

CONNECTING THE DOTS...

BIODIVERSITY CONSERVATION, SUSTAINABLE USE AND ACCESS AND BENEFIT SHARING

With a focus on Cameroon, Madagascar, Namibia, and South Africa



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CONTENTS

ACRONYMS AND ABBREVIATIONS	5
EXECUTIVE SUMMARY	7
INTRODUCTION	16
SECTION 1: CONSERVATION AND SUSTAINABLE USE – A SNAPSHOT	18
1.1 The Rise of Sustainable Development Approaches to Conservation	20
1.2 ABS as Part of Broader Efforts to Use Market-Based Tools to Promote Conservation	21
1.3 A Time for Re-Evaluation of the Relationship Between ABS and Conservation	22
SECTION 2: APPROACHES TO CONSERVATION AND SUSTAINABLE USE	24
2.1 Genetic, Species, and Ecosystem Level Conservation	26
2.2 Information, Capacity and Other Baseline Needs for Conservation.....	27
2.3 Market-based and Protectionist Approaches	28
SECTION 3: TRADITIONAL KNOWLEDGE, MANAGEMENT AND RIGHTS–BASED CONSERVATION APPROACHES	31
3.1 Steps Towards Recognition of Indigenous Peoples’ Rights and Integration of IPLC Stewardship and Cultural Diversity into Conservation.....	33
3.2 Traditional Knowledge, Economic Development and Conservation: Mutually Supportive or in Conflict?.....	35
3.3 What Happens when TK Holders are No Longer Resource Custodians?	36
3.4 Land and Resource Rights	37
3.5 Biocultural Diversity Approaches to Conservation	38
SECTION 4: INTEGRATING CONSERVATION INTO ABS GOVERNANCE.....	41
4.1 National ABS Laws.....	43
4.2 Other National Laws	45
4.3 Customary Governance	47
SECTION 5: THE COMMERCIAL USE OF BIODIVERSITY – BIODISCOVERY AND BIOTRADE	49
5.1 Biodiscovery.....	52
5.2 Biotrade	52
5.3 Biotrade and Biodiscovery: Similarities and Differences	52
SECTION 6: THE COMMERCIAL USE OF GENETIC AND BIOLOGICAL RESOURCES AND BIODIVERSITY CONSERVATION	55

6.1 Biodiscovery.....	58
6.2 Biotrade	60
6.3 Placing ABS and Conservation in Context.....	63
SECTION 7: MECHANISMS AND TOOLS FOR BENEFIT-SHARING	65
7.1 Benefit-sharing Agreements and Contracts.....	68
7.2 Funding Mechanisms.....	71
7.3 Focusing on Individual Species for Benefit sharing: Sector-specific Approaches	76
CONCLUSION	80
ANNEX 1. INTERVIEWS.....	85
REFERENCES.....	88

INFOGRAPHICS

INFOGRAPHIC 1. Trends in Conservation and Sustainable Use: A Snapshot....	19
INFOGRAPHIC 2. Conservation Approaches	25
INFOGRAPHIC 3: Traditional Knowledge, ABS and Conservation	32
INFOGRAPHIC 4: What is the Difference between Biodiscovery and Biotrade?	50
INFOGRAPHIC 5. The Economy of Conservation	56
INFOGRAPHIC 6: Mechanisms and Tools for Benefit Sharing	66
INFOGRAPHIC 7: Biodiscovery, ABS and Conservation	81

BOXES

BOX 1. What is Conservation?.....	21
BOX 2. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Global Assessment, 2019 – Key Statistics – A Snapshot of Biodiversity Loss	23
BOX 3. A Snapshot of Biodiversity Conservation in Cameroon, Madagascar, Namibia, and South Africa Since the CBD Entered into Force	30
BOX 4. Can ABS Help Strengthen Conservation? Learning from Rooibos	39
BOX 5. The Nagoya Protocol, ABS and Conservation	43

BOX 6. Integrating Conservation into South Africa’s ABS Laws.....	46
BOX 7. Reporting to the CBD’s ABS Clearing House: Implementing Commitments to Conservation and Sustainable Use	48
BOX 8. Biodiscovery Benefits for Conservation: The Case of <i>Ancistrocladus korupensis</i> in Cameroon	59
BOX 9. ABS and Biotrade: Limited Inclusion of Broader Conservation Benefits in ABS Agreements and Policies	60
BOX 10. Biotrade Certification as a Tool for Conservation	62
BOX 11. Biotrade Benefits for Conservation: The Case of <i>Terminalia spp.</i> in India.....	64
BOX 12. Biotrade and Benefit Sharing Agreements: Two Cases from Namibia	69
BOX 13. Linking ABS and Conservation: UEBT Tools	75
BOX 14. Exploring Mechanisms for Integrating Conservation and Sustainable Use in ABS in Brazil	78



Devil's Claw plant and flower. Caprivi region, Namibia.
(Photo: Dave Cole)

ACRONYMS AND ABBREVIATIONS

ABS	Access and Benefit Sharing
AERF	Applied Environmental Research Foundation
BABS	Bioprospecting, Access and Benefit-Sharing Regulations
CBD	Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DSI	Digital Sequence Information
ICBG	International Cooperative Biodiversity Group
ICDP	Integrated Conservation and Development Programs
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPLCs	Indigenous Peoples and Local Communities
IRDNC	Integrated Rural Development and Nature Conservation
IUCN	International Union for Conservation of Nature
KCINP	Kunene Conservancies Indigenous Natural Products
MAT	Mutually Agreed Terms
MCNP	Mt Cameroon National Park
NCI	National Cancer Institute
NEMBA	National Environmental Management: Biodiversity Act
OECD	Organisation for Economic Co-operation and Development
PES	Payment for Ecosystem Services
PIC	Prior Informed Consent
TK	Traditional Knowledge
UEBT	Union for Ethical BioTrade
UNCED	United Nations Conference on the Environment and Development

EXECUTIVE SUMMARY

INTRODUCTION

Access and benefit sharing (ABS) first came into being with the Convention on Biological Diversity (CBD) in 1992, and was conceived as an important part of the conservation toolkit. ABS was intended to serve as an incentive and funding mechanism for biodiversity conservation, while addressing historical inequities around the use of genetic and biological resources. Conservation originally featured prominently within ABS policy discussions and in some benefit-sharing agreements, but over the decades its role grew smaller as ABS partnerships and policies focused more on the equity aspects of the CBD objectives, and less on conservation and sustainable use. Conservation and sustainable use remained largely on the margins of negotiations for the Nagoya Protocol, and while the text includes reference to conservation, the obligations remain relatively weak.



Baobab tree.
(Photo: Rachel Wynberg)

The alarming loss of biodiversity in recent decades, highlighted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) 2019 Global Assessment and others, has brought attention back to the critical need for conservation, and the need to more effectively address it within ABS. This report is a first step in a larger process to assess the links between biodiversity conservation, sustainable use. It aims to enhance understanding of the many direct and indirect ways that research and commercial activities regulated by ABS measures may affect conservation.

The research supporting this report included interviews with 85 individuals from governments, research institutions, NGOs and the private sector, in the four BioInnovation Africa countries of Cameroon, Madagascar, Namibia and South Africa, and also globally. It also included a review of the literature and of existing and historical ABS measures, partnerships and agreements. A set of infographics accompanies the report, along with a video that aims to bring the conversation to life.

The report centers on:

- ♦ Understanding how to strengthen the gains for communities, biodiversity research, conservation and sustainable use from ABS;
- ♦ Exploring how broader objectives of ecosystem and habitat conservation might be achieved through these efforts;
- ♦ Untangling the relationship between traditional knowledge (TK) and biodiversity conservation and exploring how ABS can support customary law, traditional resource management, and Indigenous peoples and local communities' (IPLC) stewardship of biodiversity;
- ♦ Understanding the roles and responsibilities of different actors, including government, industry, NGOs, researchers, private landowners and communities in ensuring conservation and sustainable use; and
- ♦ Investigating policies, laws, institutions and mechanisms best suited for governing this complex suite of issues.



Gathering greens from the farm, Likombe, Mt Cameroon.
(Photo: Sarah Laird)

APPROACHES FOR CONSERVATION AND SUSTAINABLE USE

- ♦ ABS is part of market-based strategies for conservation and sustainable use that seek to enable “win-win” partnerships for a range of different actors, and create economic incentives to conserve biodiversity. However, the effectiveness of market-based strategies for conservation is increasingly under scrutiny.
- ♦ Conservation and sustainable use were a larger part of ABS partnerships, measures and policies in the 1990s, but over time have faded, and are only weakly implemented to date under the Nagoya Protocol.
- ♦ ABS is a specific mechanism to support conservation and sustainable use but should not replace other conservation measures.
- ♦ Biodiversity is in crisis, and its conservation and sustainable use urgently needs attention.
- ♦ Poverty, inequality, corruption, marginalization of the poor, and bad governance undermine conservation and social justice (including ABS) efforts, no matter how well designed and resourced.
- ♦ Conservation takes place at genetic, species, and ecosystem levels, each requiring distinct but overlapping approaches. ABS can contribute at all these levels through research, partnerships, and funding.
- ♦ Conservation planning and management depend upon information and capacity, including biodiversity research, financial resources, and partnerships with a range of stakeholders – all of which ABS can support.



Drying rooibos in the tea court in Heiveld, South Africa.
(Photo: Paul Weinberg)

TRADITIONAL KNOWLEDGE, RESOURCE MANAGEMENT AND RIGHTS

- ♦ Indigenous peoples and local communities (IPLCs) are custodians of about 80% of the world's biodiversity; their ways of life, cultures, customary governance and knowledge of nature is integrally connected to the conservation and sustainable use of biodiversity in their territories.
- ♦ Biocultural diversity approaches to conservation that recognize the interrelationships between cultural and biological diversity can bridge diverse knowledge systems and policies, and can be a powerful tool for sustainability, bringing together practitioners, indigenous rights movements, governments, and others.
- ♦ Greater recognition of TK and customary law through ABS can help strengthen conservation and sustainable use by supporting community-based monitoring, respecting customary laws and practices such as sustainable harvesting, affirming local control over IPLC lands and seas, and enhancing local capacities for community-led conservation initiatives.
- ♦ Despite these connections, ABS laws and approaches have not been successful in linking TK and conservation. This is due in part to the lack of legal recognition of IPLCs as custodians of biodiversity, a separation of TK and resources in laws and agreements, and a tendency to prioritize economic development over conservation.
- ♦ Lack of legal recognition of land and resource rights is not only an injustice to IPLCs, but also makes conservation initiatives, including ABS, less likely to succeed. Land grabs and human rights violations through extractive industries such as oil and gas, timber and mining are of serious concern and undermine and threaten conservation.



Commiphora wildii resin, harvested by Himba in Namibia for the perfume industry. (Photo: Rachel Wynberg)

INTEGRATING CONSERVATION AND ABS GOVERNANCE

- ♦ In many countries, the policy and legal framework clearly links conservation and ABS. However, with some exceptions, these policy commitments are seldom implemented.
- ♦ Implementation of conservation through ABS has been thwarted by a lack of capacity and budgets, and in some cases by a political imperative to focus mainly on important equity and social issues. An over-emphasis on ABS regulatory compliance has often turned attention away from conservation and sustainable use.
- ♦ Many other statutory laws, policies and initiatives have relevance for ABS and conservation, but are administered by different government departments, both at national/federal and state/provincial level.
- ♦ When intact, customary law can play an important role in ensuring sustainable and equitable use of biodiversity. However, ABS approaches have not adequately incorporated customary practices and laws, or examined ways that statutory and customary laws can be complementary.
- ♦ Governments have often struggled to put ABS systems in place and to link ABS to conservation. Some companies and research groups are proactive and include biodiversity conservation in ABS arrangements despite this not being a legal requirement.
- ♦ Biodiversity conservation should be embedded as a fundamental principle and component of any ABS agreement or approach from the start, and included in ABS measures.
- ♦ Monitoring systems should be established by governments to track and measure the impact of ABS on conservation and sustainable use.



Community forestry meeting
in Namibia.
(Photo: Jessica-Jane Lavelle)

BIODISCOVERY, BIOTRADE AND THE COMMERCIAL USE AND CONSERVATION OF GENETIC AND BIOLOGICAL RESOURCES

- ♦ ABS governs a wide range of activities, and this scope has expanded over time.
- ♦ The commercial use of biodiversity can be divided into two broad categories: biodiscovery and biotrade.
- The extent to which companies employ advanced science and technology, the scale of revenues, and size of companies, differ dramatically by sector.
- ♦ Those undertaking biodiscovery and biotrade access and use genetic and biological resources, and/or associated traditional knowledge, in very different ways, with implications for conservation and sustainable use. However, biotrade and biodiscovery can also be interlinked, with biodiscovery partnerships leading, for example, to raw material sourcing for additional research or manufacture, and biotrade leading to expanded research.
- ♦ Partnerships between industry and stakeholders in high biodiversity countries, in both biodiscovery and biotrade, tend to be short lived. These partnerships can contribute important short-term benefits for conservation, including by supporting biodiversity research and sustainable use, but are rarely a source of conservation funding over time.
- ♦ Biodiscovery and biotrade are often portrayed as activities that can generate economic incentives for conserving biodiversity and win-win partnerships with the private sector, but their impacts on biodiversity and abilities to invest in conservation are very different.
- ♦ Both biodiscovery and biotrade have the potential to generate monetary benefits for conservation through royalties, fees, milestone payments, and other means, but to date these benefits are few.
- ♦ Biodiscovery can contribute to conservation through inventories, taxonomy, and other support for biodiversity research; collaboration, training and capacity building in partner institutions; and technology transfer to improve the capacity of biodiversity-rich countries to undertake research on their biodiversity.
- ♦ Biotrade can contribute to conservation through sustainable harvesting and cultivation of threatened and high-demand species; agroforestry and reforestation schemes for degraded lands; income-generating activities that depend upon biodiversity and offer alternatives to destructive activities, including partnerships with companies that include long term contracts, premium prices, and value-addition; and financial support for local or community-based conservation projects. Certification, supported by sector-wide standards, can support the conservation goals of biotrade partnerships; growing consumer awareness and demand for biodiversity-friendly products also represents an opportunity to strengthen conservation through biotrade.
- ♦ Market-based approaches to conservation and sustainable use must acknowledge and address underlying social, economic, and political inequities to achieve their goals over time.

MECHANISMS AND TOOLS FOR BENEFIT SHARING

- ♦ A sophisticated framework of benefit sharing tools already exists that could be leveraged to localise benefits for conservation and sustainable use.
- ♦ Conservation activities should be determined by both national and local biodiversity priorities and, wherever possible and appropriate, should link back to the biome associated with the resource used. Conservation activities should be decentralized and localized as far as possible.
- ♦ Responsibility for implementing conservation initiatives is best spread among a range of partners and should be matched to available capacities, interests and effectiveness.
- ♦ Incentives for conservation and sustainable use will not materialize unless designed explicitly to be concrete and functional.
- ♦ Many users are wary of providing funding to national trust funds that may not be accountable or transparent, or in countries with poor governance track records. Building relationships with local groups, conservation agencies, private landowners and communities to support conservation projects is an important alternative, and there are interesting models emerging around this approach.
- ♦ Increasing attention should be given to sector-level approaches for benefit sharing, especially within biotrade. Such approaches could involve commitments to avoid biodiversity loss, or to commit to management approaches that enhance or restore biodiversity, and can create economies of scale, and level the playing field.
- ♦ Greater attention should be given to the scale of damage and revenues generated when considering taxes and levies for biodiversity conservation. Global funds for biodiversity conservation would be most easily and effectively fed by taxes and levies on highly profitable destructive industries, and to a much smaller degree the non-destructive innovation sectors.



Commiphora wildii plant in Namibia.
(Photo: Rachel Wynberg)

CONCLUSION

ABS has an important role to play in supporting equitable research on biodiversity and can contribute to biodiversity conservation and sustainable use, but it is a smaller role than initially and usually envisioned. New approaches should be explored beyond ABS that more effectively address the direct threats to biodiversity posed by destructive and extractive industries, including industrial agriculture, oil and gas, mining, and timber. Attention should also be paid to the underlying causes of biodiversity loss including corruption, inequality, poverty, poor governance, and unsustainable levels of demand and consumption.

Interest in bringing biodiversity conservation more systematically back into ABS is promising, but it is important that governments, industry and others understand that many conservation benefits are not monetary, and that non-monetary benefits like biodiversity research and building conservation management capacity can often have greater impacts.

As we develop approaches that better link ABS and conservation, it is important to not place the burden of conservation implementation on communities, who are typically overwhelmed with other priorities, and to also recognize that conservation is not in conflict with benefitting IPLCs for the use of their TK and resources.

Although ABS can only contribute in a small way towards resolving the biodiversity crisis, it is an important part of the solution. As we work on a post-2020 Biodiversity Framework and consider urgent actions to stem the biodiversity crisis, now is a good time to think about how to broaden the suite of practical, meaningful and effective options that are available to support conservation within ABS. Below is an overview of approaches to conservation and ABS to provide governments, researchers, IPLCs and others with a framework of options.



The slopes of Mt Cameroon, with Pico Basilé, Equatorial Guinea in the background.
(Photo: Sarah Laird)

EMBEDDING CONSERVATION IN NATIONAL ABS LAW AND POLICY

- ✓ Biodiversity conservation should be embedded as a fundamental principle and component of any ABS agreement or approach from the start, and included in ABS measures.
- ✓ Require monetary benefits to go to entities that will implement conservation
- ✓ Require consent of IPLCs, and share benefits directly with them through project-based approaches or indirectly through national or other funds
- ✓ Link TK and stewardship of genetic and biological resources within laws
- ✓ Link private landowners, IPLCs, conservation managers and other resource providers to clear conservation actions
- ✓ Provide tangible and concrete options to enable conservation actions to be easily implemented
- ✓ Coordinate with other institutions implementing conservation policies and laws
- ✓ Use existing approaches that are tried and tested
- ✓ Require partnerships with local research institutions, NGOs and conservation agencies when appropriate
- ✓ Have clear guidelines for advisory committees and decision-makers to enable conservation as a principle to be embedded in decisions about benefit-sharing agreements and permits
- ✓ Ensure a wide and diverse range of stakeholders are represented in relevant boards and committees that oversee ABS implementation

BIOSDISCOVERY PARTNERSHIPS

BIOTRADE PARTNERSHIPS

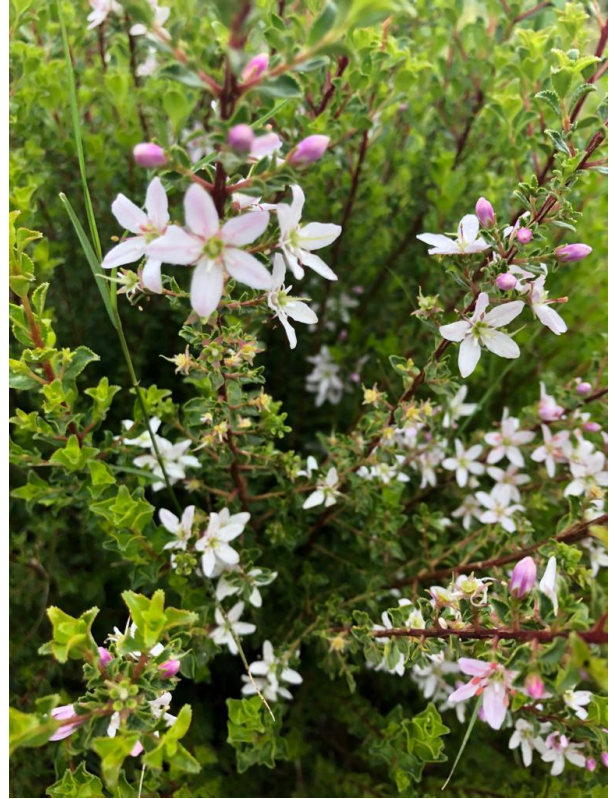
Adopt an ecosystem, biome and landscape approach when possible and link back to identified conservation priorities

- ✓ Ensure linkages between non-monetary benefits and conservation and sustainable use. For example:
 - ♦ Research can support, or include components, that address conservation priorities in a country, like inventories or management research for threatened species.
 - ♦ Capacity building in universities can support biodiversity research, or conservation entities like protected areas, or local conservation NGOs.
 - ♦ Technology transfer and training can be channeled in ways that support conservation, health, and other objectives.
 - ♦ Data can be shared widely from inventories, distribution and taxonomy studies, including with conservation managers.
- ✓ Channel a portion of financial benefits – e.g., fees, milestone payments, royalties – towards conservation areas and activities. This might include parks, biosphere reserves, community forests and urban green spaces.
- ✓ Monitoring systems can be established that track and measure the impact of ABS on conservation and sustainable use.

