The contribution of Access and Benefit-Sharing (ABS) to the Sustainable Development Goals.

Lessons learned and best practices

Handout

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Federal Agency
for Nature
Conservation

Information compiled, analyzed and edited by:
Valerie Normand & María Julia Oliva, Union for Ethical BioTrade (UEBT) (info@uebt.org)
Susanne Müller & Suhel al-Janabi, GeoMedia GmbH (info@geo-media.de)
Dr Nicole Nöske, Dr Luciana Zedda & Dr Axel Paulsch, Institute for Biodiversity Network (ibn) (info@biodiv.de)

All contact persons mentioned in the different cases are kindly acknowledged for their contribution with information and pictures.

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Introduction

2020 is a critical year for biodiversity. Despite the global pandemic, the process towards the adoption of a global biodiversity framework at the 15th meeting of the Conference of the Parties to the CBD, postponed to 2021, is progressing. In addition, 29 October 2020 marked 10 years since the adoption of the Nagoya Protocol on access and benefit-sharing (ABS).

Against this background, the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU) and the German Federal Agency for Nature Conservation (BfN) are supporting a research project to highlight how access to genetic resources and benefit-sharing (ABS) contributes to conservation and sustainable use, as well as to the United Nations Sustainable Development Goals (SDGs).

The project is carried out by Geo Media, the Institute for Biodiversity Network (ibn) and the Union for Ethical BioTrade (UEBT). It features a selection of ABS partnerships from different regions of the world. Based on these partnerships, which involve the use of genetic resources for commercial or scientific purposes, the project highlights lessons learned, emerging good practices and contributions to the SDGs.

To date, 129 Parties to the CBD have ratified the Nagoya Protocol. However, many countries are still developing ABS measures or are in early stages of implementation. Hence there is relatively limited experience with putting ABS in practice in light of new obligations under the Nagoya Protocol. As a result, it remains a challenge to identify cases sufficiently advanced to be able to draw lessons and to assess contributions to the SDGs.

For this reason, the relevance of ABS principles and measures in cases featured in this project differs, as does their approach to ABS in evolving legal frameworks. Cases show the range of ways in which ABS elements arise – from provider countries with no ABS measures and ABS measures adopted prior to the Nagoya Protocol to provider countries with ABS measures based on the Nagoya Protocol, if in early stages of implementation. Yet, in all these cases ABS principles were followed. In a number of these cases, actors involved were precursors of ABS implementation and have contributed to the identification of good practices. The cases also demonstrate that ABS has contributed to the SDGs in a variety of different ways.

This document is the first project output, consisting in an overview of key ABS related elements for each of the 20 cases covered by the project. For each case, lessons learned as well as contributions to the SDGs are described.

In addition, a compendium of cases will be prepared, containing a further analysis of 10 of these cases. This compendium will include an analysis of key findings and conclusions with respect to lessons learned, good practices and the contribution of ABS to the SDGs, on the basis of information gathered from all the cases.

ABS in assessment of biodiversity and traditional knowledge in the Okavango region
Africa

Training of paraecologists within the TFO project. © Dr Ute Schmiedel

OVERVIEW	ABS good practices as part of a comprehensive assessment of biodiversity in the Okavango region, including associated traditional knowledge (ATK)
SUBJECT MATTER (GR / BR)	Higher plants, birds, soil microorganisms, and ATK
SCIENTIFIC OR COMMERCIAL USE	Biodiversity assessments to support nature conservation and sustainable use. Activities included collection of specimens and their deposit in ex-situ collections (also in Germany), vegetation studies and identification of plants and birds, isolation and screening of soil micro-organisms, and field tests with aridity adapted symbiotic bacteria in crop plants to improve production. The project also undertook an assessment of existing traditional knowledge on the utilization of plants and of other natural resources.
PROVIDER COUNTRY	Angola, Botswana and Namibia
ABS FRAMEWORK IN PROVIDER COUNTRY	All provider countries are Parties to the Nagoya Protocol. None of the provider countries had ABS legislation in accordance with the Nagoya Protocol in place at the time of the start of the project (2010). In 2017, Namibia adopted the Access to Biological and Genetic Resources and Associated Traditional Knowledge Act, but implementing regulations are still pending.
USER COUNTRY	Angola, Botswana, Namibia and Germany
ACTORS	**Resource providers:** Provider countries and local communities in the Okavango Basin across the three countries. **Competent authority:** • Ministério do Ensino Superior, Ciência, Tecnologia e Inovação and Province Gouverneurs, Angola • Ministry of Environment, Natural Resources Conservation and Tourism, Botswana • Ministry of Environment and Tourism, Namibia **National Collaborators:** • Instituto Superior de Ciências da Educação (ISCED), Angola • Okavango Research Institute, University of Botswana, Botswana • National Botanical Research Institute (NBRI), Namibia **Users:** • Biocentre Klein Flottbek and Botanical Garden, University of Hamburg, Germany • Dept. Environmental Remote Sensing and Geoinformatics, University of Trier, Germany • University of Bremen, Germany • Leibniz-Institut DSMZ, Braunschweig, Germany

SHORT DESCRIPTION

The project "The Future Okavango" (TFO) studies the biodiversity of the Okavango region, a system of woodland savannas, floodplains and wetlands of crucial importance for global biological diversity. The aim of the project is to gather information to support sustainable land use and resource management by local communities. In particular, the project has collected and identified samples of higher plants, birds and soil microorganisms, including through molecular techniques. Ethnobotanical studies, including interviews with local communities and indigenous peoples, are carried out, often by local partners. For example, traditional knowledge associated with biological and genetic resources was primarily collected by Angolan partners.
The initial project phase took place between 2010 and 2016, with the financial support of Federal Ministry of Education and Research in Germany (BMBF). Sectoral follow-up projects are ongoing, in the context of the SASSCAL project[1].

ACCESS AND BENEFIT-SHARING ELEMENTS

Angola

- National and regional authorities were informed and research permits were secured for the duration of project activities.
- A material transfer agreement (MTA) was signed between ISCED and the University of Hamburg for the export of specimens.

Botswana

- Research permits held by national partners were sufficient to conduct research activities.

Namibia

- Research and collection permits provided by Ministry of Environment and Tourism.
- Specimens deposited at the NBRI-herbarium.
- MTA signed with NBRI for the export of plants and soil microbes to Germany as well as with the National Museum for fauna.

The project included monetary and non-monetary benefit-sharing.

Monetary benefits:

- Local community members employed as assistants and paraecologists[2] at research sites
- Research funds available for scientists from all provider countries

Non-monetary benefits:

- Scientific cooperation, including more than 200 joint publications and four awareness-raising movies
- Participatory research processes, including a paraecologist program
- Capacity building at academic and non-academic level
- Scholarships for undergraduate and graduate students from provider countries
- Contribution to local specimen collections
- Sharing of data and information.

