IPLCs cannot be replaced by the assessments of state institutions.

A second strand of literature focuses primarily on users and the scientific community. Its central concerns are legal uncertainty, administrative requirements, transaction costs, and potential barriers to international research. With regard to non-commercial biodiversity research, Colella et al. (2023) demonstrate the difficulties that may arise from heterogeneous national regulations and lengthy procedures. Neumann et al. (2018) similarly identify vague definitions, insufficient legal clarity and coordination, and restrictive or complex regulations as obstacles to the transfer of biological material and associated data, international collaboration, and biodiversity research. For the European user context, Hennicke, Qasem, and Gent (2024) emphasize that overlapping obligations under provider-country, European Union, and national law can substantially complicate compliance. Kamau (2024) further points to high transaction costs and the risk that users may avoid genetic resources from countries with unclear or particularly burdensome procedures, which may in turn reduce

opportunities to generate and share benefits. This perspective is relevant to the present study because users' conduct and resources affect whether negotiations are conducted transparently, agreements are complied with, and benefits are ultimately realized. User satisfaction with ABS procedures is not, however, the subject of the study. Difficulties experienced by users are considered only insofar as they shape the experiences and assessments of the provider side.

In summary, there is a substantial body of research on legal implementation, institutional conditions for success, user experiences, individual ABS agreements, and justice issues relating to IPLCs. Much less attention has been paid to how the provider side assesses the overall interaction between negotiations, user conduct, compliance with MAT, realized benefits, and broader effects.[3]

Provider Countries as the Analytical Perspective

The present study focuses on the perspective of provider countries. Empirically, it does not examine states as abstract or internally uniform actors. Rather, it collects the assessments of institutional representatives from provider countries, especially representatives of the state institutions responsible for ABS. By virtue of their functions, these respondents possess specialized knowledge of national implementation, negotiations, authorizations, and the monitoring of agreements. Their assessments therefore provide an institutional evaluation of the ABS system from a provider perspective.

For readability, the report nevertheless uses the abbreviated term "provider countries." The term is used as shorthand for the perspectives of institutional representatives from provider countries surveyed in this study. It should not be understood as an officially consolidated position of all state and non-state actors within the respective country. This qualification is particularly important in relation to IPLCs. State ABS institutions can provide information on national legal and administrative implementation, negotiation experiences, and observed benefit flows. Their assessments do not, however, automatically represent the views of all domestic beneficiaries or affected communities.

The specific research gap is therefore not that there is no evidence from provider countries at all. Several studies include state actors or examine national provider-country regulations. What is largely lacking, however, is a systematic cross-country study that explicitly examines satisfaction with ABS from the perspective of state institutions in provider countries and relates this assessment to experiences across different phases of the ABS process.

The first national reports on the implementation of the Nagoya Protocol, submitted in 2026, and the Secretariat's subsequent analysis (CBD/SBI/7/INF/2) examine national implementation and effectiveness, including reported benefits. They do not systematically assess provider-side satisfaction with ABS negotiations and the fulfilment of agreed terms, which is the focus of the present study. The reports and the Secretariat's analysis were not part of the empirical material analysed here.

[3] The more recent debate on digital sequence information (DSI) and the Cali Fund concerns a multilateral mechanism for sharing benefits arising from the use of DSI and thus represents a different institutional approach from the bilateral negotiations on PIC and MAT that are central to this study. Since the survey did not examine this mechanism as a separate subject, it is not treated as a distinct strand of research. The same applies to related international regimes, such as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the BBNJ Agreement, and pandemic-related regulatory approaches. See Secretariat of the Convention on Biological Diversity (2026).

Satisfaction as a Comparison between Expectations and Perceived Outcomes

The confirmation/disconfirmation paradigm provides a suitable conceptual framework. According to this approach, satisfaction results from a comparison between expected performance or a desired state and perceived actual performance. If expectations are met, confirmed, or exceeded, evaluations tend to be more positive. If outcomes fall short of expectations, negative disconfirmation occurs and satisfaction tends to be lower (Oliver 1980). This basic logic has also been applied to the assessment of negotiation outcomes and public services (Oliver, Balakrishnan, and Barry 1994; Zhang et al. 2022).

In the ABS context, this logic translates into two distinct components of satisfaction. The first concerns the negotiations themselves: expectations regarding the negotiation process are compared with the perceived process and outcome, resulting in satisfaction with the negotiations. The second concerns what happens afterwards: expectations regarding compliance with the MAT are compared with users' actual compliance, resulting in satisfaction with compliance. Overall satisfaction with fair and equitable benefit-sharing is thus best understood as the combined result of these two components, together with softer factors relating to trust, transparency and process quality in both negotiations and MAT fulfilment.

Figure 1: Two Sequential Components of Provider Satisfaction: Negotiation Outcomes and MAT Compliance

Source: Öko-Institut

Expectations and perceived outcomes may include both subjective and more readily objectifiable reference points. Timely reports, payments made, or training delivered can, in principle, be described as concrete forms of performance. Whether these benefits are considered sufficient, responsive to needs, and fair nevertheless remains a subjective judgement. In the ABS context, it is therefore important not only whether a benefit has been delivered, but also whether it corresponds to the expectations, priorities, and perceived contributions of the parties involved. The study also draws on the idea that satisfaction is influenced by the perceived fairness of the relationship between contributions and outcomes. This perspective is particularly relevant in ABS settings, where asymmetries in bargaining power, the transparency of the process, and the distribution of benefits can shape whether the parties perceive an arrangement as fair and satisfactory.

The approach serves as a substantive organizing framework for the study. It connects expectations, perceived processes, observed or reported outcomes, and summary judgements of satisfaction.

3 Methodology

The study used a sequential, exploratory mixed-methods design combining semi-structured expert interviews with a global online survey. The interviews provided an in-depth understanding of practical experiences with the implementation of the Nagoya Protocol and informed the development of the survey questionnaire. The survey subsequently examined the prevalence and distribution of relevant experiences and assessments among a broader group of institutional representatives from provider countries. The two components therefore served complementary purposes: the qualitative material was used to identify and contextualise important themes, while the quantitative component provided structured, cross-case evidence concerning the study's central research question of how satisfied provider-state representatives are with access and benefit-sharing under the Nagoya Protocol.

3.1 Expert Interviews

Semi-structured expert interviews were conducted to gain a deeper understanding of the practical implementation of the Nagoya Protocol and to inform the development of items for the quantitative survey. The interviews also served to generate insights for the scientific report, including recommendations on ABS for different stakeholder groups.

The interviews focused on challenges and good practices encountered by provider countries in the negotiation and implementation of benefit-sharing arrangements. The main thematic blocks covered were: (1) expectations, processes and outcomes of ABS negotiations; (2) the implementation of benefit-sharing; and (3) the interviewees' overall assessment of existing ABS practices.

Different interview guides were developed, as the thematic focus varied depending on the type of institution represented by the interviewee, such as business, non-governmental organisations, government bodies or research institutions, as well as their experience with ABS negotiations. The interview guides for different groups are included in Annex I (NFP/CAN), II (NGO), III (General Expert).

Potential interviewees were identified through targeted research conducted in consultation with the commissioning organisation and through recommendations from the project advisory group. Recruitment prioritised NFPs and CNAs with comparatively extensive experience in implementing the Nagoya Protocol. These perspectives were complemented by experts from research, non-governmental organisations and business-related practice.

A total of 12 formal interviews involving 18 individuals from ten countries were conducted between August and November 2024 (see Table 1).

Table 1: Expert Interviews

Group	# Interviews	# Interviewees
NGO	1	1
Business	1	2
Researcher using genetic resources	1	2
State Actor (NFP and/or CNA)	4	8
Nagoya Protocol Expert / Researcher	5	5
Total	**12**	**18**

The sample included state actors, researchers and other Nagoya Protocol experts, an NGO representative, a business consultancy, and researchers using genetic resources. The formal interviews lasted between 60 and 90 minutes, were conducted in German, English or Spanish, and involved one or two members of the research teamVideoconference interviews were recorded and transcribed using the transcription function of Microsoft Teams. Interviews conducted solely by telephone were documented through detailed written notes. The automatically produced transcripts and the interview notes were reviewed by the research team before analysis. Informed consent was obtained from all interviewees. Interview materials were treated confidentially, and identifying information was removed or anonymised for the reporting of findings.

In addition to the 12 formal interviews, several shorter, non-formalised conversations were held in person during an expert workshop organised by the Secretariat of the Convention on Biological Diversity in Bonn in October 2024. These conversations broadened the range of perspectives and provided supplementary context for issues emerging from the formal interviews. Because they were not conducted and documented in the same manner as the formal interviews, they were not included in the interview count and were used only as complementary qualitative material.

The interview material was analysed using a structured thematic approach. The principal analytical categories were derived from the interview guides and reflected the stages and cross-cutting issues of the ABS process, including expectations before negotiations, negotiation procedures, negotiation outcomes, implementation of agreed benefits, and the use of benefits. Within these categories, the research team compared recurring patterns, divergent perspectives, reported challenges and examples of good practice across interviews and actor groups. The resulting synthesis informed both the development of the survey instrument and the interpretation of the quantitative findings.

3.2 Global Survey

Sampling and Recruitment

The global survey was designed as a purposive expert survey of institutional representatives involved in national ABS implementation. It primarily targeted National Focal Points and Competent National Authorities of Parties that act as providers of genetic resources. Given their responsibilities for access procedures, authorisations, ABS negotiations and, where applicable, monitoring the implementation of agreements, these representatives were considered particularly well placed to assess whether ABS processes and outcomes meet provider-country expectations and priorities.

Eligibility was determined through a screening question at the beginning of the questionnaire. Respondents who indicated that their country primarily functions as a user of genetic resources were screened out. Respondents who characterised their country as primarily a provider country or as both a provider and user country remained eligible.

Potential participants were contacted through direct email invitations using publicly available contact information from the Access and Benefit-Sharing Clearing-House contact database. The survey was also announced on the ABS Clearing-House website to increase its visibility within the target group. Two reminders were sent during the field period. In total, 230 individuals from 113 countries were contacted directly, generally corresponding to only one or two official contacts per country. This recruitment structure suggests that the 60 responses are likely to reflect a relatively broad range of countries rather than a large number of respondents from only a small set of countries. However, because the survey link was also accessible through a public announcement and no country information was collected, the exact number of countries represented and a conventional country-level response rate cannot be determined.

Survey Design

The questionnaire was made available in English, Spanish, and French in order to facilitate participation across different linguistic contexts among Parties to the Nagoya Protocol. The translations were checked by native speakers to ensure linguistic accuracy and comprehensibility.

The survey was structured into six thematic sections:

- the role of the respondent, experience with ABS negotiations, and the status of implementation of the Nagoya Protocol;
- the role of IPLCs;
- the negotiation of benefits;
- the use of benefits within the provider country;
- the role of users and user countries; and
- an overall assessment of current ABS practice

The questionnaire included different types of questions, including Likert-scale items, numerical scales, multiple-choice questions, single-choice questions, and open-ended questions. This combination of question formats was used to capture both standardized assessments and more detailed qualitative information on institutional roles, negotiation experience, implementation practices, and perceived challenges.

Prior to the main data collection, the survey was pre-tested. The pre-test version was sent to seven NFPs and CNAs, the CBD Secretariat, and two Nagoya Protocol experts. The purpose of the pre-test was to assess the clarity, relevance, and comprehensibility of the questionnaire, as well as to identify potential ambiguities or technical issues before launching the main survey. Based on the feedback received during the pre-test, the questionnaire was revised before data collection began.

The survey, including its items, answers options, scales and format is included in annex IV.

Data Collection and Data Protection

Data collection took place between 28 July 2025 and 5 September 2025. The survey was administered online using LimeSurvey. Respondents accessed the questionnaire through the survey link provided in the email invitation and through the announcement on the ABSCH website.

Participation was anonymous. Respondents were not asked to provide their country or personally identifying information. Only limited background information was collected, namely the respondent's institutional role, such as NFP, CNA, checkpoint, or other, and their region. At the start of the survey, respondents were asked to confirm the data policy and provide informed consent before continuing with the questionnaire.

Data Processing and Cleaning

The survey link was accessed 116 times. Before analysis, the records were screened for substantive completeness, eligibility and response quality. A response was retained only if the respondent had completed at least Sections 1 and 2 of the questionnaire. This minimum ensured that retained records contained information on institutional role, negotiation experience, implementation of the Nagoya Protocol and the role of IPLCs.

Records were excluded if the respondent identified their country as primarily a user country, if the recorded completion time was less than five minutes, or if the open-text fields contained exactly

identical wording indicative of a duplicate or otherwise insufficient-quality response. Following the application of these criteria, 60 responses were included in the analytical dataset. Given that generally only one or two official contacts per country were invited, it is plausible that many of these responses represent different countries. Nevertheless, because respondents' countries were not recorded, the 60 responses cannot be equated one-to-one with 60 countries, and the exact proportion of Parties represented cannot be calculated.

Data Analysis

The cleaned dataset was exported from LimeSurvey and analysed using Microsoft Excel and PSPP. The quantitative analysis primarily comprised frequencies, percentages and descriptive summary statistics. Depending on the question and measurement level, the analysis also included exploratory comparisons between respondent groups and paired assessments of related items. Relationships between ordinal or non-normally distributed variables were examined using Spearman rank correlations. Paired-samples t-tests and Wilcoxon signed-rank tests were used for within-respondent comparisons where appropriate to the variables and analytical question. Statistical results were interpreted exploratorily. The analyses do not support causal conclusions.

Analyses were based on the valid responses available for each item, meaning that the number of observations varies across results. Missing responses were not treated as substantive answers. Open-ended responses were analysed through content-based thematic categorisation and summarised according to recurring arguments, challenges and examples. Quantitative and qualitative survey findings were then interpreted together and, where relevant, contextualised using the expert interview material.

Limitations

Several limitations should be considered when interpreting the findings. First, both study components used purposive, non-probability samples. Participation depended on the availability and willingness of the experts and institutional representatives contacted. Individuals with greater experience of, interest in or stronger views about ABS implementation may therefore be more likely to have participated. The findings should consequently be understood as evidence from knowledgeable institutional actors rather than as statistically representative estimates for all provider countries or all Parties to the Nagoya Protocol.

Second, the survey records individual responses rather than countries as units of analysis. The recruitment structure – with generally only one or two official contacts invited per country—suggests that the sample is likely to cover a comparatively broad range of countries. However, because respondents were not asked to identify their country, the actual number and distribution of countries represented cannot be verified; more than one response may originate from the same country, while other countries may not be represented. Possible clustering within countries therefore cannot be assessed or statistically controlled. In addition, the number of valid responses differs between questions and is comparatively small for some subgroup comparisons and inferential analyses. Statistical results are exploratory and should be interpreted cautiously.

Third, the study captures respondents' reported experiences and perceptions. Satisfaction with ABS is influenced by institutional roles, national legal frameworks, practical experience and expectations, and should not be interpreted as a direct objective measure of the performance of the Nagoya Protocol. Differences in national legal and institutional contexts may also have affected how respondents understood individual ABS concepts and survey items. Although the questionnaire was available in three languages and its translations were reviewed, the absence of additional language versions may have limited access for some potential participants.

Fourth, the interview material was documented in different forms. Videoconference interviews produced recordings and automated transcripts, whereas telephone interviews were documented through detailed notes. Although all materials were reviewed before analysis, note-based documentation generally provides less detail than a full transcript. In addition, the purposive interview sample represents a range of relevant perspectives but cannot cover the full diversity of national ABS systems and stakeholder experiences.

Use of AI-assisted Tools

AI-based tools were used selectively to support background research, translation and linguistic editing, and to provide an additional check of selected calculations conducted in Microsoft Excel and the statistics software *PSPP*. They did not independently determine the study design, inclusion or exclusion of survey responses, analytical categories, statistical procedures, interpretation of findings or conclusions. All AI-supported outputs were reviewed and, where necessary, corrected by the research team against the source material or original calculations. Only material without personal data or anonymised content was provided to these tools.

4 Insights from Expert Interviews

This section presents the main insights from the expert interviews on ABS negotiations and the implementation of benefit-sharing. The analysis follows the different stages of the ABS process: expectations before negotiations (4.1), the negotiation process (4.2), negotiation outcomes (4.3), the use of benefits (4.4) and monitoring and compliance (4.5). The section concludes by drawing together cross-cutting findings, challenges and good practices that emerged across the interviews (4.6).

4.1 Expectations before Negotiations

The interviews suggest that the phase before any formal negotiation takes place is crucial for the actual negotiations. According to many interviewees, negotiations do not begin at the negotiation table, but a long pre-negotiation phase is often required before actors even know who is competent, what law applies, which permits are needed, whether the resource falls under ABS, and whether PIC/MAT is required. Several interviewees described this early phase as one of the most difficult parts of the process, especially when authorities are hard to reach, procedures are unclear, or national guidance is missing.

Within this early stage of the ABS process, **early contact and transparent communication appears central from the provider perspective.** The interviews clearly show that provider countries and communities expect to be contacted before research funding has been approved, project designs have been finalised, or samples have been collected. If users approach providers only after key scientific and financial decisions have already been made, this can create mistrust and the impression that providers are merely being asked to legitimise an externally designed project. This timing problem was especially mentioned for non-commercial research cases. Users often work with fixed grant timelines and limited budgets, while providers may still expect meaningful benefits and recognition. Several interviewees described a structural mismatch: ABS requirements arise early and require time, whereas research grants do usually not include this flexibility and time required for the ABS process.

Moreover, **expectations on the negotiation and the benefits differ between commercial and non-commercial use.**

In non-commercial research, monetary benefits often seem difficult because public research institutions usually depend on third-party funding and cannot easily make financial commitments. Non-monetary benefit expectations may include information-sharing, reports, publications, permit citation, cooperation with national partners, training, infrastructure, equipment, scholarships or long-term collaboration. Non-monetary benefits are increasingly recognised as important, especially where monetary benefits are uncertain, delayed or inappropriate.

In commercial contexts, expectations seem to depend strongly on the sector and value chain. Supply-chain-based cases may allow more immediate benefit-sharing through price premiums, fixed payments, quality improvement, training or technology transfer. By contrast, pharmaceutical, biotechnology or other R&D-intensive cases appear much more uncertain because a promising lead may never become a commercially viable product. One CNA emphasised that commercialisation often remains uncertain even when scientific results look promising.

For IPLCs, expectations on ABS seem to be shaped not only by the national ABS implementation but also by broader questions of land rights, traditional knowledge, legal personality, consultation rights, consent rights and state recognition. NGO representatives and other experts stressed that

benefit expectations of IPLCs cannot and should not be assumed from outside. They suggest that benefit-sharing is more likely to be considered fair by IPLCs when the communities themselves can articulate their priorities. Moreover, Biocultural Community Protocols were highlighted as a useful and successful tool as they can help articulate traditional knowledge, clarify priorities and define relevant benefits.

Overall, there appears to be **uncertainty among providers about what they can realistically expect**. At the outset, it is often unclear whether the use of a genetic resource will lead to a product, whether such a product will be commercially successful, or whether value will emerge only later in the innovation chain. Several interviewed CNAs and NFPs also indicated that they lacked specific national guidance for forming realistic expectations. Moreover, assessing fair benefits also appears to be difficult because of a lack of multidisciplinary teams combining biological, legal and economic expertise, as biological expertise alone is not sufficient to determine the economic market value of genetic resources. This appears to make it difficult to estimate potential benefits before negotiations begin. For this reason, several interviewees highlighted the importance of capacity-building both for users as well as for providers and their competent authorities.

4.2 Negotiations

With regard to the phase of actual benefit negotiations, the interviews clearly indicate that **ABS processes are largely shaped by national frameworks.** Domestic law and practice determine who conducts negotiations, who grants approval, who receives benefits, who is recognised as the provider, and how PIC and MAT are organised. This suggests that satisfaction with ABS depends less on the Nagoya Protocol itself than on its domestic implementation, which varies considerably across countries.

The interviews underline that parties to the Nagoya Protocol employ different negotiation models. In one model, the CNA negotiates directly with the user. In another, providers (e.g. authorized universities, research institutions, gene banks, collections, or IPLCs) directly negotiate with the user, while the CNA reviews and approves the agreement. In some contexts, provider communities conduct negotiations with support from NGOs, government bodies, or other facilitators. In others, intermediaries such as universities, research institutes, or public research organisations play a key role, as they hold collections, possess scientific expertise, maintain industry contacts, or have already added value to the resource through research and characterisation.

The domestic practices also differ in terms of centralisation. While some systems are centrally organised, others are highly decentralised. In the latter, subnational authorities may be legally recognised as providers or competent authorities, whereas the national level acts as the interface to the CBD and the Nagoya system, including the issuance of IRCCs. The interviews suggest that such arrangements can strengthen local provider rights, but may also lead to fragmentation, uneven capacities, divergent administrative procedures, and challenges in establishing consistent negotiation practices.

Thus, a major issue raised with regard to negotiations of MAT is the question of **standardisation or case-by-case approach.** Standardised national models can increase predictability, reduce negotiation costs and give users clearer expectations. However, a strictly standardised model may not fit all sectors, resources or provider needs. Case-by-case negotiation allows agreements to be adapted to the specific resource, user, provider, market and value chain, but it requires more capacity and may lead to inconsistent outcomes. Some legal frameworks seem to move toward monetary and percentage-based benefits, but the interviews also suggest that royalties are not always suitable. Some sectors do not rely on patent licensing, some products never reach the

market, and some commercial uses are better understood as ongoing supply chains rather than one-off R&D processes. Contract templates may be useful, but only if they leave enough room to adapt the agreement to the resource, user, provider and expected commercialisation pathway.

Additionally, **power asymmetries** appear to be a central point of concern with regard to ABS negotiations. The interviews indicate that providers, CNAs and communities often consider themselves to have less legal, technical, financial, commercial and linguistic capacity than companies or research institutions. NFPs an CNAs may also be under-resourced. In some cases, only one or a few officers are responsible for highly complex negotiations involving different organisms, technologies, users, business models and legal questions. This affects the ability to assess commercial information, draft contracts, understand value chains and negotiate appropriate benefits.

As mentioned in the pre-negotiation phase, the type of benefit to be negotiated varies widely. Several interviews suggest that CNAs need more applied support in contract design, especially on payment schedules, reporting formats, confidentiality provisions and renegotiation triggers.

4.3 Outcome of Negotiations

In the interviews, negotiation outcomes were evaluated not only in terms of the amount or type of benefits agreed, but also by whether the agreement is relevant, transparent, flexible and implementable. Interviewees emphasised that a benefit may be formally agreed but still not be considered fair if providers cannot verify the value base, if payment schedules are unclear, if reports are missing, or if the benefits do not correspond to local needs.

A major issue that experts mentioned is that **contracts are increasingly expected to be dynamic.** This seems particularly important where non-commercial research may later become commercial, where commercial intent changes over time, or where genetic resources move through long R&D and licensing chains. Agreements should therefore contain change-of-intent clauses, renegotiation obligations and triggers for renewed ABS processes when utilisation changes. Several interviewees referred to renegotiation as a key element of fairness.

However, **confidentiality seems to be a recurrent constraint.** Several interviewees see it as a significant challenge that commercial actors often request confidentiality around contracts, financial terms and negotiated benefits. While confidentiality may facilitate the negotiations, some interviewees noted that it also limits transparency, peer learning and public accountability. Thus, it becomes difficult for authorities to assess what ABS has delivered, for providers to compare agreements, and for other countries to learn from existing cases. Some experts questioned whether entire contracts need to remain confidential and suggested that only genuinely commercially sensitive clauses should be protected, while other parts could be made available to relevant stakeholders or the public.

4.4 Monitoring and Compliance

Overall, the interviews suggest that the **implementation of benefit-sharing may still be at an early stage and often falls short** of what is set out in ABS agreements. Although MATs define formal obligations, actual benefit delivery, reporting and compliance appear to remain uncertain in many cases. This may partly reflect the still evolving implementation of the Nagoya Protocol. At the same time, the interviews indicate structural compliance gaps: users may not always report, research results may not always be shared, and providers may therefore lack the information needed to identify commercialisation or further benefit-sharing obligations. A major challenge that interviewees

report is that implementation takes time: benefits may arise years after access, while contracts, permits, project funding and staff responsibilities may already have changed.

Interviewees report that **monitoring systems and compliance mechanisms differ significantly**. On the provider-country side, one CNA described a digital permit platform with deadlines and automated reminders for researchers to submit reports, upload scientific articles and cite permit numbers in publications as a concrete administrative tool for improving compliance. By contrast, other interviews suggest that many provider countries do not systematically monitor benefit implementation, especially non-monetary benefits. On the user side, interviewed researchers described annual reporting and audits by a national science authority in a provider country as a useful model for follow-up and guidance. User-country compliance mechanisms on the other hand appear to focus primarily on due diligence and documentation, such as verifying the existence of PIC and MAT, rather than on assessing whether agreed benefit-sharing obligations have actually been implemented.

Monitoring monetary benefits in commercial use cases appears to raise particular verification challenges. CNAs reported difficulties in assessing whether company figures on revenue, profits, royalties or sales are accurate. A company may report low sales or no profit, while the provider authority may lack the accounting expertise or audit powers needed to verify these figures. Some authorities therefore try to require bank documentation or proof of the amounts received by intermediaries, rather than only proof of the amount ultimately transferred to the provider. Others identified the need for certified financial reports, specialised accountants or stronger audit clauses in contracts.

4.5 Use of Benefits

The Nagoya Protocol establishes a normative link between benefit-sharing and biodiversity objectives, but it does not prescribe in detail how benefits must be used. Article 9 of the Nagoya Protocol provides that Parties shall encourage users and providers to direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and the sustainable use of its components. The concrete distribution and use of benefits therefore largely depend on national implementation, who the relevant provider or rights-holder is and the terms agreed in MAT.

The interviews suggest that **benefit use varies considerably across national systems and types of ABS cases**. In some systems, national law defines fixed rules for distributing monetary benefits, for example between communities, national authorities and subnational authorities. Some allocate funds directly to biodiversity management. In other cases, monetary benefits may enter general public budgets rather than being earmarked for environmental authorities, protected areas or biodiversity funds. In further cases, benefits flow directly to private providers, farmers, cooperatives or associations. This may strengthen livelihoods, improve supply chains or support local production capacities, but it does not necessarily finance biodiversity conservation unless conservation-related obligations are built into the agreement. One expert explained that some countries do not even have the infrastructure, such as bank accounts or administrative mechanisms, to receive monetary benefits effectively. By contrast, non-monetary benefits may be more visible than monetary benefits, but they are also harder to monitor. Training, technology transfer, co-authorship, data sharing, equipment, infrastructure, quality improvement and knowledge exchange can be highly relevant, but they require indicators and follow-up.

Overall, the interviews point to a potential gap between the Protocol's aspiration to direct benefits towards conservation and sustainable use, and the way benefits are used in practice. However, as discussed above, experience with actual benefit disbursement still appears to be limited, and no

clear global practice for the use and distribution of benefits seems to have emerged yet. The interviews therefore primarily raise the question of which distribution mechanisms exist in different national contexts, how they operate in practice, and whether they are capable of linking benefit-sharing to provider priorities, conservation and sustainable use.

4.6 Cross-cutting Findings

In addition to questions on expectations, the negotiation process, negotiation outcomes and the use of benefits, interviewees were also asked to reflect more generally on the functioning of the Nagoya Protocol. These reflections led to the following cross-cutting findings:

The interviews suggest that **ABS has triggered a paradigm shift, but has not yet developed into a fully functional implementation system.** Many respondents highlight that one of the most significant impacts of the Nagoya Protocol is discursive and institutional. According to the interviews, the Protocol has increased the visibility of issues such as rights, provider status, traditional knowledge, biopiracy, colonial research relations, and equitable partnerships. It has reshaped debates around who holds rights, who creates value, and who must be included in research and commercialization processes.

At the same time, several interviewees expressed skepticism about the system's practical effectiveness. In operational terms, ABS is often perceived as slow, fragmented, under-resourced, and difficult to enforce. The findings therefore point to a distinction between normative and implementation success: while ABS appears to have strengthened the recognition of national biodiversity governance and rights of IPLCs, it has not yet consistently delivered verifiable, conservation-relevant, and enforceable benefit-sharing outcomes.