- ✓ Ensure all trade is based on sustainable cultivation or harvesting strategies, and that companies agree to source material responsibly.
- ✓ Enforce and improve upon existing regulations that set quotas, establish permitting and export procedures, and regulate other aspects of the trade that impact sustainability and equity. Biotrade often has a full suite of regulations, but these can be poorly drafted, coordinated, and implemented. ABS measures should complement these, rather than create another layer of bureaucracy.
- ✓ Increase opportunities to comply with positive contributions towards the conservation and sustainable use of biodiversity.
- ✓ Include the perspectives, experiences and capacities of resource providers and TK holders through democratic processes that promote inclusion and transparency.
- ✓ Strengthen and support the role of independent certifiers that can assist communities, companies, and governments in establishing equitable partnerships, and sustainable supplies, as well as informing consumers about the source of their products.
- ✓ Establish monitoring systems that track and measure the impact of ABS on conservation and sustainable use.
- ✓ Encourage the development of sector-specific plans for particular resources and sectors.

INTRODUCTION

Access and benefit sharing (ABS) first came into being with the Convention on Biological Diversity (CBD) in 1992, and was conceived as an important part of the conservation toolkit. ABS was intended to serve as an incentive and funding mechanism for biodiversity conservation and sustainable use, while addressing historical inequities around the use of genetic and biological resources. Conservation originally featured prominently within ABS policy discussions and in some benefit-sharing agreements, but over the decades its role grew smaller as ABS partnerships and policies focused more on the equity aspects of the CBD objectives, and less on conservation and sustainable use. Conservation and sustainable use remained largely on the margins of negotiations for the Nagoya Protocol (WWF, 2007), and while the text includes clear references to conservation, the obligations remain relatively weak.



Buchu flowers in South Africa.
(Photo: Lindsey Chicken)

The alarming loss of biodiversity in recent decades, highlighted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) 2019 Global Assessment and others, has brought attention back to the critical need for conservation and sustainable use, and to more effectively address it within ABS. This report and project are a first step in a larger process to assess the links between biodiversity conservation, sustainable use, and ABS and respond to significant gaps in understanding the many direct and indirect ways the range of research and commercial activities regulated by ABS measures impact conservation.

The research that is the foundation of this report was supported by GIZ, and included interviews with dozens of individuals, primarily within the four BioInnovation Africa countries of Cameroon (21 interviews), Madagascar (11), Namibia (14) and South Africa (12), but also globally (28). It included a review of literature, and of existing ABS measures, partnerships and agreements. The project team included individuals in each country. Drawing upon the experiences of groups working with ABS, genetic resource use and biotrade around the world, we also revisited some of the early ABS agreements and partnerships, many of which contained explicitly stronger conservation elements than those developed today, as well as early efforts to link biotrade, conservation and sustainable use. Because both the ABS and biotrade approaches to conservation emerged in the 1980s, the research supporting this report sometimes looks back decades, to provide historical context, identify trends, and ensure lessons are not lost.



Harvesting of *Prunus africana* in Cameroon.
(Photo: Rachel Wynberg)

BIOTRADE – the commercial collection, processing and sale of specialty products derived from biodiversity, usually for the natural cosmetic and personal care, functional food, botanical medicine and other sectors relying on the sourcing of raw materials. Biotrade often uses TK in products and marketing, and some biotrade companies focus on sustainability and equity issues, and products may be certified.

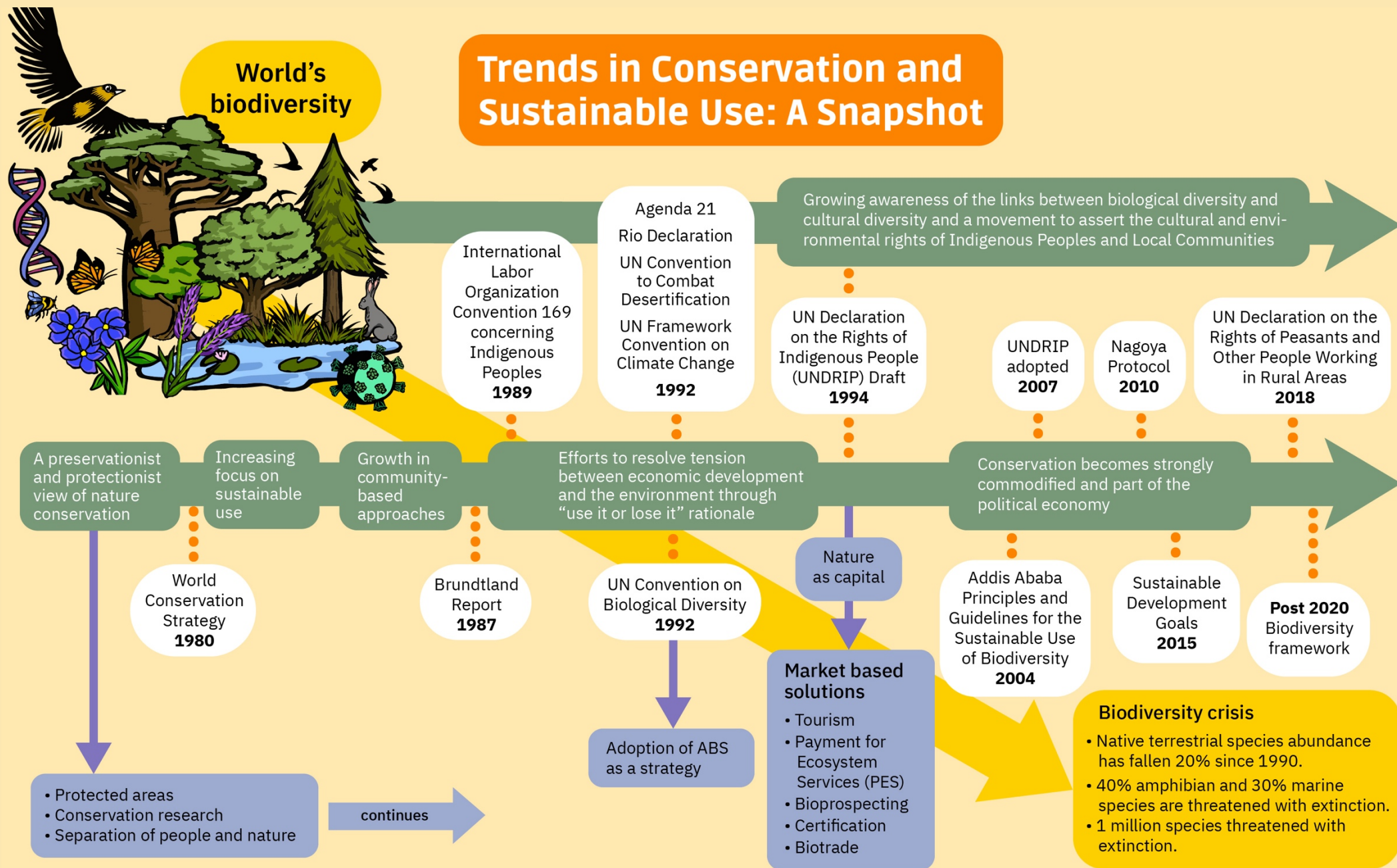
BIODISCOVERY – the collection of and research on samples of biological resources in order to discover genetic information or biochemicals of value. Primarily the pharmaceutical and biotechnology sectors, but also including crop protection, food and beverage, and others. The use of “digital sequence information” – or genetic sequence data – increasingly spans all industrial and commercial sectors.

This report and accompanying video are a first round of products that explore the broader issues at work in the relationship between ABS and conservation and sustainable use, and create a framework for how to think about ABS and conservation. They provide guidance for governments working to better understand these issues, develop strategies, workplans, and policy options, and are a first step in a larger process that seeks to answer questions like those below:

- ♦ What are the gains for communities, scientific understanding of biodiversity, research capacity in high biodiversity countries, conservation, and the broader public from ABS agreements and ABS conservation funds to date? How might these gains be strengthened?
- ♦ The sustainable use of individual species can address sustainability challenges in specific value chains, but to what extent are broader objectives of ecosystem and habitat conservation achieved through these efforts? How can we better link sustainability in value chains with broader biodiversity conservation?
- ♦ What is the relationship between traditional knowledge (TK) and biodiversity conservation and how does ABS benefit those communities at the interface of biodiversity use and conservation? How can ABS support customary law, traditional resource management, and Indigenous peoples and local communities’ (IPLC) stewardship of biodiversity?
- ♦ What are the roles and responsibilities of different actors, including government, industry, researchers, private landowners and communities in ensuring conservation and sustainable use? And what policies, laws and institutions are best suited for governing this complex suite of issues?

SECTION 1: CONSERVATION AND SUSTAINABLE USE – A SNAPSHOT





Source: Laird, S.A. and R. Wynberg. 2021. *Connecting the dots: Biodiversity conservation, sustainable use and access and benefit sharing*. BioInnovation Africa (implemented by GIZ and funded by BMZ), Voices for BioJustice, People and Plants International, and University of Cape Town.

1.1 The Rise of Sustainable Development Approaches to Conservation

The field of conservation has transformed over the last fifty years, moving away from a preservationist approach to one intended to produce greater equity and sustainability and promote sustainable use, as well as improved responsiveness to indigenous and rural communities. In part, this shift resulted from the increasingly evident environmental and health costs of economic growth in high- and middle-income countries, as well as growing awareness that the world's biodiversity, and intact natural environments, are often found in inverse proportion to technological and industrial wealth (Macilwain, 1998).

Global efforts to resolve the tension between economic growth and the environment were addressed through numerous instruments that created a new model of "sustainable development". They included The World Conservation Strategy (IUCN, 1980), The United Nations World Commission on Environment and Development's Brundtland report, *Our Common Future* (United Nations, 1987), and the various agreements that emerged from the 1992 UN Conference on the Environment and Development (UNCED) in Rio. The objectives of the 1992 CBD are biodiversity conservation, sustainable use, and the fair and equitable sharing of benefits arising from the use of genetic resources (Article 1). More recently, the 2015 Sustainable Development Goals seek to balance economic development and conservation, while addressing poverty and inequality.

KEY POINTS



- ♦ ABS grew up during a time when the global community sought to reconcile economic development and conservation, and to address indigenous peoples' rights.
- ♦ ABS is part of market-based strategies for conservation that seek to create "win-win" partnerships for a range of different actors, as well as conservation.
- ♦ The effectiveness of market-based strategies for conservation is increasingly under scrutiny.
- ♦ Conservation and sustainable use were a larger part of ABS partnerships, measures and policies in the 1990s, but over time have faded, and are only weakly implemented to date under the Nagoya Protocol.
- ♦ ABS is a specific mechanism to support conservation but should not replace other conservation measures.
- ♦ Biodiversity is in crisis, and its conservation and sustainable use urgently needs attention.



Picking *Aphloia* leaves in Madagascar.
(Photo: Haja Ratsimbazafy)

BOX 1. What is Conservation?



Conservation is defined by the International Union for Conservation of Nature (IUCN) as “the protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence.”

The CBD breaks conservation down into two components:

- ♦ *ex situ conservation*: the conservation of components of biological diversity outside their natural habitats, and
- ♦ *in situ conservation*: the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

Connected to these components of conservation within the CBD is *sustainable use*, defined as: the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations (CBD, Article 2, Use of Terms).

These definitions stem from multilateral agreements and international organizations, but it is important to note that concepts of conservation also grow from indigenous histories and stewardship of biodiversity, which view people and nature as interconnected.

1.2 ABS as Part of Broader Efforts to Use Market-Based Tools to Promote Conservation

A wide range of approaches are employed today to create economic incentives for conservation, and forge “win-win” partnerships. These differ from traditional protected area approaches, although they may support those areas. They include: Payment for Ecosystem Services (PES – e.g., REDD+, Biodiversity Offsets); ecotourism; certification of timber, agricultural crops, and other products; and ABS associated with the commercial use of genetic and biological resources.



In the case of ABS, the “win-win” partnership envisioned is one in which the commercial use of biological and genetic resources creates incentives and generates funds to support biodiversity conservation, sustainable use and local stewardship. By embedding benefits for biodiversity conservation within ABS approaches, it was intended that affected species, habitats or ecosystems could receive financial support to ensure their conservation; much-needed biodiversity research could be done, including inventories, taxonomy, and sustainable harvesting; and community conservation and custodianship could be strengthened. As biotrade (or the commercial use of “non-timber forest products”) became a larger part of ABS during negotiations of the Nagoya Protocol, similar arguments were made for its link to conservation, although using different approaches.

1.3 A Time for Re-Evaluation of the Relationship Between ABS and Conservation

ABS has been in place for almost three decades and yet, along with other conservation efforts during this time, it has delivered few notable conservation gains. Indeed, as the recent IPBES global biodiversity assessment report identified (IPBES, 2019), the world has witnessed catastrophic biodiversity loss in the decades since the CBD entered into force (Box 2). The Dasgupta Review (2021) notes that biodiversity is declining more quickly than at any time in human history, and current extinction rates are around 100 to 1,000 times higher than the baseline rate.



(Photo: Shutterstock)

In addition, rather than generating benefits for conservation, increasing evidence suggests that ABS laws might have negatively impacted biodiversity research and science - the bedrock of conservation management and planning (Prathapan et al, 2018; Laird et al, 2020). Although over the years, specific initiatives have undoubtedly yielded some benefits for biodiversity (e.g., marine sponge taxonomy, or payments to conservation funds), there is little evidence to support the idea of “selling nature to save it” (McAfee, 1999).

ABS is clearly not a cause of the extraordinary loss of biodiversity in recent decades, but it has also not provided strong enough incentives for its conservation and, remarkably, after a few decades of ABS policy making, the relationship between ABS and biodiversity conservation remains poorly understood.

BOX 2. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Global Assessment, 2019 – Key Statistics – A Snapshot of Biodiversity Loss



- ♦ Up to 1 million: species threatened with extinction, many within decades
- ♦ 75%: terrestrial environment “severely altered” to date by human actions (marine environments 66%)
- ♦ +/-60 billion: tons of renewable and non-renewable resources extracted globally each year, up nearly 100% since 1980
- ♦ >85%: of wetlands present in 1700 had been lost by 2000 – loss of wetlands is currently three times faster, in percentage terms, than forest loss
- ♦ Tens to hundreds of times: the extent to which the current rate of global species extinction is higher compared to the average over the last 10 million years, and the rate is accelerating
- ♦ >40%: amphibian species threatened with extinction
- ♦ Almost 33%: reef forming corals, sharks and shark relatives, and >33% marine mammals threatened with extinction
- ♦ 25%: average proportion of species threatened with extinction across terrestrial, freshwater and marine vertebrate, invertebrate and plant groups that have been studied in sufficient detail
- ♦ 70%: increase since 1970 in numbers of invasive alien species across 21 countries with detailed records
- ♦ 30%: reduction in global terrestrial habitat integrity caused by habitat loss and deterioration
- ♦ 47%: proportion of terrestrial flightless mammals and 23% of threatened birds whose distributions may have been negatively impacted by climate change already
- ♦ >6: species of ungulate (hoofed mammals) would likely be extinct or surviving only in captivity today without conservation measures

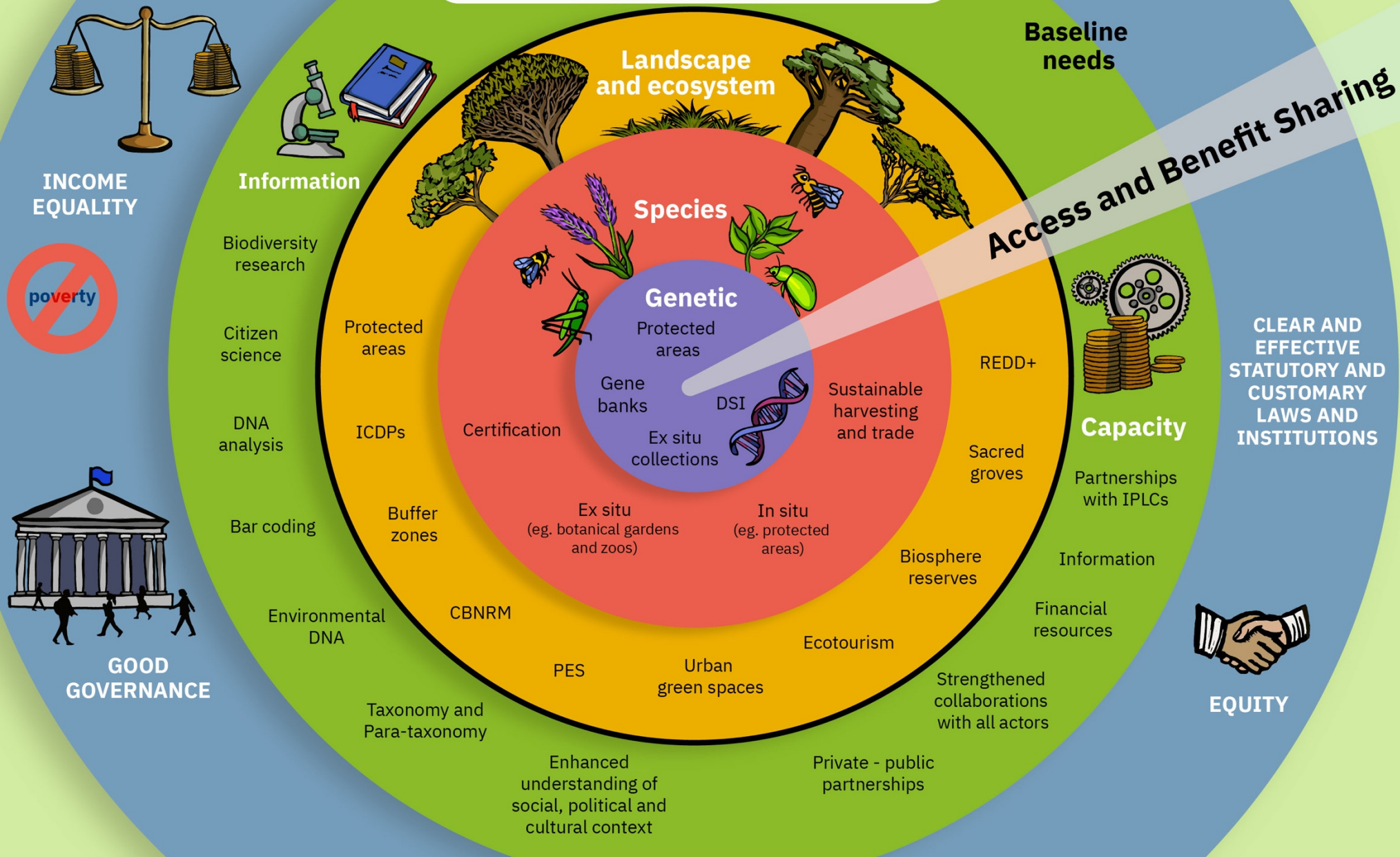


Threatened Lemur species in Madagascar.
(Photo: Madagascar National Park)

SECTION 2: APPROACHES TO CONSERVATION AND SUSTAINABLE USE



Conservation Approaches



Source: Laird, S.A. and R. Wynberg. 2021. *Connecting the dots: Biodiversity conservation, sustainable use and access and benefit sharing*. BioInnovation Africa (implemented by GIZ and funded by BMZ), Voices for BioJustice, People and Plants International, and University of Cape Town.