1 SASSCAL: "Southern African Science Service Centre for Climate Change and Adaptive Land Management" is a joint initiative of Angola, Botswana, Namibia, South Africa, Zambia, and Germany.

2 Paraecologists: citizen scientists trained and employed within the project to collect data in the field and for facilitating activities.

Lessons learned and best practices

NATIONAL ABS FRAMEWORKS	• Political and social problems in provider countries may delay adoption of ABS measures and impede appropriate ABS implementation, as in the case of Angola.
RELATIONSHIP BETWEEN USERS AND PROVIDERS	• Many of the German scientists involved in TFO had previously worked in the region and had long-term, successful cooperation with local research institutions. For this reason, German partners experienced no problems with ABS procedures. Local research partners and authorities supported the project. This shows that mutual trust supports ABS processes.
BENEFIT-SHARING	• The project results, recommendations and decision tools promoted the sustainable land use and resource management by local communities and contributed to nature conservation in the Okavango Basin. The sharing of benefits thus contributes to biodiversity conservation and local livelihoods. • Project activities also provided economic benefits for local communities, including through job creation.
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• Project developed biological collections as well as capacities and knowledge in the provider countries. Participatory approaches and capacity building help to manage the expectations of the local communities concerning benefit-sharing. • The cooperative research structure strengthened African researchers‘ networks. This shows the importance of ABS for capacity development in the academic sector.

Contributions to the SDGs

SDG 1, target 1.4, 1.5, 1.A: As part of monetary benefits shared, the project provided training and jobs for unemployed persons. The project developed recommendations and tools for sustainable land use and resource management, which are essential for limiting local disaster risk and poverty.

SDG 2, target 2.3, 2.4: Project results and sharing of knowledge supported decisions of local stakeholders for a sustainable agriculture in the Okavango region, limiting food insecurity and strengthening the resilience and adaptive capacity of small-scale and family farmers.

SDG 4, target 4.4, 4.7, 4.B: Project developed expertise for local scientists, resource-users, traditional authorities and NGOs in the field of biodiversity and sustainable land management. Numerous capacity building activities were undertaken.

SDG 9, target 9.5, 9.A: Project provided financing for scientific research development and infrastructure in Angola, Botswana and Namibia. Thanks to non-monetary benefit-sharing, the number of researchers has increased.

SDG 13, target 13.1, 13.3: The entire TFO project improved awareness-raising on climate issues among local communities and authorities and provided solutions for climate change mitigation and adaptation.

SDG 15, target 15.1, 15.2, 15.3, 15.5, 15.6, 15.9, 15.A: Monetary and non-monetary benefits enhanced knowledge of local communities and authorities on biodiversity and its importance for the provision of ecosystem services. The project supported conservation, sustainable management and the fair and equitable sharing of benefits arising from the utilization of biodiversity.

SDG 17, target 17.1, 17.6, 17.8, 17.9: The project enhanced cooperation, access to science, technology and innovation and knowledge sharing between user and provider countries. Sustainable development was promoted. As part of monetary benefit-sharing, financial resources from Germany were mobilized for building research infrastructure. Numerous capacity building activities were implemented.

Relevant contacts/sources of information:

- Dr Manfred Finckh & Dr Ute Schmiedel (University of Hamburg, Germany)
- Website: http://www.future-okavango.org/

Identifying new antibiotics from Kenyan fungal compounds
Africa

Joint fieldwork in Kenya
© Josphat Matasyoh

OVERVIEW	Academics institutions collaborate to identify new antibiotic activities in mushrooms and other fungi associated to Kenyan plants, creating and sharing knowledge and expertise in an ABS framework.
SUBJECT MATTER (GR / BR)	Secondary metabolites and QS-inhibitory molecules in mushrooms and other fungi associated to local flora
SCIENTIFIC OR COMMERCIAL USE	• Basic research on fungal diversity, on antimicrobial secondary metabolites potentially suitable for antibiotic production, and on QS-inhibitory molecules • Isolation of endophytic fungi from plant material and collection of macrofungi (macromycetes)
PROVIDER COUNTRY	Kenya
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol since 2014. Kenya has ABS legal requirements in place, including the Environmental Management and Co-ordination Act 1999 (ECMA, Sect 53) and Environmental Management and Co-ordination Regulations 2006.
USER COUNTRY	Kenya, Germany and Belgium
ACTORS	**Resource providers:** Kenya Wildlife Service (KWS) as manager of the Kakamega Nature Reserve and Mt Elgon **Competent Authorities:** National Environment Management Authority (NEMA) **National Collaborator:** Egerton University, Kenya **Users:** • Helmholtz Centre for Infection Research (HZI) in Braunschweig, Germany • Technical University of Berlin (TUB), Germany • Belgian Coordinated Fungal collection (MUCL), Belgium • Université Catholique de Louvain, Belgium

SHORT DESCRIPTION

The project, called "ASAFEM – The Search for New Antibiotics from Tropical Fungi", sought to identify antibiotics and anti-quorum sensing compounds. In particular, the project focused on secondary metabolites from mushrooms and other fungi associated with Kenyan plants, to investigate their potential for the production of new antibiotics in human medicine.

Research and capacity-building were carried out by HZI and TUB in cooperation with Egerton University. Fungal collections were deposited at MUCL and are publicly available. Future commercial exploitation is possible, if suitable compounds were found.

ASAFEM was supported by the ERAfrica[1] programme through the Federal Ministry of Education and Research in Germany (BMBF) in the 2014-2017 period. Funding was later extended to 2018. Further financial support has been granted by the Humboldt Foundation and by the German Academic Exchange Service (DAAD).

ACCESS AND BENEFIT-SHARING ELEMENTS

Access authorisation was secured under Kenyan ABS rules:

- Egerton University applied for access, but material transfer agreement (MTA) and mutually agreed terms (MAT) as well as a grant agreement were ultimately signed by all users. Egerton University managed itself all other permits for research, collection export and access to protected areas.
- A community representative was involved in preparing the prior informed consent (PIC), other representatives in the field work as forest guides.
- Any eventual commercial use of discoveries would need to be negotiated with KWS and NEMA.

This project involved monetary and non-monetary benefits.

Monetary benefits:

- Research and infrastructure funds of 30,000 Euros were made available by ERAfrica via HZI towards the purchase of research materials in Kenya
- Grants internships at TUB and HZI were provided for Master students from Kenya
- Five PhD-studies in Germany were supported by DAAD

Non-monetary benefits:

- Research cooperation, including support in building infrastructures and expertise and joint publications
- Knowledge sharing and capacity-building, including during field work and student training in Germany and workshops.