The interviews consistently highlight that ABS faces a persistent challenge: **finding an appropriate balance between standardization and flexibility under conditions of limited resources.** There is broad agreement that no one-size-fits-all model exists. ABS arrangements vary significantly depending on factors such as resource type, provider and user characteristics, sector, legal context, stage of research, commercial intent, and position within the value chain. Activities ranging from basic research and bioprospecting to commercial supply chains, biotechnology licensing, and applications in cosmetics, pharmaceuticals, food supplements, genebanks, botanical gardens, and museums all raise distinct benefit-sharing considerations.

This diversity makes rigid, uniform templates impractical. At the same time, fully case-by-case approaches can overwhelm already constrained administrative capacities and create uncertainty for users. The interviews therefore point to ABS as an ongoing balancing act: the need for flexible, context-sensitive instruments that can accommodate diversity, while still ensuring a sufficient degree of standardization to provide predictability, efficiency, and legal clarity.

Lack of trust, transparency, and information asymmetry are widely described by interviewees as central challenges. A lack of trust often seems linked to experiences of biopiracy, late engagement of the users, unclear user intentions, confidentiality constraints, weak reporting, and limited provider access to information. The interviews also indicate that transparency is important at all stages of the process: prior to negotiation, during contract formation, and once benefits are realized. Yet confidentiality clauses or missing communication – even within in the provider country – tend to restrict information precisely where it is considered most necessary. In their view, this tension can undermine public accountability and opportunities for cross-country learning.

Another cross-cutting finding from the interviews is that **satisfaction with ABS is shaped more by national implementation than by the Nagoya Protocol itself**. Respondents repeatedly suggest

that dissatisfaction tends to relate to domestic legal and administrative arrangements rather than to the principle of benefit-sharing. National frameworks determine who negotiates, who grants approval, who receives benefits, whether communities have legal standing, how checkpoints function and whether benefits can be earmarked. As a result, interviewees describe significant variation in ABS outcomes across countries and, in decentralized systems, even within them.

Moreover, across the interviews, people repeatedly pointed to **capacity constraints as a problem at every stage of ABS**. Many described how users often do not fully understand their obligations, provider communities lack legal and technical support, and provider authorities struggle with limited staff, expertise, and resources. Researchers, too, were said to face tight timelines and funding constraints that make proper compliance difficult. Several interviewees noted that capacity-building needs have evolved from raising general awareness of the Nagoya Protocol to dealing with the practicalities of implementation. In particular, they highlighted a need for hands-on support in areas like contract drafting, value-chain analysis, audit rights, licensing models, payment arrangements, reporting, confidentiality, and long-term monitoring. Across contexts, respondents also stress how strongly ABS depends on institutional continuity: where implementation relies on a small number of committed individuals, staff turnover or political shifts can quickly weaken the system.

At the same time, the interviews refer to a **range of good practices** that are seen to improve outcomes. These include early engagement between users and providers, clear procedural guidance, provider associations and community protocols, interdisciplinary ABS teams, and the use of digital tools such as monitoring platforms and centralized databases. Interviewees also point to contractual features such as adaptive agreements, renegotiation clauses and carefully limited confidentiality. Overall, respondents emphasize that effective ABS depends on a set of functional principles: early communication, realistic expectations, traceability, verifiability, meaningful provider participation, and benefits that are locally relevant.

5 Survey Findings: Analysis and Interpretation

This chapter presents the empirical findings of the global online survey, structured around the study's central themes and complemented by descriptive statistics, open-ended responses and statistical cross-analyses where relevant. The chapter begins with a description of the sample and the respondents' institutional roles and regional distribution (5.1), providing the basis for interpreting subsequent findings.

Section 5.2 examines the national implementation of the Nagoya Protocol, including respondents' negotiation experience and self-assessed implementation status, as well as the perceived role of IPLCs. Section 5.3 turns to the negotiation of benefits, covering the pre-negotiation phase, the standardisation of benefit-sharing arrangements, negotiation outcomes, and the perceived impact of the Nagoya Protocol on negotiation practice. Section 5.4 addresses the distribution and earmarking of monetary benefits, including allocation mechanisms and their relationship to earmarking practices. Section 5.5 focuses on user conduct and the role of user states, examining respondents' assessment of users' willingness to meet ABS requirements, satisfaction with actual compliance, and the support provided by user-country authorities. The chapter concludes with a general assessment (5.6) of power relations, challenges and success factors in benefit-sharing, and the perceived positive effects of ABS implementation more broadly.

Each section closes with a summary of key findings, which are drawn together and discussed in relation to the study's central research question in Chapter 6.

5.1 Sample Description and Respondents Profile

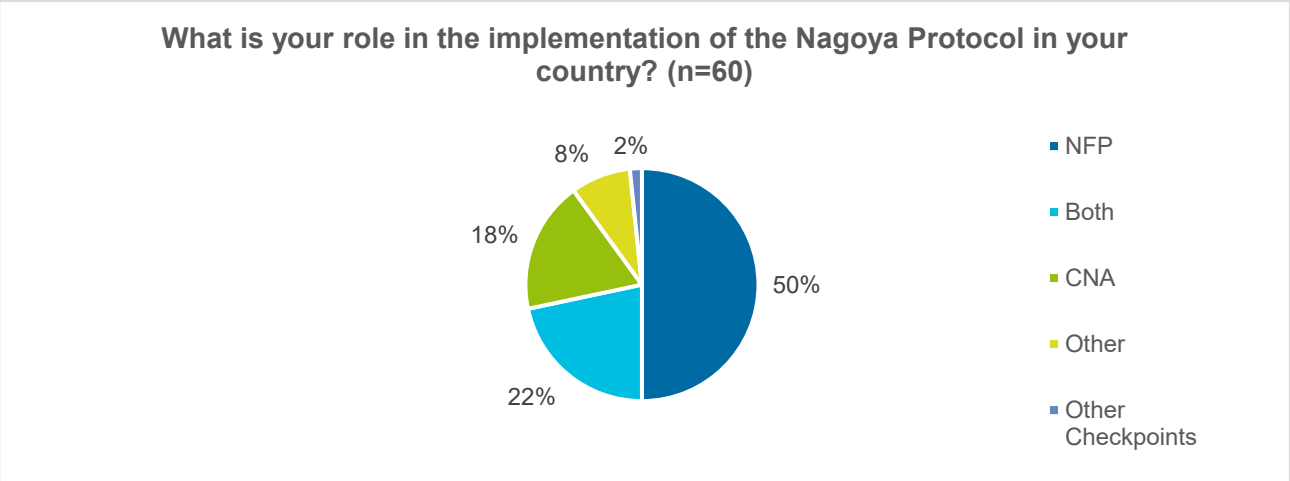
The survey was addressed to NFPs and CNAs of Parties to the Nagoya Protocol. A total of 60 usable responses were included in the analysis (see chapter 3.2 for details). The following section describes the composition of the sample in terms of institutional role, their role in ABS (provider or user), negotiation experience, and regional distribution.

Institutional role

Respondents were asked to identify their role in the national implementation of the Nagoya Protocol (see Figure 2). This distinction is relevant because NFPs and CNAs fulfil different functions: NFPs are typically responsible for overall coordination, communication with the CBD Secretariat, and the dissemination of information, while CNAs are more directly involved in the actual negotiations with users and the issuance of access permits. These different mandates may shape how respondents perceive and evaluate ABS processes, although in practice the degree of overlap between the two roles varies considerably by country.

As Figure 2 shows, the sample of this survey is dominated by NFPs, which is expected given their role as the primary communication channel between Parties and the Secretariat. The 22% of respondents who hold a dual role as both NFP and CNA reflect a pattern common in smaller countries where institutional resources are limited and a single entity covers multiple functions.

Figure 2: Country's role in the implementation of the Nagoya Protocol

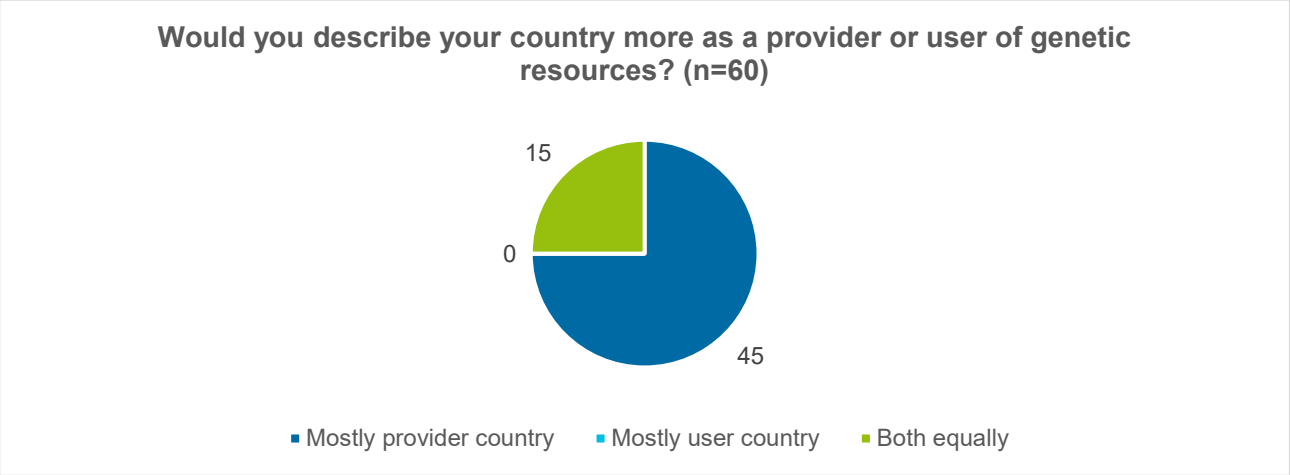


Source: Öko-Institut

Provider-user self-characterisation

The question of whether a country considers itself primarily a provider or user of genetic resources served as a filter: respondents who selected "mostly user country" were screened out, as the study focuses exclusively on the provider perspective. All 60 respondents described their country as either "mostly a provider country" (45, 75%) or "both provider and user equally" (15, 25%). The latter group is regionally diverse and likely includes provider countries with significant domestic research sectors that also access genetic resources domestically and abroad (see Figure 3).

Figure 3: Provider or user countries



Source: Öko-Institut

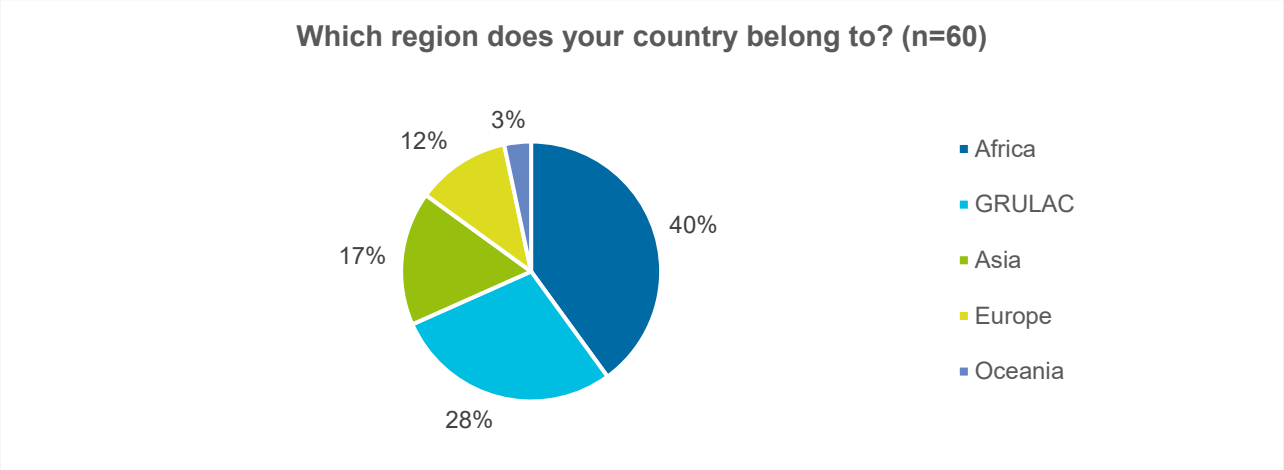
Regional distribution

With 142 Parties to the Nagoya Protocol, the 60 usable responses correspond numerically to approximately 42% of all Parties. However, this figure must not be interpreted as the proportion of Parties represented in the survey. The survey recorded individual responses rather than countries, and respondents were not asked to identify their country. Although generally only one or two official contacts per country were invited, suggesting that the sample is likely to cover a comparatively broad range of countries, more than one response may originate from the same country, while other

countries may not be represented. The exact number of Parties represented, either overall or within individual regions, and a conventional country-level response rate therefore cannot be determined.

Assuming, despite the uncertainty regarding country coverage, that each usable response broadly corresponds to a different Party, the sample broadly reflects the composition of Nagoya Protocol Parties, with Africa (40%) and GRULAC (Group of Latin American and Caribbean Countries) (28%) together accounting for 68% of respondents (see Figure 4).

Figure 4: Regions of respondents



Source: Öko-Institut

However, the response rates differ considerably between regions: GRULAC achieved near-complete coverage with approximately 85% of its Parties represented, while Africa, despite having the largest absolute number of respondents (n=24), reached only around 48% of its Parties. Asia (31%), Europe (23%), and Oceania (20%) show lower response rates, with Oceania represented by only two respondents. The lower response rate for Europe is partly explained by the fact that many European Parties primarily act as user rather than provider countries and were therefore less likely to respond or were screened out by the filter question as this survey focused on the provider perspective. These imbalances should be considered when interpreting regional comparisons.

5.2 National Implementation of the Nagoya Protocol

This section presents the results regarding the status of national implementation of the Nagoya Protocol. It was designed with two main objectives: (1) to collect data on respondents' experiences with the Nagoya Protocol, which will be used as an explanatory variable in subsequent analyses, and (2) to provide contextual information for interpreting the results of these analyses. The analysis is guided by the assumption that the level of Nagoya Protocol implementation varies considerably across contexts and has an impact on satisfaction.

5.2.1 Negotation Experience

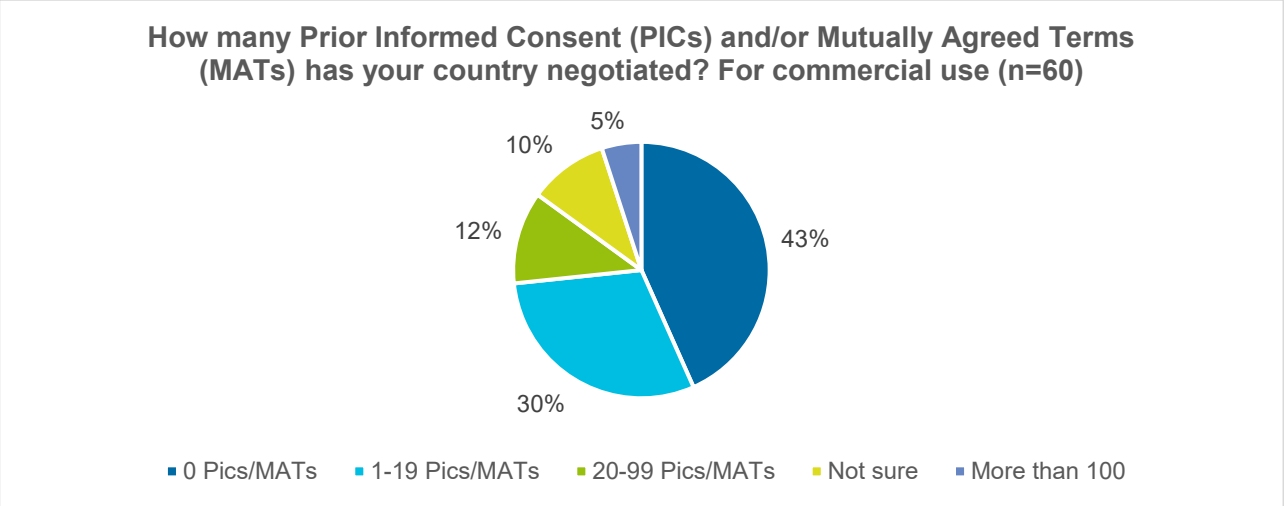
Number of Negotations

Understanding the level of practical negotiation experience is essential for interpreting the subsequent findings as experience with negotiations will likely influence response patterns. In addition, the distinction between commercial and non-commercial use is critical. While the Nagoya Protocol does not establish formally separate regulatory tracks—Article 8(a) merely encourages

“simplified measures on access for non-commercial research purposes”—expert interviews indicate that, in practice, commercial and non-commercial negotiations differ fundamentally in their dynamics, stakeholders, and challenges.

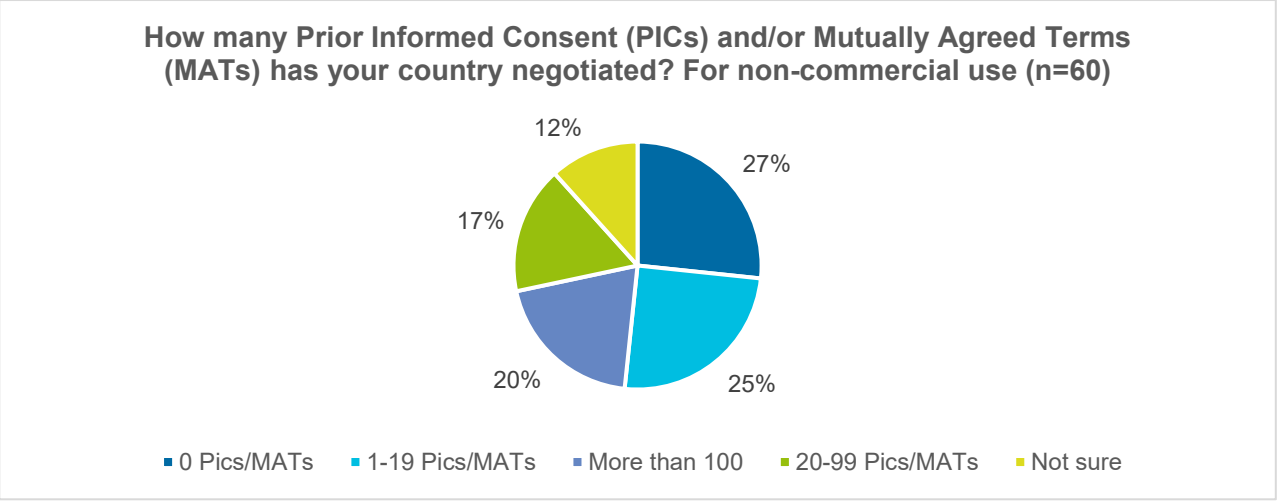
In the survey, provider countries were asked to report how many PICs and MATs their country has negotiated for commercial use (see Figure 5) and for non-commercial use (see Figure 6).[4]

Figure 5: Number of negotiated PICs and MATs (commercial use)



Source: Öko-Institut

Figure 6: Number of negotiated PICs and MATs (non-commercial use)



Source: Öko-Institut

While 43% of respondents reported zero commercial negotiations, only 27% reported zero non-commercial negotiations. Taken together, 25% answered to have not negotiated any MATs, neither

[4] In strict legal terminology, PIC is applied for and granted or withheld, whereas MAT are negotiated and established. The expression “PIC/MAT negotiations”, which is also used as shorthand in parts of the ABS literature and practice, was used in the survey to refer to respondents’ practical experience with these closely connected processes. It does not imply that PIC is itself a negotiated instrument in legal terms. Since the survey combined PIC and MAT, the responses cannot be disaggregated into separate counts of PIC procedures and MAT negotiations.

for commercial nor for non-commercial use. At the upper end of the distribution, 12 countries reported more than 100 non-commercial PICs/MATs, compared to only 3 countries reporting more than 100 for commercial use.

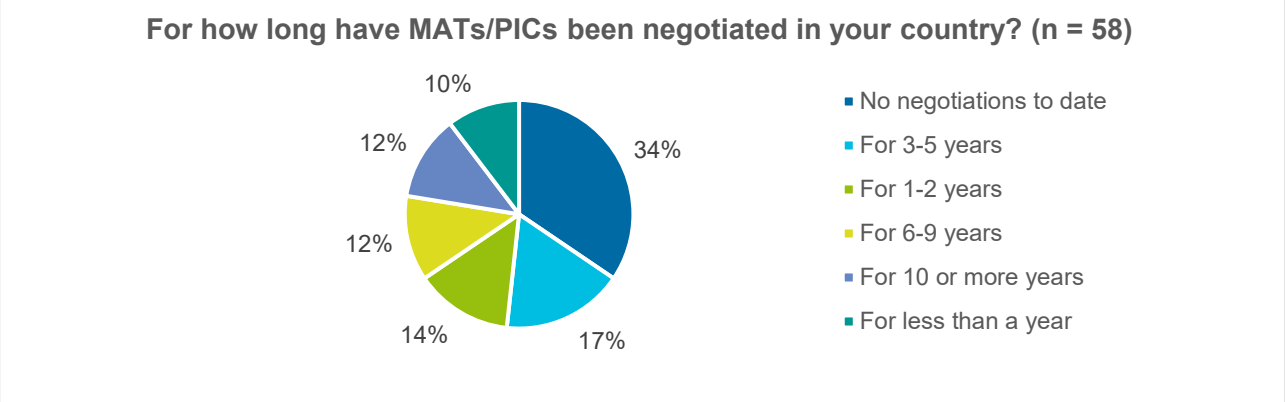
While 43% of respondents reported zero commercial negotiations, only 27% reported zero non-commercial negotiations. Taken together, 25% answered to have not negotiated any MATs, neither for commercial nor for non-commercial use. At the upper end of the distribution, 12 countries reported more than 100 non-commercial PICs/MATs, compared to only 3 countries reporting more than 100 for commercial use. Overall, the results show a clear asymmetry: non-commercial negotiations were reported far more frequently than commercial ones. This pattern is also reflected in the relationship between negotiation experience and the overall level of national ABS implementation. Countries with a higher implementation status tended to report greater negotiation experience, particularly for non-commercial use. The relationship was statistically significant for the number of negotiations of non-commercial PICs/MATs (linear regression, $p = 0.008$), while the association for commercial negotiations was weaker and did not reach conventional levels of statistical significance ($p = 0.078$).

Duration of negotiations

The duration of a country's negotiation history provides important additional context. It reflects not only the depth of experience but also whether it is reasonable to expect that agreed benefits have already materialised.

As shown in Figure 7, approximately one third of respondents reported that they had not yet engaged in any negotiations, while about a quarter indicated that they had been conducting negotiations for six years or more. This variation enhances the robustness of the findings, as it enables comparisons between more and less experienced countries throughout the analysis. Compared with the results on the number of PICs/MATs negotiated (see Figures 5 and 6), the share of respondents reporting no negotiation experience differs slightly depending on the indicator used.

Figure 7: PIC/MAT negotiation history



Source: Öko-Institut

While 25% of respondents reported zero PICs/MATs for both commercial and non-commercial use, 34% stated that they had conducted no negotiations to date when asked about the duration of their negotiation experience. This difference of 9 percentage points appears to result from inconsistent responses and non-response: two respondents reported negotiation experience in the first question but did not provide a corresponding answer in the question on duration. Adjusting for these two cases, the share of respondents without negotiation experience lies between 25% and 33%.

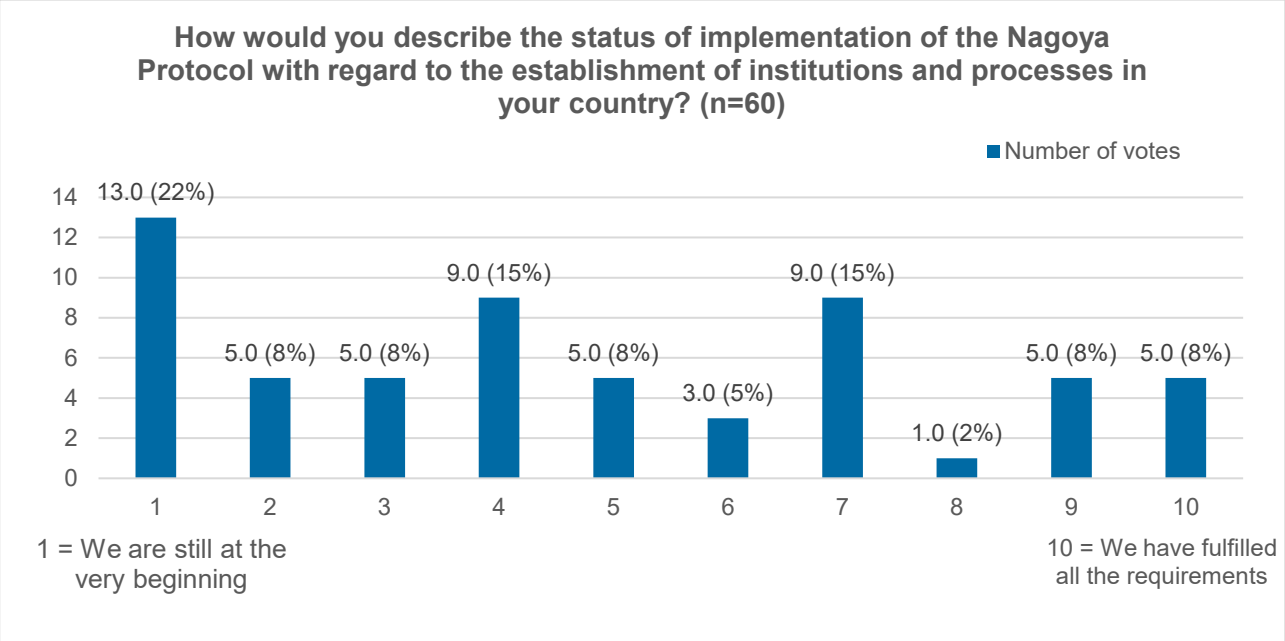
The analysis of the influence of region on both the duration of PIC/MAT negotiations and the number of negotiations conducted showed no statistically significant relationship. This suggests that neither the length of negotiation experience nor the number of commercial and non-commercial negotiations under the Nagoya Protocol is substantially influenced by the respondents' geographical region. Although the descriptive statistics indicate some variation between regions, these differences were not large enough to provide evidence of a statistically significant regional effect.

5.2.2 Status of Implementation of the Nagoya Protocol

Taking a broader perspective beyond actual negotiation experience, respondents were asked to assess the status of Nagoya Protocol implementation in their countries, particularly with regard to the establishment of institutions and processes. Responses were recorded on a scale ranging from "We are still at a very early stage of implementation" to "We have fully implemented all requirements" (see Figure 8).

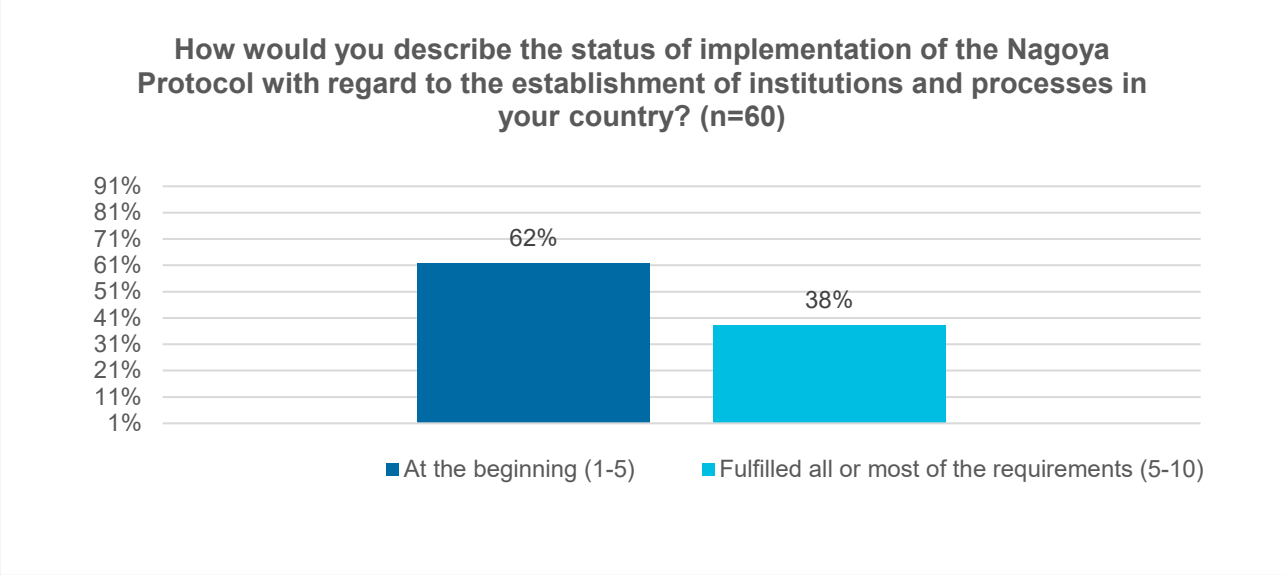
The distribution of responses indicates considerable variation across countries, with no single dominant pattern emerging. On mean score, responses are located almost exactly at the midpoint of the scale: The mean score across all 60 responses is 4.72 out of 10 (median = 4). However, when grouping responses into two categories (1–5 and 6–10), a clearer picture emerges (see Figure 9): approximately two thirds (62%) of respondents indicated that their country is still at a relatively early stage of implementing the Nagoya Protocol (scores 1-5) and roughly one third (38%) rated their implementation as relatively high (scores 5-10). This finding is consistent with insights from the expert interviews and supports the assumption that implementation levels vary substantially across countries.