KEY POINTS



- ♦ Poverty, inequality, corruption, marginalization of the poor, and bad governance undermine conservation and social justice (including ABS) efforts, no matter how well ABS is designed and resourced.
- ♦ Conservation takes place at genetic, species, and ecosystem levels, each requiring distinct but overlapping approaches. ABS can contribute at all levels of conservation through research, partnerships, and funding.
- ♦ Conservation planning and management depend upon information and capacity, including biodiversity research, financial resources, and partnerships with a range of stakeholders – all of which ABS can support.
- ♦ ABS is part of market-based approaches to conservation and sustainable use that seek to develop “win-win” partnerships with companies and create economic incentives to conserve biodiversity. ABS can also contribute to approaches not based on markets, like protected areas.

The definition of conservation in Box 1 articulates its goals, but it is also important to understand the practices employed to achieve these goals, and how ABSs fit within them. The practice of conservation is extremely varied, and the subject of an enormous literature. We simplify the approaches in a few ways here, focusing first on conservation approaches at different biological levels - genetic, species, and ecosystem – and then on the baseline capacity and informational needs that are the foundation of conservation efforts, and to which ABS can contribute.

2.1 Genetic, Species, and Ecosystem Level Conservation

- ♦ Conservation with a focus on *genetic resources* includes *ex situ* approaches like gene banks, botanical gardens, zoos, natural history museums, microorganism and other collections, and genetic sequence data (or “digital sequence information” - DSI) curated in databases. Species and ecosystem level approaches also conserve genetic resources.
- ♦ Conservation approaches that work at the *species level* include *ex situ* collections like botanical gardens and zoos. They may also include sustainable harvesting in the wild, the domestication of threatened or economically important species, and approaches that change unsustainable practices. Cultivation of threatened species or those in high demand is another approach that may be used to address the over-exploitation of species, but can lead to negative impacts on biodiversity if substantial areas are cleared and harmful chemical inputs are used. Partnerships with companies around the sustainable sourcing of species can provide additional support to these practices. Although limited in its reach, certification of sustainable harvesting and

cultivation may help consumers to make wise choices, and may provide a premium price and long-term contracts, along with other benefits, to producer groups and communities.

- ♦ *Landscape and ecosystem level* approaches include protected areas, projects that integrate conservation and development such as ICDPs (Integrated Conservation and Development Programs), Community-Based Natural Resource Management (CBNRM), buffer zones around protected areas, biosphere reserves, sacred groves, urban green spaces, and legal attribution of community forests. Mechanisms that may support and fund these approaches include Payments for Ecosystem Services like REDD+, Biodiversity Offsets, ecotourism, and ABS. All landscape and ecosystem approaches also work to conserve species and genetic diversity.

*"...From the perspective of someone who comes from a forest and biodiversity rich country that has struggled, and is still struggling, to implement ABS domestically, I am not sure that ABS has had a direct or indirect impact on biodiversity conservation. Although at a local level, some projects may have elevated local communities' conservation consciousness and natural resources sustainability... by using the prospects of compensation when resources are extracted from their localities in a sustainable manner... earning decent compensation based on direct transactions with private operators helped improve the sustainability of certain resources, like the case of *Prunus africana* in some villages surrounding the Mount Cameroon area.... But broader biodiversity conservation, I am not sure..." – [Policy maker, Cameroon]*



2.2 Information, Capacity and Other Baseline Needs for Conservation

In order to identify conservation priorities, develop strategies and management plans, and implement programs, *information and analysis* is required. This includes results from biodiversity research in taxonomy, environmental DNA, and DNA bar coding. In addition to this scientific research, knowledge can also grow from citizen science programs that gather data for genetic analysis, and from understanding cultural connections to place and species, and traditional management systems. Conservation also requires a deep understanding of the broader economic, historical, political and social conditions of a country in which conservation will take place.

ABS can contribute to building the informational foundation of conservation by supporting research, including taxonomy and parataxonomy, inventories, and species-level research; building capacity within universities, botanic gardens, and other institutions in high biodiversity countries; sharing research results; building long term collaborations between researchers in high biodiversity countries and others; and facilitating technology transfer.

Conservation also requires various forms of *capacity* beyond the informational, including financial resources, political support from government, collaboration and partnerships with IPLCs and others, and in some cases partnerships with industry, including private-public partnerships. Underlying all conservation activities are the baseline requirements of good governance, equity, clear and effective customary and statutory laws, and the need to overcome poverty, inequality, and the widespread political, social and economic marginalization of people living in high or unique biodiversity areas – a tall order.

2.3 Market-based and Protectionist Approaches

ABS grew up in a time when the field of conservation was expanding beyond the purely protectionist – that is, setting aside nature in places like parks separate from people – to approaches that balance economic development and conservation. A slew of new market-based approaches sought to create incentives for better natural resource management and biodiversity conservation. In subsequent decades, these approaches have come to include Payments for Environmental Services (e.g., biodiversity, watersheds, climate change mitigation) like REDD+; ICDPs; CBNRM; certification of forest and agricultural products; biodiversity offsets; natural capital accounting; and “win-win” partnerships with companies intended to lead to profits for companies, income for local groups, and conservation.



Payments for Ecosystem Services is the name given to a variety of arrangements through which the beneficiaries of environmental services, from watershed protection and forest conservation to carbon sequestration and landscape beauty, reward those whose lands provide these services with subsidies or market payments. – WWF, www.panda.org

ABS is part of this movement within conservation that looks for solutions in the market, both through partnerships with companies and by making economic arguments about the value of nature, which then justify its conservation. Although ABS can support biodiversity research in protected areas, and may allocate funds for conservation management (for example, in the partnership between the National Biodiversity Institute in Costa Rica (InBio) and the pharmaceutical company Merck in the early 1990s), it is largely a market-based tool rather than a protectionist approach.

It is important to recognize, however, that there are numerous critiques of market-based approaches to conservation, partly because there is limited evidence of their effectiveness (McCauley 2006; Igoe and Brockington 2007) and because they do not fundamentally address the problems that cause biodiversity loss in the first place (Sullivan 2018; Büscher and Fletcher, 2019 and 2020; Alston, 2020).

“For IPLCs, the ecosystems and habitats that provide ‘essential services’ are their customary lands, territories, waters and resources, which support livelihoods and meet spiritual and cultural needs. Guided by IPLCs’ cultural ethics of maintaining harmonious relationships between humans and nature, collective lands and territories also play vital roles for the greater good by storing carbon, building ecosystem resilience, and in mitigating and adapting to climate change. Yet, under current economic and value systems these lands continue to be usurped and degraded by interventions to privatise and commodify these resources. Indigenous and local knowledge is particularly valuable in ecological restoration and resilience building, but this knowledge continues to be undervalued and is still often neglected in ecological restoration programmes. National implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization should foster broader benefit-sharing streams for IPLCs, based on their customary relationships with and management of their lands, territories and resources, including from seeds, genetic and biological resources, and bio-trade” (Local Biodiversity Outlooks, 2020)



Devil's Claw harvested in Namibia.
(Photo: Jessica-Jane Lavelle)

BOX 3. A Snapshot of Biodiversity Conservation in Cameroon, Madagascar, Namibia, and South Africa Since the CBD Entered into Force



- ♦ CAMEROON. Since 1990, 3 300 000 ha of forest has been cleared in Cameroon, an area the size of Belgium (WRI, GFI, 2020). In 2000, 67% of Cameroon was natural forest (31.4Mha) but by 2016 only 12% of tree cover was intact forest (3.56Mha) with 27Mha “other tree cover”. From 1990 – 2016, land use change and forestry accounted for 122T CO² per year, 61% of Cameroon’s total greenhouse gas emissions over that period; from 2001-2019, 519Mt of CO² were released into the atmosphere as a result of tree cover loss (Global Forest Watch, Cameroon dashboard, accessed July 2020, <https://www.globalforestwatch.org/dashboards/country/>)
- ♦ MADAGASCAR. Madagascar is a global biodiversity hotspot, but has lost more than three quarters of its primary forests, and the pace of destruction is increasing (MENRES, 2017). From 2002 to 2019, total area of humid primary forest in Madagascar decreased by 18%, with a loss of 847kha, and from 2001-2019, 3.89Mha of tree cover was lost, equivalent to a 23% decrease in tree cover since 2000, and 1.29Gt of CO₂ emissions. Madagascar has very high levels of endemism, and the majority of endemic flora and fauna are found in forests. The IUCN Red List (2019) identified 405 species as critically endangered in Madagascar, including 335 plant, 22 primate, 2 bird, 24 reptile and 22 amphibian species. (Global Forest Watch, Madagascar dashboard, accessed July 2020, www.globalforestwatch.org/dashboards/country/MDG)
- ♦ NAMIBIA. Namibia benefits from its extremely low population density, expansive land mass and coastline, and a strong policy and programmatic focus on conservation. The biodiversity picture in Namibia is thus more positive than in many other countries. In fact, since 1992, wildlife recoveries have been observed in the Zambezi Region, which is Namibia’s most biodiversity-rich region, as well as in the sparsely populated, arid Kunene Region in the north-west. Less than three percent of Namibia’s plant species are threatened, although not enough is known for an accurate assessment. Despite this situation, land and sea-based mining activities threaten habitats in the Namib escarpment and in marine ecosystems; forests in the north and north-eastern areas are vulnerable to illegal logging, population pressure and land-use change; and wetlands, including perennial and ephemeral rivers, are vulnerable to the use of water for farming as well as pollution (MET 2018). Uncontrolled mining (particularly uranium and off-shore diamond mining) and prospecting, unsustainable land management practices, bush encroachment, illegal timber harvesting and human-wildlife conflict are key threats to biodiversity.
- ♦ SOUTH AFRICA: South Africa lost 2% of its natural areas between 1990 and 2014, largely due to the clearing of natural habitat for agricultural purposes, whether for field crops, horticulture, or planted pastures. Other drivers of habitat loss are human settlement expansion, forestry plantations, mining, and the development of infrastructure. In combination, these factors have resulted in the loss of 21% of the country’s natural land-based ecosystems. Of the remaining natural habitats, 8% are categorized as threatened; and 22% of all terrestrial ecosystem types are considered threatened (Skwono et al, 2019). Of the 22 667 terrestrial taxa assessed in the SANBI National Biodiversity Assessment (Skwono et al 2019), 13% are threatened with extinction; as are 17% of mammals; 13% of amphibians; 9% of birds; 5% of reptiles and 14% of plants. Endemism is high in South Africa (64%), however 20% of endemic species are threatened with extinction.

SECTION 3: TRADITIONAL KNOWLEDGE, MANAGEMENT AND RIGHTS-BASED CONSERVATION APPROACHES



Traditional Knowledge, ABS and Conservation



Biodiversity protectors



Commercial use of TK and resources



But this connection can be severed...

- Land grabs and historical dispossession.
- Lack of legal recognition of IPLCs as resource guardians.
- Limited resource rights.
- Some laws regulate resources and TK separately.
- Some benefit-sharing agreements do not recognize IPLCs' stewardship.

Some ABS challenges

- Challenges in identifying owners of TK.
- Who represents IPLCs and provides consent?
- Are benefits shared equitably?
- Do benefits support biodiversity conservation?

ABS can support equity and IPLCs' conservation and sustainable use of biodiversity



... by bringing TK and customary law into conservation

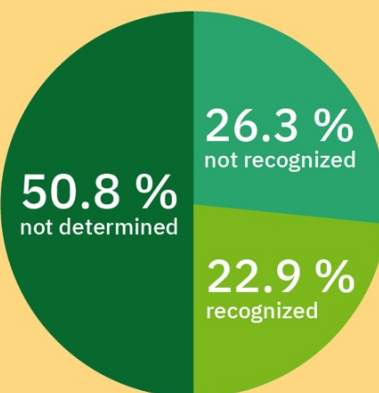
... by supporting sustainable harvesting and recognizing customary practices



... by supporting community-based monitoring of biodiversity



... by building local capacity for conservation



Rights to land of IPLCs globally



KEY POINTS

- ♦ Indigenous peoples and local communities are custodians of about 80% of the world's biodiversity; their ways of life, cultures, customary governance and knowledge of nature is integrally connected to the conservation and sustainable use of biodiversity in their territories.
- ♦ Biocultural diversity approaches to conservation that recognize the interrelationship between cultural and biological diversity can bridge diverse knowledge systems and policies, and can be a powerful tool for sustainability, bringing together practitioners, indigenous rights movements, governments, and others.
- ♦ Greater recognition of TK and customary law through ABS can help strengthen conservation and sustainable use by supporting community-based monitoring, respecting customary laws and practices such as sustainable harvesting, affirming local control over IPLC lands and seas, and enhancing local capacities for community-led conservation initiatives.
- ♦ Despite these connections, ABS laws and approaches have not been successful in linking TK and conservation. This is due in part to the lack of legal recognition of IPLCs as custodians of biodiversity, a separation of TK and resources in laws and agreements, and a tendency to prioritize economic development over conservation.

Lack of legal recognition of land and resource rights is not only an injustice to IPLCs, but also makes conservation initiatives, including ABS, less likely to succeed. Land grabs and human rights violations through extractive industries such as oil and gas, timber and mining are of serious concern and undermine and threaten conservation.

3.1 Steps Towards Recognition of Indigenous Peoples' Rights and Integration of IPLC Stewardship and Cultural Diversity into Conservation

In overlapping and parallel processes to those linking conservation to economic development, during the 1980s and 1990s there also occurred an expanding recognition of the links between cultural diversity and biological diversity (Posey, 1999); the fact that biodiversity is at its highest not only where nations are poorest but also, within nation states, where local populations are most economically and politically marginalized (Dove, 1993); and a growing movement to assert the cultural and environmental rights of IPLCs (Posey, 1996; Posey and Dutfield, 1996).

Harvesting of Devil's Claw in Namibia.
(Photo: Dave Cole)



International policy instruments have addressed in increasingly clearer terms the rights of IPLCs to consult, consent, control, and benefit from the use of their land, resources, and knowledge (e.g., International Labor Organization Convention 169 Concerning Indigenous Peoples, 1989; Agenda 21 and the Rio Declaration, 1992; UN Declaration on the Rights of Indigenous Peoples, draft 1994; adopted in 2007).

The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (2004) have also provided a framework to support Parties of the CBD. These guidelines contain recommendations for sustainable use, and suggest consideration of customary law and traditions when drafting new legislation and regulations, and the need to respect the rights and stewardship of local communities (Principle 2).

Article 8j of the CBD committed Parties to *“...respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.”* Indigenous peoples’ groups, sometimes in partnership with researchers and others, drafted declarations and other documents at this time demanding equitable conservation and research practices (e.g., Declaration of Belem, 1988; Kari-Oca Declaration and Indigenous Peoples Earth Charter, 1992; Mataatua Declaration, 1993; COICA/UNDP Santa Cruz Declaration, 1994; and International Alliance of Indigenous Tribal Peoples of the Tropical Forests, 1995).

“Worldviews that separate nature and culture are an underlying cause of biodiversity loss, as cultures condition behaviours and frame people’s relationships with other people and with the natural world. The holistic and diverse value systems and ways of life of IPLCs across the world offer culturally distinctive visions of alternative sustainable futures which need to be understood, respected and protected across the whole of government, economy and society. Yet, the cultures of IPLCs and the associated rich biodiversity on their lands continue to be eroded and displaced by dominant unsustainable production and consumption systems that are destroying the planet’s biodiversity.” (Local Biodiversity Outlooks, 2020)



Medicinal plant market in Opuwo, Namibia.
(Photo: Rachel Wynberg)

3.2 Traditional Knowledge, Economic Development and Conservation: Mutually Supportive or in Conflict?

Despite increased international recognition of the relationship between TK and conservation, there is little evidence that ABS agreements have realized this connection in practice. A common reason is that economic development and restorative justice are typically seen to “trump” conservation, especially in developing or low-income economies where basic needs are pressing. The relationship is often perceived as antagonistic rather than mutually supportive or reinforcing. This has been aggravated by regulatory approaches in some countries, which set up different processes for accessing resources and TK, and therefore different negotiating platforms and different benefit-sharing agreements.

While there are clear differences in the way in which companies access and use biodiversity, this is less obvious at the community level. Communities might harvest the same resource for both biotrade and for biodiscovery, will be approached by external actors in the same way, may not be informed about the range of different ways in which the resource may be used, and will have the same expectations about the kinds of benefits they will receive. This has important implications – both for the benefits that local communities may receive, and in turn for conservation. As one NGO working with communities explained, *“It’s the way in which ABS is introduced to communities. The first thing is the money. Conservation is the last thing put on the table. Communities live with... [conservation] each day and may not be conscious about including it in the contract process. Whose responsibility is it to bring in these dimensions?”* (International NGO representative).

Conservation should be considered by all parties involved in ABS negotiating processes, and these processes can both affirm community rights over natural resources and support efforts to sustainably use and conserve these resources. But, as Büscher and Fletcher (2019) remark, local people need to be key decision-makers in conservation planning and management and not merely “the central targets of interventions aimed at [their] behavioural change.” Science needs to support these decision-making processes where appropriate.



Aloe ferox, native to South Africa, is widely used traditionally as well as in personal care and ethnobotanical products. (Photo: Umberto Leporini)

3.3 What Happens when TK Holders are No Longer Resource Custodians?

In some cases, TK holders are not the same as resource custodians and through land and resource dispossession resulting from colonial and, in the case of South Africa and Namibia, apartheid policies, have been dislocated from resources over which their ancestors held knowledge. In Cameroon and Madagascar, IPLCs are more likely to be both resource custodians and TK holders, although in many areas they were also forcibly removed from lands to make way for colonial plantations and other projects.

Three examples from South Africa demonstrate cases in which TK is not necessarily linked to resource custodianship, and the small role conservation plays in ABS agreements: rooibos *Aspalathus linearis* (Box 4), buchu (*Agathosma betulina* and *A. crenulata*) and *Hoodia gordonii*, the focus of South Africa's first benefit-sharing agreement, between Indigenous San peoples and a research institution (Wynberg et al, 2009). In the case of *Hoodia*, commercialization was halted due to health concerns, but it is still noteworthy that the agreement, despite recognizing San "interrelatedness with nature in all its forms, over the ages", includes no mention of conservation aside from a disclaimer that legal "best practices" will be applied "with the collection of any plant species for observation, and by ensuring that no negative environmental impacts flow from the proposed bioprospecting collaboration" (Benefit-sharing agreement between the Council for Scientific and Industrial Research and South African San Council, 2004). A benefit-sharing agreement centred on TK associated with buchu species has been negotiated between the industry and San and Khoi organizations, but currently excludes any conservation measures.

Despite the small role conservation plays in ABS arrangements, in all of these cases the conservation challenges are significant. In the case of *Hoodia*, initial commercial interest led to over-harvesting of the resource, culminating in its inclusion as a CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Appendix II species. Box 4 describes the substantial environmental impacts arising from the cultivation and, to a lesser extent, wild harvesting of rooibos, while the often unregulated and over-harvesting of buchu has led to growing concerns about the sustainability of this practice.