1 ERAfrica was a European Union (EU) project aimed at promoting a unified European approach to collaborating with Africa in the field of science and technology research for innovation and sustainable development. ERAfrica was part of the 7th Framework Programme.

Lessons learned and best practices

NATIONAL ABS FRAMEWORK	• When the project started in 2013, ABS tools were not fully developed in Kenya. The experience of German scientists with ABS processes in other countries was important to support the development of ABS-related templates and forms. The support of ABS-knowledgeable users can contribute to ABS implementation in the provider country.
BENEFIT-SHARING	• Local scientists and communities benefit from the know-how and results shared in research projects. • Research funds for local scientists are important in building research infrastructure and capacities.
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• This project is a good example of how capacity building activities are essential to successful ABS processes.
RELATIONSHIP BETWEEN USERS AND PROVIDERS	• Establishing long-term, trustful and successful cooperation with local scientists and authorities, including the building of capacities and of research and education infrastructure, supports ABS implementation and the access to genetic resources. • Local partners play an important role as facilitators in ABS processes.
ELEMENTS THAT SUPPORT TO THE PROCESS	• Commitment and engagement of users with ABS inform and support ABS processes involving local partners. This contributed to the successful outcome of the project.
FURTHER LESSONS	• ABS processes are time-consuming and delay meaningful research work. Funding agencies should allow for projects to include time for this process, with special financing for this purpose. • Appropriate benefit-sharing can only be supported with adequate financial resources.

Contributions to the SDGs

SDG 3, target 3.8, 3.B: Project identified bioactive fungal secondary compounds to tackle antimicrobial resistance, which supports the improvement of the health of people worldwide.

SDG 4, target 4.3, 4.4, 4.5, 4.7, 4.B: ABS measures enhanced quality education, as expertise in the field of fungal biodiversity and drug research in Kenya was built by the project. Scholarships were available for students from Kenya.

SDG 5, target 5.5: Gender equality has been supported by non-monetary benefit-sharing, in particular by capacity building activities. Many women from Kenya carried out their Master/PhD studies in Germany and graduated with top grades.

SDG 9, target 9.5, 9.B: Through monetary and non-monetary benefits, the project supported scientific research and infrastructure development in Kenya. The project mobilised EU financial resources for this purpose. The number of researchers in Kenya increased. Furthermore, HZI is studying with other partners possible applications in new fields, such as the use of fungi as biocontrol agents in agriculture.

SDG 15, target 15.6, 15.A: Knowledge on biodiversity and its importance for identifying bioactive substances has been enhanced.

SDG 17, target 17.1, 17.6, 17.9: The project and its ABS activities enhanced cooperation, access to science, technology, innovation and knowledge sharing among countries of the European Union (Germany and Belgium) and Kenya. Sustainable development was promoted, and financial resources mobilised.

Relevant contacts/sources of information:

- Prof Dr Marc Stadler (Helmholtz Centre for Infection Research – Braunschweig, Germany),
- Prof Dr Josphat Matasyoh (Egerton University - Kenya)
- Dr Cony Decock (BCCM/MUCL, Université catholique de Louvain - Belgium)
- BCCM-Website: https://bccm.belspo.be/newsletter/03/search-new-antibiotics-tropical-fungi

A multi-stakeholder project to valorise baobab for livelihoods and food security in Kenya and Sudan
Africa

Baobab tree, Sudan
© Prof. Dr Jens Gebauer (HSRW)

OVERVIEW	International multi-stakeholder collaboration seeking to valorise baobab conducted research along the value chain, securing access permits and sharing range of monetary and non-monetary benefits
SUBJECT MATTER (GR / BR)	*Adansonia digitata L.* (Baobab)
SCIENTIFIC OR COMMERCIAL USE	Research and development (R&D) activities focused on the domestication, production, market development, processing and consumption of baobab. Research activities included: • Baobab tree inventory and intra-specific diversity mapping • Biomass production and propagation and maintenance studies • Nutritional analyses of fruit pulp • Assessing value chains and effects of increased commercialisation • Interviews to assess traditional knowledge associated with baobab • Recommendations for conservation and sustainable management • Development of marketable baobab products and alternative marketing approaches
PROVIDER COUNTRY	Kenya and Sudan
ABS FRAMEWORK IN PROVIDER COUNTRY	Kenya and Sudan are both Parties to the Nagoya Protocol since 2014. At the time of the project, Kenya already had ABS legal requirements in place, including through the Environmental Management and Co-ordination Act 1999 (ECMA, Sect 53) and Environmental Management and Co-ordination Regulations 2006. At the time of the project, Sudan had not yet adopted measures on ABS.
USER COUNTRY	Kenya, Sudan, Malawi, Germany and United Kingdom
ACTORS	**Resource providers:** • Kenya Wildlife Service (KWS) and local communities in Kilifi, Kitui, and Makueni County (Kenya) • Local communities in Kordofan (Sudan) **Competent authorities:** • In Kenya, the competent authority is the National Environment Management Authority (NEMA). It works jointly with the Kenya Wildlife Service (KWS), Kenya Plant Health Inspectorate Service (KEPHIS), National Commission for Science, Technology & Innovation (NACOSTI). • In Sudan, the Ministry of Agriculture and Forests and Ministry of Higher Education and Scientific Research was the contact point prior to the adoption of ABS measures. Now, the National Focal Point on ABS is the Higher Council for Environment and Natural Resources (HCENR).

National collaborators:

- In Kenya, Jomo Kenyatta University of Agriculture and Technology (JKUAT) and a local NGO called Wild Living Resources
- In Sudan, University of Kordofan and University of Khartoum

Users:

- Rhine-Waal University of Applied Sciences (HSRW), Germany
- Justus-Liebig University Giessen, Germany
- ttz Bremerhaven, Germany
- Baobab Social Business, Germany
- Mzuzu University, Malawi
- PhytoTrade Africa, United Kingdom

SHORT DESCRIPTION

Baobab is one of the most important indigenous fruit trees in Africa. Its fruits are highly nutritious and can help combat nutrition and food insecurity. The BAOFOOD project, which took place between 2016 and 2019, aimed at promoting the use, processing and market development of baobab for improved food security, nutrition and rural livelihoods. It was funded by the Federal Ministry of Food and Agriculture in Germany (BMEL). Research activities covered all parts of the value chain - from an inventory of baobab trees to developing a pilot processing facility for the benefits of the local communities based on baobab – and were undertaken by various partners.