Figure 8: Status of implementation of the Nagoya Protocol – distribution



Source: Öko-Institut

Figure 9: Status of implementation of the Nagoya Protocol – distribution summary



Source: Öko-Institut

Further analysis shows that the implementation status also differs across regions: As shown in table 2, respondents from Europe reported the highest average implementation status (mean = 6.6), followed by GRULAC countries (mean = 5.9) and Asian countries (mean = 5.1). Lower average levels are reported for Africa (mean = 3.4) and Oceania (mean = 2.5), although the result for Oceania should be interpreted cautiously due to the very small number of respondents (n = 2). Pairwise comparisons indicate that the implementation status is significantly higher in GRULAC countries than in African countries (Mann-Whitney U = 90.0, p = 0.002).

Table 2: Mean implementation status of the regions

Region	Mean implementation status	Number of answers (n)
Europe	6.6	7
GRULAC	5.9	17
Asia	5.1	10
Africa	3.4	24
Oceania	2.5	2
Total	**4.7**	**60**

Moreover, countries with a more advanced implementation status tend to report greater practical experience with ABS negotiations. This relationship is evident across the two experience indicators: countries with higher implementation levels reported longer negotiation experience (Spearman's rho = 0.376, p = 0.004), a greater number of commercial PICs/MATs negotiated (rho = 0.513, p < 0.001) and a greater number of non-commercial PICs/MATs negotiated (rho = 0.531, p < 0.001). This observed relationship is substantively plausible and thus provides some support for the internal plausibility and convergent validity of the survey responses.

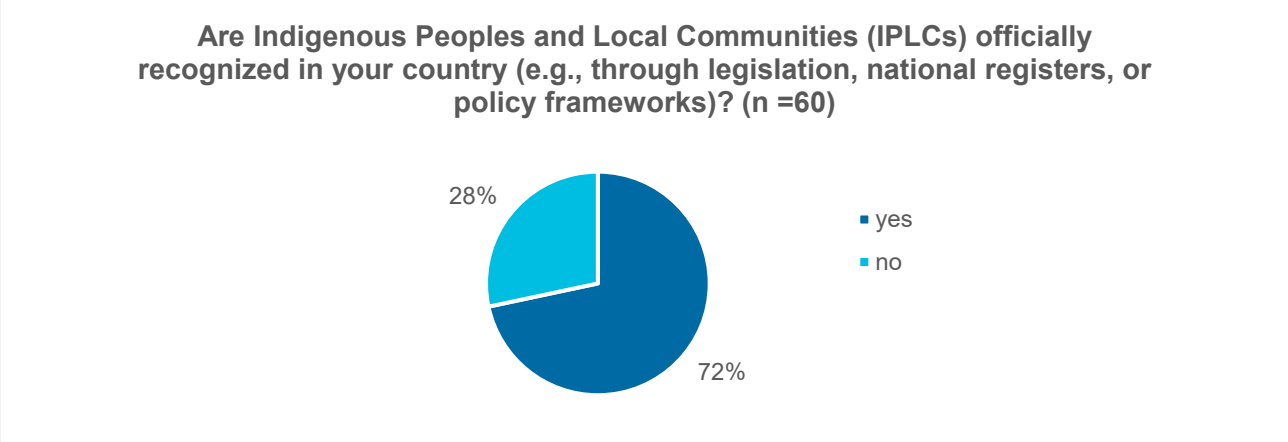
5.2.3 Role of IPLCs and the Impact of the Nagoya Protocol

The role of IPLCs was addressed in the survey in light of insights from the expert interviews, which suggested that their participation in ABS processes depends strongly on their formal recognition in

national law, as well as on whether domestic law recognises their rights to land, genetic resources or traditional knowledge, and provides for procedural rights such as consultation, involvement, or prior informed consent.The interviews further suggested that the Nagoya Protocol may have strengthened the formal recognition of IPLCs and their consultation in ABS processes, while their direct involvement in PIC/MAT negotiations appears to remain limited and may still be a source of debate and dissatisfaction among IPLCs.

Therefore, the survey first asked all respondents whether IPLCs are officially recognised in their country (see Figure 10). Of the 60 respondents, 43 (72%) stated that IPLCs are formally recognised at the national level. However, the responses do not allow us to determine whether countries reporting no formal recognition have no IPLCs, or whether IPLCs are present but have not been formally recognised.

Figure 10: Recognition of IPLCs

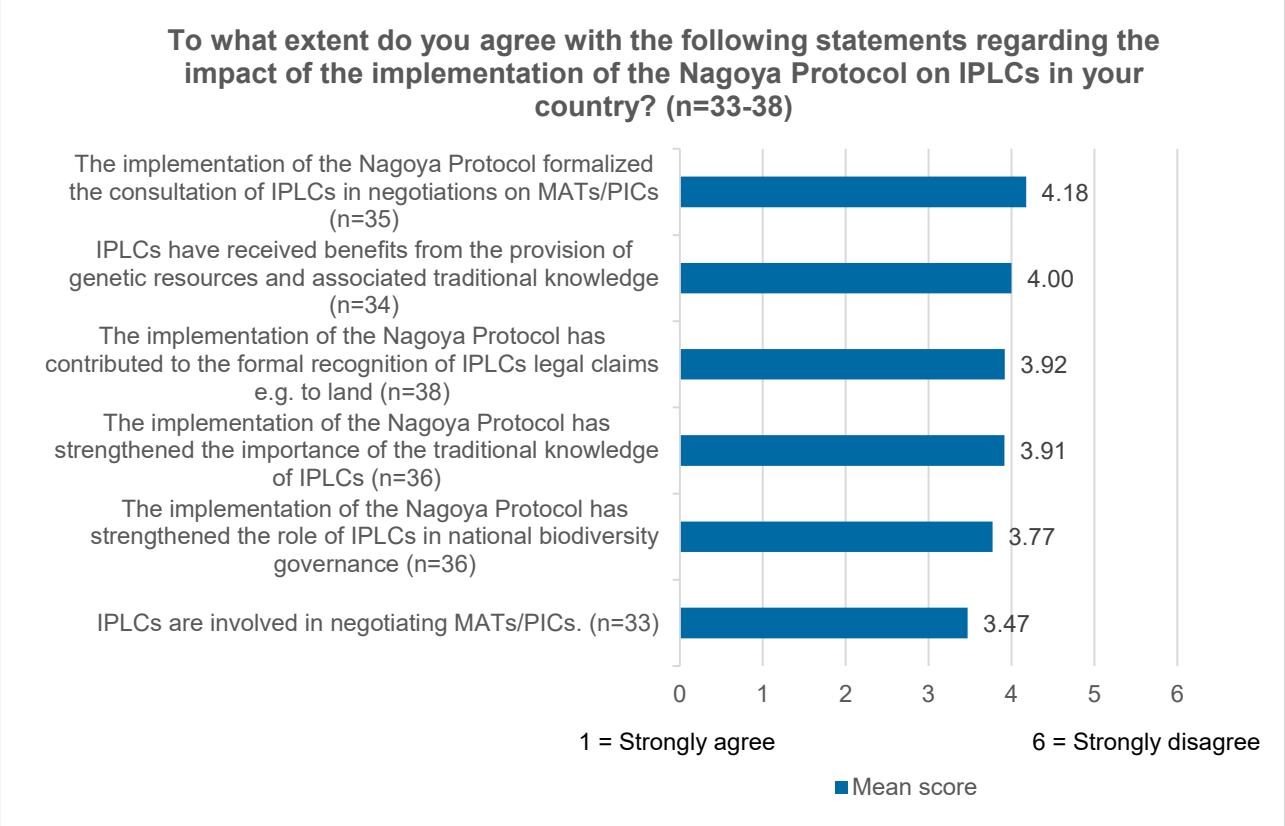


Source: Öko-Institut

Out of the 72% that indicated that their country recognizes IPLCs, respondents evaluated the specific impacts of the Nagoya Protocol on these communities on a 6-point scale (1 = strongly disagree, 6 = strongly agree). The number of responses per statement ranged from 33 to 38. Figure 11 presents the mean score of all responses. The findings indicate that responses cluster around the midpoint of the scale, with a slight tendency towards agreement. This suggests a generally neutral to moderately positive perceived impact of the Nagoya Protocol on the recognition and involvement of IPLCs and traditional knowledge.

The open-ended responses (n = 9) support this interpretation, as respondents noted that the Protocol has contributed to greater awareness of IPLC claims, increased attention to participation and PIC, and, in some cases, the development of community protocols or formal procedures for access to traditional knowledge. The highest-rated statement indicates that the Nagoya Protocol has formalised the consultation of IPLCs in PIC/MAT negotiations (mean = 4.18), whereas the lowest-rated statement suggests that IPLCs are directly involved in negotiating processes (mean = 3.47). Some of the open-ended responses explain that the effects of the Nagoya Protocol on IPLCs are still emerging and differ considerably across national contexts. Several respondents noted that implementation is still at an early stage, making it difficult to assess concrete impacts.

Figure 11: Impact of the Nagoya Protocol on IPLCs



Source: Öko-Institut

5.2.4 Key Findings: National Implementation of the Nagoya Protocol

The analysis shows substantial variation in national implementation of the Nagoya Protocol, particularly in negotiation experience, institutional maturity, and the involvement of IPLCs. These differences provide important context for interpreting later findings on satisfaction. The most critical insights from this section can be summarized as follows:

- *More Experience with Non-Commercial Negotiations:* Non-commercial PIC/MAT negotiations are far more common than commercial ones. While 43% reported no commercial negotiations, only 27% reported none for non-commercial use.
- *A Significant Experience Gap:* Overall, approx. one third of respondents had not conducted any negotiations, while only around one quarter reported six or more years of experience. This limits the extent to which some countries can assess negotiation outcomes and realised benefits.
- *Implementation Remains Uneven:* The mean implementation score was 4.72 out of 10, and around two thirds of respondents placed their country in the earlier stages of implementation.
- *Consultation Has Advanced More Than Inclusion:* The Nagoya Protocol appears to have strengthened formal consultation of IPLCs, but this has not necessarily translated into greater negotiating influence or decision-making power. Although 72% reported formal recognition of IPLCs, their perceived direct involvement in PIC/MAT negotiations remains limited.

5.3 Negotiation of Benefits

This section examines the negotiation of benefits in ABS processes, including the pre-negotiation phase, the standardisation of benefits, satisfaction with negotiation outcomes and the perceived impact of the Nagoya Protocol on more equitable negotiations. The survey questions were guided by findings from the expert interviews, which suggested that negotiations are shaped by legal clarity, early communication, information asymmetries, provider capacities and national implementation frameworks. In particular, the interviews indicated that providers often face difficulties in assessing appropriate benefits in advance, especially where the future value of genetic resources is uncertain. Against this background, the section analyses how provider countries assess their negotiation capacities, whether benefits can be standardised, which factors influence satisfaction with outcomes and whether the Nagoya Protocol is perceived as strengthening fairness in negotiations.

5.3.1 Ability to Assess Benefits in Advance of Negotiations

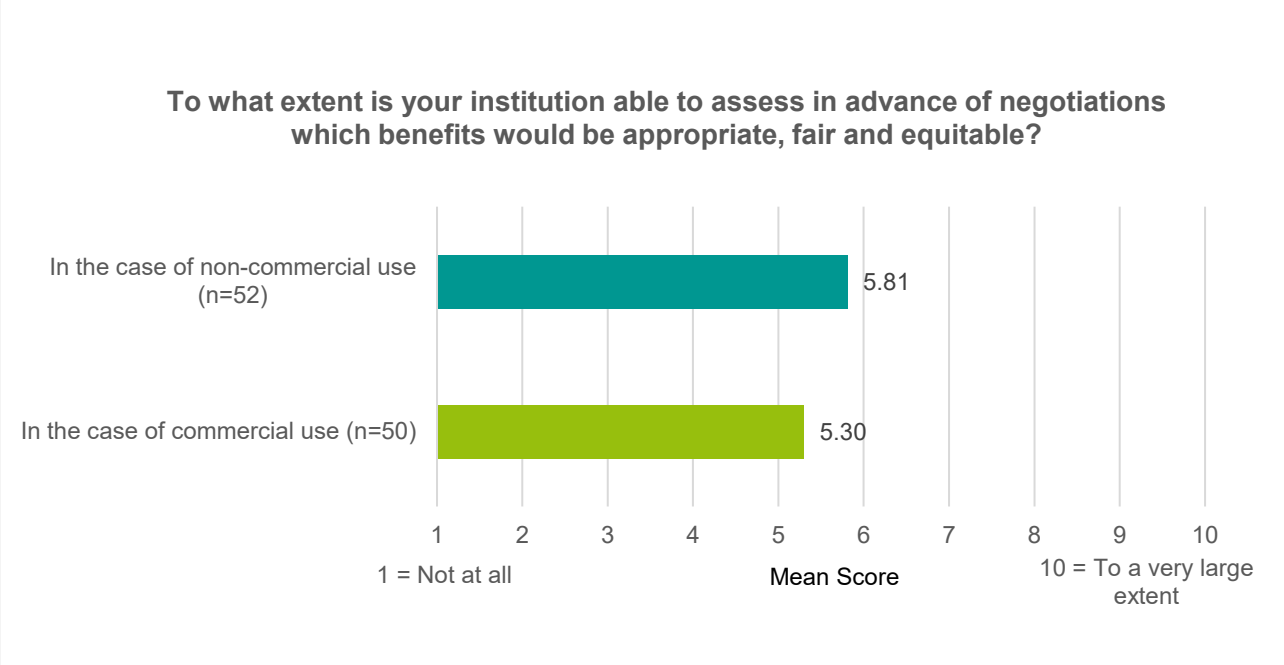
Insights from the expert interviews and additionally a round table discussion at an international ABS workshop indicated that provider countries often find it difficult to assess what constitutes “fair and equitable” benefits at the outset of negotiations. To examine this issue further, the survey included a question on their ability to make such an assessment prior to entering negotiations. A key factor identified in the expert interviews was the presence of information asymmetries, as users typically possess more detailed knowledge about the intended use of genetic resources and their potential economic value. The interviews further suggested that this challenge may be more pronounced in the context of commercial use, where confidentiality and uncertainty about future profits can make it particularly difficult to estimate appropriate benefits. At the same time, interviewees indicated that greater negotiation experience may improve the ability to make such assessments.

In the survey, respondents were asked to what extent their institution is able to assess, prior to negotiations, which benefits would be appropriate, fair, and equitable (see Figure 12 and Figure 13). Overall, the results indicate a moderate capacity to make such assessments in advance. As shown in Figure 12, for both commercial and non-commercial use, the mean responses fall in the upper-middle range of the scale, at approximately 5–6 out of 10. This suggests that many provider countries face difficulties in reliably determining appropriate benefit levels before negotiations begin.

Moreover, the ability to assess appropriate benefits in advance also appears to be related to the overall level of national ABS implementation (see 5.2.2): Countries with a more advanced implementation status tend to report a greater ability to assess appropriate, fair and equitable benefits in advance of negotiations. This relationship is statistically significant for both commercial use (rho = 0.337, p = 0.017) and non-commercial use (rho = 0.338, p = 0.014; Spearman’s rank correlations). This relationship is plausible, as more advanced ABS implementation can be expected to coincide with stronger institutional capacities and greater practical experience in assessing appropriate benefits.

Nevertheless, the reported ability to assess benefits in advance of negotiations does not differ significantly across regions, either for commercial or for non-commercial use, suggesting that the challenge to assess benefits appropriately represents a broadly shared cross-regional experience among provider countries.

Figure 12: Institution's ability to assess benefits in advance of negotiations – mean score

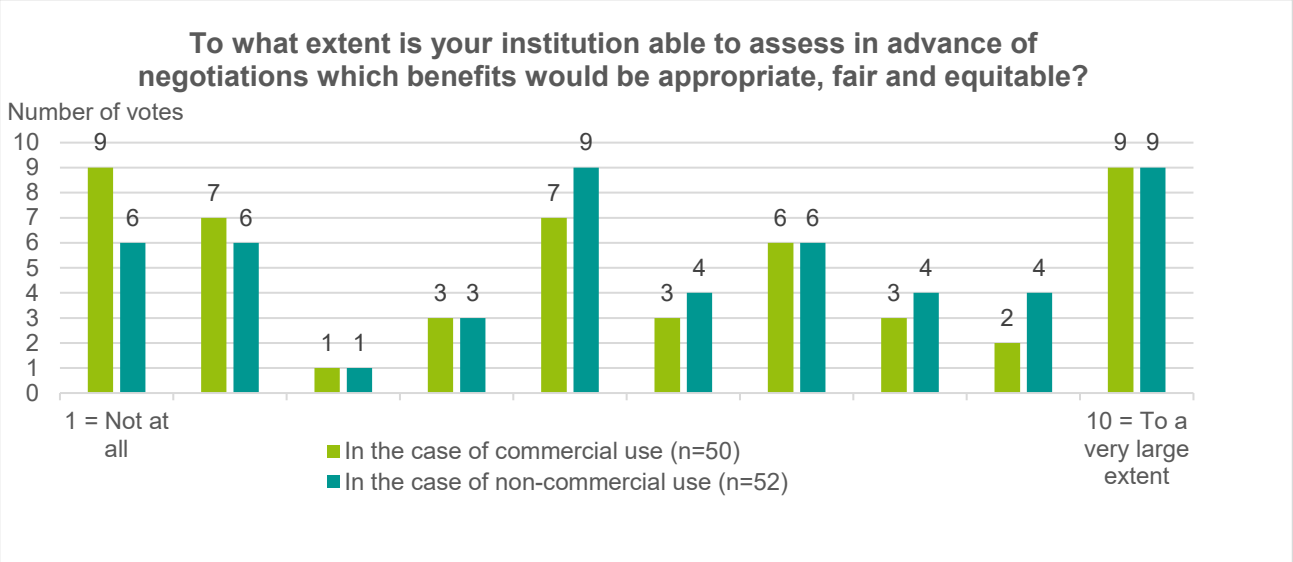


Source: Öko-Institut

Contrary to expectations derived from the interviews, the difference between commercial and non-commercial use is relatively small (see Figure 12). At the same time, the distribution of responses shows substantial variation across the full scale (see Figure 13), indicating considerable differences in national contexts and capacities.

One possible interpretation of these results is that, while information asymmetries and uncertainty are widely recognised challenges, their practical impact may not differ as strongly between commercial and non-commercial cases as suggested by the interviews. Alternatively, the limited difference may reflect that even non-commercial negotiations involve uncertainties that constrain advance assessments.

Figure 13: Institution's ability to assess benefits in advance of negotiations: Distribution



Source: Öko-Institut

This pattern is also reflected in the open-ended responses (n=30) on factors that facilitate or hinder the ability to assess appropriate, fair, and equitable benefits prior to negotiations. Overall, respondents pointed to the importance of clear institutional and informational conditions.

Enabling factors that were mentioned in the survey primarily relate to well-developed national frameworks and capacities, such as clear ABS legislation and guidance, standardized procedures (such as model agreements and defined processes), and strong institutional arrangements with clearly assigned roles. In addition, technical expertise, negotiation experience, and ongoing capacity-building efforts were seen as crucial. Respondents also highlighted the importance of transparency from users regarding intended research and use, as well as access to benchmarks such as case studies and examples from comparable negotiations. In addition, they mentioned that the involvement of IPLCs and effective coordination among relevant actors further support more reliable assessments. As one respondent noted: *"Research goals and tasks help our ability to assess appropriate, fair, and equitable benefits in advance of negotiations."*

In contrast, **hindering factors** that respondents gave in the survey largely mirror the absence of these conditions. Respondents emphasized gaps in legal and institutional frameworks, limited technical capacity and resources, and weak coordination among authorities. Operational challenges – particularly information asymmetries, vague or incomplete information from users, and a lack of tools to assess the value of genetic resources and traditional knowledge – further constrain advance assessments. Limited awareness of the Nagoya Protocol among researchers and insufficient involvement of IPLCs were also identified as barriers.

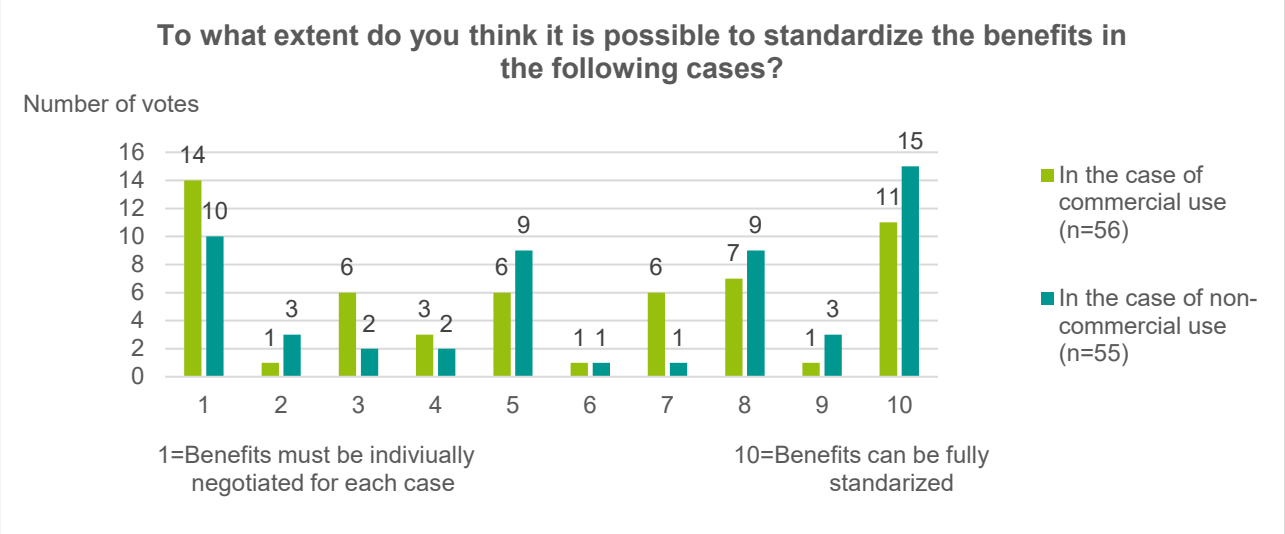
Taken together, the interview and survey findings suggest that the ability to assess appropriate benefits is shaped less by the type of use alone than by national institutional conditions. While interviews indicated that commercial cases are particularly challenging, the survey results point to a more heterogeneous picture: in some countries, assessments appear feasible even for commercial use, whereas in others they remain difficult across both commercial and non-commercial contexts. This supports the interpretation that factors such as the level of national implementation, standardization of procedures, and available capacities are decisive in shaping assessment capabilities.

5.3.2 Standardization of Benefits

The expert interviews highlighted that the extent to which benefits should be standardised, or negotiated case by case, remains an open and debated question and is currently handled very differently across national systems. While standardised models, templates and predefined benefit categories may increase predictability and reduce transaction costs, interviewees also emphasised that benefit-sharing arrangements often need to remain adaptable to the specific resource, user, provider, sector and expected utilisation pathway.

To explore this issue further, the survey asked provider countries to assess the extent to which benefits can be standardised in both commercial and non-commercial contexts. Responses were recorded on a scale from 1 ("Benefits must be individually negotiated for each case") to 10 ("Benefits can be fully standardised"). As shown in Figure 14, the distribution of responses is widely spread for both commercial and non-commercial use, indicating considerable variation in national experiences and approaches, rather than a clear or uniform pattern.

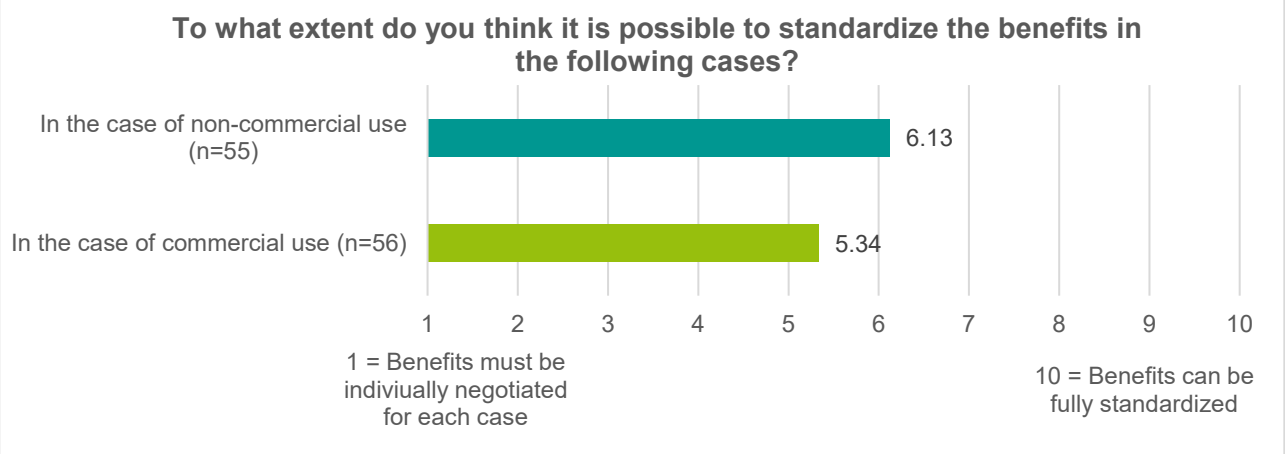
Figure 14: Standardization of benefits – distribution of votes



Source: Öko-Institut

Comparing the mean values across both use cases shows that responses in each case lie slightly above the midpoint of the scale, indicating a modest **tendency towards standardisation** (see Figure 15).