"TK and conservation are excellent bedmates. Over eons, people have looked after resources, with the incentive to conserve and [as a result] remain resilient. In modern days this has become disconnected... We are imploring government to consider the TK of wild harvesting. Wild harvesters have the ability and knowledge to conserve. It is directly beneficial to them. It is important to recognise not just the ethnic groupings. TK in honeybush lies in the sustainable harvesting". [Government official, South Africa]



While ABS is obviously not the only conservation approach to be used in managing these species, a strong argument can be made for implementing an integrated and sector-wide approach for both resources and knowledge, while ensuring that adequate attention is given to equity and restorative justice. This is especially important when the resources remain dislocated from TK holders and on privately owned land.

3.4 Land and Resource Rights

Of all global lands, 28% are held or managed by Indigenous peoples, including more than 40% of protected areas, and 37% of all remaining terrestrial areas with little human disturbance. On average, biodiversity loss has been less on the lands held by IPLCs than on other lands (IPBES, 2019). IPLCs are the stewards of 80% of global biodiversity.

However, globally IPLCs only have recognized rights to half their land and territories. The countries with the highest percentage of area where IPLC rights to land and territories have not been recognized include Cameroon (72% unrecognized) and Madagascar (65%). In general, Africa lags other regions in recognizing the land rights of IPLCs (Rights and Resources Initiative, 2020). As the Rights and Resources Initiative report notes: "...the lack of legal recognition of customary collective rights over these lands are not only an injustice to Indigenous peoples, local communities, and Afro-descendants, but such failures ultimately weaken prospects for urgently needed transformative changes in the political-economic structures that drive poverty, climate change, the loss of biological diversity, and the unsustainable use of the global environment more broadly."

In the case of ABS, lack of legal recognition of land and resource rights can mean that communities cannot negotiate and control the use of their resources, and this is likely to include genetic resources. In Cameroon, with the vast majority of IPLC land rights unrecognized under the 1974 Land Tenure Ordinance no 74.1, lands managed by communities for generations are commonly allocated to timber, oil palm, and other industrial interests, resulting in conflict and few benefits for IPLCs (Achobang et al, 2013; Linder, 2013; Meyfroidt et al, 2014; Ordway et al, 2017). National ABS measures in Cameroon, as in most countries, allocate control over PIC (prior informed consent) and MAT (mutually agreed terms) negotiations to the national government. However, like other sectors, ABS is unlikely to recognize IPLC land and resource rights and equitably share benefits (Laird et al, 2020). Statutory laws tend to be weakly and inconsistently implemented, and in the absence of large commercial interests that draw the attention of government, customary law dominates the day-to-day harvest, cultivation, use and trade of genetic and biological resources (Laird et al, 2010). ABS partnerships and measures should recognize and support, and avoid undermining, the important and often complementary role of customary law in governing biological and genetic resources.

"IPLCs own and manage at least 50% of the world's land area, and many are working in policy fora and on the ground to defend their territories, manage their resources sustainably, and combat pollution, invasive alien species and the impacts of climate change. However, their lands and waters and the biodiversity that they contain are under direct threats from industrial-scale development and illegal incursions. IPLCs working to counter these threats and conserve their lands are paying a high price for doing so. They are facing increasing intimidation, criminalization and violence, including assassinations of community leaders." (Local Biodiversity Outlooks, 2020)

3.5 Biocultural Diversity Approaches to Conservation

“Biocultural diversity” is the interweave of biological and cultural diversity, people and place, and the continuing adaptation and co-evolution between natural landscapes and ways of life (Maffi 2005; Cocks 2006b; Wilson 2008; Maffi and Woodley 2010; Laird et al, 2011). As a values-driven approach, it enables a wider perspective than the dominant economic paradigm, also enabling the incorporation of intrinsic values such as peoples’ spiritual and cultural connections to nature. It is not a concept reserved only for Indigenous peoples, and describes a range of relationships between local people and biologically diverse environments (Cocks 2006a and 2006b). Although biocultural approaches to conservation remain marginal, they can bridge diverse knowledge systems and policies, and can be a powerful tool for sustainability, bringing together practitioners, indigenous rights movements, and intergovernmental environmental bodies like the CBD and IPBES (Merçon et al, 2019; Hanspach et al, 2020). Büscher and Fletcher (2020) propose a relative of biocultural approaches called “convivial conservation”, a combination of strategies that include de-growth, de-colonizing, a basic conservation income, and a view of humans as part of, not separate from, nature.



Buchu harvesters in South Africa.
(Photo: Lindsey Chicken)



BOX 4. Can ABS Help Strengthen Conservation?

Learning from Rooibos

Rooibos (*Aspalathus linearis*) represents one of South Africa's oldest and most valuable indigenous natural product industries. With its growth restricted to areas of the Western and Northern Cape provinces, the plant is widely available globally in the form of a caffeine-free tea, with its bioactive compounds holding great promise for the health food and beverage, cosmetic and pharmaceutical sectors. The local rooibos industry is valued at about R300 million (US\$22.2 million), employing some 5 000 people and trading amounts of around 15 000 tons per annum representing 10% of the growing global herbal tea market.

ABS and rooibos intersect in a complex and multifaceted space, with ABS offering opportunities as a lever to address social and environmental injustices of the sector. In 2019, a long-awaited and government-facilitated benefit-sharing agreement was finalized that recognized the role played in the industry by TK of indigenous San and Khoi and agreed on a "TK levy", calculated at 1.5% of the price processors pay to farmers per kilogram of harvested rooibos.

Typically, TK holders are also the custodians of resources and the land, but the genocide of San and Khoi in rooibos-growing landscapes centuries ago and the relocation, disenfranchisement, and ongoing marginalization of local coloured and black people through apartheid, means that today many San and Khoi no longer live in these areas. A small group of about 200 so-called "coloured" communities, comprising mixed-race descendants of European settlers, former slaves, and Khoi and San, continue to farm rooibos, but only about 7% of rooibos tea lands are today owned or managed by these farmers. In contrast, large-scale white commercial farmers cultivate about 93% of the planted area.

This disconnect between resources and knowledge means that unsurprisingly, the rooibos benefit-sharing agreement focuses only on TK, mostly as a proxy for restorative justice, with no mention of conservation and sustainable use. However, the rooibos industry – and particularly large-scale commercial farms - has significant negative impacts on biodiversity. These include:

- ♦ Land degradation. Thousands of hectares of natural mountain fynbos, constituting one of the most biologically diverse ecosystems in the world, are ploughed up every year for planting to monocultures of rooibos tea. The footprint for cultivated rooibos has grown from 14 000 ha in 1991 to over 60 000 ha today (CAPE, 2006; Industry representative, pers. comm., 2016). This has had devastating impacts on biodiversity. In just 12 years, there has been a 300% increase in the number of species threatened with extinction as a result of rooibos cultivation—from 37 taxa in 1997 to 149 taxa in 2009, with 57 species in the most severely threatened categories of "endangered" and "critically endangered" (Raimondo and Von Staden, 2009).
- ♦ Chemical inputs are also a concern. Although rooibos is a low-input crop requiring little water or extra fertilizing, commercial farmers often spray plants with harmful insecticides. Glyphosate-based herbicides – known to have deleterious health effects - are also routinely used to eliminate unwanted grasses and weeds when rooibos is grown in rotation with other crops.

- ♦ The cultivation of rooibos can also impact negatively on wild populations of the species. In addition to impacts on rooibos subspecies through the expansion of plantations, seed selection within cultivated plantations may have inadvertent effects on adjacent wild forms, through genetic pollution across populations that would never have mixed in the wild, and the introduction of unfavorable gene material. Resultant effects could include a reduction in the genetic diversity of *A. linearis* and thus greater vulnerability to physical and biological changes.
- ♦ A further concern relates to the unsustainable harvesting of wild rooibos. Traditionally, wild varieties of *A. linearis* have been used only on a subsistence basis by communities for the brewing of “veld” tea (Hawkins et al, 2011). However, wild rooibos is currently facing unprecedented harvesting pressures. This is due in part to increased demand from international markets, which offer premium prices for wild rooibos tea, and also to ongoing drought conditions in this region which have reduced yields in cultivated fields and led to increased pressures on the more resilient wild populations (Smith, 2003).

Many of these impacts are due to the fact that rooibos is a commodity crop, grown to supply the herbal tea industry in much the same way as any monoculture. However, several factors set it aside from potatoes and onions.

- ♦ First, there are over 140 patents linked to potential novel applications of rooibos, firmly centering the need for ABS agreements;
- ♦ Second, because some rooibos farms are certified by the Union for Ethical BioTrade (UEBT) and the Rainforest Alliance, there are opportunities to embed both ABS and improved biodiversity management on these farms;
- ♦ Third, many small-scale rooibos producers already supply FairTrade markets and practice sustainable harvesting. They thus have significant knowledge relating to the sustainable production and harvesting of rooibos from which wider lessons could be learnt;
- ♦ Fourth, through the TK levy which requires all processed tea supplied by farmers to be audited, there are possible avenues to improve the biodiversity monitoring and practices of private farms;
- ♦ Last, but perhaps most importantly, the TK levy has led to increasing recognition of the need for a sector-wide approach for rooibos and ABS. This could lead to an interesting platform that could bring together local and foreign companies that are using rooibos in different ways to explore biodiversity-friendly approaches towards rooibos production. This could include the reduced use of agrochemicals, improved control of wind and water erosion, the use of “shelter belts” in cultivated lands to provide a refuge for the natural predators of rooibos pests, increased mulching to promote carbon and water retention, and the retention of populations of wild rooibos (Oettlé, 2005; Pretorius, 2007). Greater scrutiny could also be given to the criteria used to grant permits for land-clearing for rooibos, to ensuring maximum protection of biodiversity, and to the creation of biodiversity offsets for land cleared.

Source: Wynberg, 2017

SECTION 4: INTEGRATING CONSERVATION INTO ABS GOVERNANCE



KEY POINTS



- ♦ In many countries, the policy and legal framework clearly links conservation and ABS. However, with some exceptions, these policy commitments are seldom implemented.
- ♦ Implementation of conservation and sustainable use has been thwarted by a lack of capacity and budgets, and in some cases by a political imperative to focus mainly on important equity and social issues. An over-emphasis on ABS regulatory compliance has often turned attention away from conservation and sustainable use.
- ♦ Many other statutory laws, policies and initiatives have relevance for ABS and conservation, but are administered by different government departments, both at national/federal and provincial/state levels.
- ♦ When intact, customary law can play an important role in ensuring sustainable and equitable use of biodiversity. However, ABS approaches have not adequately incorporated customary practices and laws, or examined ways that statutory and customary laws can be complementary.
- ♦ While governments have often struggled to put ABS systems in place and to link ABS to conservation, some companies and research groups are proactive and include biodiversity conservation in ABS arrangements without legal requirements. Biodiversity conservation should be embedded as a fundamental principle and component of any ABS agreement or approach from the start, and included in ABS measures.
- ♦ Monitoring systems should be established by governments that track and measure the impact of ABS on conservation and sustainable use.

A variety of laws, institutions and approaches constitute what we call the *governance* of biodiversity use and conservation – in other words, the political, institutional, and cultural frameworks through which diverse interests in natural and cultural resources are coordinated and controlled. These include both the statutory and customary laws and institutions that prescribe access and use to biodiversity – as well as non-state actors such as NGOs, communities, political groupings, researchers and the private sector - and the variety of mechanisms and approaches used to share benefits. The interaction and engagement of different actors is a fundamental component of the governance of ABS and, thus, the relationship to conservation. This manifests at different levels and scales, with diverse actors assuming varied roles and responsibilities with impacts on conservation, often at different points of the commercialization process.

“We haven’t seen a relationship between ABS and conservation. ABS is a regulatory issue and a driver to push for more traceability and better practices, but it is only one driver... ABS is about hard-core regulatory compliance and is not looked at in terms of conservation and sustainable use. We need to put this together again.” [International NGO representative]



BOX 5. The Nagoya Protocol, ABS and Conservation



As we have seen, the CBD embeds conservation firmly within its three objectives, and the Nagoya Protocol, which came into force in 2014, provides further mechanisms for implementing ABS, including some directly addressing conservation:

- ♦ Article 8 requires conditions to be created to promote conservation research, especially in developing countries, and simplified measures on access for non-commercial research;
- ♦ Article 9 “encourages” users and providers to direct benefits towards conservation and sustainable use;
- ♦ Article 10 enables the possibility of a global multilateral benefit-sharing mechanism for conservation and sustainable use; and
- ♦ Article 22 – supports capacity development on conservation research.

Additional possibilities for conservation are also included in the Annex to the Protocol, with explicit mention of *“Special fees to be paid to trust funds supporting conservation and sustainable use of biodiversity”* and *“Access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies”*. Despite these provisions, there is wide recognition that the Nagoya Protocol only weakly considers conservation.

“The conservation silence in ABS discussions could at a minimum result in a failure of the new regime [Nagoya] to properly integrate conservation concerns. At worst, the resulting regime could ultimately result in perverse incentives”. WWF, 2007

4.1 National ABS Laws

Several countries have developed national laws that integrate ABS and conservation. For example, the European Union’s Regulation 511/2014 encourages the European Commission and member states to direct benefits from the utilization of genetic resources towards the conservation of biodiversity and the sustainable use of its components, while Vietnam’s Decree 59/2017/ND-CP provides that 50%-70% of monetary benefits arising from the use of genetic resources shall be remitted to the State budget for use in conservation and sustainable use. In Brazil, the link between benefit sharing and conservation historically has not been clear, relying to a large extent on the willingness of the user to integrate conservation measures, rather than obliging them to do so. However, Law 13/123, passed in 2015, changed this landscape and provides the legal architecture to channel benefits to conservation. The decree sets out conservation priorities and lists a number of options for applicants to select, including support to high biodiversity areas, promoting sustainable use and supporting Indigenous Peoples in protected areas (see Box 13).

All four BioInnovation Africa countries - South Africa, Namibia, Cameroon and Madagascar - are parties to the CBD and its Nagoya Protocol but are at very different stages in the development

and implementation of their national ABS laws. South Africa has the most developed and comprehensive ABS framework in place, promulgating its National Environmental Management: Biodiversity Act (NEMBA) in 2004, followed by Bioprospecting, Access and Benefit-Sharing Regulations (BABS) in 2008 (Box 6). Both South Africa and Namibia have strong Constitutional imperatives for conservation and this is carried through in their ABS laws.

In Namibia, work started on ABS legislation as early as 1998, but it was only in 2017 that the Access to Biological and Genetic Resources and Associated Traditional Knowledge Act (2 of 2017) was passed (MET 2018). Regulations have not yet been promulgated. The object of the Namibian ABS Act is to provide for the conservation, evaluation and sustainable use of biological and genetic resources and associated TK; and to promote and encourage the building of national and grassroots scientific and technological capacity relevant to the conservation and sustainable use of biological or genetic resources and associated TK. Strong links are made in the law between communities and their associated TK, with ABS viewed as an approach to promote biodiversity conservation by protecting the rights and knowledge of communities. The Act specifies that monetary benefits from ABS can contribute directly to conservation through fees paid to trust funds supporting the conservation and sustainable use of biodiversity, while non-monetary benefits in the form of access to scientific knowledge and training to enhance conservation and sustainable utilization of biological diversity are also listed.

In 2013, Cameroon developed a National ABS Strategy with representatives from different ministries and departments, and civil society, and a draft August 2018 ABS Law - *Draft Loi Relative a l'Acces aux Ressources Genetiques et aux Connaissances Traditionnelles Associees et au Partage Juste et Equitable des Avantages Decoulant de Leur Utilisation* – from the Ministry of Environment, Protection of Nature and Sustainable Development remains under review. Also under review are Draft Implementing Decrees laying out the terms of access to genetic resources and TK, and the fair and equitable sharing of benefits; a Draft Model ABS Permit; a Draft Model PIC; and a Draft model MAT (Mahop, 2019; Laird et al, 2020). The Draft ABS Law includes general references to conservation and sustainable use of genetic resources, including Article 3 which mentions conservation of genetic resources, and Article 23 the contribution benefit sharing from the use of genetic resources and associated TK can make to sustainable use, biodiversity conservation, technology transfer, and livelihoods of affected communities. ABS measures are still going through validation and adoption processes, and specific articulation of links between ABS and conservation, and any practical impacts, remain under development.



Prunus africana harvester in Cameroon.
(Photo: Rachel Wynberg)

In **Madagascar**, numerous attempts to develop specific laws governing ABS have been made since 2001. A *National Policy Letter on Access to Genetic Resources and Benefit Sharing* has been adopted, and the preamble references the three objectives of the CBD. An ABS Decree, Decree No 2017-066 of January 31, 2017, sought to conserve biodiversity and promote sustainable use, and avoid exploitation of Malagasy biological resources, to provide legal certainty to companies and researchers, and a clear permitting process. This Decree is linked with environmental laws, including the updated Malagasy Environmental Charter of 2015, which sought to increase efficiency and effectiveness of the structures of environmental management, set up sustainable environment financing mechanisms, and focus government actions on economic development, sustainable management, and good environmental governance. Among other things, the Charter affirms the green economy as a tool for reconciling population growth with conservation (Article 3), promotes environmentally friendly modes of production and consumption (Article 18), and strengthens local management of natural resources and development of financing mechanisms for conservation (Article 19). The *ad hoc* committee in charge of reviewing requests for access to genetic resources considers scientific interest of a project, and its contribution to conservation and the sustainable use of biological resources (Article 8). However, the regulatory framework is still working to implement practical, concrete linkages between ABS and conservation.

4.2 Other National Laws

ABS is a very small part of the legal and regulatory framework impacting biodiversity conservation, sustainable use, and equitable benefit sharing. Many other statutory laws, policies and initiatives have relevance for ABS and conservation, and are administered by different government departments, both at national/federal and provincial/state level. These range from those focused on protected areas; biodiversity conservation; forests; the protection of TK; land reform; science and technology; intellectual property; phytosanitary; and finance and taxation among others. There may also be policies and laws focused on individual species and ecosystems. The intersection of these laws with ABS is not always obvious, and overlapping mandates and poor coordination between different Ministries may mean that conservation is “everywhere but nowhere.”

“There is supposed to be complementarity... laws are supposed to mutually support each other in the protection of biodiversity, but ABS will only help... when you are actually using a resource. It will not conserve things that don’t have interest, those things fall by the by”
[Government official, Namibia]



BOX 6. Integrating Conservation into South Africa's ABS Laws



The three objectives of South Africa's NEMBA mirror those of the CBD, with the requirement that the State, as trustee of biological diversity must implement the Act to manage, conserve and sustain South Africa's biodiversity and its components and genetic resources.

The regulations provide that monetary benefits arising from the use of genetic and biological resources may be used to support conservation, biodiversity research and sustainable use. Benefit-sharing agreements and material transfer agreements are required to specify the type and quantity of resources, the area or source from which they are to be collected or obtained and their conservation status. When considering applications, issuing authorities are expected to take into account (a) how the potential impact of bioprospecting or biotrade on the indigenous genetic and biological resources will be minimized and remedied; and (b) ensure that such impacts "will be negligible or will not deplete an indigenous genetic and biological resource beyond a level where its integrity is jeopardized". The regulations also state that all permit holders are liable for the costs of mitigating or remedying the impact of discovery phase bioprospecting on the environment. The renewal of permits requires consideration of the conservation status of the indigenous genetic and biological resources and may require a risk assessment to be submitted prior to considering renewal.