ACCESS AND BENEFIT-SHARING ELEMENTS

Kenya

2016

- Need for access permit raised in project kick-off workshop
- Contact with NEMA and ABS Capacity Development Initiative for guidance

2017

- Discussion of documents for prior informed consent (PIC) and mutually agreed terms (MAT) among partners and authorities
- Establishment of a material transfer agreement (MTA)
- Awareness-raising for local communities and authorities in Kilifi and Kitui

2018

- PIC signed by KWS and the local communities in Kilifi, Kitui, and Makueni counties as providers and JKUAT and HSRW as users
- MAT signed by KWS as provider and JKUAT and HSRW as users
- Access permit granted by NEMA

2019

- Meetings with local communities and authorities to share results

Sudan

Upon creation of an ABS committee by HCENR, a stakeholder workshop was organised and PIC and MAT retrospectively established. Nevertheless, certificate of compliance is still pending due to difficult political circumstances, including the Covid-19 pandemic.

The project involved both monetary and non-monetary benefits.

Monetary benefits include:

- Upfront funds for project partners
- Acquisition of baobab genetic resources from communities at a fair price agreed upon by the providers and users
- Different community groups (e.g., trainers, harvesters, farmers, wholesalers, retailers, producers and salespeople) benefit from direct sale of baobab products and for services rendered to the community-based pilot baobab processing unit
- In case of any monetary benefits, support of conservation programs and community livelihoods

Non-monetary benefits include:

- Scientific cooperation, including training and joint supervision of three PhD and nine MSc local students, short-term research exchange visits, joint publications
- Six training workshops in the target communities on sustainable management, processing, and utilisation of baobab
- Equipment for local research partners (e.g. GPS, laptops, cameras, measuring devices etc.)
- Fully operational community-based pilot baobab processing unit
- Technology transfer to local communities for improved and sustainable harvesting, processing technologies and marketing of baobab products
- Dissemination of results to resource providers

Lessons learned and best practices

NATIONAL ABS FRAMEWORK	• Simplified processes for non-commercial research, as well as shorter and more standardised procedures would be beneficial. • The duration of the ABS process - from initiating negotiations to receiving the permit - is often long, due to complex requirements, local political difficulties and communication breakdown.
BENEFIT-SHARING	• The project demonstrated that sharing of benefits with local communities can contribute to their livelihood, including by developing new marketable and/or sustainable baobab products that improve nutrition. • Moreover, the project showed the value of traditional knowledge and the important role of indigenous communities for conserving and sustainably using biological resources. • Capacity building is essential to support ABS processes.
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• Use of participatory technology development for capacity building supported ABS processes.
RELATIONSHIP BETWEEN USERS AND PROVIDERS	• A long-lasting relationship with community partners has been achieved. This would not have been possible without the support of local NGOs and research partners in the project consortium.
OTHER SUPPORTIVE MECHANISMS	• The awareness-raising meetings as well as the sharing of project results to community members and authorities involved was helpful to foster collaboration.

Contributions to the SDGs

SDG 1, target 1.4: The project promoted domestication, production, market development, processing and consumption of baobab. Plants are chemically characterised to determine key traits for economic value and dietary range to support livelihoods. Benefit-sharing contributes to poverty alleviation (access to natural resources, equal rights to economic resources).

SDG 2, target 2.2, 2.4: Nutrition security is improved by studying nutritional properties of baobab fruit pulp and sharing of data on nutrient content, anti-nutritional effects and bio-active compounds of different baobab parts gathered by the project. Local production and consumption were promoted by the establishment of a community-based pilot production of baobab products in Kenya, contributing to sustainable production systems.

SDG 4, target 4.7, 4.B: Different capacity building activities were implemented including education of students, trainings, videos, workshops, and on-site demonstration for local communities.

SDG 5, target 5.A: Capacity building efforts targeted mainly women in the communities, which fostered gender equality with respect to access to natural resources of agricultural land.

SDG 9, target 9.5, 9.A: Innovations and infrastructure developed and shared by the project included participatory technology development and in the field by on-site demonstrations, development of extension materials for various target groups and new propagation methods.

SDG 15, target 15.1, 15.6, 15.A: Conservation of drylands, sustainable use and the fair and equitable sharing of benefits arising from the utilisation of Baobab have been supported by the project.

SDG 17, target 17.6, 17.9: The project enhanced partnership and knowledge-sharing with providers (e.g., on-site demonstrations, provision of protocols and recommendations) and national collaborators (scientific cooperation and joint publications). Innovation and sustainable development were promoted. Financial resources have been mobilised.

Relevant contacts/sources of information:

- Kathrin Meinhold & Prof. Dr Dietrich Darr (Rhine-Waal University of Applied Sciences, Germany)

- Website of BAOFOOD: http://baofood.de/
  ABS-Clearing House: https://absch.cbd.int/search/nationalRecords
  ABS Initiative http://www.abs-initiative.info

Marula oil – an early example of ABS partnerships in Namibia
Africa

Marula © Suhel al-Janabi

OVERVIEW	An early example of the implementation of ABS principles through multi-stakeholder partnerships for the development of ingredients for cosmetics based on Marula oil
SUBJECT MATTER (GR / BR)	*Sclerocarya birrea* (Marula)
SCIENTIFIC OR COMMERCIAL USE	Research into the properties of Marula oil for the development of ingredients for cosmetics
PROVIDER COUNTRY	Namibia
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol No ABS measures in place at the time of the agreement
USER COUNTRY	France and the United Kingdom
ACTORS	**Resource provider:** Eudafano Women's Cooperative (EWC) **User:** • The Community Trade Programme of The Body Shop, a Programme launched in 1987 by the Body Shop to develop long-term trade partnerships while offering favourable trade terms, producer support and providing access to an international trade market • Aldivia, a French company specialised in the sourcing, design, manufacturing and marketing of lipids of plant origin for cosmetics and industry **Facilitators:** • Centre for Research, Information and Action in Africa – Southern Africa Development and Consulting (CRIAA SA-DC), a Namibian non-governmental organisation providing technical support to EWC • Southern African Marula Oil Producers Network (SAMOPN) • Trade associations: The Southern African Natural Products Trade Association (SANProTA) which later became PhytoTrade Africa

SHORT DESCRIPTION

Traditionally, Sclerocarya birrea (Marula) kernel oil is used in Namibia as a condiment for food and, less frequently, for skin and hair care.

In the early 1990s, Namibia's government conducted a survey on economic development options in the north-central regions of the country. During this survey, women requested assistance to develop business opportunities to take advantage of their abundant Marula resource.

This gave rise to a series of Marula oil production projects, which piloted a production system for the oil, tested its quality, evaluated its properties, defined the economics of production and pricing, and secured initial customers including the Community Trade Programme of the Body Shop.