Figure 15: Standardization of benefits – mean score



Source: Öko-Institut

Contrary to expectations the difference between commercial and non-commercial use is relatively small. Although the survey results show a weak indication of this pattern, the difference is too limited to clearly confirm it. This contrasts with insights from the expert interviews, which suggested that standardisation is more feasible and more widely applied in non-commercial contexts, while commercial cases tend to be more diverse. However, the open-ended responses (n=25) to this question confirm our prior assumption. Respondents described non-commercial use as easier to standardise, as it often follows similar research patterns, involves lower financial stakes, and relies more on non-monetary benefits such as data sharing or capacity-building. At the same time, respondents noted that some flexibility remains necessary to reflect specific resources and associated traditional knowledge. In contrast, commercial use was widely perceived as requiring

case-by-case negotiations due to the diversity of resources, user intentions, and market values. While templates and model agreements can provide guidance, final terms usually need to be tailored – as one respondent noted: *"The benefits offered by a startup are not the same as those offered by a multinational company."*

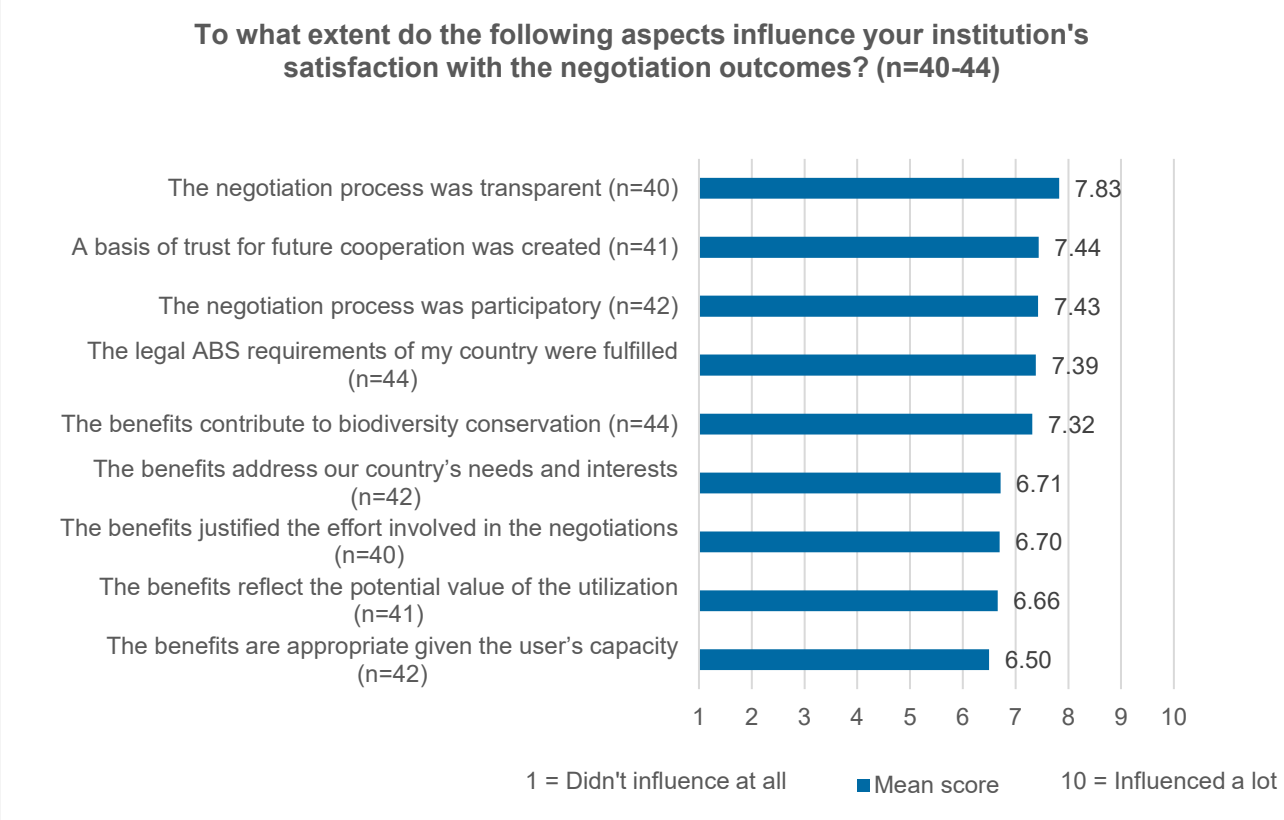
5.3.3 Negotiation Outcomes

In a next step, the survey examined the satisfaction with negotiation outcomes. Respondents were asked to rate nine factors on a scale from 1 = "did not influence at all" to 10 = "influenced a lot". Figure 16 presents the mean scores, showing that all factors were rated above 6.5 out of 10 on mean score, indicating that they are generally perceived as having a strong influence on satisfaction. This finding suggests that the factors identified – derived from the literature and expert interviews – are broadly validated by the survey results.

Although the differences between individual factors are not pronounced, a notable pattern can be observed: The three highest-ranked factors relate to process-oriented or "soft" aspects: transparency during the negotiation process, the creation of a basis of trust for future cooperation, and a participatory negotiation approach. By contrast, factors related to the substance of the benefits, such as whether the benefits reflect the potential value of the utilisation or are appropriate given the user's capacity, are still rated as influential but appear in the lower positions.

Taken together, the results indicate that process-related factors play a particularly important role in shaping provider satisfaction with negotiation outcomes, potentially even more so than the specific characteristics of the agreed benefits.

Figure 16: Factors influencing the satisfaction with negotiation outcomes – mean score



Source: Öko-Institut

In addition to rating predefined factors, respondents were invited to describe further aspects influencing their satisfaction with negotiation outcomes. The open-ended responses (n=10) both complement and reinforce earlier findings.

A key theme is the importance of clear and specific information on the user's intent and the future use of genetic resources. Several respondents stressed that vague or incomplete information can hinder negotiations and undermine trust, whereas transparency enables more targeted and appropriate benefit-sharing arrangements. This underscores the central role of transparency identified in the quantitative results.

Respondents also highlighted that satisfaction depends not only on the agreed terms, but on their implementation. Effective follow-up, including compliance with obligations and the actual delivery of benefits over time, is seen as critical. Also, institutional and regulatory conditions again emerge as an important influencing factor. The responses point to gaps in national legal frameworks and a lack of clear procedures or guidance for negotiating MAT. In some cases, countries rely on international examples or case studies to guide their approach, reinforcing the findings presented in Chapter 5.3.1. Moreover, some responses indicated that non-commercial research projects might provide limited direct benefits, which can affect overall satisfaction. Finally, a small number of responses pointed to the importance of benefit-sharing with local communities and the need to strengthen mechanisms for their inclusion, as well as to improve communication regarding when and how both monetary and non-monetary benefits are generated.

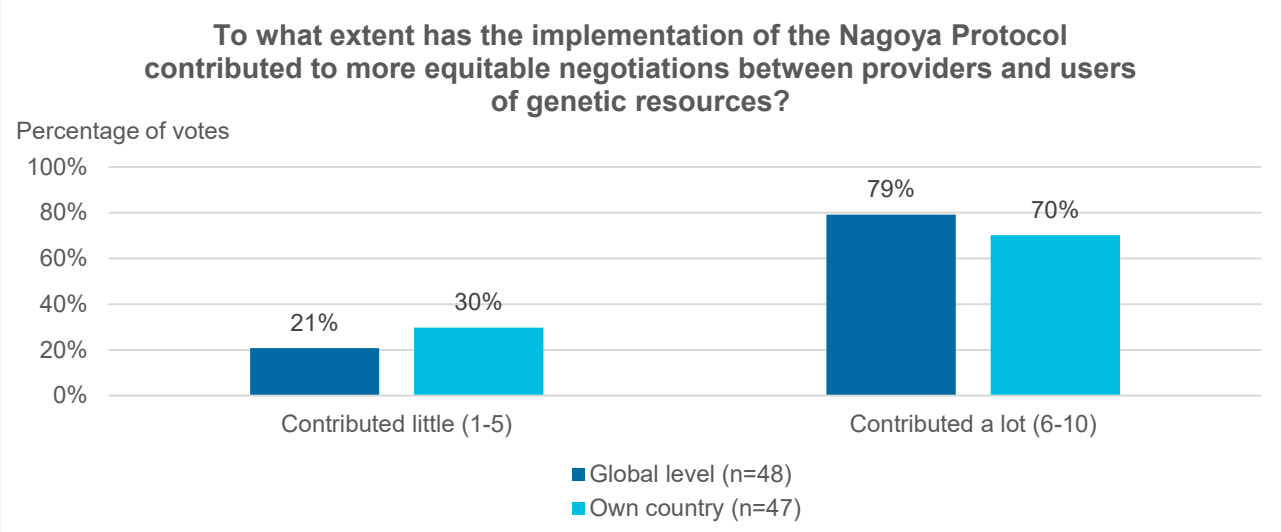
Overall, the responses suggest that satisfaction with negotiation outcomes is shaped not only by the amount of benefits, but also by information quality, implementation, and the broader institutional context.

5.3.4 Impact of the Nagoya Protocol

To conclude the section on PIC/MAT negotiations, respondents were asked to assess the extent to which the implementation of the Nagoya Protocol has contributed to more equitable negotiations, both at the global level and with regard to their own national capacities.

The results indicate that, from the respondents' perspective, the Nagoya Protocol has made a clear contribution to more equitable negotiations. At the global level, 79% of 48 respondents assessed this contribution as medium to high (scale 6–10), while 21% perceived little impact (scale 1–5) (see Figure 17). At the national level, perceptions are slightly more reserved: 70% of 47 respondents reported a medium to high contribution, compared to 30% who indicated a low to moderate impact.

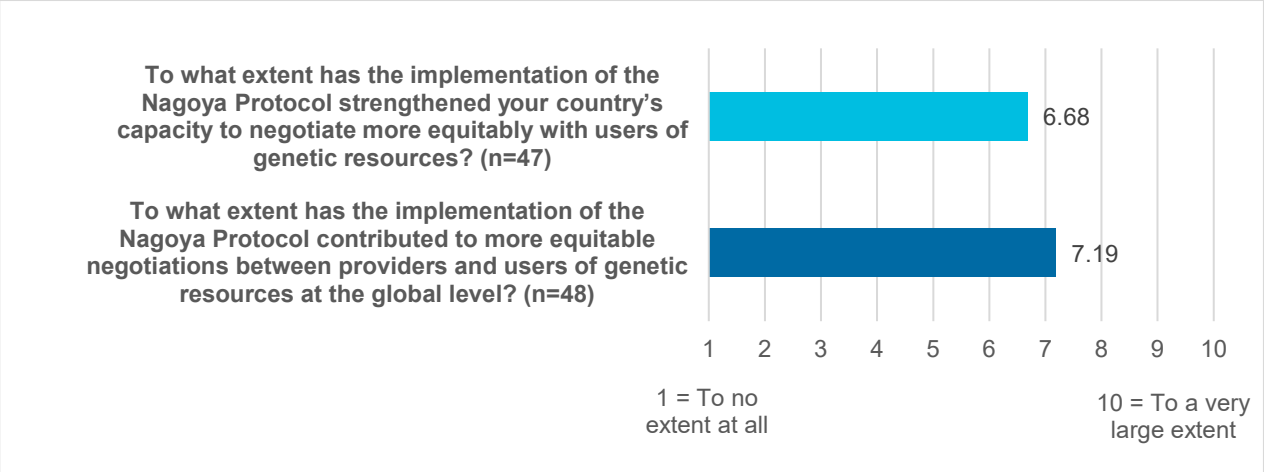
Figure 17: Impact of the Nagoya Protocol on more equitable negotiations – distribution



Source: Öko-Institut

Overall, the perceived impact of the Nagoya Protocol is rated somewhat higher at the global than at the national level (see Figure 18).

Figure 18: Impact of the Nagoya Protocol on more equitable negotiations – mean score



Source: Öko-Institut

However, the perceived impact of the Nagoya Protocol, both at the global level and on countries' own capacity to negotiate more equitably, was not significantly associated with implementation status, negotiation experience, duration of negotiation practice, region, the ability to assess benefits in advance, or perceptions of unequal power relations. This absence of statistically significant relationships should be interpreted cautiously, as it indicates that no robust associations could be detected in this sample rather than demonstrating that these factors have no influence.

The open-ended responses (n=17) provide context for these quantitative assessments. Respondents frequently pointed to increased visibility and awareness of the unauthorised use of genetic resources as a key achievement of the Nagoya Protocol. In addition, the Protocol is seen as having created greater legitimacy for ABS and strengthened existing institutional structures. Several respondents also highlighted its role in initiating capacity-building processes at the national level

and, to a more moderate extent, in supporting the recognition of IPLCs' rights, particularly with regard to traditional knowledge.

At the same time, respondents emphasised several limitations that help explain why the perceived impact is not uniformly high and differs in perception on a global and national level. Many stressed that the effectiveness of the Nagoya Protocol depends on the existence and implementation of national legislation, which in several countries remains incomplete or under development. Limited practical experience with negotiations further constrains its actual impact. In addition, persistent structural power asymmetries between provider and user countries are described to continue to shape negotiation dynamics. In addition, some respondents noted that cases of non-compliance (where genetic resources are accessed without adhering to ABS requirements) remain an ongoing challenge.

Taken together, these findings underline that while the Nagoya Protocol has established an important framework for more equitable negotiations, its full potential depends on national implementation, user compliance as well as broader structural conditions.

5.3.5 Key findings: Negotiation of Benefits

The analysis of negotiation-related questions shows that both structural conditions and process-related factors play a central role in shaping outcomes and perceptions of fairness. While the Nagoya Protocol has contributed to improvements, important challenges remain. The central insights from this section can be summarised as follows:

- *Limited Ability to Assess Benefits in Advance*: On average, respondents reported only moderate capacity (around 5–6 out of 10) to determine appropriate, fair, and equitable benefits prior to negotiations, indicating persistent uncertainty at early stages.
- *Differences Between Use Types Are Smaller Than Expected*: Contrary to insights from the expert interviews, the gap between commercial and non-commercial cases is relatively small, suggesting that uncertainties affect both types of negotiations.
- *Institutional Conditions Are Decisive:* The ability to assess and negotiate benefits depends less on the type of use than on national frameworks, including clear legislation, standardised procedures, technical expertise, and access to relevant information.
- *Standardisation Is Limited but Relevant:* While some degree of standardisation is observed—particularly for non-commercial use—negotiations, especially in commercial contexts, largely remain case-specific and require flexibility.
- *Soft, Process-Related Factors Matter*: Satisfaction with negotiations is driven primarily by process-related factors such as transparency, trust, and participation, which are ranked higher than the actual monetary or non-monetary benefits.
- *Mixed but Positive Impact of the Nagoya Protocol*: A majority of respondents perceived the Nagoya Protocol as contributing to more equitable negotiations, particularly at the global level, through increased awareness, legitimacy of ABS, and capacity-building.

These findings underline that negotiation outcomes are shaped by a combination of institutional capacity, information availability, and the quality of the negotiation process, rather than by benefit levels alone.

5.4 Distribution and Earmarking of Monetary Benefits

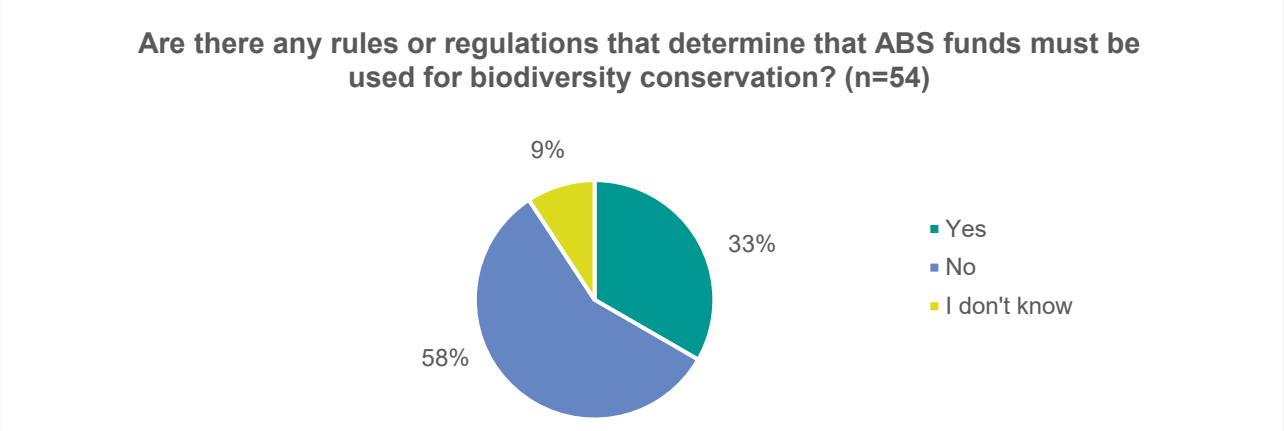
This section analyzes the distribution and utilization of monetary benefits derived from ABS agreements. Two guiding assumptions frame the analysis: First, in the absence of clear allocation rules, there is a risk that funds neither reach IPLCs nor contribute to biodiversity conservation — even though the Nagoya Protocol encourages parties to "direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and the sustainable use of its components" (Article 9 Nagoya Protocol). Second, the development of transparent distribution mechanisms is closely linked to practical negotiation experience.

5.4.1 Earmarking of ABS Funds for Biodiversity Conservation

Provider countries were asked whether their national framework includes rules or regulations that require ABS funds to be used for biodiversity conservation. Of 54 respondents, only 18 (33%) confirmed the existence of such rules, while 31 (58%) reported that no such earmarking exists, and 5 (9%) did not know (see Figure 19).

- There is a statistically significant positive correlation between the existence of earmarking rules and the overall implementation status of the national ABS framework (Spearman r = 0.28, p = 0.048), suggesting that earmarking tends to be part of more mature ABS systems rather than an early-stage feature.
- The open-ended descriptions of these rules (n = 8) and the Interviews reveal a wide spectrum of approaches: These rules are embedded either in specific ABS regulations or in broader national biodiversity and innovation laws. Some countries have explicit legal provisions that allocate a defined share of benefits to conservation activities, while others take a broader approach, requiring that benefits contribute to the "sustainable use of biodiversity" or to research and capacity building in the territories where resources were collected.

Figure 19: Regulation concerning the use of ABS funds



Source: Öko-Institut

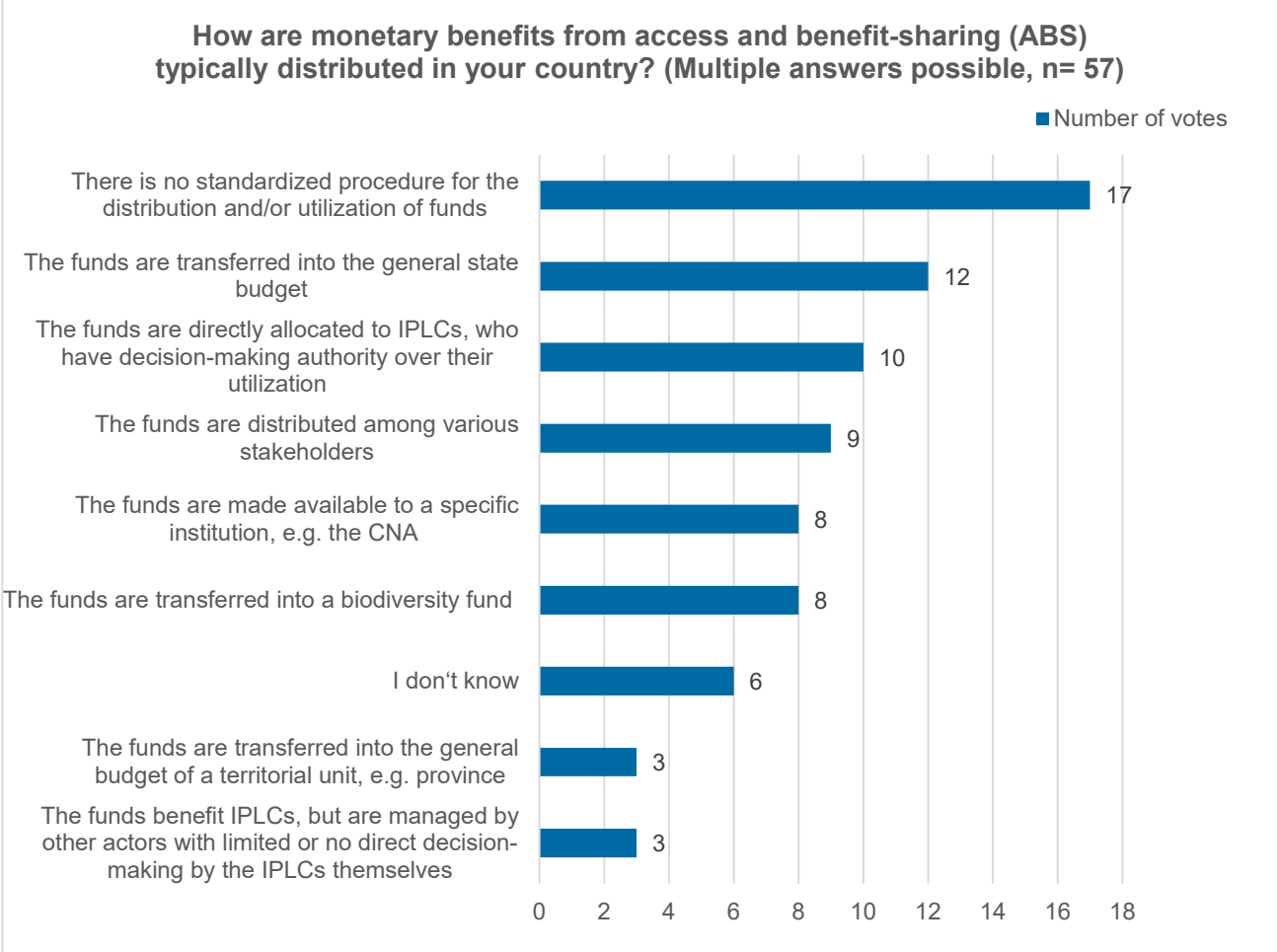
5.4.2 Allocation Mechanisms for Monetary Benefits

In a next step, provider countries were asked how monetary benefits from ABS are typically distributed (multiple selection possible, n = 57). The most striking finding is that 30% of respondents reported that there is no standardised procedure for the distribution of funds – making this the most frequently selected option (see Figure 20).

A closer look at the response patterns provides important nuance. Of the 17 respondents who selected “no standardised procedure”, 13 selected only this option. However, the open-ended responses reveal that for several of these countries, this does not indicate a dysfunctional system, but rather a lack of practical experience: they simply have not yet received any monetary benefits or concluded commercial negotiations, meaning formal distribution mechanisms remain untested or unnecessary at this stage.

Conversely, the option “general state budget” was frequently combined with other channels (9 out of 12 cases), such as “directly to IPLCs” or “biodiversity fund”. This suggests that many countries operate multiple parallel distribution channels, where the flow of funds depends on the specific context of the agreement – for instance, whether the genetic resources were accessed on public land, within protected areas, or on IPLC territories.

Figure 20: Distribution of monetary benefits from ABS (multiple answers)



Source: Öko-Institut

5.4.3 Key Findings: Distribution and Earmarking of Monetary Benefits

The analysis of how monetary benefits are distributed and utilized reveals that many provider countries are still in the early stages of developing functional financial mechanisms for ABS. The data show a wide diversity of approaches that reflect different national governance traditions, varying levels of ABS maturity, and the practical reality that many countries have simply not yet received significant monetary benefits.

The most critical insights from this section can be summarized as follows:

- *The "Experience Gap" in Benefit Distribution:* The most frequently reported allocation mechanism is the absence of a standardised procedure (30%). However, this does not inherently indicate mismanagement or a dysfunctional system. For many countries, it simply reflects a lack of practical experience: without having concluded commercial negotiations or received monetary benefits to date, formal distribution mechanisms remain untested or have not yet been established.
- *Context-Dependent Allocation Channels:* Rather than relying on a single distribution method, many countries operate multiple parallel channels (e.g., combining the general state budget with direct payments to IPLCs or specific biodiversity funds). This flexibility allows provider countries to adapt the flow of funds to the specific context of each agreement, such as whether the genetic resources were accessed on public land, within protected areas, or on IPLC territories.

5.5 User Conduct and Role of User State

The overall satisfaction of provider countries with the ABS system under the Nagoya Protocol depends not only on the negotiated benefits themselves but significantly on the behavior of users throughout the process. Insights from expert interviews indicate that procedural aspects – such as transparency during negotiations, the willingness to engage in the ABS process, and adherence to MATs – are crucial determinants of provider satisfaction. Based on these insights, this chapter explores user behavior guided by two central assumptions. First, we assume that the perceived willingness and cooperative behavior of users are important factors for the successful implementation of ABS agreements. Second, we assume that user behavior is, at least in part, influenced by the implementation and enforcement of the Nagoya Protocol in user countries, for instance through awareness-raising measures, capacity building, or compliance checks by national authorities.

To systematically assess these dynamics, the subsequent analysis is structured around three thematic blocks derived from the survey data. The first block examines the general willingness and preparedness of users to meet ABS requirements, differentiating between commercial and non-commercial sectors. The second block addresses procedural challenges and pressures, specifically focusing on instances where users attempt to impose conditions or rush the ABS process. Finally, the third block evaluates the role of user countries in fostering compliance, analyzing how user states can better support provider countries – for example, through databases, awareness campaigns, or enforcement assistance – and assessing overall satisfaction with users' adherence to contractual obligations.

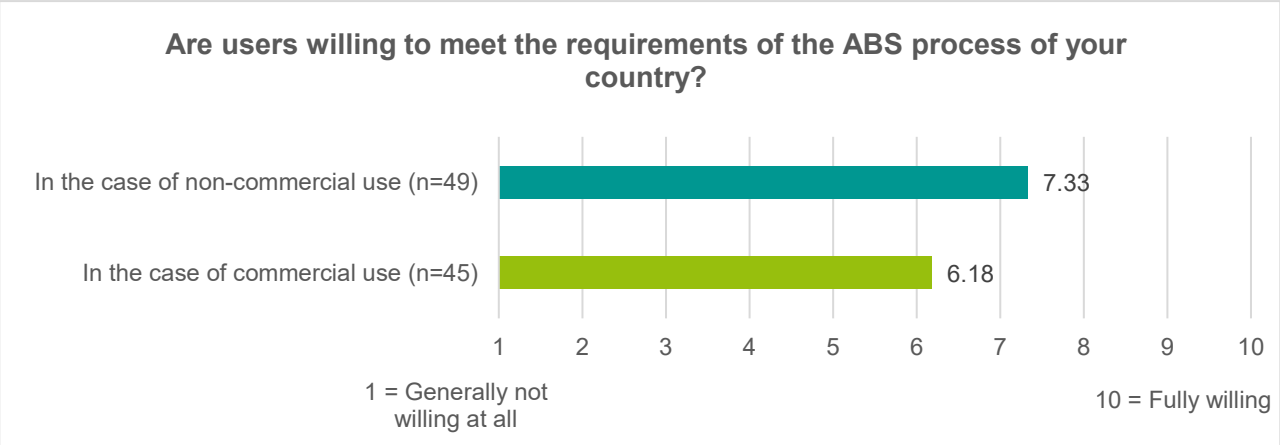
5.5.1 User Conduct

Users willingness to meet ABS requirements

This section presents a detailed analysis of the perceived willingness of users to comply with ABS requirements. This first question, divided into commercial and non-commercial use, assesses the subjective perception of provider authorities regarding user cooperation.

On a scale from 1 (generally not willing at all) to 10 (generally fully willing), the perceived willingness of users to meet ABS requirements shows a moderate to high level (see Figure 21). For commercial use, the mean score is 6.18 (n = 45), while for non-commercial use, it is higher at 7.33 (n = 49). This initial finding suggests that non-commercial users are perceived as more willing to comply with ABS requirements than their commercial counterparts.

Figure 21: Willingness of users to meet the requirements of the ABS process – mean score



Source: Öko-Institut

Spearman's rank correlation was employed to identify significant associations between perceived user willingness and several independent variables. The analysis revealed two statistically significant correlations ($p < 0.05$).

- *Implementation Status and Commercial User Willingness:* A statistically significant positive correlation was found between the national implementation status of the Nagoya Protocol and the perceived willingness of commercial users (Spearman's Rho = 0.304, p = 0.042, n = 45). This finding suggests that clear national rules reduce uncertainty and foster compliance. Interviews confirm this, highlighting that a lack of clear guidelines and standardized procedures in some countries creates hurdles for users, leading to perceived unwillingness or difficulties in initiating the ABS process. As one interviewee noted, *"In some countries there doesn't even exist a guideline or similar for the negotiations and every CNA conducts their negotiations as they consider best"*.
- *Standardization of Non-Commercial Benefits and Non-Commercial User Willingness:* A strong positive correlation exists between the view on to which extent benefits for non-commercial use can be standardized and the perceived willingness of non-commercial users to comply with ABS requirements (Spearman's Rho = 0.435, p = 0.0022, n = 47). This suggests that when expectations are clear and manageable, non-commercial entities, often operating with limited budgets and administrative capacities, are more likely to engage effectively.

Several expected correlations did not reach statistical significance, offering further insights when combined with qualitative data.

- *Number of PICs/MATs:* No significant correlation was found between the number of negotiated PICs/MATs (for commercial or non-commercial use) and perceived user willingness. This might indicate that the quality and clarity of these agreements, rather than their quantity, are more influential, or that the learning curve for providers and users remains steep regardless of a country's experience.
- *Standardization of Commercial Benefits:* Unlike non-commercial benefits, the standardization of commercial benefits did not significantly correlate with commercial user willingness. This could be attributed to the complex and often unique nature of commercial transactions, where benefits might need to be tailored to specific projects and market conditions, making broad standardization less impactful or even undesirable for commercial users.