Benefit-sharing must achieve one or more of the following benefits:

- a) conservation of the indigenous genetic and biological resources;
- b) support for further research on indigenous genetic and biological resources and TK;
- c) enhancement of the scientific knowledge and technical capacity to conserve, use and develop indigenous genetic and biological resources;
- d) any other activity that promotes the conservation, sustainable use and development of indigenous biological resources for the benefit of South Africa; or
- e) improving livelihoods of the communities and enhancement of technical capacity of the communities or individuals involved.



Sour fig (Carpobrotus edulis) used traditionally for various medicinal purposes and as a food in South Africa.
(Photo: Rachel Wynberg)

Money in the Bioprospecting Trust Fund that is not due to any party may also be used for conservation purposes. Despite these extensive provisions, there is little evidence of conservation having been substantively included in any benefit-sharing agreements. Noteworthy is that conservation is not included in a list of examples for inclusion in benefit-sharing agreements involving TK holders.

"The irony is that the legislation allows for conservation to be included in ABS agreements...BSA and MTAs provide the mechanism for stakeholders to be custodians and to enhance conservation but this is absent at the moment. This is because the emphasis is on benefit sharing, not on sustainable use. Thus, benefits are conceived as a monetary thing without looking at the resource. Where conservation is looked at it is typically retrospective and impact centred. For example, in the BABS advisory committee a question may be asked about whether the resource is negatively impacted, or a resource assessment may be requested but the broader questions of conservation are not considered. [Government official, South Africa]

"We have excellent laws in SA but they are not implemented. This is mainly due to budget cuts and capacity constraints. NEMBA provides for ABS and for conservation and makes regulations. However, the link is not very good." [Government official, South Africa]



"When BABS was implemented it was so difficult to comply and for a long time no permits were processed as they were all incomplete. There was so much bureaucracy and form-filling it was easy to take one's eye off the ball and forget about equity and sustainability. It often devolves to a bureaucratic process rather than a set of principles" [Researcher, South Africa]

4.3 Customary Governance

In parallel to the architecture of international agreements and national legislation exists a sophisticated set of customary rules, practices and institutions governing the conservation and use of biodiversity. These are especially prevalent in rural areas of the Global South, and may overlap with statutory legal systems. When intact, customary law can play an important role in ensuring sustainable and equitable use of biodiversity. However, the pressures of commercialization, the impacts of colonization, and social, cultural, technological and environmental change have eroded customary law in many parts of the world (Wynberg and Laird, 2007; Laird et al, 2010; Kozanayi, 2018). In theory, ABS agreements and approaches could support customary practices and laws relating to conservation and sustainable use, alongside strengthened land tenure and resource rights, but this has rarely occurred to date. Some approaches have developed to fill this gap, usually with the support of intermediaries like community-based organizations or NGOs, and include the use of biocultural protocols, community research agreements and codes of ethics. However, conservation and sustainable use are often marginal features of these approaches.

BOX 7. Reporting to the CBD's ABS Clearing House: Implementing Commitments to Conservation and Sustainable Use



Despite supportive international and national frameworks there is little evidence that conservation has been implemented as an integral part of ABS. Interim national reports published in the CBD's ABS Clearing House indicate that a third of countries believed it was premature to indicate how implementation of the Nagoya Protocol had contributed to conservation and sustainable use of biodiversity in their country. Fifty-five Parties responded that they encourage users and providers to direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and sustainable use of its components while fourteen Parties reported that they do not. For those reporting in the affirmative, details of specific actions are scant, with interviews confirming that progress towards this goal is poor, although there are obvious exceptions. Nonetheless, there does seem to be growing awareness of the value of conservation and the sustainable use of biodiversity as part of ABS approaches.



Bush mango drying on the side of a house.
(Photo: Verina Ingram)

SECTION 5: THE COMMERCIAL USE OF BIODIVERSITY – BIODISCOVERY AND BIOTRADE



What is the Difference Between Biodiscovery and Biotrade?

Biotrade

The commercial collection, processing and sale of products derived from biodiversity in the cosmetic, personal care, food and beverage, botanical medicine and other sectors relying on the sourcing of raw materials.

Direct links to conservation

- Sustainable harvesting and cultivation of threatened and high-demand species.
- Agroforestry and reforestation schemes for degraded lands.
- Income-generating activities that depend upon biodiversity and offer alternatives to destructive activities.
- Support for local or community-based conservation projects.
- Resource assessments, monitoring, and harvesting guidelines.

Indirect links to conservation

- Strengthened economic arguments for conservation.
- More equitable and sustainable value chains.
- Compensation to traditional knowledge holders.
- Strengthened land and resource rights.
- Support of customary law.
- Long-term contracts that increase value-adding.
- Community development projects.

Impact on biodiversity

Low - High

Biodiscovery

Research on samples of biological resources in order to discover genetic information or biochemicals of value, mainly in the pharmaceutical, biotechnology, and crop protection sectors, but also in other sectors.

Biodiscovery can sometimes lead to biotrade when raw materials for manufacture are needed. However, raw materials in high tech sectors are more commonly produced today through synthesis or biological factories.

Direct links to conservation

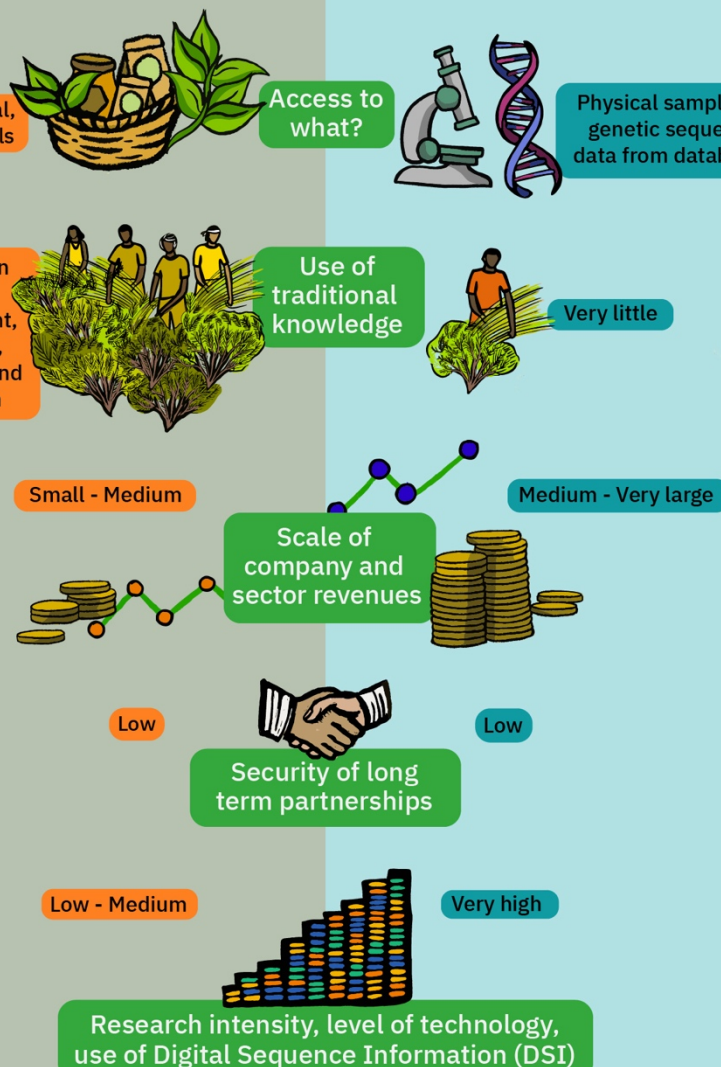
- Improved scientific knowledge and information about biodiversity, critical for management and conservation.
- Increased financing for conservation through funds fed by fees, milestone payments and royalties.
- Training local groups to undertake biodiversity research, inventories, and resource assessments.
- Biodiversity monitoring.

Indirect links to conservation

- Strengthened economic arguments for conservation.
- Strengthened capacity for biodiversity research.
- Enhanced research collaborations
- Training and tech transfer.

Impact on biodiversity

Low





KEY POINTS

- ♦ ABS governs a wide range of activities, and this scope has expanded over time. The commercial use of biodiversity can be divided into two broad categories: biotrade and biodiscovery.
- ♦ The extent to which companies employ advanced science and technology, the scale of revenues, and size of companies, differ dramatically by sector.
- ♦ Those undertaking biodiscovery and biotrade access and use genetic and biological resources, and/or associated traditional knowledge, in very different ways, with implications for conservation and sustainable use. However, biotrade and biodiscovery can also be interlinked, with biodiscovery partnerships leading, for example, to raw material sourcing for additional research or manufacture, and biotrade leading to expanded research.
- ♦ Partnerships between industry and stakeholders in high biodiversity countries, in both biodiscovery and biotrade, tend to be short lived. These partnerships can contribute important short-term benefits for conservation, including by supporting biodiversity research and sustainable use, but are rarely a source of conservation funding over time.

ABS governs a wide range of activities, with a scope that has expanded over time from plant genetic resources, to natural product pharmaceuticals, derivatives, the traditional knowledge of indigenous peoples, biotrade, and most recently genetic sequence data (referred to within ABS policy by the placeholder term “digital sequence information - DSI”). The nature of activities falling within ABS and understanding of its scope is interpreted differently by national governments, international frameworks, and stakeholders, and this has created confusion (Ruiz Muller et al, 2020). For the purposes of exploring relationships between the commercial use of biodiversity, ABS and conservation, we divide commercial use into two broad categories: biodiscovery and biotrade.

Those undertaking biodiscovery and biotrade access and use genetic and biological resources, and associated traditional knowledge, share benefits, partner with IPLCs, and impact biodiversity conservation in very different ways. The extent to which they employ advanced science and technology, the scale of their revenues and size of companies is also dramatically different. Below we review some of these basic elements in order to better understand the relationship between these activities and conservation.



(Photos: Shutterstock)

5.1 Biodiscovery

Biodiscovery is the collection of and research on samples of biological resources in order to discover genetic information or biochemicals of value. Biodiscovery takes place in high tech sectors, primarily the pharmaceutical and biotechnology, but also including crop protection, food and beverage, and others. The use of DSI – or genetic sequence data – increasingly spans all industrial and commercial sectors.

Biodiscovery uses what the CBD refers to as *genetic resources* - genetic material of actual or potential value; genetic material is any material of plant, animal, microbial or other origin containing functional units of heredity.

5.2 Biotrade

Biotrade is the commercial collection, processing and sale of specialty products derived from biodiversity, usually for the natural cosmetic and personal care, functional food and beverage, nutraceutical, botanical medicine and other sectors relying on the sourcing of raw materials. Biotrade often uses TK in products and marketing, and some companies engage in sustainable and ethical sourcing, and use certification to inform consumers about their practices. Companies usually seek the properties of whole organisms, which contain multiple active compounds.

Biotrade uses what the CBD refers to as *biological resources* - including genetic resources, organisms or parts thereof, populations and any other biotic component of ecosystems with actual or potential use or value for humanity.

5.3 Biotrade and Biodiscovery: Similarities and Differences

As the infographic *What is the Difference Between Biodiscovery and Biotrade* makes clear, some of the key differences between biodiscovery and biotrade include:



Access to genetic and biological resources. Researchers in biodiscovery seek access to genetic resources, but increasingly in the form of DSI accessed through databases. Interest in physical samples continues, but the size of samples has become very small, and many companies access material through existing *ex situ* collections, or collect in their own backyards. Field collections continue, but those managed by companies are fewer in number than in the 1990s. On the other hand, large citizen science programs increasingly collect materials across vast geographic areas, and at a scale previously unknown. Examples of earlier ABS biodiscovery partnerships that accessed genetic resources include the case of *Ancistrocladus korupensis* and the US National Cancer Institute (NCI) in

Cameroon (Box 8), and the 1999-2003 International Cooperative Biodiversity Group (ICBG) partnership in Madagascar.

Biotrade companies seek access to whole plant and marine materials, and rarely DSI, and interface with biodiversity in the wild to a much greater extent than biodiscovery companies. ABS biotrade partnerships might involve development of new ingredients and products – like the cases in recent years of *Echinops giganteus* (a partnership with the company V. Mane Fils) and *Pentaclethra macrophylla* in Cameroon. Most commonly, biotrade partnerships are structured around the sourcing of bulk raw materials either from the wild or cultivated. Examples include rooibos, *Aloe* and baobab in South Africa; *Siegesbeckia orientalis* (with Yves Rocher in 2014) and vanilla (with Chanel beginning in 2002) in Madagascar; and *Commiphora wildii* (with V. Mane Fils) and *Harpagophytum* spp. (devil's claw) in Namibia.



The use of TK in biotrade is very important, helping with the development of new ingredients and products, cultivation and processing, and in marketing. The majority of biotrade products grew from long-standing traditional uses, and most biotrade companies also use TK and stories about communities in their marketing. In South Africa, rooibos cultivation was catalyzed by the knowledge of a local woman who sourced the elusive seed that was needed, while the wild harvesting of both rooibos and honeybush grew from the traditional practices of indigenous and local communities. In biodiscovery, the use of TK as a guide to useful properties has decreased in recent decades, as the use of DSI has increased. TK led to many valuable pharmaceuticals, informed ethnobotanical approaches to drug discovery, and was consulted in the literature when active compounds emerged in the research process, but today's emphasis on DSI has reduced the collection and use of TK in drug discovery.



Scale of company and sector revenues. Companies undertaking biodiscovery are on average much larger than those in biotrade, and the sectors have dramatically different annual revenues. In 2019, the pharmaceutical industry (including healthcare biotechnology) had revenues of \$1.2 trillion, agrochemicals \$243 billion and industrial biotechnology roughly \$200 billion. Botanicals, and the natural component of personal care and cosmetics, were under \$50 billion – still very significant sectors, but with a smaller financial profile than the larger companies (see references for Infographic 5 The Economy of Conservation). The scale of the sectors and companies, and revenues earned by each product, has implications for financial benefits that might be shared with conservation efforts.



Security of long-term partnerships. In both biodiscovery and biotrade, ABS partnerships tend to be short lived. There can be exceptions, but – for a range of reasons – international companies often do not stay for the long term. This is important to keep in mind when considering conservation benefits from these partnerships. In biodiscovery, R&D is very unpredictable, and the odds of developing a commercial product are small. Additionally, species that show great promise one year might run into safety and efficacy challenges as research progresses. This was the case for *Ancistrocladus korupensis* in Cameroon, a species that the US NCI invested heavily in researching and sourcing in the early 1990s, and which showed great promise against HIV, but eventually proved too toxic. In the InBio-Merck partnership in Costa Rica (Reid et al, 1993), and a biodiscovery partnership between the pharmaceutical company Astra-Zeneca and Griffith University in Australia (Laird et al, 2008), too few commercial benefits resulted to justify continued corporate investment, and research approaches shifted. However, these cases yielded important conservation benefits in the form of support for biodiversity research and local research institutions, and helped build capacity for future commercial and academic partnerships.

Biotrade partnerships rarely last for many years, although there are some exceptions such as devil's claw, marula and Pelargonium where long-established trade relationships exist. In some cases, like *Prunus africana*, long term interest is maintained in the species, but company investments in more involved local sourcing partnerships may wax and wane, as in the case of the French company Plantecam in Cameroon, which left after many years (Cunningham et al, 2016). In others, consumer tastes change or new research leads to concerns about safety and efficacy (e.g., Kava in the South Pacific, *Griffonia* in West Africa). It is also often the case that safety or efficacy concerns are addressed with further research, and commercial interest and use resumes. In recent years, V. Mane Fils slowed work on the personal care and cosmetic potential of *Echinops giganteus* in Cameroon due to safety concerns, which were subsequently resolved. The company is working again on commercialization and is in negotiations with the government for a new ABS permit. Species involved in biotrade are particularly prone to boom-and-bust cycles, and although they can contribute to sustainable use of species, and sometimes broader conservation in valuable ways, more involved company partnerships that focus on sustainability and equity can be relatively short lived.



Research intensity, level of technology. Biodiscovery is a high technology sector, characterized today by the use of DSI. Expenditures on R&D are significant, and the R&D process is often geographically distant from high biodiversity regions. Relationships between biodiscovery companies and countries that provide genetic resources are very different today than they were 20 or 30 years ago when companies sought large collections of physical materials, usually through intermediary botanical gardens, universities, and other collectors. Biotrade employs less advanced science and technology, and its end products are closer to the original species. Most raw material is traded as a bulk commodity, but relationships between companies and providers of raw material can be

SECTION 6: THE COMMERCIAL USE OF GENETIC AND BIOLOGICAL RESOURCES AND BIODIVERSITY CONSERVATION



The Economy of Conservation



Oil and gas
\$3.3 trillion



Mining
\$692 billion



Timber
\$270 billion

Global biodiscovery and biotrade can generate large revenues. Often, however, only a small part of their business relies on the physical collection of raw materials.



Agrochemicals
\$243.1 billion



Beauty
\$532 billion

Natural Cosmetics
\$34.5 billion



Pharmaceutical
\$1.2 trillion



Food and agriculture
\$8.7 trillion



Functional Foods and Beverages
\$162 billion



Seeds
\$55.4 billion



Industrial Biotechnology
\$207.5 billion



Herbs and Supplements
\$49 billion

Global annual conservation expenditures for protected areas, conservation policy and programmes are \$52 billion per year. National expenditures vary enormously, and countries with the highest biodiversity often have the smallest budgets.



The revenues of extractive industries – like timber, mining, and oil – that directly damage and profit at the expense of forests and biodiversity, dwarf conservation budgets. This excludes the cost of damage to biodiversity. In most countries, the net contribution to the environment – in the form of conservation funding – is tiny compared with the profits realized from forest and biodiversity degradation or destruction.

Estimated national conservation budgets

KEY POINTS



- ♦ Biodiscovery and biotrade are often portrayed as activities that can generate economic incentives for conserving biodiversity and win-win partnerships with the private sector, but their impacts on biodiversity and abilities to invest in conservation are very different.
- ♦ Both biodiscovery and biotrade have the potential to generate monetary benefits for conservation through royalties, fees, milestone payments, and other means, and in the case of biotrade through premium pricing, but to date these benefits are few.
- ♦ Biodiscovery can contribute to conservation through inventories, taxonomy, and other support for biodiversity research; collaboration, training and capacity building in partner institutions; and technology transfer to improve capacity in biodiversity rich countries to undertake research on their biodiversity.
- ♦ Biotrade can contribute to conservation through sustainable harvesting and cultivation of threatened and high-demand species; training in regenerative agriculture, agroforestry and reforestation schemes for degraded lands; income-generating activities that depend upon biodiversity and offer alternatives to destructive activities, including partnerships with companies that include long term contracts, premium prices, and value-addition; biodiversity action plans; and financial support for local or community-based conservation projects. Certification, supported by sector-wide standards, can support the conservation goals of biotrade partnerships; growing consumer awareness and demand for biodiversity-friendly products also represents an opportunity to strengthen conservation through biotrade.
- ♦ Market-based approaches to conservation and sustainable use must acknowledge and address underlying social, economic, and political inequities to achieve their goals over time.
- ♦ Sectors that degrade or destroy biodiversity generate far more in revenues than those that innovate using biodiversity, but do not harm it - but these destructive industries do not pay for the cost of their environmental damage. Global funds for biodiversity conservation would be most easily and effectively fed by taxes and levies on highly profitable destructive industries, rather than the smaller and more speculative innovation sectors regulated by ABS.

The commercial use of biodiversity in biodiscovery and biotrade has varied relationships with conservation. Both biodiscovery and biotrade are linked to the “economic incentive” argument from which ABS grew: that biodiversity is worth saving for the economic value, useful products, and life-saving properties it holds. However, these arguments are yet to have a measurable impact within high biodiversity countries.

Sustainable and equitable use of biodiversity can also contribute to conservation through partnerships between industry and local stakeholders that create wins for companies sourcing sustainable raw materials, local partners earning income, and conservation. Below, we review some of the specific ways biodiscovery and biotrade may benefit conservation, as well as some of the limitations of ABS approaches more broadly for conservation.