CRIAA SA-DC and Aldivia conducted research into the properties of Marula oil and found potentially powerful antioxidants. Since 2001, a series of partnerships and agreements were developed between local producers or associations representing them and Aldivia as the user. They were based on the following basic principles: (i) to ensure co-ownership of intellectual property and valuable information and (ii) to create the conditions for successful commercialisation of Marula oil.

ACCESS AND BENEFIT-SHARING ELEMENTS

This case is best understood as an early example of ABS. When the commercialisation of Marula oil started, there was no guiding legal framework on ABS.

From 2001, a number of cooperation agreements were developed including commercial partnership agreements, material transfer agreements (MTA), as well as collaboration agreements for joint development and invention.

In 2006, Aldivia filed a patent application for the process used to create Maruline. The patent is co-owned between Aldivia and the Southern African Natural Products Trade Association (on behalf of the producers). This co-ownership instituted at the time a new form of partnership and a new type of benefit-sharing between traditional knowledge (TK) holders and an international company.

With the patent, the producers wanted to create transparency for the value chain. In the absence of clear ABS regulations, the law on contracts, including intellectual property rights (IPRs), were applied alongside other development objectives to generate benefits for the local producers (including co-ownership through commercial associations). Intellectual Property was seen as the main tool to safeguard operations as the retailer, Aldivia, needed to assure its client of the IP right in order to sell the ingredient. The co-owned patent created transparency and allowed further development of the value chain. The patent was only filed in France and had a limited term, so the inventions finally entered the public domain.

Lessons learned and best practices

ABS MEASURES

- In absence of clear ABS regulations, the law on contracts, including intellectual property rights (IPRs), applied alongside other development objectives can enable the generation of benefits for local producers (including co-ownership through commercial associations).

ELEMENTS THAT SUPPORT THE PROCESS

- Formalisation and good governance allow cooperatives to take over the function of traders and middlemen and as a result, members are paid a fair price for their produce. Associations and cooperatives allow for easy outreach in terms of capacity-building and increased competitiveness.

- Technical support and capacity-building for rural producers by local development organisations, trade associations, as well as multi-stakeholder and government task teams have been a key factor in supporting communities not only in investigating the economic viability of their products but also in negotiating complex commercial agreements. The partnership between EWC, CRIAA SA-DC and PhytoTrade to develop technology, support innovation, and create market linkages with the buyers of Marula oil has facilitated the creation of economic and social benefits for local women.

- Commitment to fairness and equity, which translates into transparency and consultation, allows ABS partnerships to evolve. ABS agreements can develop step by step, as processes cannot be foreseen, here the commitment strongly facilitates consultation on role and responsibilities and next steps.

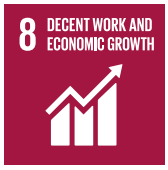
- The Marula case was initiated by the resource providers. By asserting proactive ownership of their biological resources and traditional knowledge, local producers generated benefits for socioeconomic development.

- The local producers recognised the need for partnerships with well-resourced commercial operators and adjusted the ABS process accordingly. They benefitted from the involvement of multiple actors collaborating over many years and through a series of individual but linked commercial agreements. In this case, a single benefit-sharing agreement between two parties (as is often the focus of ABS regulations) could not have reached the benefits achieved.

Contributions to the SDGs

SDG 1, target 5.5: The process has benefitted rural development and generated income for local producers. From 2012 to 2015 alone, income of EWC members from raw materials has quadrupled.

SDG 5, target 5.5: The collaboration between women in the associations with buyers and intermediaries contributed to the development of strong communication and negotiating on skills. The commercial approach adopted by the local women was further strengthened by participation in the regional trade association and interactions with international business partners.



SDG 8, target 8.2: Experience from Marula commercialisation has been replicated and two additional oils (Kalahari melon seed and Ximenia) have been commercialised.

SDG 9, target 9.5 – target 9.b: The process has contributed to transfer of technology and processing capacity at local level.

SDG 15, target 15.1: Semi-formal and anecdotal evidence suggests that women involved in the commercialisation of Marula products through their cooperative are more likely to protect their Marula trees, and indeed to grow more trees.

SDG 17, target 17.5: The process has had organisational benefits as the EWC as well as PhytoTrade Africa were founded, and regional cooperation among local producers was initiated.

Relevant contacts/sources of information:

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The development of a fragrance based on the scent of the Clanwilliam cedar found in South Africa

Africa

The Widdringtonia Eau de Parfum
© Wikimedia commons

OVERVIEW	The development of a fragrance based on a multi-stakeholder ABS partnership involving the sharing of monetary and non-monetary benefits
SUBJECT MATTER (GR / BR)	*Widdringtonia cederbergensis* (Clanwilliam cedar)
SCIENTIFIC OR COMMERCIAL USE	Development of a fragrance for commercial use in a perfume.
PROVIDER COUNTRY	South Africa
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol ABS measures: • National Environmental Management: Biodiversity Act (NEMBA) (2004) • Regulations on Bioprospecting, Access and Benefit-sharing (BABS regulations) (2008) amended by the BABS Amendment Regulations 2015
USER COUNTRY	United Kingdom, Switzerland
ACTORS	**Resource providers:** CapeNature, public agency managing biodiversity in the Western Cape, which also involved the Heuningvlei community **Competent Authorities:** South African Department of Environment, Forestry and Fisheries (DEFF) **Users:** Givaudan, a fragrance and flavor company, and The Body Shop, a personal care brand. **Facilitator:** UEBT
SHORT DESCRIPTION	Givaudan used headspace technology to collect scent samples from the Clanwilliam cedar without removing any physical samples. It then developed a perfume concentrate using other ingredients within its perfumery palette. The perfume concentrate is inspired by, but does not contain, Clanwilliam cedar. The Body Shop used the perfume concentrate to develop the Widdringtonia Eau de Parfum.

ACCESS AND BENEFIT-SHARING ELEMENTS	2018: Benefit-sharing agreement signed between CapeNature as the provider and Body Shop International and Givaudan South Africa as the users. Heuningvlei community as an important steward of the Clanwilliam cedar also involved in the process to benefit from the mutually agreed terms. 2019: Givaudan and The Body Shop obtained an integrated biotrade and bioprospecting permit for *Widdringtonia wallichii*. **Monetary benefits** defined taking into account the turnover of The Body Shop perfume as the final product. Paid into the Bioprospecting Trust Fund and then transfered for projects aimed at preserving the Clanwilliam cedar and supporting livelihoods in the Heuningvlei community. **Non-monetary** benefits include the sharing of best practices related to the conservation and sustainable use of biodiversity in the development and sourcing of natural ingredients for fragrances and flavors. Both companies also endeavor to acknowledge the geographical origin of the Clanwilliam cedar and the cultural heritage of the community in relevant product marketing and corporate communications.