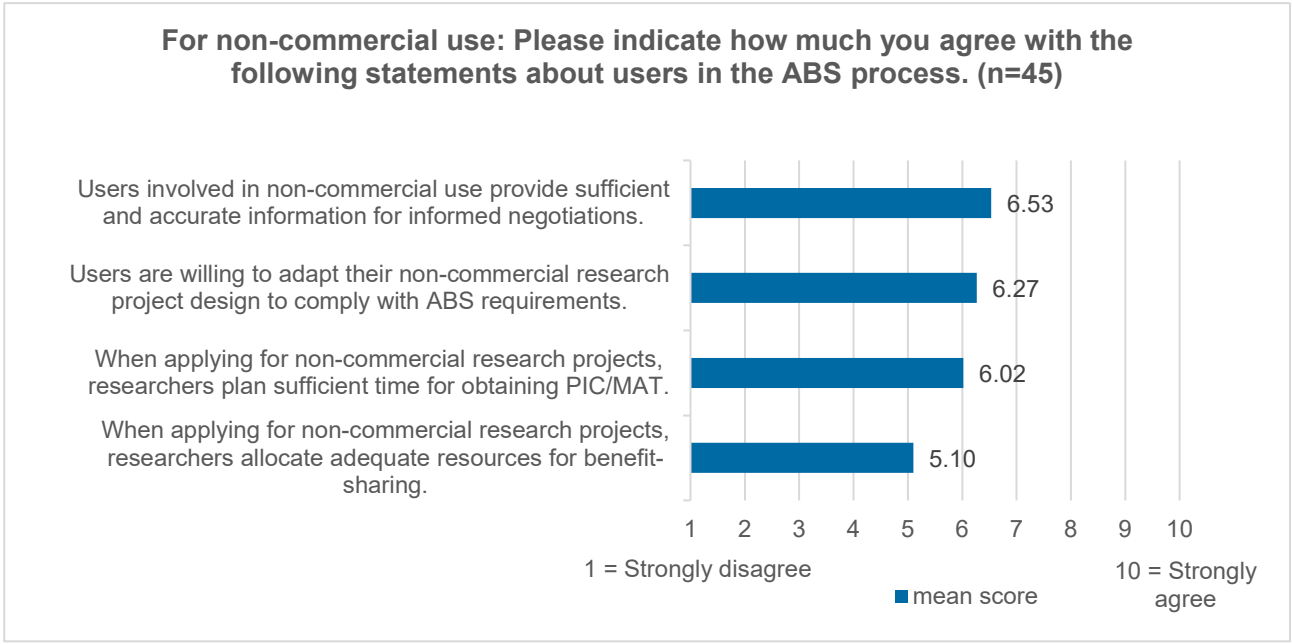
Specific Aspects of User Behaviour (non-commercial)

This section examines the behaviour of non-commercial users regarding four specific aspects of the ABS process that emerged as important in the interviews:

- Planning sufficient time for obtaining PIC/MAT when applying for research projects
- Allocating adequate resources for benefit-sharing
- Providing sufficient and accurate information for informed negotiations
- Willingness to adapt research project design to comply with ABS requirements

The descriptive statistics for the four sub-items (see Figure 22) reveal varying levels of perceived willingness among non-commercial users on a scale from 1 (not willing at all) to 10 (fully willing).

Figure 22: Specific Aspects of user behaviour (non-commercial)



Source: Öko-Institut

- *Resource Allocation*: The item (Willingness to allocate adequate resources for benefit-sharing) received the lowest mean score (5.10), identifying it as the most significant challenge. The qualitative data gathered in this project supports this finding, highlighting structural barriers in non-commercial research funding. Academic researchers often rely on third-party grants that might not explicitly account for ABS-related costs or benefit-sharing, leaving them with limited financial flexibility during negotiations.
- *Information Provision*: In contrast, “Willingness to provide sufficient and accurate information” scored the highest (6.53). However, it is important to distinguish this “willingness to share information” from later “compliance” (e.g., reporting obligations). This item specifically refers to the users' readiness to provide the necessary data during the negotiation phase. While the score is relatively positive, qualitative insights suggest that even when users are willing to share information, the quality and completeness of the data provided can vary. In some cases, national authorities still find it necessary to request additional details to fully understand the scope and potential impact of the proposed research. The high score probably reflects a general openness to transparency, which is a crucial prerequisite for fair negotiations, even if the practical implementation remains demanding.

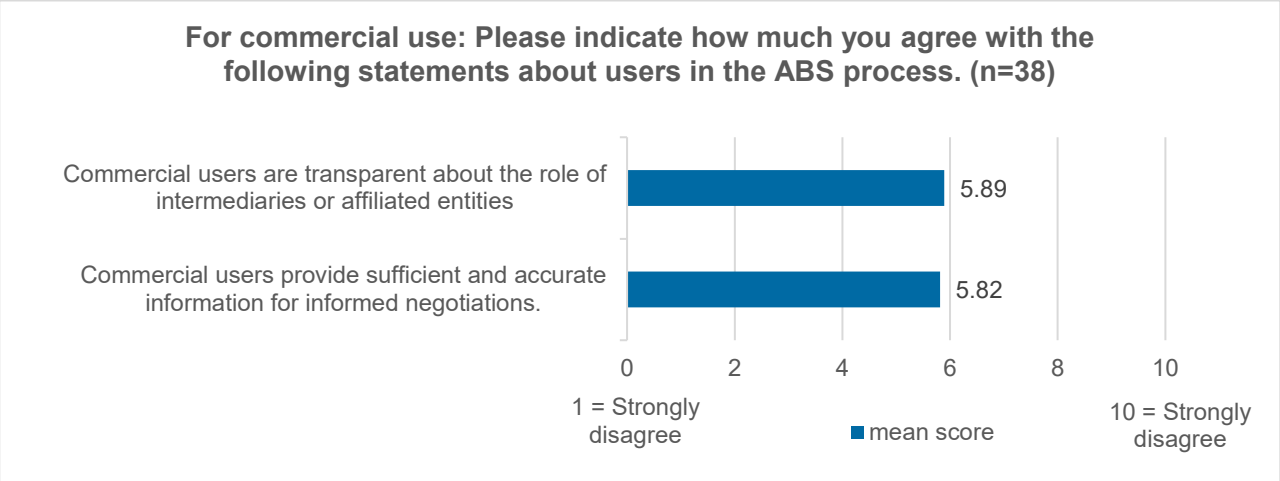
- *Time Planning and Project Adaptation*: The moderate scores for time planning (6.02) and project adaptation (6.27) point to systemic issues in the early stages of research. Interviewees noted that users often fail to integrate ABS requirements into their initial project timelines, particularly when applying for funding. This lack of early-stage planning leads to pressure on provider countries to accelerate processes later.

Specific Aspects of User Behaviour (commercial)

This section examines the behaviour of commercial users regarding two specific aspects of the ABS process that emerged as important in the interviews (see Figure 23):

- Providing sufficient and accurate information for informed negotiations
- Transparency about the role of intermediaries or affiliated entities

Figure 23: Concrete user behaviour (commercial) – mean score



Source: Öko-Institut

- *Information Provision*: The item shows a moderate mean score of 5.89 (see Figure 23). This indicates that provider countries perceive commercial users as moderately willing to share information during the negotiation phase. Qualitative data suggests that commercial users are generally open to providing information, especially when there is clarity and predictability regarding the ABS process and the expected benefits. However, the complexity of commercial value chains and the proprietary nature of some information can still pose challenges. The need for clear communication and a mutual understanding of research objectives is emphasized to build trust and ensure realistic expectations
- *Transparency about Intermediaries*: Similarly, the second items about the role of intermediaries or affiliated companies) also received a moderate mean score of 5.82 (see Figure 23). This aspect is crucial for ensuring that benefits are shared equitably throughout the entire value chain, especially when multiple entities are involved in the utilization of genetic resources. Interviews highlight that the involvement of intermediaries can complicate the ABS process, and a lack of transparency can hinder the ability of provider countries to track utilization and ensure compliance.

Comparative Analysis: Non-Commercial vs. Commercial Users

For information provision – the only item directly comparable across both user types – non-commercial users are perceived as slightly more willing (mean = 6.53) than commercial users (mean = 5.89). A paired t-test, however, indicates that this difference does not reach statistical significance ($t = 1.11$, $p = 0.276$), suggesting that provider countries perceive both groups as broadly similar in

this regard. Qualitative insights point to differing underlying dynamics: non-commercial users are generally driven by a motivation for scientific collaboration, with the main challenge lying not in initial willingness but in the completeness and consistency of reporting over the project lifecycle. For commercial users, willingness to share information is more closely tied to the clarity and predictability of the ABS process, and can be constrained by concerns about protecting commercially sensitive information.

Systemic Effects: The Role of the Provider State

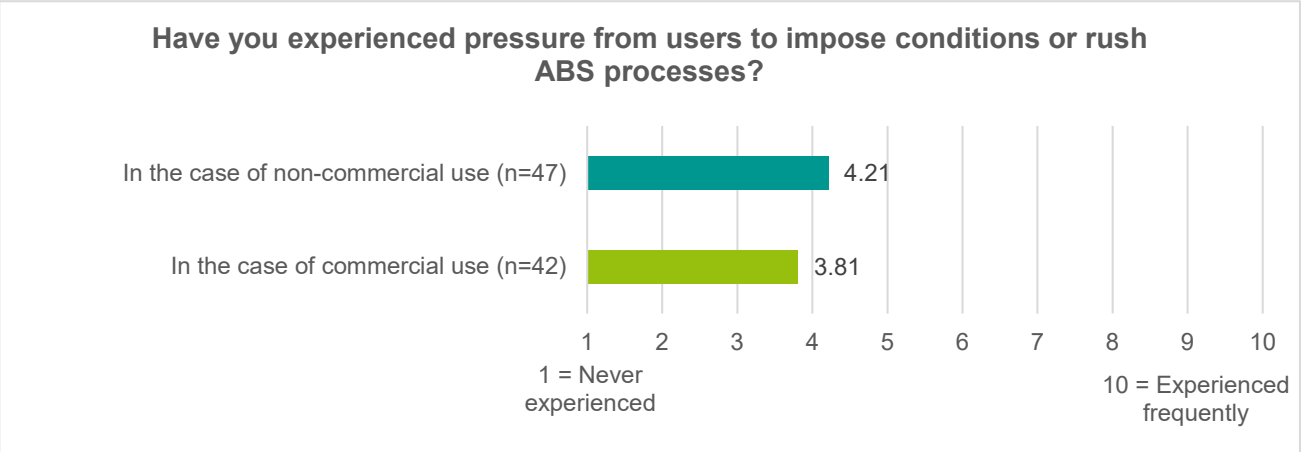
A significant positive correlation between the average willingness ratings for non-commercial users and those for commercial users across countries (rho = 0.516, p = 0.001) indicates that individual countries tend to rate both user groups at a similar level. This pattern is not coincidental: the combined average across all items correlates significantly with the implementation status of the national ABS framework (rho = 0.391, p = 0.007) and marginally with the duration of institutional experience (rho = 0.266, p = 0.073). Together, these findings suggest a systemic effect — countries with more advanced ABS systems tend to perceive both commercial and non-commercial users as more cooperative, likely because a clear and well-functioning framework enhances communication, clarifies requirements, and thereby fosters greater willingness from users regardless of their commercial or non-commercial nature.

In summary, while provider states primarily identify resource allocation for ABS in their research projects as the critical shortcoming among non-commercial users, transparency within complex commercial structures is the main concern with regard to commercial actors. In both cases, however, the capacity of the provider state to establish a clear and effective ABS framework emerges as the decisive overarching factor.

Pressure from Users

Provider countries were asked to what extent they perceive pressure from users – both commercial and non-commercial – to impose conditions or rush ABS processes (rated on a scale from 1 = never experienced to 10 = experienced frequently; see Figure 25). This question captures the subjective experience of provider-country authorities in their day-to-day interactions with users.

Figure 24: Pressure from users – mean score



Source: Öko-Institut

Perceived Pressure from Commercial Users

The data (see Figure 24) indicates a relatively low to moderate level of perceived pressure from commercial users (mean = 3.81, n = 42). Nearly half of the respondents (45.2%) reported having never experienced such pressure. When pressure does occur, qualitative responses point to demands for expedited processing and resistance to benefit-sharing obligations. Commercial applicants may attempt to negotiate terms exclusively in their favor, for instance by citing existing agreements with other provider countries as a reason to reduce their overall contributions.

Perceived Pressure from Non-Commercial Users

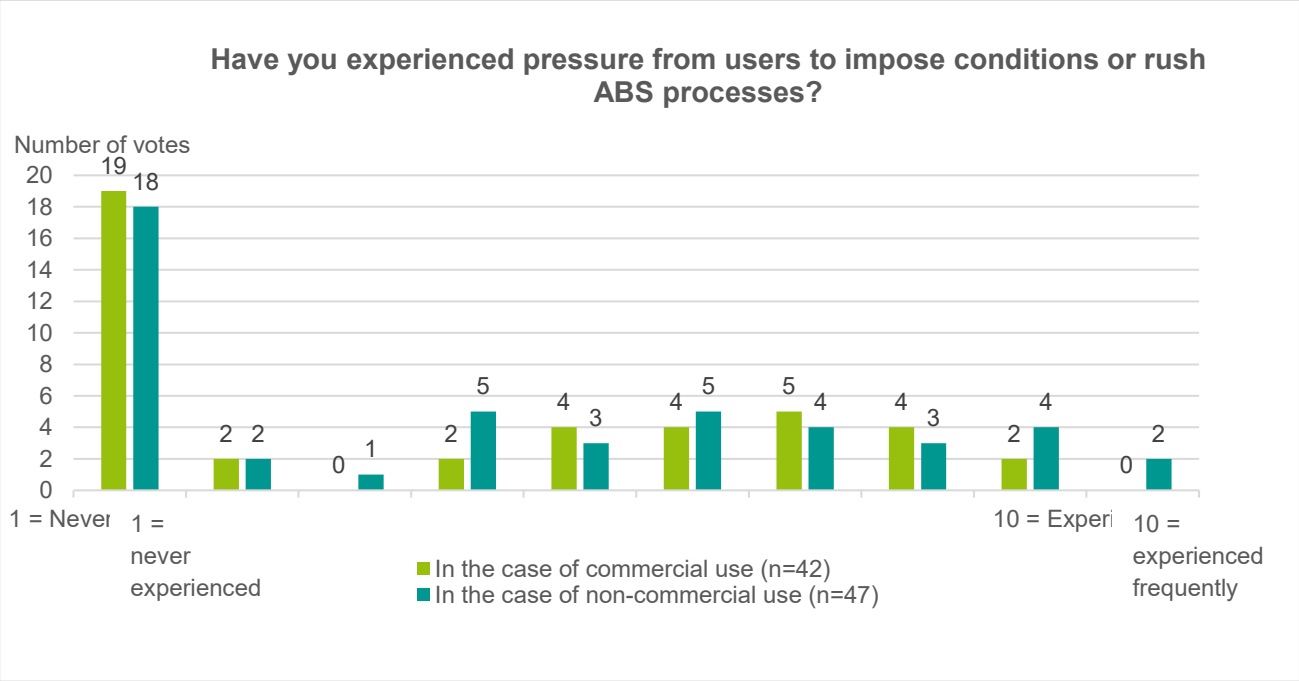
Non-commercial users are perceived to exert slightly more pressure, with a higher mean score of 4.21 (n = 47; see Figure 24). This pressure might reflect structural conditions rather than strategic intent: research funding frameworks are typically not designed to accommodate ABS processes, meaning that timelines and project plans are often set before any engagement with provider-country authorities takes place. This dynamic is consistent with the findings from the preceding question. One interviewee described the situation as follows:

"The greatest pressure concerns non-commercial use, because many academic researchers are unfamiliar with many aspects of ABS, and therefore have not included it in their planning timeline. As a result, when they apply for an ABS permit, they are sometimes short on time to obtain it, risking their institution closing their projects."

Pressure can also take an indirect form as one respondent noted:

"For non-commercial use, the user located within the EU does not apply direct pressure on the competent national authority of the provider country. This pressure is indirect and exerted on the partner researcher or laboratory located in [the provider country]. The need to obtain the approval of the competent national authority for the transfer of genetic resources is often presented as a condition for receiving scientific and technical support […]."

Figure 25: Experienced pressure from users – distribution



Source: Öko-Institut

The Role of Institutional Experience

A statistical correlation analysis shows that countries with longer experience in ABS negotiations tend to report higher levels of perceived pressure, both from commercial users (rho = 0.383, p = 0.013) and, more strongly, from non-commercial users (rho = 0.503, p < 0.001). A plausible and lean interpretation of these correlations is that countries with more experience have simply processed a larger absolute number of ABS applications, thereby increasing the probability of encountering users who exert pressure. Given that the absolute number of reported pressure cases remains relatively low across the sample, far-reaching causal interpretations should be treated with caution. The same logic applies to the weak positive correlation between the volume of non-commercial agreements and perceived pressure from non-commercial users (rho = 0.295, p = 0.044): more agreements mean more opportunities for rushed requests to occur.

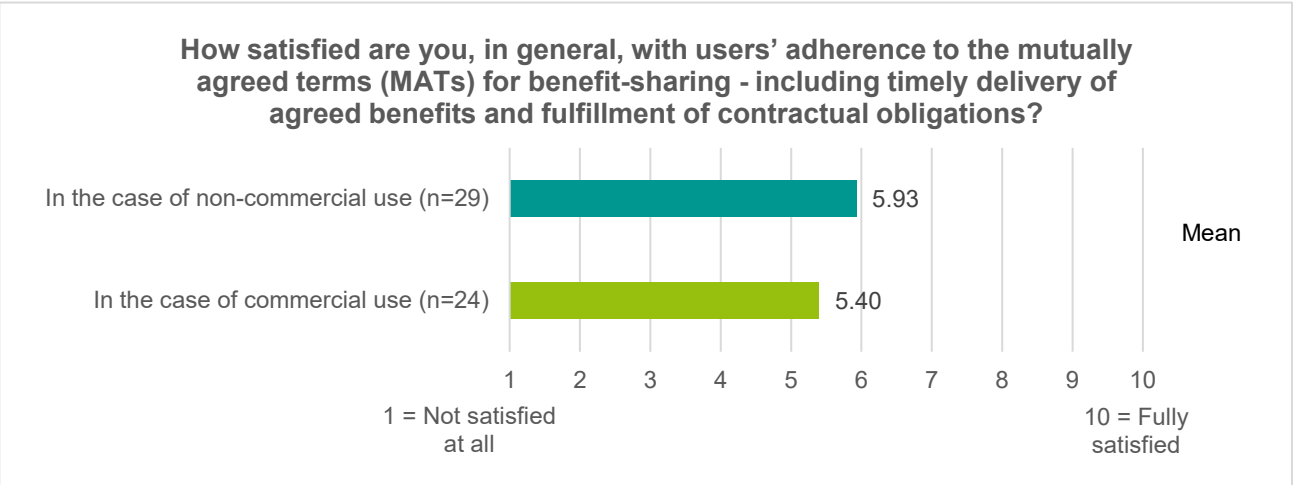
Notably, the level of perceived pressure is not associated with the overall advancement of a country's ABS framework. This suggests that pressure from users occurs irrespective of a country's regulatory maturity, and that structural solutions – such as clearer guidelines, early-stage user communication, and the integration of ABS requirements into research funding frameworks – are needed to address it.

Satisfaction with Users Compliance

The degree to which users actually honour the commitments made in MATs – including the timely delivery of agreed benefits and the fulfilment of contractual obligations – is a central indicator of whether the ABS system functions as intended in practice. Provider countries were asked to rate their satisfaction with user adherence to MATs separately for commercial and non-commercial use, on a scale from 1 (not satisfied at all) to 10 (fully satisfied). To ensure the validity of responses, only data from countries with some negotiation experience were included in this analysis.

As shown in Figure 26 below, the mean ratings point to a moderate, around-midpoint level of satisfaction (5.40 for commercial and 5.93 for non-commercial use). Looking at the distribution of responses, for both commercial and non-commercial use, respondents are split almost evenly, with about half expressing dissatisfaction (ratings 1–5) and the other half indicating satisfaction (ratings 6–10).

Figure 26: Satisfaction with users' adherence to MATs – mean score



Source: Öko-Institut

A Wilcoxon signed-rank test for paired samples found no statistically significant difference between the two ratings ($p = 0.694$), meaning that provider countries are equally – and only moderately – satisfied with MAT adherence regardless of whether the user is commercial or non-commercial. The satisfaction ratings for both user types are strongly correlated with each other (Spearman $r = 0.68$, $p < 0.001$), suggesting that the overall assessment reflects a general country-level experience rather than a meaningful distinction between user types.

After restricting the sample to countries with negotiation experience, no statistically significant correlations were found between satisfaction with MAT adherence and any of the tested variables – including the number of PICs/MATs negotiated or the duration of negotiations.

Although not statistically significant, there is a slight positive trend ($r = 0.27$) suggesting that countries with a more advanced implementation of the Nagoya Protocol tend to be more satisfied with commercial users. Specifically, countries with a higher implementation status reported a mean satisfaction score of 6.40, compared to 4.56 for countries at an earlier stage of implementation. However, the small sample size ($n = 24$) is insufficient to confirm this statistically. These findings should be interpreted with caution. The absence of significance does not rule out meaningful associations that a larger sample might reveal. Moreover, a simple linear regression indicates a positive association between respondents' ability to assess commercial benefits before negotiations and their satisfaction with the compliance of commercial users. That means respondents who felt more able to estimate potential benefits in advance tended to report higher satisfaction with user compliance. A similar pattern was found for non-commercial users, although the association was weaker. The relationship is statistically significant, suggesting that clearer expectations before negotiations may be linked to more positive assessments of commercial user compliance.

The open-ended survey responses ($n = 11$) and the expert interviews paint a consistent picture of structural compliance gaps, highlighting that the formal conclusion of agreements is not always matched by reliable implementation:

- *Reporting failures and tracking challenges:* The most frequently mentioned problem across both commercial and non-commercial users is the failure to submit agreed reports on time or at all. As one survey respondent noted, users often only comply after repeated reminders. The interviews confirm this: several experts highlighted the immense difficulty of tracking and verifying the benefits received from companies, particularly regarding the accuracy of financial reports.
- *The limits of user-country enforcement:* A central structural problem is the lack of enforcement power once a user operates in another jurisdiction. The interviews revealed a critical gap in the current compliance architecture: while user countries (such as EU member states) conduct compliance checks, these audits typically only verify whether the necessary documents (PIC and MAT) exist, not whether their substantive content is actually being adhered to. As one expert noted, "the content of the agreements is never checked, only the presence of the documents".
- *Lack of transparency in the value chain*: While companies may comply with basic terms due to fear of sanctions or reputational damage, respondents noted a profound lack of transparency regarding resource utilisation downstream in the value chain. Intermediaries are also mentioned as a particular problem, as they might withhold information on monetary benefits.
- *Non-commercial specifics*: Academic researchers are criticised for not sharing research results with original providers, and for treating resources as their own once samples have been collected. This includes using the resources for new purposes without requesting the necessary new permits from the provider-country authorities.

- *Capacity constraints:* Several respondents acknowledge that their country currently has no mechanism to track benefit-sharing at all, making any assessment of compliance impossible.

Taken together, these early results suggest that MAT adherence remains a vulnerable point in the ABS system. However, given the low number of responses and the fact that many provider countries still have limited practical experience with MAT compliance monitoring, these findings should be viewed as preliminary. Nevertheless, the moderate satisfaction levels, the even split between satisfied and dissatisfied respondents, and the qualitative evidence of reporting and enforcement gaps all point to a common challenge: without stronger, substantive compliance monitoring in user countries, ensuring that formal agreements translate into reliable benefit-sharing in practice will remain difficult.

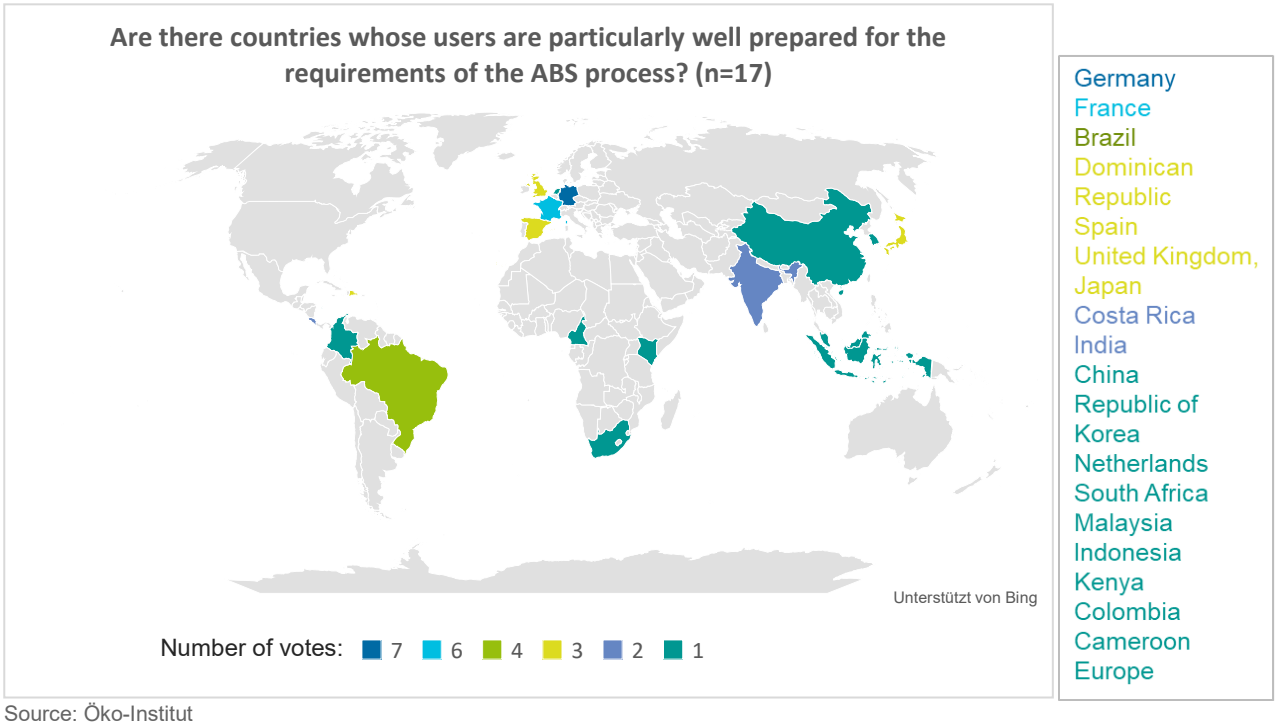
5.5.2 The Role of the User States

Provider countries were asked whether there are user countries whose researchers are particularly well prepared for the requirements of the ABS process (see Figure 27). The question was answered by only 17 of 63 respondents – thus the results should be treated with caution as they are not representative. Additionally it should be noted that a share of the responses – particularly from GRULAC and Asian respondents – appears to reflect a different reading of the question, naming countries known for well-developed ABS systems as provider countries rather than identifying user countries with well-prepared researchers. This ambiguity is reflected in Figure 23 and should be borne in mind when interpreting the results

Among those who did respond, Germany (7 mentions) and France (6 mentions) were by far the most frequently cited countries, followed at some distance by Brazil (4 mentions). All remaining countries received between one and three mentions.

Figure 27: Countries with well-prepared users for the ABS process

Note: Some respondents may have interpreted this question as referring to provider countries with well-developed ABS systems rather than to user countries. Results should be interpreted with caution.