6.1 Biodiscovery

The CBD was originally linked to biodiscovery, but its central role declined with the absence of blockbuster drugs to strengthen the “economic incentives” argument over subsequent decades, and a resultant move within policy circles towards biotrade. This culminated in the Nagoya Protocol’s focus on physical materials and bi-lateral agreements more common to biotrade and a move away from genetic resources and information typical to biodiscovery. The Nagoya Protocol negotiations also focused more on equity and fairness, and conservation played a relatively small role.

Biodiscovery can benefit conservation through generation of funds for conservation through fees, milestone payments, and royalties, although to date monetary benefits are few. Benefits more commonly realized have included improved scientific knowledge and information about biodiversity critical for conservation strategy and management. Knowledge about genes, species, populations, and ecosystems can help identify conservation priorities, and management and policy options. ABS biodiscovery partnerships over the years have contributed to conservation through research in a variety of ways: inventories, taxonomy, and other support for biodiversity research; collaboration, training and capacity building in partner institutions; and technology transfer to improve high biodiversity countries’ ability to undertake research on their domestic resources (e.g. Reid et al, 1993; Laird et al, 2008; Laird and Wynberg, 2008; Box 8). However, a quantitative analysis of these contributions has yet to be made.

Almost all biodiscovery research partnerships in the 1990s and 2000s contained provisions addressing conservation, including InBio-Merck in Costa Rica (funds for protected areas, parataxonomy, and biodiversity research); the US NCI collections (capacity building, training, technology transfer, domestication research); Shaman Pharmaceuticals in Andean Pact countries (sustainable use research, funds for community based conservation); Astra Zeneca’s work with Griffith University in Australia (biodiversity research in biologically diverse marine and terrestrial environments, taxonomy, inventories, technology transfer, capacity building), and the ICBG projects around the world (Rosenthal and Katz, 2004).

The Madagascar ICBG partnership was formed between the National Center for Applied Pharmaceutical Research in Madagascar, the Virginia Polytechnic Institute and State University, Missouri Botanical Garden, the NGO Conservation International, and corporate partners Bristol Myers Squibb and Dow Agrosiences. In addition to seeking discovery of new drugs and agrochemicals, economic development, and the equitable sharing of benefits, the project objectives also explicitly include “the conservation and sustainable use of biodiversity.”

In recent years, however, biodiscovery has come to focus heavily on genetic sequence data, or DSI, and the connection between DSI and conservation can be remote. Proposals today to link conservation to DSI –accessed through databases, often on the other side of the world from the places where biodiversity was collected– primarily include global funds that would channel resources to national funds or governments, to then disburse to conservation priorities.

"Taxonomic research can feed into conservation, and research on biodiversity is critical for conservation... but if one looks at the ABS permits required now for research, very few set conditions that are directly linked to conservation. Sending back reports, published papers, data, and other things are important, but it is unclear that those are going to reach people working in conservation..." – European academic researcher



BOX 8. Biodiscovery Benefits for Conservation:

The Case of *Ancistrocladus korupensis* in Cameroon



Ancistrocladus korupensis is a woody climber collected in 1987 by the Missouri Botanical Garden, under contract from the US National Cancer Institute (NCI), in Korup National Park in Southwest Province, Cameroon. In 1990, the NCI found compounds of interest, and in 1992 michellamine B was approved for preclinical development at the NCI. Over the next few years, the NCI and its partners undertook research on *A. korupensis* taxonomy, distribution, and possible methods of production from wild and cultivated sources. Seedlings were collected in the forest and planted in nurseries, trials with various cropping systems, and leaf litter harvesting were undertaken as part of a three-year program to produce sufficient quantities for continued R&D and manufacture. In the end, michellamine B proved too toxic for the continuation of research, but the benefits that resulted from the R&D process for conservation included:

- ♦ Local incomes from research programs on the cultivation and harvesting of *Ancistrocladus korupensis*;
- ♦ Inventory data for the national park from early collections that included hundreds of species, and subsequent support for a national park nursery and research program; and
- ♦ Theoretical conservation incentives created for communities, companies, governments and others by proof that a valuable pharmaceutical might reside in their forests; this was not borne out in changed practices or policies, however.

Although few governments have come so close to "green gold", the government of Cameroon continued to sanction clearance of forests for industrial agriculture, and massive timber exploitation. Since this time a forest area the size of Belgium has been cleared in Cameroon. The NCI Letter of Intent, and other agreements that would have been signed if the case continued, would likely have yielded financial benefits for the government, and possibly the national park system, but financial benefits did not result in this case. Links with conservation might have been significant had a commercial product resulted, but in the end did not extend past the early years of research.

Source: Laird et al, 2000

6.2 Biotrade

Biotrade is linked to conservation more directly than biodiscovery, but often on a very localized level. Direct links include sustainable harvesting and cultivation of threatened and high-demand species; training in good practices, regenerative agriculture, agroforestry and reforestation schemes for degraded lands; income-generating activities that depend upon biodiversity and offer alternatives to destructive activities, including partnerships with companies that include long term contracts, premium prices, and value-addition; certified and verified supply chains; biodiversity action plans; and financial support for local or community-based conservation projects.

BOX 9. ABS and Biotrade: Limited Inclusion of Broader Conservation Benefits in ABS Agreements and Policies

“ABS has had a rather limited impact on conservation. My own experience is that the emphasis ... is not on nature conservation. My own company is interested and we try to be sustainable and do training on sustainable harvesting but this almost always happens outside of the formal [ABS agreement]”. [Industry representative, South Africa]



“To date, we don’t have concrete examples of ABS contributing to conservation... We tried with one case, Echinops giganteus, with a French company – but that is not ABS, it is the first stage in biotrade. It is still very difficult for us to demonstrate any benefits from ABS that might encourage conservation. But if communities know benefits will come to them, they will support biodiversity conservation. The government, too, if it thinks the Nagoya Protocol will bring more benefits to the country, they will support conservation of biodiversity... But up to date, this is not the case, it is still business as usual, nothing has changed...” – [Government official, Cameroon]

“In my experience [of obtaining multiple permits] nature conservation has not been requested or demanded by DEFF [the government]. It’s not on their agenda. We have never been asked to change a benefit sharing agreement (BSA) to deal with conservation. In one case, with Aloe, there was a training initiative on sustainable harvesting. However, Aloe harvesters have been doing this for the last 100 years; what can you teach them? This was a greenwashing exercise signed off by DEFF. Recently, with the renewal of a permit for Pelargonium, DEFF have asked for information about conservation, but haven’t given direct pointers. [Industry representative, South Africa]

“The conservation aspects [of baobab] happen as an aside. They are completely separate to the BSA [benefit-sharing agreement].” [Industry representative, South Africa]

Indirect conservation gains that might radiate out from biotrade partnerships include more equitable and sustainable value chains for products; compensation of TK holders for use of their knowledge; strengthened land and resource rights; support for customary law, often stronger and more effective than statutory law for biotrade products; and community development and conservation programs. Recognition of the socio-economic contributions of biotrade may also result in governments paying greater attention, for example through supporting the development of biodiversity management plans, resource assessments and harvesting guidelines.

"Income from devil's claw and Commiphora supports the co-management structure that then unleashes other environmental benefits and it provides household benefits that are linked to the program of community-based conservation" [NGO representative, Namibia].



Biotrade responds to a growing interest in consumers for environmentally sound and socially-responsible products. UEBT's Biodiversity Barometer 2020, for example, reports an increase in consumer and industry interest in biodiversity, including as it relates to product sourcing (UEBT 2020). Of consumers in France, the UK, Germany, US and Brazil, 78% had heard about biodiversity in 2020, up from 67% in 2010. Sixty two percent of consumers bought products from companies that respect biodiversity and people, with significant variations by region (e.g., Asia is 70% and the US is 51%). The report also notes that references to biodiversity in corporate communications continue to increase in the beauty industry – 49% in 2020 up from 13% in 2009 – and the food and beverage sector – 80% in 2020 up from 53% in 2012. Smaller numbers of companies report on biodiversity in their supply chains, but these are increasing in both sectors.

As noted, the US appears behind many countries in consumer awareness about environmentally and socially sound supply chains, and companies remain largely unaware of the CBD, however there too awareness is growing. As one industry representative explains:

"...More and more companies are investing in sustainability, but it is slow, particularly in the US... they may be organic certified, but very few are working on supply chain issues through ABS, instead more climate change or poverty alleviation. The most important thing companies could do is stop buying herbs anonymously from a broker...they should visit and meet producers. Companies are changing, though, they are working on their supply chains to avoid risk - with so many supply disruptions from COVID, civil wars, and other unrest. Companies have started to wonder where things come from, how stable they are... Companies need to have honest relationships. If they are okay with people barely getting by, and don't care if sources are sustainable, then they will have a problem ... people will stop doing the work if they are barely paid, and resources will run out."



BOX 10. Biotrade Certification as a Tool for Conservation



Biotrade, unlike biodiscovery, lends itself to third party, voluntary certification. A number of certification programs address fair trade and conservation issues in these sectors, including FairWild, Fair for Life, UEBT (see Box 13), Rainforest Alliance, and others. Although biotrade certification focuses on individual species and not ecosystems, it can contribute to landscape-level conservation by generating support for ecosystems in which valuable species exist, and strengthen the value of those systems for local groups. Some programs require company-wide adherence to standards for ingredients from biodiversity and others incorporate an ecosystem approach even when certifying a single species. As one certification and conservation professional described their work:



"Fair Wild has a landscape conservation approach... it requires species and area management planning for plants, fungi and other associated species. The management plan integrates requirements about regularity of monitoring and conservation of the target species, but also ensures that harvesting does not have a detrimental impact on other species in the area covered by the management plan. If resource inventories are done appropriately, they don't just identify annual allowable harvest of a certain species in a transect, but would also identify other fauna and flora that might be sensitive, or particular animals that require this habitat. The management plan incorporates, and implements activities, that demonstrate harvesting under Fair Wild does not have a detrimental impact on those species."

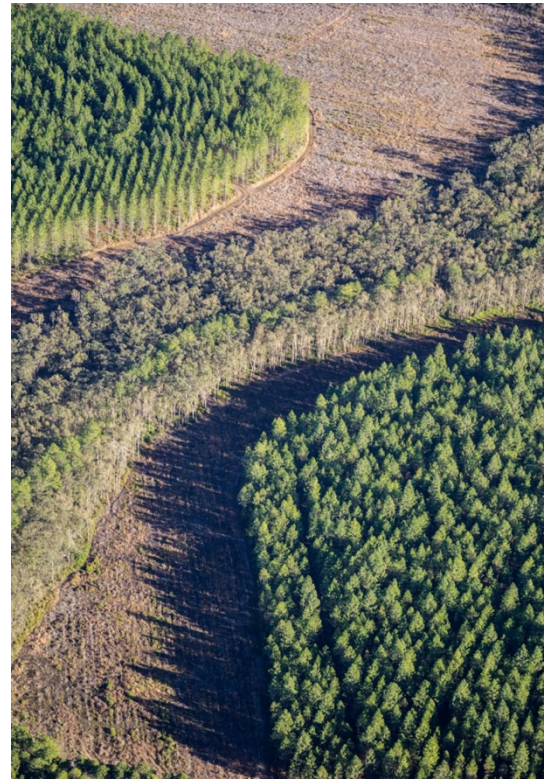


A community forest awareness meeting in Sanitatas Conservancy in the Kunene Region, Namibia.

(Photo: Jessica-Jane Lavelle)

6.3 Placing ABS and Conservation in Context

Market-based approaches to conservation have had some small successes, and can be a valuable complement to other approaches. However, they run the danger of legitimizing the very activities and forms of extraction and development that damage and degrade forests and biodiversity in the first place (Büscher and Fletcher, 2020). ABS takes place in a larger arena of economic activities with enormously negative impacts on biodiversity, unlike biodiscovery and biotrade. The revenues of extractive industries - like timber, mining, and oil – that directly damage and profit at the expense of forests and biodiversity, and agriculture, which has increased 300% since 1970 (IPBES, 2019), dwarf revenues from research activities governed by ABS. However, extractive industries and industrial agriculture do not bear the costs of their negative environmental impacts.



(Photo: Shutterstock)

Mining and energy production impact biodiversity, water quality, and human health, and half of the 100 million hectares of agricultural expansion in the tropics from 1980-2000 (e.g., oil palm in South East Asia and cattle in Latin America) came at the expense of intact forests. Raw timber production has increased 45% since 1970, and 10-15% of this is illegal (in some areas 50%). Not only do the revenues of these destructive sectors dwarf ABS revenues and conservation budgets, but governments actively subsidize them – OECD (Organisation for Economic Co-operation and Development) countries have contributed \$100 billion in financial support to agriculture harmful to the environment, and coal, natural gas and petroleum receive more than \$345 billion in subsidies which cause \$5 trillion in environmental costs (IPBES, 2019). The total cost globally of subsidies that damage the environment is conservatively estimated at around US\$4 to 6 trillion per year (Dasgupta Review, 2021).

In most countries, the net contribution to the environment in the form of conservation funding – something ABS might contribute to – is tiny compared with the profits realized from sectors that profit from forest and biodiversity degradation and destruction. In the face of massive biodiversity loss, governments should contribute directly to conservation, regulate destructive industries, and recognise that ABS – and the research and innovation it governs – is one potential, albeit minor, income stream among many others.

“Interventions should not only be limited to the indigenous plant industry. For example, the impacts of maize, potatoes, and fruit farms lead to huge biodiversity loss. We shouldn’t load too much onto the indigenous plant industry without looking at these bigger industries that have much bigger impacts.” [Industry representative, South Africa]





BOX 11. Biotrade Benefits for Conservation: The Case of *Terminalia* spp. in India

Terminalia bellirica and *T. chebula* are medium to large sized trees with small fruits. These fruits are ingredients of the “triphala”, one of the most important and widely used Ayurvedic formulas in India. Used for more than 1 000 years, it is also of interest to Western companies, including Pukka Herbs in the UK, which markets 100% organic teas. Applied Environmental Research Foundation (AERF), an NGO in India, and others developed a partnership with Pukka around the fruit of *Terminalia* to promote sustainable harvesting, while preserving the trees and biologically diverse forest of the Western Ghats, a biodiversity hotspot. *Terminalia* trees are harvested for timber, which provides a smaller, one-time benefit compared with the consistent harvesting of fruits over time (Yearsley, 2019).

Building on the long-term relationships established by AERF with local communities, Pukka and other team members worked over a number of years to develop sustainable harvesting practices, quality control, and broader conservation efforts, including for the threatened great and pied hornbills that nest in *Terminalia* trees, and conservation of 50 acres of private forest in the area. The certifier Fair Wild was brought into the project, and played an important role in enhancing conservation benefits from the project because, in the words of a representative of Traditional Medicinals teas, they are “... specifically designed for sustainable wild collection of medicinal and aromatic plants, uniquely applying a whole-ecosystem approach that includes relevant criteria for environmental, economic, and social sustainability...” (Yearsley, 2019).

Communities from neighboring regions are interested in providing Fair Wild material from their forests, which expands the impact of this project, and additional companies have been brought on board to buy certified *Terminalia* fruits, avoiding the risks if a single biotrade partnership does not last. Importantly, this biotrade product also has significant local and regional markets, so if global consumer taste for new products is fickle, as it can be in these sectors, producers and communities have more stable local markets to turn to.

A summary of conservation benefits that have resulted from company partnerships and certification focused on sustainable use of *Terminalia*, and broader ecosystem conservation, include:

- ◆ Sustainable use of the fruit
- ◆ Conservation of *Terminalia* trees, which are also home to threatened hornbill species
- ◆ Conservation of forest areas in which the trees are found, with financial support from industry partnerships
- ◆ Expanded interest from communities across the region in conserving their *Terminalia* trees and forest, rather than logging them, for a potential greater economic return over time

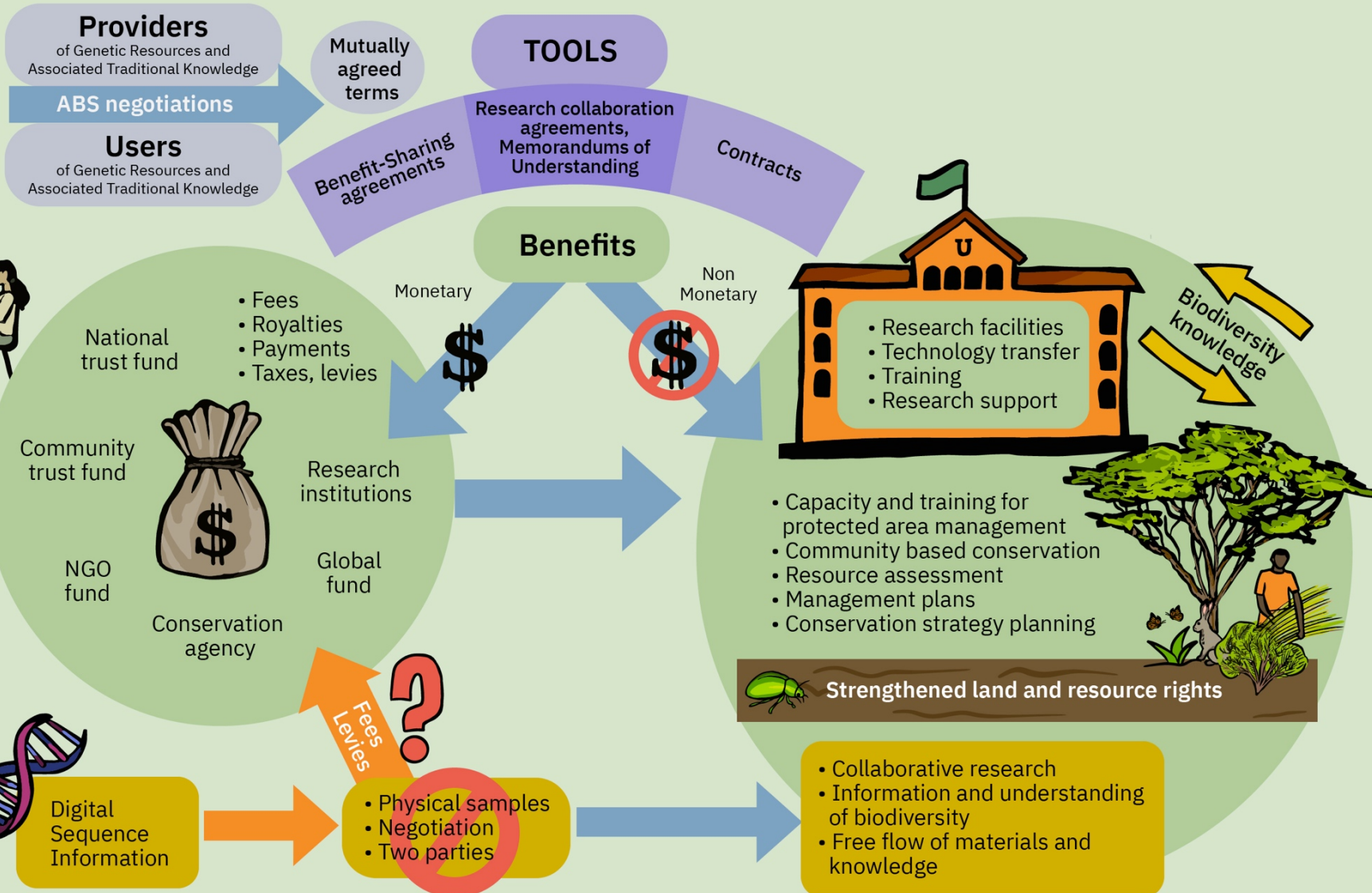
SECTION 7: MECHANISMS AND TOOLS FOR BENEFIT-SHARING



Mechanisms and Tools for Benefit-Sharing

Supporting negotiations:

- Clear laws
- Customary governance
- Biocultural protocols
- Codes of conduct
- Institutional policies
- Standards



KEY POINTS



- ♦ A sophisticated framework of benefit-sharing tools already exists that could be leveraged to localize benefits for conservation and sustainable use.
- ♦ Conservation activities should be determined by both national and local biodiversity priorities and, wherever possible and appropriate, should link back to the biome associated with the resource used. Conservation activities should be decentralized and localized as far as possible.
- ♦ Responsibility for implementing conservation initiatives is best spread among a range of partners and should be matched to available capacities, interests and effectiveness.
- ♦ Incentives for conservation and sustainable use will not materialize unless designed explicitly to be concrete and functional.
- ♦ Sector-level interventions are increasingly used to improve conservation outcomes without unfairly placing the burden on resource providers. Such approaches can lead to economies of scale, and can level the playing field.
- ♦ Many users are wary of providing funding to national trust funds that may not be accountable or transparent, or in countries with poor governance track records. Building relationships with local groups, conservation agencies, private landowners and communities to support conservation projects is an important alternative, and there are interesting models emerging around this approach.