Lessons learned and best practices

NATIONAL ABS MEASURES	• Provider country authorities play an important role in providing guidance with respect to the scope of application of ABS requirements. In this case, given the technology involved which does not require physical access to samples of the material, the relevance of ABS requirements was not clear to the user companies at the outset. • The support of competent national authority in navigating the ABS procedures at national level is key. • Considering the need for companies to potentially request ABS permits for multiple ingredients involved in the development of a fragrance or cosmetic product, the time frame and costs involved in navigating ABS rules is difficult to reconcile with commercial pressures.
BENEFIT-SHARING	• The absence of pre-established parameters for benefit-sharing provides flexibility, but it also can contribute to lengthy and complex negotiations when a number of actors are involved. • Working with users to promote compliance can lead to meaningful benefit-sharing. • Benefit-sharing can contribute to conservation, sustainable use and to the livelihoods of communities by supporting specific ground-level projects.
ELEMENTS THAT SUPPORT TO THE PROCESS	• Facilitators can play an important role in supporting the process, in particular when many actors are involved: in this case CapeNature played an important role in the involvement of the community. The involvement of UEBT, with the support of the ABS Capacity Development Initiative, also contributed to facilitating the process and to establishing a good partnership amongst the different actors. • Commitment to ABS principles and openness of users to learning by doing.

Contributions to the SDGs

SDG 1, target 1.4, and SDG 8, target 8.3: This case illustrates the contribution of ABS to economic and social development, in particular to the livelihood of the community by supporting ecotourism activities, in particular the improvement of facilities for providing lodging and other amenities for tourists.

SDG 12, target 12.6: This ABS partnership illustrates how transnational companies can contribute to sustainable practices by supporting conservation activities of the community through, for example, the establishment of a nursery to facilitate the germination of seeds and replanting of young Clanwilliam cedar trees.

SDG 15, target 15.1, 15.2, 15.6: The benefit-sharing agreement established in accordance with the South African ABS framework enabled fair and equitable sharing of benefits. The benefits shared contribute to the conservation and sustainable use of the Clanwilliam cedar.

SDG 17, target 17.16: A multi-stakeholder ABS partnership, including monetary and non-monetary benefits can contribute to sustainable development through the sharing of knowledge, expertise, technology and financial resources.

Relevant contacts/sources of information:

- A Benefit-sharing Agreement for the Clanwilliam cedar, UEBT resource material
- ABS documents: Integrated biotrade and bioprospecting permit and benefit-sharing agreement
- Communications with The Body Shop

The development of a treatment for bronchitis based on a plant from South Africa
Africa

Pelargonium sidoides © Ulrich Feiter

OVERVIEW	A long-term ABS partnership with indigenous communities for a pharmaceutical product to treat bronchitis
SUBJECT MATTER (GR / BR)	*Pelargonium sidoides*, a plant in the *Geraniaceae* family
SCIENTIFIC OR COMMERCIAL USE	Commercial use of *Pelargonium sidoides* for the development of a medical product for the treatment of bronchitis
PROVIDER COUNTRY	South Africa
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to the Nagoya Protocol ABS measures • National Environmental Management: Biodiversity Act (NEMBA) (2004) Chapter 6 of NEMBA deals explicitly with aspects of access and benefit-sharing. • Regulations on Bioprospecting, Access and Benefit Sharing (BABS regulations) (2008) amended by the BABS Amendment Regulations in 2015
USER COUNTRY	Germany
ACTORS	**Resource providers:** • Imingcangathelo Community Development Trust • King Sandile Development Trust **Competent authority:** Department of Forestry, Fisheries and Environment (DFFE) of South Africa **Users:** • Schwabe Pharmaceuticals, a German company specialised in the research, development and production of herbal medicinal products • Parceval (PTY) LTD, South Africa
SHORT DESCRIPTION	Already in the 1970s, pharmacological research into the active constituents of *Pelargonium sidoides* and a series of clinical trials confirmed the efficacy of *Pelargonium* species for treating bronchial conditions. Based on *Pelargonium sidoides*, the pharmaceutical company Schwabe developed a product against bronchitis called Umckaloabo. When the National Environmental Management: Biodiversity Act (NEMBA) were adopted, Schwabe and its local partner Parceval negotiated ABS agreements with local resource providers.

ACCESS AND BENEFIT-SHARING ELEMENTS

In 2008, once the BABS Regulations were adopted, Schwabe and Parceval applied for an integrated bioprospecting and export permit. Prior to this, benefit-sharing agreements (BSAs) and material transfer agreements (MTAs) had been negotiated with two traditional councils. Subsequently, additional BSAs and MTAs were concluded in different areas with several more traditional councils and submitted to the Department of Forestry, Fisheries and Environment (DFFE).

Over the years, a specific benefit-sharing model has been developed including **monetary benefits** negotiated with the traditional councils based on the quantities of raw material purchased in their areas. Monetary benefits consisted of an agreed additional percentage of the price per kg paid to the harvesters.

With respect to **non-monetary benefits**, in cooperation with the Chiefs and their representatives, projects predominantly in the fostering of education (e.g. support to Early Childhood Development Centres) were identified and then implemented with relevant community members.

Lessons learned and best practices

TRANSPARENCY AT LOCAL LEVEL

- Community Protocols are important elements to ensure that the whole community is fully aware of the ramifications of the proposed project and that they have authorised a signatory to sign agreements on their behalf. The absence of information and limited awareness of local communities can hamper ABS projects as demonstrated by early controversies around this case. Biocultural community protocols are a recent concept in South Africa and can benefit ABS processes when applied on a sector level.

BENEFIT-SHARING MODELS DIFFER

- Benefit-sharing models should be adapted to particular circumstances. In this case, some monetary contributions to the traditional councils and substantial direct involvement and investment in a range of projects at community level have evolved over time. As a result, a large portion of the community can benefit.

COOPERATION BUILDS RELATIONSHIPS

- Deep relationship with the rural communities and traditional leadership structures can grow in the provider country with the engagement of users. Parceval, the local user has been experiencing increasing interest and continuous engagement of its management and staff with respect to the harvester communities and the ABS projects developed over the years.

ENGAGING IN LONG-TERM RELATIONSHIP

- Engagement with communities is a long-term investment. Providers and users cannot expect important developments in a short-term project as no tangible outcomes can be achieved in a timeframe of one or two years. Results will only materialise in the medium to long term.

EXPECTATION MANAGEMENT

- High hopes and expectations must be managed, and benefits and funds, however much, are never enough to cover all the needs.

ABS CAN HELP SHIFT THE MIND-SET

- Implementing ABS agreements is complex for private sector and local communities. In this case, an important shift of mind-set was observed on the user side from “we have to do this” to “we want to do this”. Implementing ABS projects requires passion to overcome challenges related to logistical problems, poor infrastructure, the lack of capacity and complex ABS procedures.