Source: Öko-Institut

The open-ended follow-up responses point to two main factors that distinguish well-prepared users:

- *Binding compliance obligations:* Several respondents explicitly attributed the better preparation of European users to the EU due diligence regulation (Regulation No. 511/2014), which obliges users to declare compliance with ABS requirements. Legal expertise within research institutions was also mentioned as a contributing factor.
- *Proactive engagement:* Well-prepared users typically reach out to the competent national authority in advance and familiarise themselves with the national legal framework of the provider country before initiating the ABS process.
- *Institutional capacity:* Well-prepared users have access to sufficient resources, including legal expertise within their institutions, to navigate the administrative and contractual requirements of the ABS process

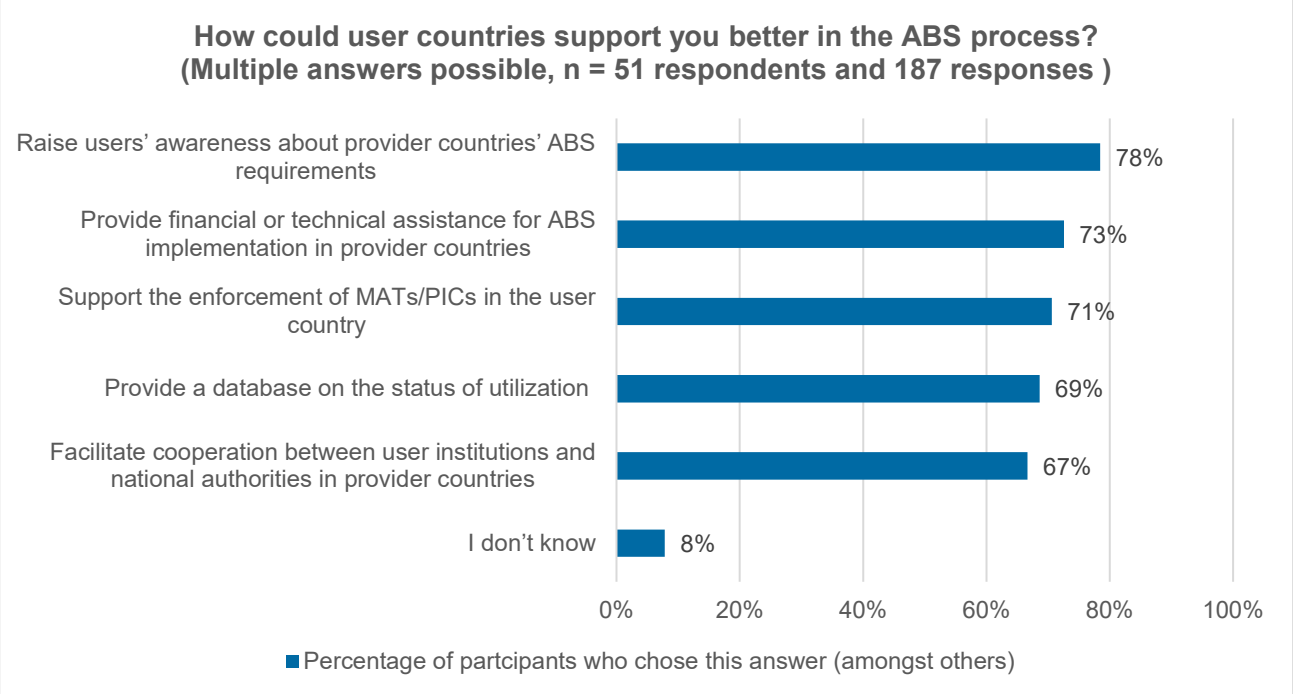
The absence of non-Party states such as the United States, Canada, and Australia from the responses supports the hypothesis that ratification of the Nagoya Protocol influences user behaviour.

Support by user countries

Provider countries were asked how user countries could better support them in the ABS process (see Figure 28). The question offered five predefined options (multiple selection possible) plus an open-ended follow-up. Of 60 survey respondents, 51 answered this question indicating a high level of concrete expectations.

The 47 respondents that did not select “I don’t know” made a total of 182 mentions across the five options, a mean score of 3.9 mentions per person. Given that five options were available, this means that most respondents selected nearly all of them – a pattern that is itself informative: rather than identifying one or two priority areas, provider countries express a broad and consistent demand for stronger engagement from user countries across all dimensions of the ABS process.

Figure 28: Support in the ABS process for provider countries



Source: Öko-Institut

The differences between options are small and should not be over-interpreted. What stands out is the overall level of agreement: no single measure was clearly preferred over others, and the high average number of mentions suggests that respondents viewed these forms of support as complementary rather than alternatives.

The open-ended responses (n = 9) reinforce and extend these findings:

- National legislation: Several respondents emphasised the need for binding legislation in user countries that aligns with the Nagoya Protocol and mandates responsible behaviour from their institutions.
- Capacity building: Calls for training and exchange opportunities for provider-country authorities to build legal, scientific, and negotiation capacity, as well as for experience-sharing workshops between national focal points and competent national authorities.
- Transparency and value chains: One respondent highlighted that some end users in the Global North do not consider themselves “users” in the sense of the Nagoya Protocol – viewing themselves instead as service providers (e.g. for sequencing) – and therefore do not feel bound by its obligations. This points to a need for clearer guidance on the definition of “utilization” and more targeted awareness efforts directed at the full value chain.
- Checkpoints: One respondent noted that checkpoints work well and should be expanded, and that compliance is most effective when foreign researchers actively encourage their local partners to meet ABS requirements.

A correlation analysis with indicators of negotiating experience (number of PICs/MATs negotiated; duration of negotiations) revealed no significant associations with any of the five support options or with the total number of mentions. The demand for stronger user-country engagement is thus not shaped by a country's own negotiating history, but appears to be perceived as a structural and universal need – shared equally by countries at the beginning of their ABS implementation and those with extensive experience.

5.5.3 Key Findings: User Conduct and the Role of User States

The analysis of user conduct reveals that the successful implementation of the ABS system depends heavily on the interaction between user behaviour, the clarity of provider-country frameworks, and the regulatory support of user states. While provider countries perceive a moderate to high general willingness among users to comply with ABS requirements, this initial willingness often fails to translate into reliable compliance in practice. The findings point to a systemic gap between the formal conclusion of agreements and their actual implementation.

The most critical insights from this chapter can be summarized as follows:

- *The “Provider-State Effect” on User Willingness:* The perceived willingness of both commercial and non-commercial users to cooperate is significantly higher in countries with more advanced national ABS frameworks. Clear rules, standardized procedures, and the capacity of provider authorities to assess benefits in advance are the strongest predictors of cooperative user behaviour, suggesting that a well-functioning national system actively fosters compliance.
- *Structural Constraints in Non-Commercial Research:* While non-commercial users are generally perceived as willing to share information, their ability to comply is severely hindered by structural barriers. The lowest-rated aspect of user conduct is the allocation of adequate resources for benefit-sharing. Academic funding cycles rarely account for ABS processes, leading to time pressure and a lack of financial flexibility during negotiations.

- *Transparency Gaps in Commercial Value Chains:* For commercial users, the primary concern is a lack of transparency regarding the role of intermediaries and the downstream utilization of genetic resources. This opacity makes it exceedingly difficult for provider countries to track how resources are used and to verify whether monetary benefits are distributed equitably.
- *The Implementation Gap in MAT Adherence:* Provider countries are only moderately satisfied with users' adherence to MATs, with respondents split almost evenly between satisfied and dissatisfied. The most pervasive problem across all user types is the failure to submit agreed reports on time. Once users operate outside the provider country's jurisdiction, provider authorities have virtually no means to enforce contractual obligations.
- *The Crucial Role of User-Country Regulation:* Provider countries express a broad and consistent demand for stronger engagement from user states independent of how experienced a country is in ABS negotiations. The data strongly suggest that binding compliance obligations in user countries (such as the EU Due Diligence Regulation) are the most effective lever for improving user preparedness. Provider countries expect user states not only to raise awareness and provide capacity-building support, but crucially to assist in the substantive enforcement of MATs within their own jurisdictions.

5.6 General Assessment

Finally, respondents were asked a set of questions that did not relate to a specific phase of the Nagoya Protocol process, but addressed broader assessments of ABS implementation. These questions covered power relations, key challenges, success factors, perceived positive effects of ABS, biodiversity governance and overall satisfaction.

5.6.1 Power Relations

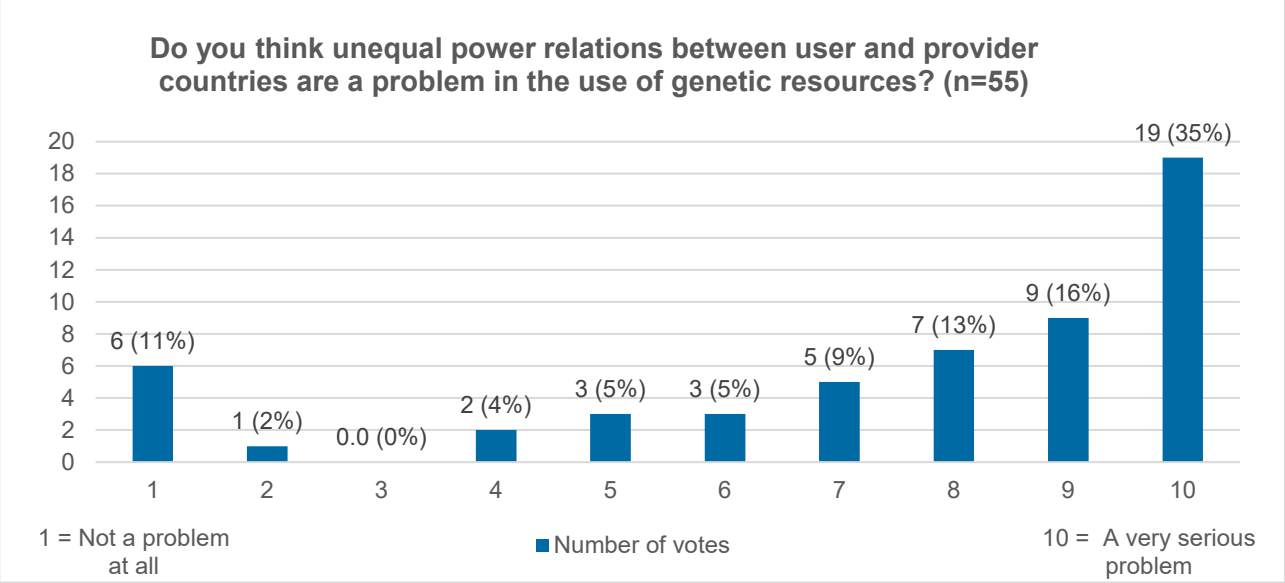
Unequal power relations and concerns about biopiracy were key drivers behind the development of the Nagoya Protocol. At the same time, preliminary research, including the expert interviews, suggests that structural imbalances between provider and user countries persist beyond the scope of the Protocol. Against this background, the survey sought to capture how provider countries assess the issue more generally. Respondents were asked to what extent they consider unequal power relations between user and provider countries to be a problem in the use of genetic resources, on a scale from 1 (“no problem at all”) to 10 (“a very serious problem”). In contrast to many other questions in the survey, the responses show a clear and consistent pattern (see Figure 29). Out of 55 responses, a large majority rates unequal power relations as a serious issue, with a mean score of 7.5 out of 10.

A correlation analysis was conducted to examine whether assessments of unequal power relations varied by respondents’ role, region or level of experience. No meaningful differences were found across these categories. This suggests that concerns about power imbalances are not **limited to** particular regions or levels of practical ABS experience but rather represent a broadly shared perception across provider countries.

The open-ended responses (n=20) provide further insight into these perceptions. The respondents described user countries as having stronger legal, financial, and technical capacities, which can translate into advantages in negotiation processes. As one respondent stated, “*User countries take maximum advantage of the weakness of provider countries*”. In addition, some respondents pointed out that access to genetic resources prior to the entry into force of the Nagoya Protocol remains insufficiently addressed, reinforcing existing imbalances. While unequal power relations are thus

seen as persistent, several responses also acknowledged that the Nagoya Protocol has had a positive influence in raising awareness and providing a framework to address these issues.

Figure 29: Unequal power relations in the use of genetic resources – distribution



Source: Öko-Institut

5.6.2 Challenges in Benefit Sharing

Respondents were asked to assess a range of challenges related to ABS implementation and negotiations on a scale from 1 (“not a challenge at all”) to 6 (“a very significant challenge”).

The survey results show that the most significant challenges are capacity- and knowledge-related. As shown in Figure 30, all listed challenges received mean scores above 3.5, indicating that respondents perceived each of them as at least a moderate challenge.

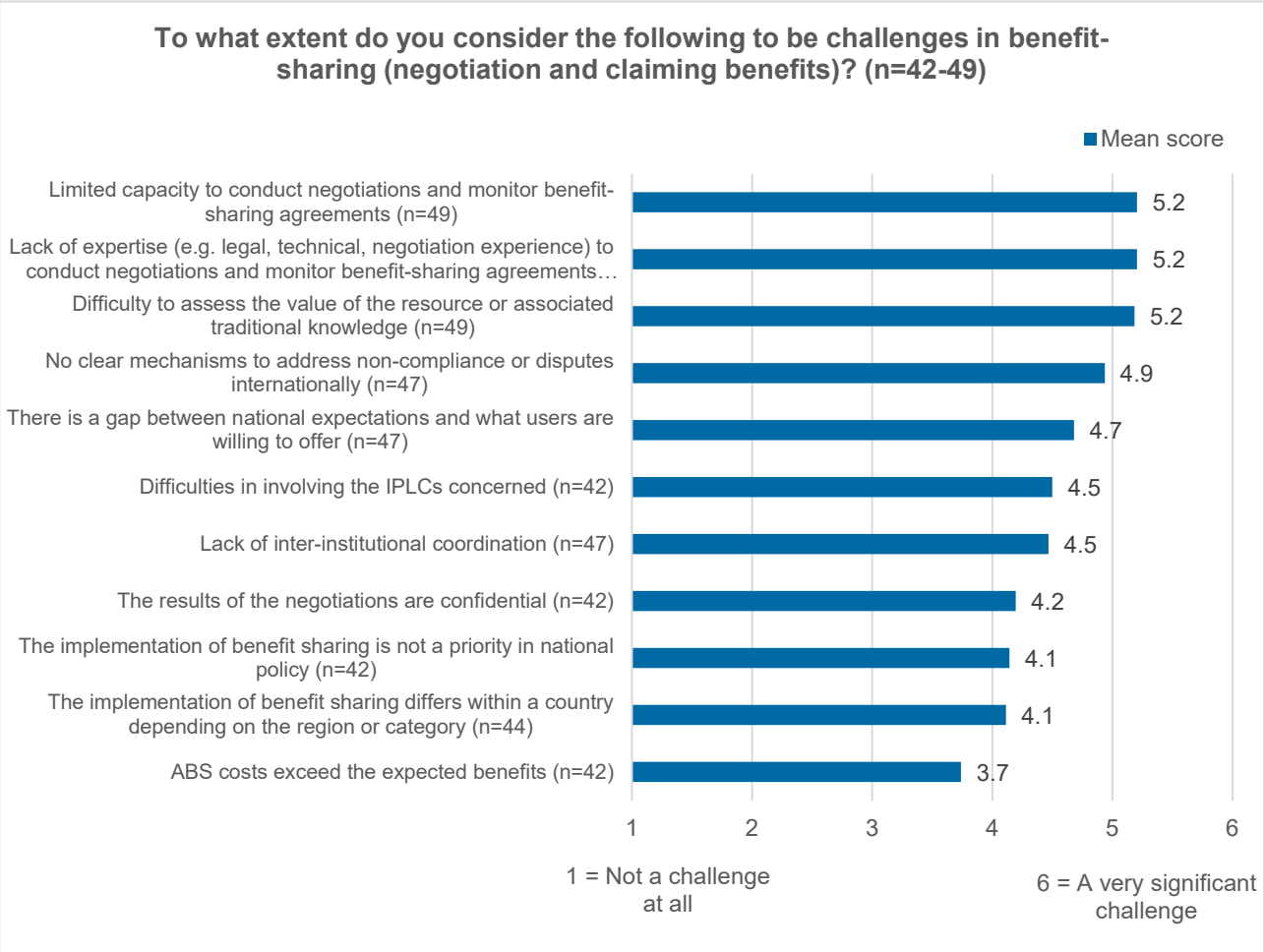
The highest scores were reported for a lack of expertise and limited institutional capacity to conduct and monitor negotiations (both 5.20), followed closely by difficulties in assessing the value of genetic resources and associated traditional knowledge (5.18). These findings are reinforced by the open-ended responses (n = 11), in which respondents pointed to limited access to context-specific guidance and case studies, as well as weak digital infrastructure. Some also highlighted emerging challenges such as Digital Sequence Information (DSI). Taken together, these results confirm the broader pattern observed in earlier sections: many provider countries face fundamental technical and institutional constraints that affect both negotiation processes and outcomes.

The second group of challenges relates to structural features of the ABS system. In the survey results, the lack of international mechanisms to address non-compliance or disputes (4.94) and the gap between national expectations and what users are willing to offer (4.68) are rated as significant challenges. These findings are also echoed in the open-ended responses, where several respondents referred to continued reliance on user goodwill in the absence of effective enforcement. Additional governance-related challenges include difficulties in involving IPLCs (4.50) and weak inter-institutional coordination (4.47). Issues such as confidentiality of negotiation outcomes and inconsistent national implementation are rated at a moderate level.

By contrast, economic considerations appear less central in the survey results. The statement that “ABS costs exceed expected benefits” receives the lowest mean score (3.74). This is notable, as the

expert interviews had suggested this could be a more prominent concern. However, the open-ended responses provide a more nuanced picture: some respondents, particularly with regard to non-commercial use, describe ABS procedures as resource-intensive while generating limited additional benefits.

Figure 30: Challenges in benefit-sharing – mean score



Source: Öko-Institut

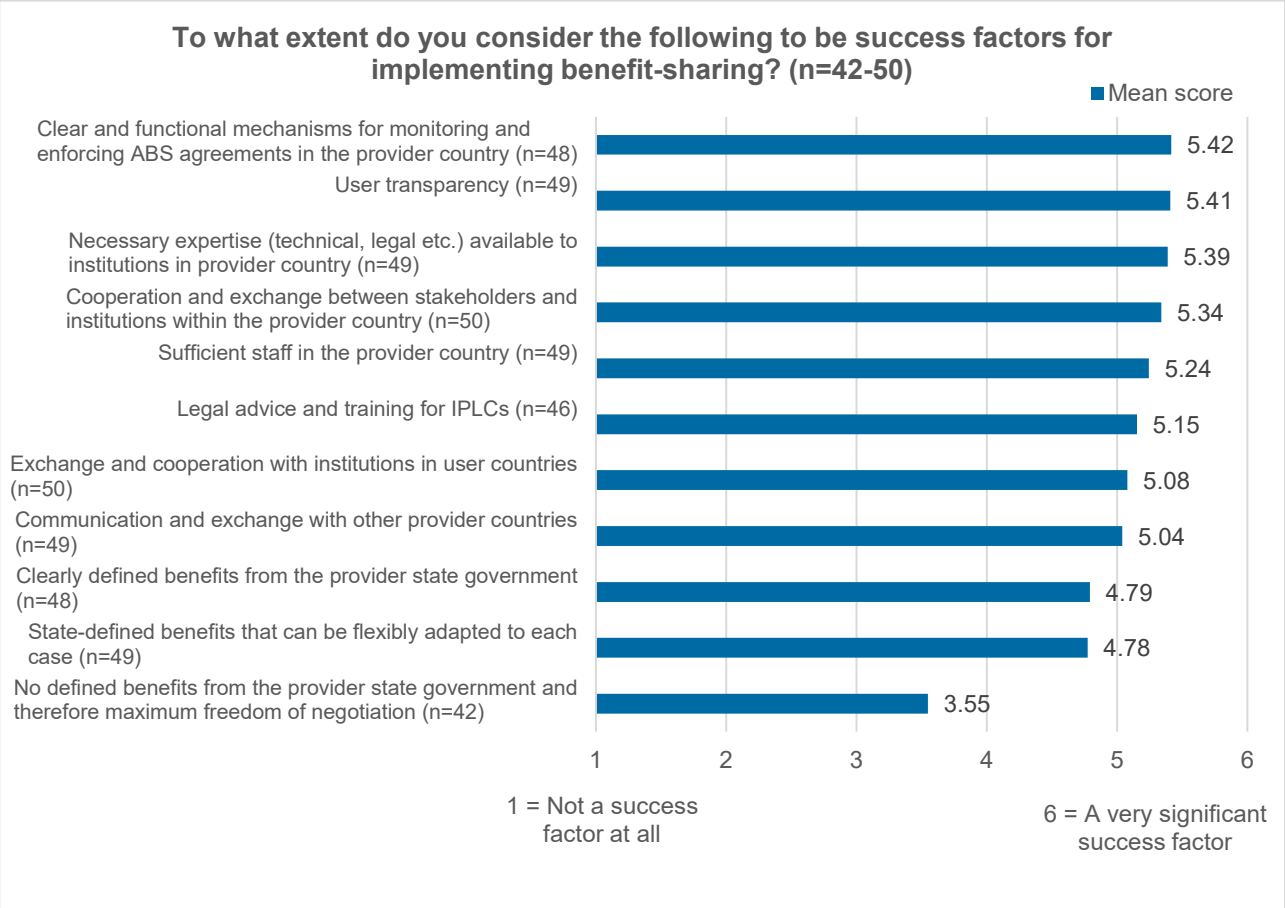
Further analysis shows that the perceived challenges of benefit-sharing were largely unrelated to respondents' region, role, duration of negotiation practice, non-commercial negotiation experience, implementation status, or their ability to assess appropriate benefits in advance. However, a signficant association was found between higher perceived severity of unequal power relations (see 5.6.1) and higher ratings for almost all challenges. That means that respondents who perceived unequal power relations between user and provider countries as a more serious problem also tended to rate almost all other benefit-sharing challenges as more severe. Significant positive associations were found for 10 of the 11 challenge items, with particularly strong relationships for differences in implementation within countries (Spearman's rho = 0.594, p_FDR < 0.001), confidentiality of negotiation outcomes (rho = 0.525, p_FDR = 0.001), and concerns that ABS costs exceed expected benefits (rho = 0.518, p_FDR = 0.001).

Overall, the combined evidence from the quantitative and qualitative responses indicates that the main challenges are institutional and structural. In particular, limited capacity, information gaps, and weak enforcement mechanisms emerge as key constraints to effective implementation.

5.6.3 Success Factors for Implementing Benefit-sharing

In a next step, respondents were asked to assess potential success factors for implementing benefit-sharing on a scale from 1 ("not a success factor at all") to 6 ("a very significant success factor"). Overall, the results show a clear and consistent pattern (see Figure 31): all listed factors were rated above the midpoint, indicating that respondents considered each of the given options to contribute positively to effective implementation.

Figure 31: Success factors for implementing benefit-sharing – mean score



Source: Öko-Institut

The highest-rated factors relate to institutional capacity, expertise, and governance structures. In particular, the availability of technical and legal expertise (5.39), sufficient staff (5.24), and strong cooperation between stakeholders and institutions within provider countries (5.34) are seen as key success factors. These are closely followed by clear and functional monitoring and enforcement mechanisms (5.42) and transparency on the user side (5.41). Capacity-building was also mentioned in the open ended questions (n=9), where respondents highlighted a need for training, awareness-raising, and embedding ABS considerations in national education and outreach programmes.

These findings validate the responses of the challenges as they do mirror the answer pattern from the previous question (see 5.6.2). This is further supported by the high ranking of legal advice and training for IPLCs (5.15), highlighting the importance of building capacity not only within government institutions but also among relevant stakeholders.

A second group of important factors relates to cooperation and exchange. Communication with other provider countries (5.04) and cooperation with institutions in user countries (5.08) are both rated as

relevant, underlining the role of international collaboration. However, the open-ended responses provide a more nuanced perspective: while such cooperation is considered valuable in principle, several respondents note that it remains limited in practice. User-country institutions often operate within predefined project objectives, scopes and budgets, making it difficult to accommodate additional objectives proposed by provider countries. Other responses stressed the value of regional cooperation mechanisms, shared legal advisory services, and international financial support, particularly for countries with limited resources.

The results also point to the importance of clear regulatory frameworks. Both clearly defined benefits (4.79) and flexible, state-defined benefit structures (4.78) are rated as important, whereas „No defined benefits from the provider state government and therefore maximum freedom of negotiation“ receives the lowest score (3.55). This indicates a preference for guidance and structure, combined with some degree of flexibility, rather than fully unstructured negotiation processes and also goes in line with the tendency towards standardisation (see chapter 5.3.2).

Further analysis shows that the assessment of success factors is largely unrelated to respondents' region, duration of negotiation practice, non-commercial negotiation experience, or overall implementation status in this sample. However, a clear pattern emerges with regard to perceived power imbalances: respondents who considered unequal power relations between user and provider countries a more serious problem (see Section 5.6.1) consistently gave higher ratings to the success factors. This mirrors the pattern found for the challenges, where stronger perceptions of power imbalances were also associated with higher ratings across almost all items. This suggests that perceived power imbalances play an important role in how respondents view the conditions needed for effective benefit-sharing and deserve closer attention.

Overall, the findings mirror the results from the ”challenges” questions and indicate that successful implementation of benefit-sharing depends on a combination of strong institutional capacity, clear and enforceable frameworks, transparency, and effective collaboration within the provider countries and internationally.

5.6.4 Positive Effects of Benefit-sharing

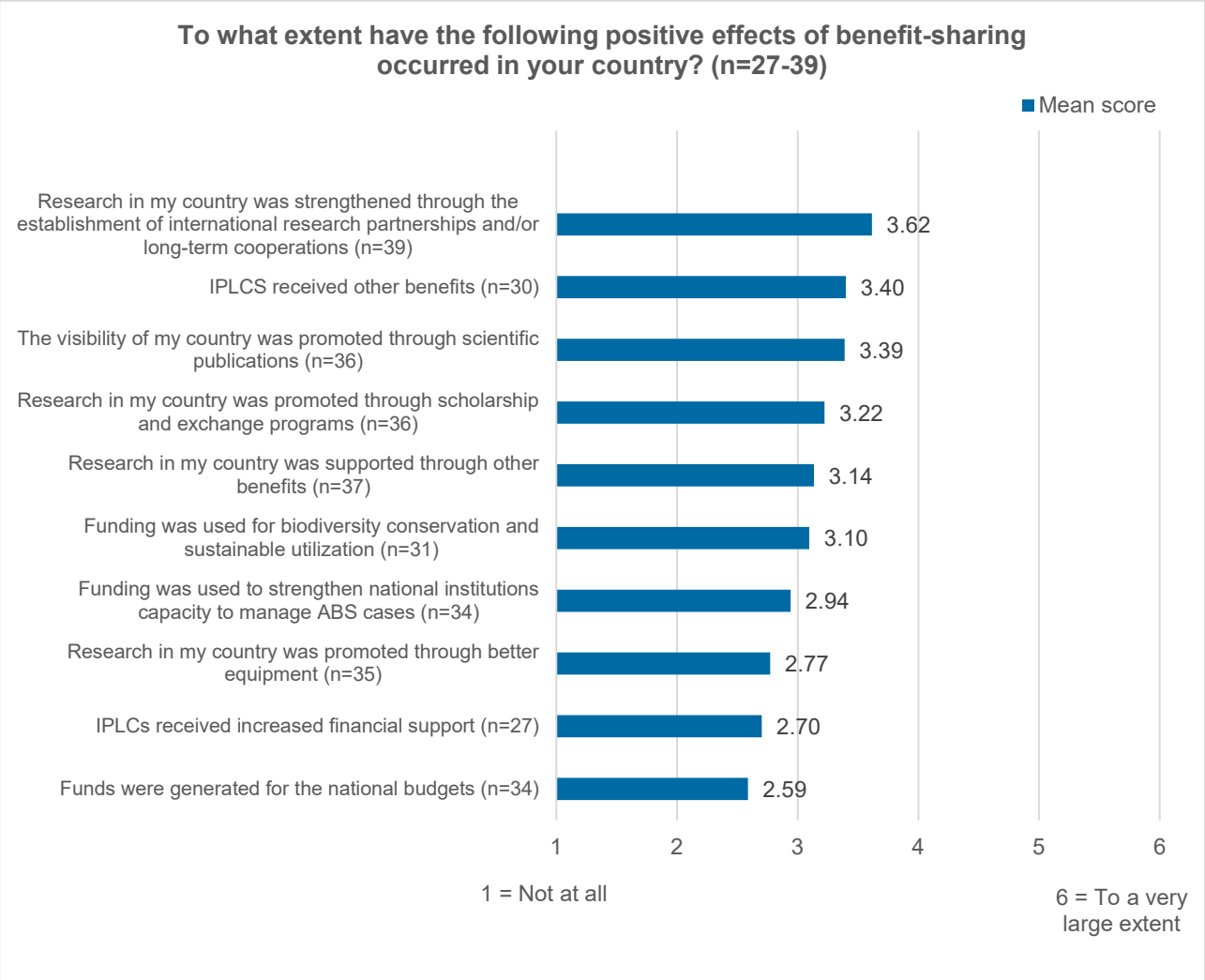
Respondents were asked to assess the extent to which different positive effects of benefit-sharing have materialised in their country, using a scale from 1 (“not at all”) to 6 (“to a very large extent”). As shown in Figure 32, the results indicate that positive effects have occurred to a limited to moderate extent. Most mean values fall between 2.5 and 3.6, suggesting that while some benefits are visible, their overall impact remains modest.