A range of approaches have been developed to institutionalize benefit sharing for biodiversity conservation. Some of these have been developed specifically for ABS implementation, while others exist for the broader purpose of environmental protection but could be adapted and used as mechanisms for ABS. Within the ABS context these include legal tools for benefit sharing and collaboration; approaches that support negotiations; a range of mechanisms to support the governance and distribution of funding; and the application of funding to conservation priorities.

"There are, however, opportunities to connect conservation to ABS. For example, compliance to the threatened species regulations, or requirements for a biodiversity management plan could integrate ABS and, likewise, ABS permit requirements could link back to compliance with biodiversity management plans. ABS permits could include specific conditions and responsibilities regarding conservation and sustainable use."
[Government official, South Africa]



7.1 Benefit-sharing Agreements and Contracts

Legal instruments such as benefit-sharing agreements, research collaboration agreements and contracts are useful tools for setting out the kinds of activities and benefits that can be expected. These tools are used mainly for biodiscovery partnerships, although they may also be used to regulate biotrade in countries (such as South Africa) that include biotrade within their ABS frameworks. As described in earlier sections, in the early years of implementing the CBD, these agreements included a range of different conservation benefits, but –with some exceptions– the trend in recent years has been to focus on economic and social benefits.

Most of these processes will be guided by a range of support tools, which vary depending on the context and actors. For example, research collaboration agreements are typically framed within specific institutional policies (Laird and Wynberg 2008), protected area policies for bioprospecting (Laird and Lisinge, 2002; Laird et al, 2003) and may also be guided by Codes of Conduct (Posey and Dutfield, 1996) such as the [Global Code of Conduct for Research in Resource-Poor Settings](#) the [San Code of Ethics](#), and research codes developed by professional organizations like the [International Society of Ethnobiology](#) (Laird, 2002).

Legal and negotiation support is needed to accompany benefit-sharing agreements. While this support is readily available for industry, governments, and research institutions, it is unlikely to be the case for most IPLCs. If resources and circumstances allow, NGOs or legal firms supported by donors or governments may step in to fill this gap, and may use approaches such as community research agreements, community constitutions or biocultural protocols to articulate the position of communities in negotiations. These documents, to varying extents, address the customary use and conservation of natural resources.. It is also important to note that conservation may go against community interests; in many parts of the world conservation has been imposed on communities or has been accompanied by forced removals. IPLCs must be centred as key decision-makers in conservation planning; conservation interventions at a local level will not work without a democratization of conservation decisions. And as one biotrade facilitator described it, these agreements will not, in and of themselves, lead to conservation:

“There is sustainable management of the resource in a biotrade contract but that doesn’t mean biodiversity conservation. That means you just look after your one little resource and you might chop out everything else” [Government official, Namibia].



As Box 12 illustrates, NGOs may also act directly as brokers of biotrade and ABS agreements. In several conservancies in Namibia, for example, NGOs not only help with access to biotrade markets and value-adding, but also with support on sustainable harvesting.

BOX 12. Biotrade and Benefit Sharing Agreements: Two Cases from Namibia



Commiphora wildii (Namibian myrrh)

- ♦ Shrub-like tree that occurs on the rocky, mountainous slopes of the Kunene Region in north-western Namibia.
- ♦ Resin is harvested traditionally by indigenous Himba women, semi-nomadic pastoralists who use the resin daily as a perfume.
- ♦ Natural resin production exceeds local use and the NGO IRDNC (Integrated Rural Development and Nature Conservation) works with the Himba, through conservancies, to sell the resin to a French perfume company and others.
- ♦ As the resin is naturally exuded by the plant it can be harvested sustainably without damage to the plant population and its abundance makes *C. wildii* ecologically viable for commercialization.
- ♦ Conservancies and community forests are the enabling structure for the enterprise to be owned and managed by the community and the CBNRM institutional framework plays an important role, not only for sustainable harvesting of the resource but for conservation at a broader scale.
- ♦ The Kunene Conservancies Indigenous Natural Products (KCINP) Trust has been set up, to which the five conservancies where the traditional knowledge is held belong.
- ♦ The conservancies are now gazetted as community forests which gives them exclusive utilization rights of plants occurring in their boundaries. This in turn enables conservation.
- ♦ There is no direct relationship between ABS and conservation benefits. Rather, conservation benefits are actualized indirectly from biotrade through the CBNRM framework.

"We knew the legislation was coming so a lot of our biotrade supply chains and value chains have been set up bearing that in mind, trying to get the maximum value to the traditional knowledge holder, to the person managing the resources. And we have done that without ABS. We have done that through conservancies, through community forests, by devolving decision-making rights down to the people living with the resources, giving them a legal structure to enter into contracts" [NGO, Namibia].



Commiphora wildii resin in Namibia.
(Photo: Dudley Viall)

Myrothamnus flabellifolius (Resurrection bush)

- ♦ *Myrothamnus flabellifolius* also known as the resurrection bush or ohandukaze in OtjiHimba, is commercialized as an anti-aging cosmetic.
- ♦ The formulation, Myro PE, is marketed with the Himba story, Nagoya Protocol compliance and sustainable wild harvesting practices.
- ♦ IRDNC have done research to determine the most sustainable method for harvesting the resurrection bush and has since implemented the commercial harvesting of *M. flabellifolius* in four conservancies.
- ♦ An exclusive five-year joint venture ABS agreement has been signed with the KCINP Trust and Natural and Organic Formulations, also including a 5% percentage profit share in recognition of the TK.
- ♦ The resurrection bush is not a protected species and does not require harvesting permits. While significant efforts are made by IRDNC to ensure sustainable use of the resurrection bush, the ABS agreement itself does not prescribe any conservation measures for the plant or consider wider ecosystem approaches beyond sustainable harvesting (KCINP Trust 2017).
- ♦ Existing CBNRM institutional frameworks could however be used to strengthen conservation benefits from ABS and biotrade by developing a structure through which industry partners can support local institutions directly rather than through a new government institution which may face capacity and resource constraints.

"If a company can say 1% of profits go to conservation of biodiversity in northern Namibia, there needs to be a human element and a conservation element that are easily communicated to the final client...And it must be quick and easy to do that, it mustn't be a long story because the person in front of the shelf has a timeframe of maybe a minute and they are going to assess ten brands so you've got a few seconds" [Industry representative, South Africa and Namibia].



Resurrection bush twigs at a Himba household.
(Photo: Michelle Nott)

7.2 Funding Mechanisms

Table 1 below explains the different kinds of funding mechanisms and institutions that may be used to channel benefits to conservation, ranging from national trust funds through to conservation agencies, NGOs, community trust funds, private foundations and global biodiversity funds. As the table describes, each is accompanied by different advantages and disadvantages.

Table 1. Where should the money go? Pros and Cons

Mechanism	Advantages	Disadvantages
National trust fund	Often legally prescribed; clear rules for management.	Accountability and transparency may be challenging; concern that funding will be used for purposes other than conservation; links back to geographical area and resource are not necessarily explicit; enabling representation of all parties is challenging.
Public research institutions	Likely to be good accountability and transparency; funding can be clearly linked to specific research activities that support biodiversity conservation.	Runs the risk that funding follows individual research interests rather than being aligned strategically to conservation priorities.
Conservation agency	Focused mandate; established legal structure; strong conservation knowledge.	May not have adequate reach in different places; may not be adequately representative; may not have capacity to administer; may have high levels of bureaucracy.
Community trust fund	Community-led and governed; addresses community priorities; localized impacts.	Resources often occur more widely; conservation may receive short shrift in the face of other pressing priorities; governance structures may exclude supportive non-community voices.
NGO	Typically flexible and agile; more likely to have community-based experience; likely to have strong conservation mandate; typically good capacity and knowledge.	May be too localized – or too big to be effective at a local level; funding and status is often insecure.
Industry initiative / Private fund	Fund disbursement likely to be efficient; easy and quick to use; good knowledge of the resource and markets.	May lack credibility and trust if not independent; priorities may not be democratically determined; governance may not be inclusive.
Global fund	Multilateral approach suits resources and knowledge that straddle national borders; legal option exists through Article 10 of the Nagoya Protocol; attractive option for channeling benefits arising from the use of DSI.	Governance and representation are complex; likely to have high overhead costs which could outweigh benefits; detached from local realities; likely that primarily those with existing capacity and knowledge will benefit; equitable distribution and transparency can be challenging.

The way in which these mechanisms will be used varies widely, depending on laws and policies, obligations in benefit-sharing agreements, institutional capacity and public acceptance. Often, they will be curtailed by what the law and agreements prescribe. In South Africa, for example, the national Bioprospecting Trust Fund is simply a “bank account” into which all money arising from benefit-sharing agreements flows, and from which all payments to stakeholders will be made. In other words, it is not a discretionary mechanism with a governance structure, but instead relies exclusively on benefit-sharing agreements to determine how benefits should be allocated.

Brazil in contrast (see Box 14) embeds conservation priorities in its decree, and provides two options from which users can choose. The first requires companies or users to pay money directly into a national fund, represented by 50% IPLCs and 50% government. The second option enables companies or users to perform their own projects or hire NGOs to execute projects. Different approaches are adopted for genetic resources and TK.

Funds may also already exist that can be repurposed for channelling benefits from ABS. Namibia’s Environmental Investment Fund, for example, provides a mechanism whereby donations or grants can contribute to conservation through financing projects developed by local communities for conservation and sustainable use; the recovery, creation and maintenance of depositary banks; and the building of capacity associated with the use and conservation of biological and genetic resources and associated TK.

Community trust funds may occur in parallel to these structures but are hugely divergent in their shape, size and function. In Namibia, fund disbursements through CBNRM have been managed for decades, where, through local conservancies an institutional framework is provided for generating benefits and implementing natural resource management at a landscape level. As one CBNRM-supporting NGO articulated: “Conservancies don’t give rights to plant resources but they create a functional local-level institution that is managing far more resources than the legislation allows it to” [NGO representative, Namibia].



Directly responding to the *Hoodia* benefit-sharing agreement, the San-*Hoodia* Benefit-Sharing Trust was established in 2004, receiving initial payments prior to the withdrawal of commercial partners. This also became a template for future payments to indigenous San from the commercialization of *Sceletium* and other plants. Similarly, and again in response to a benefit-sharing agreement, the Andries Steenkamp Benefit Sharing ABS Trust and the Khoi-Khoi ABS Trust were established to disburse benefits from rooibos (Box 4). While it is too early to glean lessons from the rooibos agreements, those from the *Hoodia* case highlight some of the challenges of introducing Western models of governance in traditional communities (Wynberg et al, 2009).



The kernels of *Schinziophyton rautanenii* produce an oil which is used traditionally as a body rub and in the cosmetics industry.
(Photo: Jessica-Jane Lavelle)

Conservation trust funds grew up in the 1980s in response to debt-for-nature swaps, in which foreign debt was cancelled in return for a commitment to conservation investment. The trust fund concept was carried from estate planning into the field of conservation (Guerin-McManus et al, 2002). Various funds were developed in subsequent years to respond specifically to the generation of monetary benefits from ABS and biodiversity partnerships, including The Forest People Fund of Suriname, which grew from an ICBG project; the Fund for Integrated Rural Development and Traditional Medicine in Nigeria (Nnadozie et al, 2002); the National Environment Fund of the Fundacion Natura in Panama, also growing from an ICBG project (Capson, 2002); and The Healing Forest Conservancy Trust Fund, the non-profit arm of then Shaman Pharmaceuticals (now Jaguar and Napo Pharmaceuticals) (Moran and Mays, 2002). Important lessons were learned during the expansion of ABS funds in the 1990s and 2000s, including on financial structure, sources of funding, governing structure, criteria for fund disbursement, staffing, trust location, and other issues (Guerin-McManus et al, 2002). These would be worth consulting today, as funds once again receive attention within ABS policy fora.

Many examples also exist of funds set up to channel benefits to communities from mining, tourism, conservation and other initiatives. The spectrum of approaches may include CBNRM, co-management, corporate social responsibility, fair trade and certification, revenue sharing, PES, or pro-poor tourism, each having varied outcomes and ideological bases. They also use certain tools to distribute benefits, such as permits, community levies, and equity in shares (Wynberg and Hauck, 2014).

In Madagascar, endogenous funding – i.e. from public sources, entrance fees to protected areas, and ecotourism – and exogenous funding from international donors, contribute to conservation financing. A recent increase in PES (e.g. carbon sales) is providing new opportunities for financing conservation, and creating transfers of cash to cover the management costs for protected areas, and ABS projects might also transfer benefits to these existing funds to support conservation. A number of different funds channel benefits from donors, debt conversion, and commercial activities and conservation, including the forest fund from the 1997 Forestry Law, intended to finance activities related to management and conservation of forests. The Madagascar Biodiversity Fund (MBF) was created in January 2005 under the leadership of the Malagasy state, Conservation International and WWF, and funded by Conservation International, WWF, the French Development Agency (AFD), KFW, the World Bank/Global Environment Fund, and others. The objective is to provide sustainable funding for the system of protected areas. Funds totaling more than US\$80 million are managed in different ways, including through a sinking fund process (funds from a debt conversion agreement between the Malagasy and German governments are disbursed over a 20 year period to 5 protected areas) and an endowment fund (the MBF's capital is placed in international financial markets and the interest is used to finance marine and terrestrial protected areas conservation, including recurring management costs and conservation and development projects with IPLCs).

Cameroon likewise has a number of existing funds fed by commercial activities, including through timber royalties, community hunting zones, proceeds from protected areas, and benefits from community and council forests. Funds established within the forestry and environment sector include: the Special Fund for Forestry Development fed by royalties from timber; the Special Fund for Development of Equipment of Conservation Areas and Wildlife Protection fed by revenue from hunting; and the National Fund for Environment and Sustainable Development. Challenges remain with transparency, identifying and involving beneficiaries, and weak links with conservation. Compensation funds set up by global companies to mitigate negative impacts of large infrastructure projects, and corporate social responsibility funds, like that created in 2005 by mobile telecommunication company MTN from 1% of its profits, have also contributed to conservation activities (GIZ, 2020).



Mopane tree are used traditionally while the seeds are harvested in the Kunene Region, Namibia for extraction of an essential oil used in the cosmetics industry.
(Photo: Jessica-Jane Lavelle)

BOX 13. Linking ABS and Conservation: UEBT Tools



The Union for Ethical BioTrade (UEBT) is a non-profit association, launched in 2007 as a spin-off of the UNCTAD BioTrade Initiative. UEBT sets and validates good practices for how companies source specialty ingredients for food, cosmetics and natural pharmaceuticals. Companies that join UEBT commit to gradually integrate the internationally recognised Ethical BioTrade standard in their operations and supply chains for ingredients from biodiversity, whether cultivated or wild collected. Additionally, UEBT offers verification and certification tools for corporate systems and specific supply chains.

UEBT requirements cover a range of social, economic and environmental issues, with a focus on the three CBD objectives: conservation of biodiversity, sustainable use of its components and fair and equitable benefit sharing. The Ethical BioTrade standard requires companies to have a system in place that assesses the applicability of ABS requirements to their own and their suppliers' activities and ensures measures are taken for compliance. It also includes requirements on conservation, sustainable use and regeneration of biodiversity - from ecosystems and species to genetic diversity.

Different tools exist to support companies in fulfilling these requirements. For ABS, UEBT has a database to allow companies to identify relevant requirements. For biodiversity, UEBT has developed a methodology for Biodiversity Action Plans (BAPs). BAPs provide guidance to companies in designing and implementing concrete practices on biodiversity in the areas where an ingredient is farmed or wild collected and the surrounding landscapes.

In the UEBT methodology, BAPs include the following elements:

- ♦ *Baseline information* includes the location and structure of the cultivation or wild collection site, the characteristic of the crop or plants collected, key habitats, ecosystems and species in the area, and threats and opportunities for biodiversity on and around the sites.
- ♦ *Goals and targets* reflect the company's ambitions for biodiversity in the cultivation or wild collection area and should tackle threats and enhance opportunities for biodiversity.
- ♦ *Measures* are taken by farmers or collectors with the support of other supply chain actors or local stakeholders to adopt regenerative practices, promote habitat connectivity and minimize use of external inputs.
- ♦ *Workplans* define the timeline for measures, responsible actors, risks, and back up actions.
- ♦ *Monitoring and Evaluation* assesses proper implementation and impact of measures. Indicators include soil and water conditions, varieties and number of species in sourcing areas, and condition of habitats.

UEBT members are implementing BAPs around the world. For example, in Latin America, BAPs allow rural communities to collect rose hip, an important source of income, and In Nigeria, where hibiscus is grown, farmers implement regenerative practices to fight desertification and support planting of native trees.

by Julia Oliva and Simona Damico

7.3 Focusing on Individual Species for Benefit sharing: Sector-specific Approaches

It is increasingly clear that conservation will not be achieved at a meaningful scale through individual ABS agreements. The biotrade sector, in particular, often comprises smaller companies with low levels of demand, or larger companies that purchase only small amounts of many different species. Moreover, the factors affecting conservation often fall outside the scope of influence of actors involved in biotrade and biodiscovery. As one observer remarked:

“Some of these cosmetic companies in Europe might only buy a 100kg of something a year so what kind of an agreement are they going to come up with, with some farmer or trader that incorporates sustainable use, conservation, resource monitoring, protection and promotion of indigenous knowledge systems, research into other sustainability issues, other landscape ecosystem wide issues. You can’t expect to see that dealt with in ABS agreements” [Bio-economy technical advisor, Southern Africa].



Within biotrade, increasing attention is being given to sector-level approaches for benefit sharing, “to move the conservation needle” as one industry advisor remarked. In South Africa, a sector-level approach is in place for rooibos, and buchu, marula and honeybush are following suit. Such approaches could involve sector-wide standards, commitments to avoid biodiversity loss or to management approaches that enhance or restore biodiversity, and would be a valuable way to strengthen conservation within different sectors. This would also require partnerships with environmental NGOs and other actors.

Sector-level interventions might improve conservation outcomes without unfairly placing the burden on resource providers, and could lead to economies of scale, and level the playing field.

In Namibia, members of the Devil’s Claw Exporters Association are investigating a sustainability standard for producers, traders and exporters, similar to that developed for the Namibian charcoal industry. A standard would reduce the open market and promote traceable value chains, thereby improving sustainability and export prices.

“Hopefully we can influence the market in the long run, [so] that everyone involved in the supply chain will contribute a little bit to cover the costs involved in the auditing and so on. That we share the costs and everyone in the supply chain gets more out of the product” [Indigenous product exporter, Namibia].