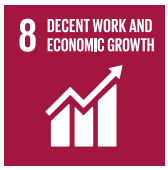
Contributions to the SDGs

SDG 2, target 2.1: Starting and maintaining vegetable gardens contributes to the daily feeding in the ECDCs. Infrastructure improvements include kitchens and cooking equipment to prepare a more balanced diet.

SDG 3, target 3.3: Due to various medical uses of Pelargonium, the case shows how ABS can contribute to the improvement of health in a local and global setting.

SDG 4, target 4.1: Over the past ten years, the quality of education of approximately 250 children per annum has been positively impacted; the projects triggered by ABS reached out to around 1.000 children, from almost as many households; and, approximately 20 teachers have been supported with training and teaching aids. Benefit-sharing activities include support to the Early Childhood Development Centre such as the training of teachers and the development of infrastructure which contribute to faciliate access to and quality of education.

SDG 6, target 6.2: Children benefit from toilets and the establishment of a safe drinking water system in the Early Childhood Centres.



SDG 8, target 8.5: Through the BSA Pelargonium harvesting substantially adds to household income during the harvesting season. Since harvesters tend to be predominantly women, additional funds are usually well invested into the wellbeing of the family.

SDG 15, target 15.1: Life on Land: Over the years various projects raising awareness around biodiversity were implemented including a community cultivation project, a tree planting project at a rural primary school, and the planting of fruit and ornamental trees at a rural high school.

SDG 17, target 17.17: The collaboration resulting from ABS activities under this project has enhanced cooperation across the sectors leading to collaborative studies, and to the development of monitoring and management plans.

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An ABS agreement for the use of orchids from Bhutan
Asia

The orchids

OVERVIEW	An ABS agreement for the use of orchids in ingredients for cosmetics.
SUBJECT MATTER (GR / BR)	*Cymbidium erythraeum*, an edible orchid
SCIENTIFIC OR COMMERCIAL USE	Commercial use: Research focused on the cellulose from the cells of the orchid for use in the development of a cosmetic cream.
PROVIDER COUNTRY	Bhutan
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to the Nagoya Protocol ABS measure in place at time of agreement: • Biodiversity Act of Bhutan (2003) The national ABS situation has since changed.
USER COUNTRY	Switzerland
ACTORS	**Resource provider:** Local Community in Samtengang, Bhutan **Competent authority:** Ministry of Agriculture and Forests of Bhutan **User:** Quantum Pharmaceuticals Limited (QPL), a developer and supplier of unlicensed medicines and hard-to-source products, Switzerland **User:** The National Biodiversity Centre (NBC) under the Ministry of Agriculture and Forests functions as the national focal agency for biodiversity conservation.
SHORT DESCRIPTION	The NBC coordinates and implements biodiversity conservation and, at the same time, promotes collaboration for technology transfer with the aim to valorise resources. In 2009, QPL applied to the Ministry of Agriculture and Forests for a permit for commercial use of Cymbidium species including research. As at the time detailed procedures for ABS agreements were not in place, NBC on behalf of the community and QPL signed a Memorandum of Agreement (MoA) aimed at conserving the orchids while allowing commercial activities including benefit-sharing for the local community. In accordance with the MoA, a group of eighteen households in Samtengang, a village selected by NBC, started to engage in propagating orchids as ingredients for cosmetics.

ACCESS AND BENEFIT-SHARING ELEMENTS

The NBC facilitated the ABS case from the request for access to the benefits shared. The local community with support from mandated officials formulated a community by-law (also referred to as community protocol) detailing the process for acquiring Prior Informed Consent (PIC) and establishing Mutually Agreed Terms (MAT) with respect to utilisation of their resources as well as benefit-sharing.

Monetary benefits entail a premium price when the genetic resources are accessed and royalties from the sale of the cosmetic product which are made available through the Bhutan Access and Benefit Sharing (BABS) Fund. Income generated from orchid flowers from the propagation house is managed via a community fund governed by the newly developed by-law (community protocol).

Non-monetary benefits include the establishment of an orchid propagation house and training on the propagation of orchids.

Lessons learned and best practices

NATIONAL ABS MEASURES

- Bhutan's comprehensive approach including both protecting its natural treasures and encouraging research for the valorisation of its resources is constructive.

ELEMENTS THAT SUPPORT THE PROCESS

- Clear procedures and responsibilities are enabling factors for implementation. Experience since the adoption of the Biodiversity Act in 2003, including the adoption of the Nagoya Protocol, triggered the need for a comprehensive access and benefit-sharing policy to guide the implementation of ABS.
- ABS benefited from the additional technical assistance provided by development cooperation. Successful ABS implementation needs capacity, human resources and clear, transparent regulations to benefit communities and private sector alike.
- Given the complexity of ABS implementation, capacity-building in the form of equipment, human resource development and awareness-raising is essential. Special attention to capacity needs of local resource providers is necessary to facilitate their understanding of the process and implications of the negotiations.
- Participatory approaches including the development of community by-laws and protocols help to manage the expectations of local communities with respect to potential benefits.

Contributions to the SDGs

SDG 1, target 1.1: The benefits shared contributed to the livelihood of the community as households gained additional income due to the agreement. As agreed during negotiations, the project adds three sources of income to the budget of the households allowing them to diversify and build resilience.

SDG 15, target 15.1, 15.6, 15.A: The case contributed to conservation by discouraging the collection of orchids from the wild, built capacity for operating propagating houses and secured further funds for Bhutan Access and Benefit Sharing (BABS) Fund.

Relevant contacts/sources of information:

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Basic research on marine coral reef organisms from Fiji
Asia-Pacific