The lowest scores were reported for direct financial effects, such as contributions to national budgets (2.59) and financial support for IPLCs (2.70), indicating that monetary benefits have so far played a relatively minor role. In the open-ended responses (n = 9) several respondents noted that, in many cases, tangible benefits, especially commercial ones, have not yet materialised, either because negotiations are still limited or because existing projects have not generated revenues. Some explicitly stated that no successful cases have been concluded to date. This helps explain the low ratings for financial impacts.

Slightly higher values were given for non-monetary benefits. These include support for biodiversity conservation and sustainable use (3.10), research funding through non-monetary benefits (3.14), and scholarship or exchange programmes (3.22). The highest-rated effects relate to longer-term and indirect benefits, such as increased visibility through scientific publications (3.39), non-monetary

benefits for IPLCs (3.40), and, in particular, the strengthening of international research partnerships and long-term cooperation (3.62).

Figure 32: Positive effects of benefit-sharing



Source: Öko-Institut

Moreover, in the open-ended questions, respondents pointed to a range of indirect and longer-term positive effects that are less easily captured in quantitative terms. These include increased awareness of ABS principles, growing interest in biodiversity and research among local stakeholders, and capacity-building through training and international cooperation as well as participation in regional networks and exchanges is also highlighted as a benefit, particularly for countries with limited prior experience. This is also underlined in the next question (see 5.6.5). Some responses further suggest that initial progress in implementing the Nagoya Protocol has not always been sustained over time, indicating possible challenges in maintaining momentum.

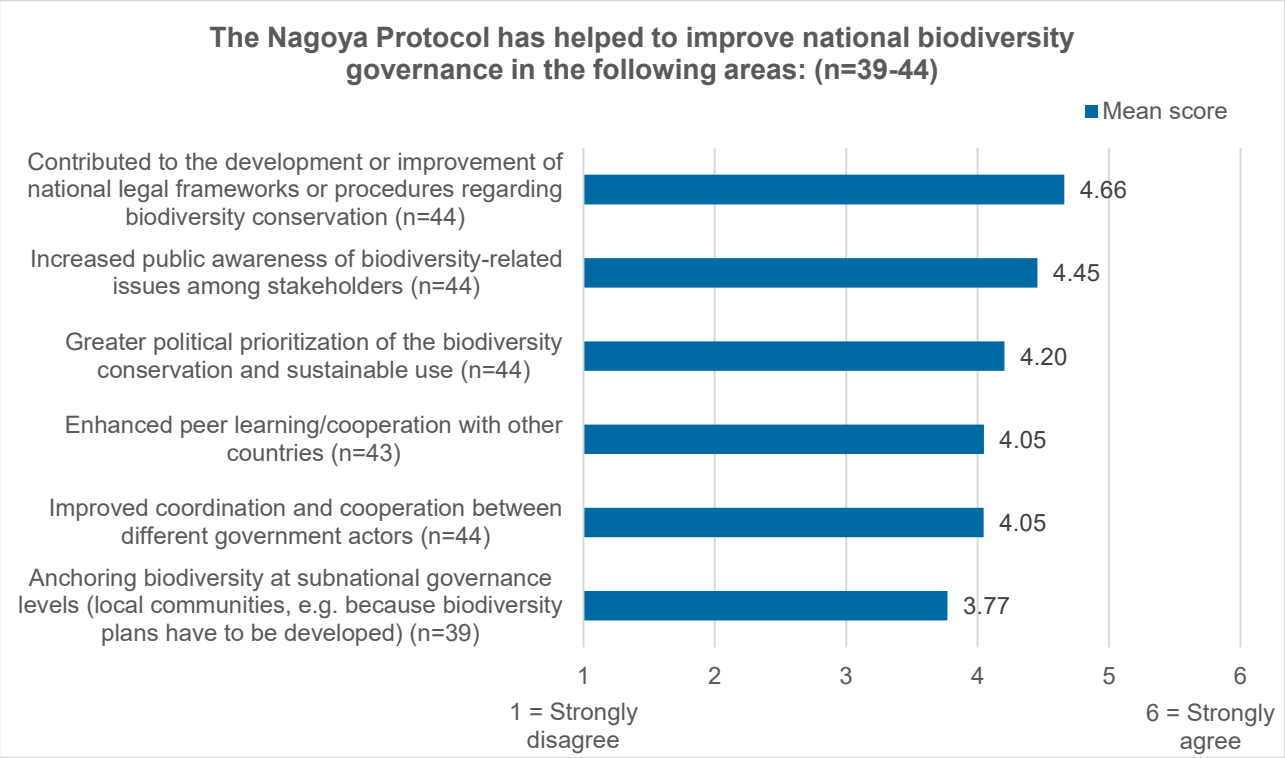
Further analysis shows that the reported positive effects of benefit-sharing are generally not related to respondents' region, role, negotiation duration, implementation status, or perceptions of power imbalances in this sample. However, a significant association was found with regard to the negotiation experience and for the institutions' ability to assess appropriate benefits before commercial negotiations: Respondents who felt better able to assess suitable benefits also reported stronger positive effects, for example on research equipment (Spearman's rho = 0.578, p_FDR =

0.008), financial support for IPLCs (rho = 0.519, p_FDR = 0.022), and strengthened capacity of national ABS institutions (rho = 0.470, p_FDR = 0.022). This finding seems plausible and underlines that the ability to assess appropriate benefits in advance of negotiation is key to a more successful benefit sharing. Taken together, the results indicate that benefit-sharing has so far generated more intangible and capacity-related benefits than direct financial returns. The relatively modest overall scores reflect both the early stage of implementation in many countries and the limited number of completed negotiation cases, particularly those leading to commercial outcomes.

5.6.5 Improvement of National Biodiversity Governance

Respondents were asked to assess the extent to which the Nagoya Protocol has contributed to improvements in national biodiversity governance across several areas, using a scale from 1 ("not at all") to 6 ("to a very large extent"). The results, as shown in Figure 33, indicate a generally moderate to positive contribution of the Nagoya Protocol. The highest-rated effect is increased public awareness of biodiversity-related issues among stakeholders (4.45), followed by its contribution to the development or improvement of national legal frameworks and procedures (4.66). Respondents also reported positive effects in terms of greater political prioritisation of biodiversity conservation and sustainable use (4.20), as well as improved coordination between government actors and enhanced international peer learning (both 4.05). The lowest, though still moderately positive, score relates to anchoring biodiversity at subnational levels (3.77), suggesting that local-level integration is progressing more slowly.

Figure 33: Improvement of the national biodiversity governance through the Nagoya Protocol – mean score



Source: Öko-Institut

Further analysis shows, that the reported effects of the Nagoya Protocol on biodiversity governance were largely unrelated to respondents' region, role, duration of negotiation practice, non-commercial negotiation experience, or the implementation status. However, a significant association was found

with the perception of power imbalances: respondents who saw unequal power relations as a more serious problem (see 5.6.1) also tended to rate several governance effects of the Protocol more highly, including its contribution to the political prioritization of biodiversity (Spearman's rho = 0.513, p_FDR = 0.002) and to international peer learning and cooperation (rho = 0.487, p_FDR = 0.003). By contrast, respondents with more commercial negotiation experience tended to give lower ratings to several governance effects. For example, respondents with greater commercial experience rated the Protocol's contribution to improving national legal frameworks and procedures lower than respondents with less experience (rho = −0.452, p_FDR = 0.018).

In the open-ended responses (n = 6), respondents further mentioned the integration of the Nagoya Protocol into national biodiversity strategies, legal frameworks, and broader development planning processes as other ways in which the Nagoya Protocol has helped improve biodiversity conservation in your country. For example, one response noted that biodiversity considerations have been increasingly embedded in national development plans and environmental impact assessments, linking conservation more closely to wider policy agendas. Other responses emphasised the role of the Protocol in connecting biodiversity governance with traditional knowledge and cultural values, thereby strengthening its relevance at the community level. Participation in international and regional processes was also mentioned as a benefit, with one respondent mentioning a stronger voice in global biodiversity negotiations. Other respondents noted that implementation is still at an early stage, with positive effects only beginning to emerge.

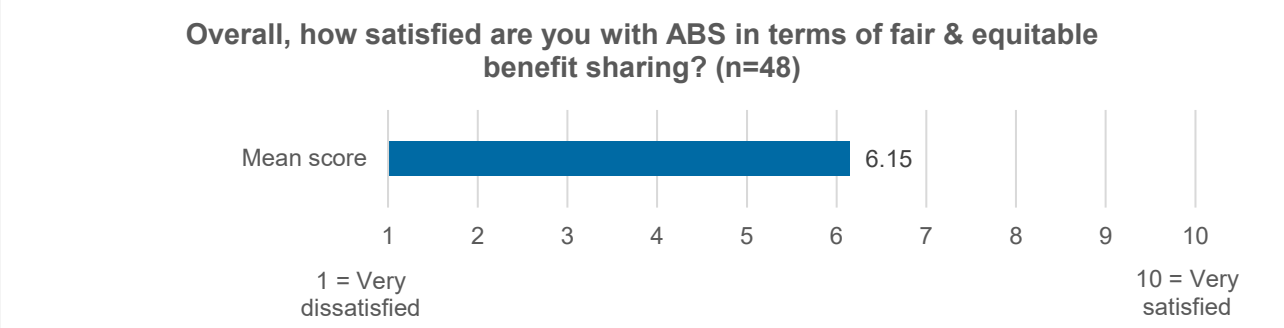
Taken together, the findings suggest that the Nagoya Protocol has contributed to strengthening biodiversity governance primarily through increased awareness, improved legal and policy frameworks, and enhanced coordination. This finding also indicates that the Protocol does not merely regulate individual ABS transactions. By prompting countries to build institutions, clarify responsibilities and connect biodiversity actors, it can strengthen the wider governance architecture required to implement the Convention on Biological Diversity and the Kunming–Montreal Global Biodiversity Framework. These governance gains should therefore be recognised as a substantive outcome in their own right, rather than only as a precondition for benefits that may materialise later.

5.6.6 Overall Satisfaction

As a final question, respondents were asked how satisfied they are overall with ABS in terms of fair and equitable benefit-sharing. Answers were given on a scale from 1 ("very dissatisfied") to 10 ("very satisfied"). In total, 48 respondents answered this question.

The results indicate a moderate level of overall satisfaction. The mean score is 6.15 out of 10 (see Figure 34).

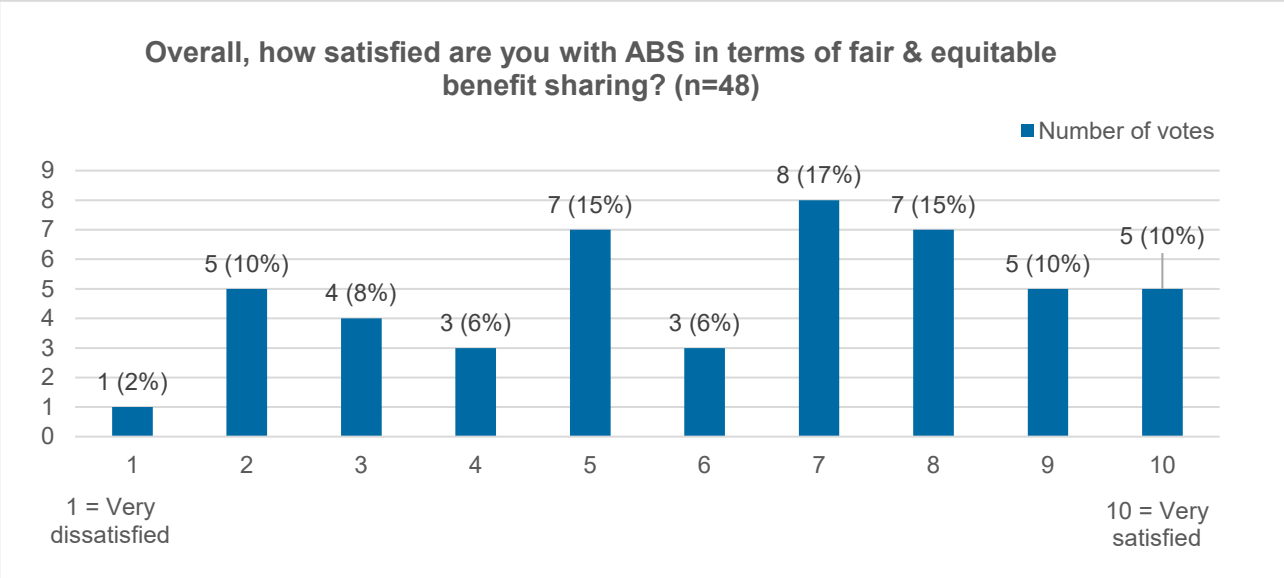
Figure 34: Overall satisfaction with ABS – mean score



Source: Öko-Institut

When grouped into broader categories, 42% of respondents fall on the dissatisfied side of the scale (scores 1-5), while 58% fall on the satisfied side (scores 6-10) (see Figure 35). The distribution therefore does not point to strong overall dissatisfaction, but also does not suggest a clearly positive assessment. Rather, satisfaction appears mixed, with a slight tendency towards more positive evaluations.

Figure 35: Overall satisfaction with ABS – distribution



Source: Öko-Institut

The open-ended responses help explain this mixed picture. Several respondents emphasized that the Nagoya Protocol provides a valuable framework and may support fair and equitable benefit-sharing if properly implemented. Positive examples mainly relate to non-monetary benefits, particularly in research contexts, including scientific cooperation, joint publications, capacity-building, internships, improved knowledge of biodiversity resources and access to genetic sequencing databases. One respondent also reported a positive commercial research partnership in which benefit-sharing obligations were fully respected.

At the same time, several respondents noted that practical benefit-sharing remains limited. In some countries, ABS implementation is still at an early stage, making it difficult to assess satisfaction on the basis of concrete outcomes. Lower satisfaction was linked to limited national capacity, weak monitoring and enforcement, unclear user-country compliance mechanisms and persistent power imbalances between provider and user countries. Some respondents also questioned whether ABS creates sufficient additional value in non-commercial research, where outputs such as publications, research findings or sequence data may already be part of standard scientific practice.

A correlation analysis with other factors shows that overall satisfaction with ABS is not significantly associated with negotiation experience, respondent role, implementation status, region, the ability to assess benefits in advance, or perceptions of unequal power relations. While some descriptive differences and weak tendencies are visible, none provide statistically robust evidence that these factors systematically explain differences in overall satisfaction within the present sample. This suggests that the moderate level of satisfaction is not driven by a specific respondent group, but reflects a broader assessment across the sample.

Taken together, the findings suggest that ABS is seen as a framework with clear potential, while satisfaction with fair and equitable benefit-sharing remains constrained by limited practical outcomes, capacity gaps, power asymmetries and uncertainties about implementation and compliance.

5.6.7 Key Findings: General Assessment

The findings of this last section of the general perceptions of ABS implementation show that the challenges and outcomes of ABS implementation are highly interdependent. Rather than identifying new isolated issues, this chapter consolidates and reinforces earlier results, highlighting that capacity, governance quality, and structural asymmetries jointly determine whether the Nagoya Protocol can translate into effective and equitable benefit-sharing in practice. The most critical insights from this chapter can be summarized as follows:

- *Persistent Structural Power Imbalances*: Unequal power relations are consistently perceived as a serious problem across all respondent groups. This finding adds a systemic dimension to earlier results on user conduct (see Chapter 5.5), where enforcement gaps and dependence on user-country regulation already pointed to structural asymmetries.
- *Capacity as the Central Bottleneck*: The prominence of limited expertise, staffing, and valuation capacity directly confirms earlier findings (see chapters on negotiations and implementation status) that institutional capacity is the key determinant of effective ABS implementation.
- *Systemic Weaknesses in Enforcement and Coordination*: The lack of international compliance mechanisms and continued reliance on user goodwill reinforce the “implementation gap” identified in user conduct (see Chapter 5.5), particularly regarding MAT adherence and limited enforceability across jurisdictions.
- *Preference for Structured but Flexible Frameworks*: The preference for clear, state-defined but adaptable benefit-sharing rules aligns with earlier findings on standardisation in negotiations (see Chapter 5.3.2), where predictability and clarity were shown to facilitate negotiation processes and outcomes.
- *Limited but Positive Effects of Benefit-Sharing*: The relatively low to moderate realisation of benefits confirms the “experience gap” identified in earlier chapters (see chapter 5.3), as many countries have not yet generated or received significant returns. At the same time, the findings suggest that positive effects are more often non-monetary than monetary, particularly in the form of research cooperation, capacity-building, training, and international partnerships.
- *Broader Governance Gains Beyond Benefit Flows:* The Nagoya Protocol appears to strengthen biodiversity governance through clearer legal and institutional frameworks, greater awareness and better coordination. These gains can emerge before tangible benefits materialise, making governance strengthening a relevant outcome of implementation in its own right.
- *Mixed Overall Satisfaction Reflects a Systemic Implementation Gap*: The moderate level of satisfaction brings together several strands of earlier analysis, including capacity limitations, weak enforcement (user conduct), limited financial outcomes (benefit distribution), and uneven implementation. Satisfaction thus reflects not a single issue, but the combined effect of multiple structural constraints.

6 Conclusion

This study examined how satisfied institutional representatives of provider countries are with the negotiation and implementation of benefit-sharing under the Nagoya Protocol. Taken together, the expert interviews and the global survey indicate **moderate rather than high satisfaction**. This assessment does not amount to a uniform judgement across countries, nor should it be understood as a simple evaluation of the Protocol itself. Satisfaction varies with the stage and quality of national implementation, experience with negotiations, users' conduct, the fulfilment of mutually agreed terms (MAT), and the extent to which benefits are ultimately delivered and can be monitored. Provider-country satisfaction is therefore best understood as **conditional and process-dependent**: the objectives and principles of the Nagoya Protocol are widely regarded as legitimate and valuable, while their practical realization remains uneven.

Eight overarching conclusions emerge from the findings:

- **The Nagoya Protocol has achieved important legislative, normative and institutional progress, but this has not yet translated consistently into operational success:** The Protocol has strengthened the legitimacy of provider claims, established an internationally recognized basis for PIC and MAT, and increased the visibility of rights relating to genetic resources and associated traditional knowledge. It has also contributed to greater awareness of unauthorized access, more equitable negotiations and the development of national ABS institutions. In the survey, 79% of respondents rated the Protocol's contribution to more equitable negotiations at the global level as medium to high; at the national level, the corresponding share was 70%. These findings suggest that the Protocol has improved the conditions under which benefit-sharing can occur, even where the benefits themselves remain limited or difficult to verify.

  At the same time, the results reveal a substantial implementation gap. The mean self-reported national implementation score was 4.72 out of 10, and around two thirds of respondents placed their countries in the earlier stages of implementation. Moreover, 37% had not yet conducted any PIC or MAT negotiations. Many provider countries therefore still have limited practical experience with commercial negotiations, monetary benefits and the long-term monitoring of agreements. This constrains implementation and also limits the empirical basis on which institutional representatives can assess satisfaction with realized benefit-sharing outcomes. The Protocol has clarified the principles and actors of ABS, but it has not by itself created a fully functioning and consistently enforceable global system.

- **Implementation of the Nagoya Protocol can generate a distinct governance effect beyond individual ABS transactions, strengthening biodiversity-related institutions, awareness, coordination and policy integration even before substantial benefits are realised:** An additional and particularly noteworthy conclusion is that implementation of the Nagoya Protocol can strengthen biodiversity governance even before substantial benefits are realised. This effect is rooted in the Protocol's institutional architecture: Articles 13 and 22 provide for national focal points and competent national authorities, clearer responsibilities and access procedures, stronger human and institutional capacities, the involvement of IPLCs and relevant stakeholders, and greater coordination and information exchange. In practice, these requirements can support legal and policy development, awareness, inter-agency cooperation and the integration of biodiversity into national and subnational planning. These governance gains are distinct from benefits arising from individual ABS agreements and should be recognised as an outcome in their own right, although they do not replace fair and equitable benefit-sharing.

  These governance gains can support the wider implementation of the Convention on Biological Diversity and the Kunming–Montreal Global Biodiversity Framework. In particular, they strengthen

the legal, administrative and capacity-building foundations required under Target 13 to ensure fair and equitable benefit-sharing and facilitate appropriate access to genetic resources. Where ABS implementation also integrates biodiversity considerations into broader policies, planning and decision-making, it can contribute to Target 14.

- **Clear and workable provider-country legislation and processes are a central condition for effective negotiation, cooperation, monitoring and benefit delivery:** Limited staffing, specialist expertise and institutional capacity were among the most significant challenges identified in the survey. Provider authorities require not only biological expertise, but also legal, economic and administrative capacity to assess proposed uses, evaluate potential benefits, negotiate appropriate terms and monitor their implementation. Countries with more advanced national frameworks tended to perceive users as more cooperative and transparent. This relationship suggests that problems attributed to user unwillingness may sometimes be intensified by unclear or unpredictable national procedures. Conversely, functional provider-country systems can reduce uncertainty, enable earlier communication and create conditions in which compliance becomes more practicable.

  The study also demonstrates why a balance between standardization and flexibility is necessary. Model clauses, procedural templates, reporting provisions and indicative benefit options can clarify expectations and reduce transaction costs, particularly in recurring or lower-risk cases. However, the diversity of resources, providers, sectors, research objectives and commercialization pathways makes complete standardization neither feasible nor desirable. Commercial arrangements often require context-specific provisions, and non-commercial research may also raise distinct questions concerning traditional knowledge, community participation, third-party transfers or later changes in intent. Standardized tools should therefore support informed and efficient negotiation without replacing case-specific assessment or meaningful provider participation.

- **Satisfaction depends strongly on the quality of the negotiation process, particularly on transparency and trust, timely communication and the meaningful participation of relevant stakeholders:** Within individual negotiations, transparency, trust and participation were among the factors rated as having the strongest influence on satisfaction. They were considered at least as important as, and in some cases more important than, the specific form or amount of the benefit agreed. The importance of these factors is particularly evident where providers lack complete information about users' intentions, value chains, commercialisation prospects or possible future uses of genetic resources. Consistent with these qualitative accounts, respondents reported only moderate capacity to determine appropriate, fair and equitable benefits before negotiations. Early engagement, complete and understandable information, realistic timelines and meaningful participation can reduce these information gaps and support informed negotiations. By contrast, late contact, pressure to accelerate procedures, excessive confidentiality and unclear information about future uses can undermine trust even where an agreement is ultimately concluded.

- **Unequal power relations between provider and user countries are widely perceived as a serious and persistent structural problem:** Respondents rated unequal power relations as a serious problem, with a mean score of 7.47 out of 10. This assessment did not vary meaningfully by institutional role, region or level of experience, indicating that the concern was broadly shared across the sample. Interviews and open-ended responses associated these imbalances with unequal access to legal, technical, financial and commercial expertise, as well as to information about value chains and commercialisation prospects. The findings do not establish that power asymmetries directly caused particular negotiation outcomes or lower satisfaction. Rather, they show that institutional representatives in provider countries perceive unequal bargaining conditions as a cross-cutting feature of the ABS context.

- **Formal recognition and consultation of IPLCs do not by themselves ensure meaningful participation in ABS decisions:** Although 72% of respondents reported that IPLCs were formally recognised in their countries, this recognition did not necessarily translate into meaningful participation. Respondents perceived the Nagoya Protocol as having a stronger effect on the formalisation of consultation than on the direct involvement of IPLCs in negotiations and decision-making. Consultation alone does not necessarily give IPLCs substantive influence over access decisions, the design of benefits, their delivery or their distribution.

  This conclusion must be interpreted within the limits of the study. The findings reflect the assessments of national focal points, competent national authorities and related state institutions. They cannot be treated as evidence of how IPLCs themselves experience consultation, participation or benefit-sharing. Direct ad participatory research with IPLCs remains necessary.
- **Provider-country satisfaction depends on sustained user compliance, not only on users' willingness to cooperate at the outset:** Respondents perceived a moderate to high general willingness among users to meet ABS requirements, with non-commercial users receiving somewhat more positive assessments than commercial users. However, satisfaction with adherence to MAT was only moderate. Recurring concerns included delayed or missing reports, limited traceability, insufficient transparency regarding intermediaries and downstream use, failures to communicate results, and changes of use without renewed authorization or renegotiation. These problems demonstrate that willingness at the beginning of an access process does not necessarily ensure reliable implementation over the full period of utilization.
- **Effective ABS requires shared responsibility across provider and user state jurisdictions, as provider states alone cannot ensure compliance once use takes place abroad or involves downstream actors:** The limits of provider-country jurisdiction are therefore central to the overall assessment. Once resources, data, derivatives or research results are used abroad, provider authorities often have little practical capacity to verify compliance or enforce contractual obligations. User-country checks may confirm that PIC and MAT documents exist without examining whether their substantive requirements are being fulfilled. Provider-country satisfaction consequently depends not only on provider frameworks and the conduct of individual users, but also on whether user states establish effective compliance systems, facilitate cross-border cooperation and support the implementation of MAT throughout the utilization chain.

Overall, the central research question can be answered as follows: **institutional representatives of provider countries are moderately satisfied with ABS under the Nagoya Protocol, but this satisfaction relates more strongly to the Protocol's contribution to legitimacy, recognition and fairer processes than to consistently realized and verifiable benefit-sharing outcomes.** The Protocol has improved the position of provider countries compared with a situation in which ABS lacked an internationally recognized framework. Satisfaction nevertheless remains constrained by uneven national implementation, limited negotiation experience, persistent structural power and information asymmetries, weak monitoring of MATs, uncertain benefit distribution and gaps in user compliance. The central challenge is no longer only to establish ABS rules, but to translate them into predictable procedures, balanced negotiations, meaningful participation and benefits that are delivered, traceable and responsive to provider priorities.

These conclusions should be interpreted in light of the **study's exploratory design**. The survey reflects the institutional perspectives of NFPs, CNAs and related authorities rather than all actors affected by ABS, and its anonymous design does not permit a precise assessment of country-level representativeness. The number of respondents with extensive experience of commercial negotiations, realized monetary benefits or long-term MAT monitoring was also limited. The findings therefore do not constitute a definitive evaluation of all national ABS systems. Nevertheless, the

convergence of the interviews, quantitative patterns and open-ended responses provides a consistent picture of the conditions that enable or constrain provider-country satisfaction.

Improving these conditions requires coordinated action by provider states, user states and users, accompanied by a stronger evidence base on long-term outcomes and the experiences of different affected groups. The following chapter translates the conclusions into recommendations for these actors and identifies priorities for further research.

7 Recommendations

The findings show that provider-country satisfaction with ABS cannot be improved through a single measure or by one group of actors alone. Effective benefit-sharing depends on a chain of interdependent responsibilities: provider states must establish clear and workable national frameworks; user states must create credible incentives and compliance mechanisms within their jurisdictions; and users must plan for ABS from the outset and fulfil their obligations throughout the utilization process. The recommendations below distinguish between these responsibilities while emphasizing that progress depends on coordinated action.

7.1 Recommendations for Provider States

The recommendations for provider states are directed primarily at governments, NFPs, CNAs, checkpoints and other institutions responsible for national ABS implementation. Depending on the national framework, implementation may also require the involvement of subnational authorities, biodiversity agencies, research institutions, IPLC institutions and other legitimate provider representatives.

The first priority is to create a national system that is understandable, predictable and sufficiently resourced. The study indicates that clearer and more advanced national frameworks are associated with more cooperative and transparent interactions with users. Improving national implementation therefore supports both regulatory effectiveness and the quality of negotiations.

- **Clarify national frameworks and responsibilities.** Provider states should adopt, complete or further clarify legislation, administrative procedures and institutional mandates. Users and provider representatives should be able to identify the competent authority, applicable requirements, necessary documentation, procedural steps and decision criteria.
- **Build multidisciplinary and practice-oriented capacity.** NFPs, CNAs and legitimate providers need access not only to biological expertise but also to legal, economic, financial and accounting knowledge. Applied support should cover contract drafting, value-chain analysis, royalties and licence models, milestone payments, audit rights, reporting formats, confidentiality and long-term monitoring.
- **Provide guidance without replacing case-specific negotiation.** Model clauses, checklists, differentiated templates and indicative monetary and non-monetary benefit options can reduce uncertainty and transaction costs. Such tools should remain adaptable to the resource, intended use, commercialization prospects, associated traditional knowledge and the priorities of the legitimate provider. Change-of-intent and renegotiation clauses should be used where future utilization is uncertain.