In Cameroon, during the creation of the Mt Cameroon National Park (MCNP), the Regional Delegation of Forestry and Wildlife and the MCNP developed a framework for *Prunus africana* with local communities. It included establishing the legal entity, the Mt Cameroon *Prunus* Common Initiative Group (MOCAP CIG) which coordinates with villages in the region; applies for exploitation permits; negotiates MOUs with government for sustainable management; selects and trains harvesters in line with CITES requirements; develops a management plan for *Prunus* in the Mt Cameroon Allocation Unit that attributes quotas, rotation, specifies exploitation techniques and distribution of profits; undertakes a 100% inventory of *Prunus*, including marking all trees; elaborates a micro business plan; and oversees sustainable exploitation, transportation, weighing, marketing, and monitoring the use of income. Between 2012-2017 this led to the harvest of around 113 tons of bark, generating around 52 million CFA between 2012-2017. Around 80% of income was shared with the community, and 20% was allocated for regeneration of *Prunus* and other activities. The breakdown of benefits from the proceeds were as follows: harvesters 43%; village development fund 16%; community facilitation 7%; park management 20%; regeneration 7%; transportation 4%; warehouse 3% (GIZ, 2020).

At a wider level, suggestions have also been made for agreements to be developed at the level of provider countries and user countries. Remarked one industry representative from an international company: "Perhaps we could envisage a user country organising its sector and a provider country doing the same, and setting conservation targets with resources to achieve these, in exchange for access and also the now nearly forgotten aspect of "technology transfer".

"The issue we have is that in most countries where the ABS system is well established the benefits usually end up in national funds and we have no accountability. This for us is not fair. We share a lot in the application process but the country doesn't share back what they do and we have no leverage. I value ABS principles but if we want a stronger impact then countries need to be more open minded. A lack of transparency does not help to build trust." [Global industry representative].



Rooibos harvesting in the Cederberg mountains, South Africa. (Photo: Rodger Bosch)

BOX 14. Exploring Mechanisms for Integrating Conservation and Sustainable Use in ABS in Brazil



In Brazil, the link between benefit sharing and conservation historically has not been clear, relying to a large extent on the willingness of the user to integrate conservation measures, rather than obliging them to do so. However, Law 13/123, passed in 2015, has changed this landscape and now provides the legal architecture to channel benefits to conservation. The decree sets out conservation priorities and lists a number of options for applicants to select, including support to high biodiversity areas, promoting sustainable use and supporting Indigenous peoples in protected areas.

There are different approaches for sharing benefits arising from the use of genetic resources and TK. For genetic resources, users are required to deposit 1% of the annual net revenue derived from products. Benefit sharing arising from the use of TK of identifiable origin does not include a fixed percentage, but must include 0.5% of sales revenue to a national fund. Where TK is involved, trustees of the fund are required to share benefits with co-holders of TK.

The law creates a model with two options from which users can choose. The first requires companies or users to pay money directly into a national fund. The second option enables companies or users to perform their own projects or hire NGOs to execute projects. A 25% “discount” is offered to users that pursue this option but is limited to conservation and sustainable use projects; capacity building linked to achieving the objectives of the law; and social projects.

Companies adopting the project-based option are required to promote conservation and sustainable use through such initiatives, and it is also expected that this could provide an important way in which scientific work can be supported and synergies promoted with IPLCs. Applicants are required to present concrete projects with clear indicators that are feasible to achieve in a short period of time. A declaration of compliance is provided only following the completion of the project. One of the intentions of this approach is to encourage companies to build relationships with communities. A “bank” of projects has been created by the Ministry of Environment that companies can choose from, and third parties such as NGOs can be employed to support implementation. Payment exemptions are provided for small companies, intermediaries and individual entrepreneurs. Through implementing this approach, commentators have observed that a new economic sector has been created, with NGOs now approaching companies to implement projects. It has also led to a shift in conservation funding. The project-based approach has received strong support from many companies who may not trust the state and have preferred to implement benefit sharing themselves rather than through a fund.

For those users choosing the first option, monies are deposited into a national fund and are ringfenced *ad infinitum* for conservation and sustainable use, preventing their repurposing. The money is not perceived as a tax or a royalty payment but rather a new form of funding that belongs to the people or, where TK is involved, to IPLCs. Detailed guidelines have been developed to guide users and public servants in the dissemination of funds, with oversight through a Board that comprises 50% IPLCs and 50% government representatives.

The system also helps to deal with TK issues, specifying (1) that all TK is collectively owned; and (2) the need to negotiate with a reputable organization. There are two ways of addressing TK. If TK is of identifiable origin, no fixed percentage of benefits apply and TK holders freely negotiate an agreement in the PIC and MAT process. If TK is considered to be from an unidentifiable origin, 1% of annual revenues arising from its commercial use will be deposited into the fund and there is no requirement for PIC and MAT. In both instances, the fund will direct benefits to IPLCs.

Experiences to date suggest that the new approach has both improved the uptake of conservation measures and has also enhanced the effectiveness of permit approvals and improved transparency. For example, prior to the new law 2 600 permits had been granted over a 15-year period, whereas in the 3-4 years since implementation of the new law some 57 000 access activities have been registered, equivalent to obtaining PIC, and over 3 500 product notifications, indicating the conclusion of ABS contracts. An electronic information system (SISGEN) that integrates data across all systems and which is linked to biodiversity and enhanced management and traceability reportedly enables public servants to be more efficient and to track conservation impacts.

All notifications and access registries are available, in Portuguese, through the Competent National Authority website <https://sisgen.gov.br/paginas/publicidade.aspx>



Bacuri (*Platonia insignis*), a nutritious Amazonian forest fruit.

(Photo: Patrícia Shanley)

CONCLUSION



Biodiscovery, ABS and Conservation

1990

1992

CBD
Convention on
Biological Diversity

1995

TRIPS
Trade-related Intellectual
Property Rights Agreement

2001

ITPGRFA
International Treaty
on Plant Genetic
Resources

2004

Bonn
Guidelines

2010

Nagoya Protocol
adopted

2014

Nagoya Protocol
entered into force

2016

Digital Sequence
Information (DSI)
lands in the policy arena

2020

Examples of conservation
benefits included in agreements:

- Research partnerships
- Capacity building in biodiversity science
- Fees, milestone payments, royalties
- Funds for protecting biodiversity
- Improved biodiversity knowledge

ABS &
Conservation

The approach to benefit sharing and conservation remains unchanged

Under new ABS measures, negotiation of agreements
is intended to benefit conservation as well as create
greater equity in research

The future remains unclear, as research
is increasingly detached from physical
samples, and ABS approaches for DSI
remain uncertain.

Global Funds
for conservation

Science &
Technology

Rapid advancement in
molecular biology and
molecular genetics

First genome
sequenced

Second generation
gene sequencing

Increasing dominance of genomics-driven discovery

Collections of physical
samples, automated
biochemical screening and
modern analytical chemistry

First commercial
planting of
GM crops

Human genome
sequenced

Cost of
reading DNA
declines

Gene editing
and gene drives

Resources
Used

Less physical material required, growing
interest in microorganisms

Exponential increase in digital
transmission of genetic
sequence information

Biodiversity related
patents increase

CONCLUSION

A great deal of change has occurred over the last 30 years in science and technology, the state of biodiversity, and in the evolving policy framework, but ABS approaches have remained largely unchanged – focused on negotiations, bi-lateral agreements, and a view of benefit sharing that is often now outdated. In the last few years, with the arrival of DSI on the policy stage, and at the same time the IPBES (Global Biodiversity Assessment Report, 2019) and other reports have emerged identifying the staggering loss of biodiversity, and the role of IPLCs in conserving biodiversity has been further emphasized, a re-evaluation is taking place of the relationship between ABS and conservation.



Young *Hoodia* plants.
(Photo: Rachel Wynberg)

In this time of transition, there are many opportunities to explore new approaches that more effectively address:

- ♦ the direct and overwhelming threats to biodiversity posed by destructive and extractive industries including industrial agriculture, oil and gas, mining, and timber and their need to pay compensation;
- ♦ the potential conservation benefits of biodiscovery and biotrade, and the limits of these innovative industries to clean up the damage wrought by destructive industries;
- ♦ the underlying causes of biodiversity loss including corruption, inequality, poverty, bad governance, and unsustainable levels of demand and consumption;
- ♦ the need to support biodiversity research in order to better understand the massively threatened natural world;
- ♦ sources of funding for biodiversity conservation that involve government contributions, and taxes and levies on destructive industries;
- ♦ challenges to equity in science and the commercial use of biodiversity, and opportunities for benefit sharing, that move beyond the transactional approach of ABS.

ABS still has an important role to play in supporting equitable research on biodiversity, and can contribute to biodiversity conservation and sustainable use, but it is a smaller role than initially and usually envisioned, and one that governments and others need to carefully consider.

Today, there is a slow but steady rise in government interest in bringing biodiversity conservation more systematically back into ABS. This is promising, but it is important that governments and others understand that many conservation benefits are not monetary, and that non-monetary benefits like biodiversity research and building conservation management capacity can also result from government support and policy.

Some companies have also been proactive in recent years by putting biodiversity on the table, and embedding biodiversity conservation as a fundamental principle and component of any ABS agreement or approach from the start. Many industry associations already build conservation into best practices and guidelines.

As we develop approaches that better link ABS and conservation, it is important to not place the burden of conservation implementation on communities, who are typically overwhelmed with other priorities, and to also recognize that conservation is not in conflict with benefitting IPLCS for the use of their TK and resources.

Although ABS can only contribute in a small way towards resolving the biodiversity crisis, it is an important part of the solution. As we work on a post-2020 Biodiversity Framework and consider urgent actions to stem the biodiversity crisis, now is a good time to think about how to broaden the suite of practical, meaningful and effective options that are available to support conservation within ABS. Below is an overview of approaches to conservation and ABS to provide governments, researchers, industry, IPLCs and others with a framework of options.

ABS and Conservation – A Framework of Options

Embedding Conservation in National ABS Law and Policy

- ✓ Biodiversity conservation should be embedded as a fundamental principle and component of any ABS agreement or approach from the start, and included in ABS measures.
 - ✓ Require monetary benefits to go to entities that will implement conservation
 - ✓ Require consent of IPLCs, and share benefits directly with them through project-based approaches or indirectly through national or other funds
 - ✓ Link TK and stewardship of genetic and biological resources within laws
 - ✓ Link private landowners, IPLCs, conservation managers and other resource providers to clear conservation actions
 - ✓ Provide tangible and concrete options to enable conservation actions to be easily implemented
 - ✓ Coordinate with other institutions implementing conservation policies and laws
 - ✓ Use existing approaches that are tried and tested
 - ✓ Require partnerships with local research institutions, NGOs and conservation agencies when appropriate
 - ✓ Have clear guidelines for advisory committees and decision-makers to enable conservation as a principle to be embedded in decisions about benefit-sharing agreements and permits
Ensure a wide and diverse range of stakeholders are represented in relevant boards and committees that oversee ABS implementation
-

Biodiscovery Partnerships	Biotrade Partnerships
Adopt an ecosystem, biome and landscape approach when possible and link back to identified conservation priorities	
✓ Ensure linkages between non-monetary benefits and conservation and sustainable use. For example: ◆ Research can support, or include components, that address conservation priorities in a country, like inventories or management research for threatened species. ◆ Capacity building in universities can support biodiversity research, or conservation entities like protected areas, or local conservation NGOs. ◆ Technology transfer and training can be channeled in ways that support conservation, health, and other objectives. ◆ Data can be shared widely from inventories, distribution and taxonomy studies, including with conservation managers. ✓ Channel a portion of financial benefits – e.g., fees, milestone payments, royalties – towards conservation areas and activities. This might include parks, biosphere reserves, community forests and urban green spaces. ✓ Monitoring systems can be established that track and measure the impact of ABS on conservation and sustainable use.	✓ Ensure all trade is based on sustainable cultivation or harvesting strategies, and that companies agree to source material responsibly. ✓ Enforce and improve upon existing regulations that set quotas, establish permitting and export procedures, and regulate other aspects of the trade that impact sustainability and equity. Biotrade often has a full suite of regulations, but these can be poorly drafted, coordinated, and implemented. ABS measures should complement these, rather than create another layer of bureaucracy. ✓ Increase opportunities to comply with positive contributions towards the conservation and sustainable use of biodiversity. ✓ Include the perspectives, experiences and capacities of resource providers and TK holders through democratic processes that promote inclusion and transparency. ✓ Strengthen and support the role of independent certifiers that can assist communities, companies, and governments in establishing equitable partnerships, and sustainable supplies, as well as informing consumers about the source of their products. ✓ Establish monitoring systems that track and measure the impact of ABS on conservation and sustainable use. ✓ Encourage the development of sector-specific plans for particular resources and sectors.



ANNEX 1. INTERVIEWS

CAMEROON

Asaha, Stella – Coordinator. Forest, Resources and People (FOREP)
Atemnkeng, William Tazanu – Divisional Delegation of Forestry and Wildlife, Ndian - Southwest Cameroon
Awono, Abdon – CIFOR Scientist and Research Associate UM GRED-IRD
Bekinda Eni, Donatus – ERUDEF (Environment and Rural Development Foundation)
Ekwaingen, Mercy – Divisional Delegate Faku, MINEPDED
Elive, Thomas – Manager, Mount Cameroon Prunus Management Initiative (MOCAP)
Eno-Nku, Manasseh – Conservation Biologist, WWF Project Manager for Campo Ma'an
Fominyam Njoh, Christopher – Wildflower Foundation
Ingram, Verina – Assistant Professor FNP & Senior Researcher, Wageningen Economic Research
Kale Litie, Charles – President Bokwaongo Village Forest Management community, MOCAP Company
Ewome, Luma Francis – Bokwaongo Village, Prunus harvester
Mahop, Marcelin Tonye – School of Earth and Environment, University of Leeds
Mokom Ngu, Eric – Founder and Director, ETS ERIMON, Vice President of the Exploiters and Exporters syndicate
Mtemching Djomo, Serges – Limbe Botanical Garden, MINFOF
Mukete Ongie, Rose – Environmental Sensitisation Officer MINEPDED
Nchoutpouen, Chouaïbou – Biodiversity Programme Officer and ABS Coordinator, COMIFAC
Ndah Njoh, Roland – Department of Botany and Plant Physiology, University of Buea, FOREP
Ngatchou, Paul – Director, Agrodenrée SARL
Nkembi, Louis – Ceo/Manager, ERUDEF (Environment and Rural Development Foundation)
Nkwatoh, Athanasius – Department of Environmental Science, University of Buea
Nkuinkeu, Robert – World Botanical Exchange and Services
Songe, Set Ekwadi – Regional Delegate MINEPDED

NAMIBIA

Carr, Stephen – Senior Forester, National Botanical Research Institute, Ministry of Environment, Forestry and Tourism
Chimwamurombe, Percy – Professor of Biology & Deputy Head of Department, Natural and Applied Sciences, Namibia University of Science and Technology
Cole, Dave – Consultant for Namibian Association of CBNRM Support Organisations (NACSO) and ECOCERT
Diekmann, Gero – Owner, Ecoso Dynamics
Hazam, John – Senior Technical Advisor, Namibia Nature Foundation
Kangandjo-Negumbo, Martha – Manager, Eudafano Women's Cooperative

Lombard, Cyril – Advisor, GIZ A-Bio SA and GIZ BioInnovation Africa, South Africa
Mallet, Michel – Executive Director, Centre for Research Information Action in Africa South African Development and Consulting (CRIA SA-DC)
Middleton, Angus – Director, Namibia Nature Foundation
Mostert, Pieter – Owner, Kamaku Export
Ndengejeho, Henry Michael – Biotrade Coordinator, Interim Bioprospecting Committee, Ministry of Environment, Forestry and Tourism; GIZ ABS Project Manager
Nott, Karen – Technical consultant for Integrated Rural Development and Nature Conservation
Shikongo, Sem – Director of Tourism, Ministry of Environment, Forestry and Tourism
Steyn, Trevor – Founder, Esse Organic Skincare

SOUTH AFRICA

Ackhurst, Albert – Head of Component Biodiversity at the Department of Environmental Affairs and Development Planning
Chicken, Lindsey – Director, Skimmelberg Fynbos Oils
Crouch, Neil – South African National Botanical Institute
Donaldson John – South African National Botanical Institute
Feiter, Ulrich – Parceval Pharmaceuticals
Feltman, Natalie – Department of Environment, Forestry and Fisheries
Koopman, Rupert – Conservation Manager, Botanical Society of South Africa (formerly CapeNature)
Lavelle, Jessica-Jane – Department of Environmental and Geographical Science, University of Cape Town
Ndwandwe, Sthembile – PhD Student, Department of Environmental and Geographical Science, University of Cape Town
Newton, David – TRAFFIC
Oettlé, Noel – Environmental Monitoring Group
Venter, Sarah – EcoProducts Baobab Oil

MADAGASCAR

Andriamahefazafy Ramaromanana, Fano – Researcher, Department of Economics, University of Antananarivo
Andriamaro, Luciano – Conservation International
Andriamihaja Lisy – Deputy Managing Director of SOTRAMEX
Edmond, Roger – Researcher, Faculty of Sciences, University of Antananarivo
Razafimanandraibe, Louis de Gonzague – President, Tafo Mihaavo Association
Rakotoarijaona, Mamy – Director, Madagascar National Parks
Rakotonindrina, Raymond – FVPRS Association
Ramamonjisoa, Lolona – National Focal Point, Nagoya Protocol
Ramarosandratana, Aro Vonjy – Researcher, Department of Plant Biology and Ecology, University of Antananarivo

Rambinintsaoatra, Saholy – Researcher, Faculty of Law and Economy, University of Antananarivo
Razanamalala, Emelie – FVPRS Association

GLOBAL

Armbrecht, Ann – Sustainable Herbs Program, US
Brinckmann, Josef – Traditional Medicinals, Fair Wild, US, BfN Germany
Damico, Simona – Union for Ethical BioTrade
Davis, Kathryn – Senior Policy Advisor for Environment and Climate Change, Canada
Desai, Manisha – UCB Biopharma, Belgium
Elisabetsky, Elaine – Ethnopharmacologist, retired University of Porto Alegre, Brazil
Hodges, Timothy – Professor of Practice at McGill University's Institute for the Study of International Development and former Co-Chair of the Nagoya Protocol negotiations, Canada
Katz, Daniel – Chairman of the Board, Rainforest Alliance, US
Leaman, Danna – IUCN Medicinal Plants Specialist Group, Fair Wild
Liese, Sascha – Symrise
Lyal, Chris – Scientific Associate Natural History Museum, London, UK
Malleon, Ruth – University College London, Honorary Researcher, UK
Maryama, Farah – Natural Justice
Mzwakali, Sobantu – Natural Justice
Normand, Valerie – Union for Ethical BioTrade (formerly of the SCBD)
Nova Silva, Luciana Villa – Natura
Novion, Henry – GLZ, formerly of the Brazilian government
Oliva, Julia Maria – Union for Ethical BioTrade
Paquin-Jaloux, Stephanie – Firmenich Grasse
Pole, Sebastian – Founder, Pukka Herbs, UK
Rasolojaona, Jazzy – Natural Justice
Rosenberg, David – Retired GlaxoSmithKline, IFPMA, UK
Ruiz Muller, Manuel – Peruvian Society of Environmental Law (SPDA), Peru/Costa Rica
Smith, Erin – WishGarden Herbs, US
Taboulchanas, Kristina – CBD Secretariat
Timosh, Anastasiya – TRAFFIC, Fair Wild, UK
Vaalbooi, Ivan – Natural Justice



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