National systems must also address what happens during and after negotiation. PIC and MAT should not be treated as the endpoint of ABS. Satisfaction depends on whether participation is meaningful, obligations can be followed over time and benefits reach their intended recipients.

- **Ensure early and meaningful participation of IPLCs and other providers or rights-holders recognised under applicable national law.** Where IPLCs hold relevant rights, they should be able to influence access decisions, benefit design, delivery arrangements and monitoring rather than being consulted only after key terms have been determined. Community protocols, representative institutions and access to independent legal and technical advice can support informed participation.

- **Institutionalize monitoring after MAT negotiations.** Agreements should contain clear reporting schedules, milestones, contact points, documentation requirements and proportionate consequences for non-compliance. Authorities should assign responsibility and resources for follow-up, supported where appropriate by systems that record deadlines, reports, transfers, changes of use and both monetary and non-monetary benefits.
- **Establish transparent and context-sensitive benefit-distribution mechanisms.** Provider states should clarify how benefits will be received, managed, allocated and reported before substantial payments arise. Distribution arrangements should connect conservation and sustainable-use objectives with the rights and priorities of providers or rights-holders recognised under national law – including IPLCs where applicable - rather than assuming that a single allocation channel is appropriate in every case.
- **Use confidentiality proportionately and strengthen institutional learning.** Confidentiality should be limited to genuinely sensitive information and should not prevent responsible authorities or providers from monitoring obligations. Where legally possible, anonymized lessons, recurring clauses and implementation experiences should be documented and exchanged through national or regional networks.
- **Use ABS implementation to strengthen wider biodiversity governance.** Provider states should connect ABS institutions and procedures with national biodiversity strategies, relevant development-planning and environmental-assessment processes. Environmental authorities should coordinate with subnational authorities, IPLC institutions, research ministries, funding bodies, universities, collections, patent offices, customs and other checkpoints. Practical channels for cooperation with user-state authorities should also be established where monitoring or enforcement abroad is required. These measures should be sequenced according to national circumstances. Countries in earlier implementation stages may need to prioritize legal clarity, mandates and basic case-management systems, while more experienced systems may focus increasingly on valuation, substantive monitoring, benefit distribution and cross-border enforcement.

7.2 Recommendations for User States

User states have a particular responsibility where genetic resources or associated traditional knowledge are utilized within their jurisdiction. Their role is not limited to informing users that provider-country requirements exist. They should create a regulatory and institutional environment in which lawful access, compliance with MAT and cooperation with provider authorities are expected and practically supported.

- **Establish clear and binding user-compliance duties.** Domestic rules should require relevant users to exercise due diligence and demonstrate that access and utilization comply with applicable PIC and MAT. The EU due diligence regulation (Regulation No. 511/2014) was mentioned as a positive example. Responsibilities should cover universities, research institutes, companies, collections and other actors involved in utilization, with proportionate sanctions or corrective measures where obligations are breached.
- **Move beyond formal document checks.** Checkpoints should not be limited to verifying that PIC and MAT documents exist. Within their legal mandate, user states should use risk-based approaches to identify possible non-compliance with reporting duties, transfer restrictions, changes of use and benefit-sharing commitments, particularly in cases involving commercialization or downstream actors.

- **Provide channels for cross-border cooperation and enforcement support.** Provider authorities should have accessible contact points through which they can request information or assistance in substantiated cases. Procedures should support timely communication, clarification of user conduct and, where appropriate, enforcement of contractual obligations.

User-state measures should also prevent non-compliance before it occurs. Funding, institutional governance and advisory services can ensure that ABS is considered at the beginning of research and innovation rather than after key budgets and timelines have already been fixed.

- **Integrate ABS into research funding and project approval.** Funding applications and institutional approval processes should require early consideration of access requirements, permits, provider and community participation, expected benefit-sharing, reporting and realistic timelines. Eligible project costs should include legal advice, translation, consultation, travel, data management, agreed benefits and long-term follow-up.
- **Strengthen awareness, advice and organizational responsibility.** User states should promote sector-specific guidance and encourage universities, research organizations, collections and companies to designate ABS contact points. These structures should advise projects early, preserve documentation and monitor reporting and benefit-sharing commitments over time.
- **Improve traceability across value chains and transfers.** Users should be required or encouraged to document transfers, intermediaries, affiliated entities, licences and changes in utilization. Reporting and checkpoint systems should make it possible to connect downstream activity to the relevant PIC and MAT while respecting legitimate confidentiality and data-protection requirements.
- **Support provider-country capacity through demand-driven cooperation.** Technical assistance and peer exchange should respond to priorities identified by provider countries and IPLCs, including negotiation, valuation, audit rights, accounting, reporting, traceability and enforcement. Support should strengthen durable institutional capacity rather than depend exclusively on short-term projects or individual experts.

Taken together, these measures would make user-state responsibility more substantive. They would also reduce the current imbalance in which provider authorities are expected to monitor utilization and enforce agreements despite having little practical leverage outside their own jurisdiction.

7.3 Recommendations for Users

The recommendations for users apply to researchers, universities, research institutions, companies, collections, intermediaries and other actors that access or utilize genetic resources or associated traditional knowledge. Users are responsible not only for obtaining authorization but also for maintaining transparent and reliable cooperation throughout the full period of utilization.

- **Plan for ABS from the outset.** Potential requirements should be assessed before resources are collected, received, transferred or utilized. Project schedules and budgets should allow for permits, legal advice, translation, provider and community participation, benefit-sharing, reporting and long-term follow-up. ABS should not be treated as an administrative step to be addressed only after funding or commercial timelines have been fixed.
- **Engage early and respect provider decision-making.** Users should contact the relevant NFP, CNA and legitimate provider before access or utilization begins. They should allow sufficient time for national and community procedures and should not pressure authorities, partners or communities to accelerate decisions because ABS was omitted from earlier project planning.

- **Provide complete and continuously updated information.** Information should cover the proposed purpose and methods, participating organizations, resources and traditional knowledge involved, expected outputs, possible intellectual property claims, commercialization prospects, intermediaries, third-party transfers and foreseeable changes in use. Relevant changes should be communicated throughout the project.

Transparent engagement should continue through negotiation and implementation. The objective is not only to secure access, but to establish terms that are workable, fair and capable of being monitored over time.

- **Negotiate in good faith and use adaptive terms where needed.** Users should explain uncertainties and constraints, allow providers sufficient time for consultation and legal review, and avoid exploiting differences in information or bargaining power. Where future uses or values are uncertain, milestones, review procedures and renegotiation clauses are preferable to one-sided allocation of risk.
- **Agree on benefits that are relevant, realistic and verifiable.** Monetary and non-monetary benefits should respond to priorities identified by legitimate providers and, where applicable, IPLCs. Commitments concerning training, technology transfer, data sharing, co-authorship, equipment or cooperation should specify recipients, timelines and expected outputs so that delivery can be assessed.
- **Establish internal systems for lifecycle compliance.** Organizations should assign responsibility for ABS, maintain records of PIC, MAT, permits, transfers, deadlines, reports and benefits, and use reminders or review procedures to ensure continuity when staff or project teams change. Users should fulfil obligations without depending on repeated reminders from provider authorities.
- **Disclose transfers and changes of use.** Before resources, information or relevant rights are transferred, users should confirm that the transfer is permitted and that applicable obligations are passed on. New uses, commercialization opportunities or significant changes in the utilization pathway should trigger notification and, where required, renewed consent or renegotiation before proceeding.

Users should ultimately approach benefit-sharing as a continuing relationship rather than a one-time exchange. Regular communication, shared review of project developments and reliable fulfilment of commitments can build trust, improve the quality of cooperation and strengthen willingness to engage in future research and innovation.

7.4 Recommendations for Future Research

The study addresses an important gap by examining satisfaction with ABS from the perspective of state institutions in provider countries across different stages of the ABS process. At the same time, its exploratory and cross-sectional design identifies areas in which the evidence base remains incomplete. Future research should move beyond documenting legislation, permits or agreed benefit types and examine how negotiations, compliance and benefits develop over time and how they are assessed by different actors.

Several priorities are particularly important for strengthening the evidence base:

- **Establish repeated and longitudinal measures of provider-side satisfaction.** Future cross-country studies should use consistent measures of expectations, negotiation quality, MAT compliance and realized benefits. Repeated surveys or panel designs would make it possible to

distinguish temporary implementation difficulties from longer-term changes and to examine whether satisfaction improves as national systems gain experience.

- **Examine the wider governance effects of ABS implementation.** Future research should investigate whether and how implementation of the Nagoya Protocol strengthens institutional coordination, stakeholder and IPLC participation, legal and policy frameworks, and the integration of biodiversity into national and subnational planning. It should examine how these effects emerge, under which conditions they are sustained, and whether and how they ultimately contribute to the conservation of biological diversity and the sustainable use of its components.
- **Strengthen independent and participatory research with IPLCs.** The assessments of state institutions cannot be treated as a proxy for the experiences of IPLCs. Research should therefore examine consultation, consent, participation, benefit priorities and distribution from community perspectives, using methods that support meaningful participation and respect community governance, knowledge and data rights.
- **Assess when standardization is useful and when flexibility remains necessary.** Further research should explore in which contexts standardized tools can reduce transaction costs and improve predictability without limiting fairness or the ability to respond to case-specific circumstances.
- **Assess whether the DSI multilateral mechanism complements or crowds out bilateral ABS.** As implementation experience accumulates, research should examine whether the mechanism creates sufficient incentives for corporate participation, generates predictable benefit flows and provides legal certainty for providers and users. Particular attention should be paid to whether it strengthens the wider ABS system or diverts political attention, administrative capacity and user engagement from bilateral ABS without delivering equivalent benefits.

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Annex

Annex I. Guideline for Expert Interviews with NFP/CNA from a Provider Country

1 Role and Background of the Interviewee

2 Negotiations

2.1 Expectations

1) What does “fair and equitable” sharing of benefits mean to you?
    a. When you get into a negotiation with a potential user, what would be the ideal outcome for you?
    b. What kind of benefit do you generally prefer? (Monetary/Non-Monetary? Which ones specifically?)
    c. What does the type of benefit depend on for you? Do you have different preferences depending on the user/the use (commercial/non-commercial)?
2) What role does the national law [possibly specify] play in the negotiations?

2.2 Process

1) Who is usually involved in the negotiations?
    a. Are local NGOs/research institutes usually involved?
    b. Are IPLCs involved?
2) What is your role in the negotiations?
3) From your perspective, do the negotiations with the user take place at eye-level? Why (not)?
    a. Which actors influenced the negotiations the most?
    b. How would you describe your relationship to the user/the provider/other actors involved? Did you know each other before?
    c. What has been going well/what was helpful in the negotiations regarding a fair outcome? Do you have specific examples?
    d. What has been a challenge/didn’t go well regarding a fair outcome? Do you have specific examples?
4) What role does the conservation of biological diversity usually play in negotiations?
5) What role does the sustainable use of the components of biological diversity play in the negotiations?

2.3 Outcome

1) Do the final MATs usually meet your expectations for sharing of benefits? Why? Why not?
2) What kind of benefits are the most commonly agreed on?
3) Overall, how satisfied are you usually with the outcome of the negotiations?

a. From your point of view, has the sharing of benefits been fair & equitable? Why (not)?

b. From your point of view, were shared benefits effective, meaning that they were successfully implemented?

c. Would you say the measures have a long-term impact on the conservation of biodiversity?

3 ABS Measures

1) What benefits (non-monetary or monetary) have been subject of a negotiation of a MAT and/or have been realized and implemented in your country?

   If there are any benefits, the following questions should be asked with regard to the specific kind of benefit:

   What is your general expectation on the benefit:

   a. What advantages do you see?

   b. What disadvantages do you see?

4 Implementation

1) Do the benefits as agreed in the MATs usually materialize in the process of implementation?

   a. If yes, what contributed to materialize the benefits?

   b. If not, why haven't they been materialized yet?

2) Have the benefits had any positive and/or negative side effects? Which?

3) Have the benefits made a contribution to biodiversity? If yes, how?

4) Overall, how satisfied are you with the implementation of the measures?

5 Ending

1) Are there any other issues that you would like to mention that I haven't asked for?

2) Do you have questions?

Annex II. Guide for Expert Interviews with CSOs/NGOs that work on Biodiversity, Indigenous Rights

1 Role and Background of the Interviewee

2 Experience with ABS

1) What experience do you or your organization have with ABS/the Nagoya Protocol?

2) Has your organization ever been involved in a specific case where benefits for accessing a resource from your country/from IPLCs were negotiated?

- *(-> if **yes**, use questions on 3) negotiations and 4) ABS measures from the NFP/CNA interview guideline hereafter)*
    a. In how many & what cases have you been involved? In what role?
    b. In previous cases, what types of benefit has your community received?
    – (e.g. monetary/non-monetary? payments? capacity development? …)

3 General Questions

1) Generally speaking, what would “fair and equitable” sharing of benefits ideally look like to you?
    a. What types of benefit do you consider the most effective and why?

2) From your experience, would you say that the negotiations over benefits take place at the eye-level? Why? Why not?
    a. Which actors dominate the negotiations?
    b. Do you see any power/resource imbalance?
    c. From your perspective, have the IPLCs in [country] been appropriately informed about the ABS mechanism and the goal of the Nagoya protocol?

3) Where do you see challenges in the implementation of the Nagoya protocol?
    a. What challenges do IPLCs face when it comes to access and benefit sharing?

4) Overall, would you say the Nagoya protocol contributed to a more “fair and equitable” sharing of benefits arising from the utilization of genetic resources/traditional knowledge? If yes, how? If not, why not?

5) From your perspective, has the Nagoya protocol contributed the protection of biodiversity? If yes, how? If not, why not?

4 Ending

1) Are there any other issues that you would like to mention that I haven’t asked for?

2) Do you have questions?

Annex III. Interview Guideline for General Experts/Researchers

1 Role and Background of the Interviewee

2 General Questions

1) Generally speaking, what would “fair and equitable” sharing of benefits ideally look like to you?
2) From your research, would you say that the negotiations over benefits take place at the eye-level?
    a. What factors influence these negotiations?
    b. What are best practices?
    c. What are challenges?
3) Where do you see challenges in the implementation of the Nagoya protocol?
    a. What are challenges in the negotiations?
    b. What challenges do IPLCs face when it comes to access and benefit sharing?
4) From your perspective, has the Nagoya protocol contributed to a more “fair and equitable” sharing of benefits arising from the utilization of genetic resources/traditional knowledge?
5) From your perspective, has the Nagoya protocol contributed the protection of biodiversity?

3 Individual Questions

1) Specific questions based on the expert’s profile and research

4 Ending

1) Are there any other issues that you would like to mention that I haven’t asked for?
2) Do you have questions?

Annex IV. Survey Items and Scales

Code		Question	Item code	Items	Scales	Format
G01Q01		**What is your role in the implementation of the Nagoya Protocol in your country?**	1	NFP	nominal	single-choice
			2	CNA		
			3	Both NFP and CNA		
			4	Other Checkpoint		
			G01Q01 [other]	Other		
G01Q02	Screen out: Item 2	**Would you describe your country more as a provider or user of genetic resources?**	1	Mostly provider country	nominal	single-choice
			2	Mostly user country		
			3	Both equally		
G01Q03a		**for commercial use: How many PICs and/or MATs has your country negotiated?**	1	0	ordinal	single-choice
			2	1-19		
			3	20-99		
			4	More than 100		
			5	Not sure		
G01Q03b		**for non-commercial use: How many PICs and/or MATs has your country negotiated?**	1	0	ordinal	single-choice
			2	1-19		
			3	20-99		
			4	More than 100		
			5	Not sure		
G01Q04		**For how long have MATs/PICs been negotiated in your country?**	1	No negotiations to date	ordinal	single-choice
			2	For less than a year		
			3	For 1-2 years		
			4	For 3-5 years		
			5	For 6-9 years		
			6	For 10 or more years		
G01Q05		**Which region does your country belong to?**	1	Europe	nominal	single-choice
			2	Asia		
			3	Oceania		
			4	Group of Latin American and Caribbean Countries (GRULAC)		
			5	Africa		
G02Q01		**How would you describe the status of implementation of the Nagoya Protocol with regard to the establishment of institutions and processes in your country?**			Metric: 10-point scale	1 = We are still at the very beginning 10 = We have fulfilled all of the requirements 66 = no answer

G02bQ01		**Are Indigenous Peoples and Local Communities (IPLCs) officially recognized in your country (e.g., through legislation, national registers, or policy frameworks)?**	0	no	nominal	single-choice
			1	yes		
G02bQ02	Filter von G02bQ01	**To what extent do you agree with the following statements regarding the impact of the implementation of the Nagoya Protocol on IPLCs in your country?**	SQ-1	The implementation of the Nagoya Protocol has contributed to the formal recognition of IPLCs legal claims e.g. to land.	Metric: 6-point scale	1 = strongly disagree 6 = strongly agree 66 = no answer
			SQ-2	The implementation of the Nagoya Protocol formalized the consultation of IPLCs in negotiations on MATs/PICs.		
			SQ-3	IPLCs are involved in negotiating MATs/PICs.		
			SQ-4	IPLCs have received benefits from the provision of genetic resources and associated traditional knowledge.		
			SQ-5	The implementation of the Nagoya Protocol has strengthened the role of IPLCs in national biodiversity governance.		
			SQ-6	The implementation of the Nagoya Protocol has strengthened the importance of the traditional knowledge of IPLCs.		
			SQ-7	IPLCs have no formal role in the implementation of the Nagoya Protocol in our country.		
G02bQ02a	Filter of G02bQ01	**Are there any other effects of the Nagoya Protocol on IPLCs in your country you would like to mention?**			open end	
G03Q01		**To what extent is your institution able to assess in advance of negotiations which benefits would be appropriate, fair and equitable?**	SQ-1	In the case of commercial use	Metric: 10-point scale	1 = not at all 10 = to a very large extent 66 = no answer
			SQ-2	In the case of non-commercial use		
G03Q01a		**What factors help or hinder your ability to assess appropriate, fair, and equitable**			open end	

		benefits in advance of negotiations?				
G03Q02		**To what extent do you think it is possible to standardize the benefits in the following cases?**	cu	Commercial use	Metric: 10-point scale	1 = Benefits must be individually negotiated for each case 10 = Benefits can be fully standardized 66 = no answer
			ncu	Non-commercial use		
G03Q02a		**Please briefly explain your reasoning.**			open end	
G03Q03		**To what extent do the following aspects influence your institution's satisfaction with the negotiation outcomes?**	SQ-1	The legal ABS requirements of my country were fulfilled	Metric:10-point scale	1 = didn't influence at all 10 = influenced a lot 66 = no answer
			SQ-2	A basis of trust for future cooperation was created		
			SQ-3	The benefits are appropriate given the user's capacity		
			SQ-4	The benefits reflect the potential value of the utilization		
			SQ-5	The benefits address our country's needs and interests		
			SQ-6	The benefits contribute to biodiversity conservation		
			SQ-7	The negotiation process was transparent		
			SQ-8	The negotiation process was participatory		
			SQ-9	The benefits justified the effort involved in the negotiations		
G03Q03a		**Please describe any additional aspects that affect your satisfaction with the negotiation outcomes beyond those listed above.**			open end	
G03Q04		**Do you think unequal power relations between user and provider countries are a problem in the use of genetic resources?**			Metric: 10-point scale	1 = not a problem at all 10 = a very serious problem 66 = no answer
G03Q04a		**Please briefly explain your reasoning.**				

G03Q05a		**To what extent has the implementation of the Nagoya Protocol contributed to more equitable negotiations between providers and users of genetic resources at the global level?**			Metric: 10-point scale	1 = to no extent at all 10 = to a very large extent 66 = no answer
G03Q05b		**To what extent has the implementation of the Nagoya Protocol strengthened your country's capacity to negotiate more equitably with users of genetic resources?**				
G03Q05c		**Please explain your answer.**			open end	
G04Q01		**How are monetary benefits from access and benefit-sharing (ABS) typically distributed in your country?**	SQ-1	The funds are transferred into the general state budget	nominal	Multi-Select mit exclusive & open end 1 = selected 0 = not selected
			SQ-2	The funds are transferred into the general budget of a territorial unit, e.g. province		
			SQ-3	The funds are directly allocated to IPLCs, who have decision-making authority over their utilization		
			SQ-4	The funds benefit IPLCs, but are managed by other actors with limited or no direct decision-making by the IPLCs themselves		
			SQ-5	The funds are made available to a specific institution, e.g. the CNA		
			SQ-6	The funds are transferred into a biodiversity fund		
			SQ-7	The funds are distributed among various stakeholders		
			SQ-8	There is no standardized procedure for the distribution and/or utilization of funds		
			SQ-9	I don't know	exclusive	
			SQ-10	Other	open end	
G04Q02		**Are there any rules or regulations that determine that ABS funds must be used for biodiversity conservation?**	1	yes	nominal	single-choice
			0	no		
			2	I don't know		

G04Q02a	Filter of G04Q02	**Please briefly describe these rules or regulations.**			open end	
G05Q01		**Are users willing to meet the requirements of the ABS process of your country?**	SQ-1	commercial use	Metric: 10-point scale	1 = generally not willing at all 10 = generally fully willing 66 = no answer
			SQ-2	non-commercial use		
G05Q02a		**For non-commercial use: Please indicate how much you agree with the following statements about users in the ABS process.**	SQ-1	When applying for **non-commercial** research projects, researchers plan sufficient time for obtaining PIC/MAT.	Metric: 10-point scale	1 = strongly disagree 6 = strongly agree 66 = no answer
			SQ-2	When applying for **non-commercial** research projects, researchers allocate adequate resources for benefit-sharing.		
			SQ-3	Users involved in **non-commercial** use provide sufficient and accurate information for informed negotiations.		
			SQ-4	Users are willing to adapt their **non-commercial** research project design to comply with ABS requirements.		
G05Q02b		**For commercial use: Please indicate how much you agree with the following statements about users in the ABS process.**	SQ-1	**Commercial** users provide sufficient and accurate information for informed negotiations.		
			SQ-2	**Commercial users** are transparent about the role of intermediaries or affiliated entities		
G05Q03		**Are there countries whose users are particularly well prepared for the requirements of the ABS process?**			open end (3x)	
G05Q03a		**What makes users from these countries better prepared than others?**			open end	
G05Q04		**Have you experienced pressure from users to impose conditions or rush ABS processes?**	SQ-1	commercial	Metric: 10-point scale	1 = never experienced 10 = experienced frequently 66 = no answer
			SQ-2	non-commercial		

G05Q04a		**Please briefly explain your rating.**			open end	
G05Q05		**How could user countries support you better in the ABS process?**	SQ-1	Provide a database on the status of utilization	nominal	Multi-Select mit exclusive & open end 1 = selected 0 = not selected
			SQ-2	Raise users' awareness about provider countries' ABS requirements		
			SQ-3	Support the enforcement of MATs/PICs in the user country		
			SQ-4	Provide financial or technical assistance for ABS implementation in provider countries		
			SQ-5	Facilitate cooperation between user institutions and national authorities in provider countries		
			SQ-6	I don't know	exclusive	
G05Q05a		**Are there any other ways user countries could support you better in the ABS process?**			open end	
G05Q06		**How satisfied are you, in general, with users' adherence to the mutually agreed terms (MATs) for benefit-sharing - including timely delivery of agreed benefits and fulfillment of contractual obligations?**	SQ-1	commercial use	Metric: 10-point scale	1 = not satisfied at all 10 = fully satisfied 66 = no answer
			SQ-2	non-commercial use		
G05Q06a		**Please briefly explain your rating.**			open end	
G06Q01		**To what extent do you consider the following to be challenges in benefit-sharing (negotiation and claiming benefits)?**	SQ-1	The results of the negotiations are confidential	Metric: 6-point scale	1 = not a challange at all 6 = a very significant challenge 66 = no answer
			SQ-2	No clear mechanisms to address non-compliance or disputes internationally		
			SQ-3	Difficulty to assess the value of the resource or associated traditional knowledge		
			SQ-4	The implementation of benefit sharing differs within a country depending on the region or category		
			SQ-5	Lack of inter-institutional coordination		

			SQ-6	Difficulties in involving the IPLCs concerned		
			SQ-7	The implementation of benefit sharing is not a priority in national policy		
			SQ-8	Limited capacity to conduct negotiations and monitor benefit-sharing agreements		
			SQ-9	Lack of expertise (e.g. legal, technical, negotiation experience) to conduct negotiations and monitor benefit-sharing agreements		
			SQ-10	There is a gap between national expectations and what users are willing to offer.		
			SQ-11	ABS costs exceed the expected benefits		
G06Q01a		**Are there any other challenges you face in benefit-sharing - during negotiations or when claiming benefits - that were not listed above?**			open end	
G06Q02		**To what extent do you consider the following to be success factors for implementing benefit-sharing?**	SQ-1	Legal advice and training for IPLCs	Metric: 6-point scale	1 = not a success factor at all 6 = a very significant success factor 66 = no answer
			SQ-2	Cooperation and exchange between stakeholders and institutions within the provider country		
			SQ-3	Communication and exchange with other provider countries		
			SQ-4	Clearly defined benefits from the provider state government		
			SQ-5	No defined benefits from the provider state government and therefore maximum freedom of negotiation		
			SQ-6	State-defined benefits that can be flexibly adapted to each case		
			SQ-7	Exchange and cooperation with institutions in user countries		
			SQ-8	User transparency		
			SQ-9	Sufficient staff in the provider country		
			SQ-10	Necessary expertise (technical, legal etc.) available to institutions in provider country		
			SQ-11	Clear and functional mechanisms for		

				monitoring and enforcing ABS agreements in the provider country		
G06Q02a		**What other success factors would you add?**			open end	
G06Q03		**To what extent have the following positive effects of benefit-sharing occurred in your country?**	SQ-1	Funding was used for biodiversity conservation and sustainable utilization	Metric: 6-point scale	1 = not at all = to a very large extent 66 = no answer
			SQ-2	IPLCs received increased financial support		
			SQ-3	IPLCS received other benefits		
			SQ-4	Funds were generated for the national budgets		
			SQ-5	Research in my country was promoted through scholarship and exchange programs		
			SQ-6	Research in my country was promoted through better equipment		
			SQ-7	Research in my country was supported through other benefits		
			SQ-8	Research in my country was strengthened through the establishment of international research partnerships and/or long-term cooperations		
			SQ-9	The visibility of my country was promoted through scientific publications		
			SQ-10	Funding was used to strengthen national institutions capacity to manage ABS cases		
G06Q03a		**What other positive effects of benefit-sharing have you seen in your country?**			open end	
G06Q04		**The Nagoya Protocol has helped to improve national biodiversity governance in the following areas:**	SQ-1	Greater political prioritization of the biodiversity conservation and sustainable use	Metric: 6-point scale	1 = strongly disagree 6 = strongly agree 66 = no answer
			SQ-2	Increased public awareness of biodiversity-related issues among stakeholders		
			SQ-3	Anchoring biodiversity at subnational governance levels (local communities, e.g. because biodiversity		

				plans have to be developed)		
			SQ-4	Enhanced peer learning/cooperation with other countries		
			SQ-5	Improved coordination and cooperation between different government actors		
			SQ-6	Contributed to the development or improvement of national legal frameworks or procedures regarding biodiversity conservation		
G06Q04a		**Are there any other ways the Nagoya Protocol has helped improve biodiversity conservation in your country?**			open end	
G07Q01		**Overall, how satisfied are you with ABS in terms of fair & equitable benefit sharing?**			Metric: 10-point scale	1 = very dissatisfied 10 = very satisfied 66 = no answer
G07Q01a		**Please explain your answer.**			open end	
G07Q02		**Do you have any comments on the questionnaire?**			open end	

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Authors:

Öko-Institut (Berlin office), Borkumstraße 2, 13189 Berlin, Germany

Dr. Nele Kampffmeyer Email: N.Kampffmeyer@oeko.de

Melanie Pietschmann Email: M.Pietschmann@oeko.de

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