Coral reef © Suhel al-Janabi

OVERVIEW	A long-term partnership for basic research on natural products for pharmaceutical applications against neglected diseases.
SUBJECT MATTER (GR / BR)	Marine coral reef organisms
SCIENTIFIC OR COMMERCIAL USE	Scientific use: Basic research on genetic resources of antimicrobial secondary metabolites potentially suitable for antibiotic production (QS-inhibitory molecules)
PROVIDER COUNTRY	Fiji
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to the Nagoya Protocol No ABS measures in place at the time of the agreement
USER COUNTRY	United States of America
ACTORS	**Resource provider:** Local communities in Fiji **User:** • Georgia Institute of Technology (GIT) • Scripps Institute of Oceanography • University of California, San Diego (SIO) **Facilitator:** The University of the South Pacific (USP), Fiji, facilitating and leading research activities At the time, no competent national authority had been established for access and benefit-sharing. Relevant ministries in Fiji included the following: • The Fiji Ministry of Fisheries and Forests (MoFF) is the legislative authority responsible for issuing permits for samples collected from marine and terrestrial environments. The ICBG programme in Fiji dealt with MoFF to obtain export permits for samples and also established an MoU. • The Ministry of Water Ways and Environment (MoWE) is Fiji's focal point for the Convention on Biological Diversity. • The Ministry of I-taukei Affairs (MTA) has a critical role in protecting the customary roles of communities within Fiji, including traditional knowledge, roles in governance and the strong linkages between natural resources and community livelihoods. They facilitated access to communities through provincial level administrators.
SHORT DESCRIPTION	The Fiji International Cooperative Biodiversity Group (ICBG) project investigated potential new therapeutic agents in marine coral reef organisms. The project spanned over a period of 16 years and ended in 2019. A legally binding agreement was signed in 2006 between three collaborating universities (GIT, USP, SIO), the Ministry of Fisheries and Forests and an industrial partner who withdrew from the partnership due to an internal restructuring. The project secured access to marine samples and established benefit-sharing policies.

ACCESS AND BENEFIT-SHARING ELEMENTS

In the absence of ABS requirements in Fiji when the project began, a bioprospecting framework was established by the project which involved the following steps: an ICBG partnership agreement; a letter of intent from the ICBG project manager to the provincial administrator; contacting of local communities by the provincial administrator; prior informed consent (PIC) of local communities; a permit from local authorities; permits for samples in accordance with CITES when applicable (e.g. for CITES listed samples such as corals).

Monetary benefits established in the partnership agreement include contributions to research funding for young researchers, and financial contributions made towards their lodging fees, as well as logistical support.

Non-monetary benefits include the provision of equipment, training of local scientists, and capacity building on marine conservation management based on a bottom-up approach which empowered communities to sustainably manage their own resources.

Lessons learned and best practices

NATIONAL CONTEXT

- Partnership agreements allowing for benefit-sharing had been established before Fiji ratified the Nagoya Protocol in 2011.
- In-depth knowledge of ABS concepts at all levels from authorities, to researchers and local communities, especially at decision making level, helped to facilitate negotiations and implement the project.

ELEMENTS THAT SUPPORTED THE PROCESS

- Encouraging local participation at every stage of the process by maintaining open communication between all stakeholders (local leaders, village and community, customary or community-based management efforts) including those that are not formally recognised by national law facilitated the process as a lack of recognition of the contribution of these traditional management actors may hamper the cooperation and biodiversity conservation.
- A shared vision among stakeholders underpins the success of the project, as evidenced by healthy ecosystems and communities, and an increased understanding of what communities are doing and can do to manage marine areas. In Fiji, monitoring has demonstrated the real impact of engaging local communities in economic and ecological terms: increased harvests and sustainability of marine resources.
- Awareness of the fact that direct monetary benefits from sample collection are not likely to be significant can help manage expectations between user and provider.
- Awareness of the depletion of resources has stimulated resource-owners' interest in ABS and conservation.
- A regional network or a forum to discuss the implementation and adaptation of the ABS policy at the different national levels is important to consider when the same species can be found across several states. Such a forum also offers a space to address revenue-sharing mechanisms adapted to community aspirations and government needs of each Pacific member state.
- Maintaining and increasing training of Pacific Island nationals in natural products chemistry and microbiology with an emphasis on the marine environment and biosystematics is important for ensuring that local capacity and knowledge is gained and retained.

Contributions to the SDGs

SDG 9, target 9.5: The monetary and non-monetary benefits contributed to research infrastructure, education and training in laboratory techniques. By supporting students and academic learning, the project indirectly stimulated innovation. The project built the capacity of local researchers and students on the use of the latest technology and data interpretation in the field of natural products chemistry.

SDG 14, target 14.2, 14.7, 14.A: The project contributed to the exploration of marine biodiversity. It also contributed to conservation efforts **through community-based management efforts involving local communities**. Thanks to the project, the economic benefits from the sustainable use of marine resources increased. The cooperation between the University of the South Pacific and the two US Universities built research capacity and increased scientific knowledge in the Pacific region. Such international partnerships among universities can support complex scientific work.

SDG 17, target 17.16: The project formed partnerships among international higher education institutes, researchers as well as across local communities.

Relevant contacts/sources of information:

Contributing authors: Joape Ginigini, Klaus D. Feussner, Katy Soapi, Isoa Korovulavula

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Reflecting ABS principles in a biodiversity catalogue of the Caucasus
Asia

Setting up a Malaise trap in Kintrishi protected areas, as part of joint field trip in Georgia © Ameli Kirse

OVERVIEW	A long-term partnership between academic institutions to map biodiversity in the Caucasus, on the basis of a commitment to ABS principles and to enhancing local research infrastructure and capacities.
SUBJECT MATTER (GR / BR)	Plant and animal specimens and genetic material
SCIENTIFIC OR COMMERCIAL USE	Activities conducted for scientific and educational purposes included: • Assessing and monitoring Caucasian biodiversity through citizen science, classical and molecular taxonomy, and metabarcoding • Collecting material for zoological and botanical collections and biobanks • Gathering data sequence information (DSI) in freely available database.
PROVIDER COUNTRY	Georgia and Armenia
ABS FRAMEWORK IN PROVIDER COUNTRY	• Georgia and Armenia are not Parties to the Nagoya Protocol. • No ABS provisions in national laws or regulations.
USER COUNTRY	Georgia, Armenia and Germany
ACTORS	**Resource providers:** Collecting conducted within and around protected areas in various regions of Georgia, including the Kintrishi Protected Areas, the Kazbegi National Park, and the Vashlovani National Park. Since 2020 collecting is extended to Armenia. **Competent authorities:** • Ministry of Environmental Protection and Agriculture, Agency of Protected Areas (Georgia) • Ministry of Environment of the Republic of Armenia **National collaborators/ Users:** • Ilia State University, Tbilisi, Georgia • Agricultural University of Georgia, Tbilisi, Georgia • Yerevan State University; Scientific Center of Zoology and Hydroecology, Armenia **Users:** • Zoological Research Museum Alexander Koenig (ZFMK), Bonn, Germany • Nees Institute, University of Bonn, Germany • Burckhardt-Institute, University of Göttingen, Germany • Institut für Integrierte Naturwissenschaften, University Koblenz-Landau, Germany

SHORT DESCRIPTION

In 2017, scientists from ISU in Georgia and the ZFMK in Germany, with the support of the German Federal Ministry of Education and Research (BMBF) launched a collaborative initiative to establish a Georgian-German Biodiversity Center (GGBC), with the aim of exploring species and genetic diversity of animals and plants in the Caucasus region, one of the global biodiversity hotspots.
In a follow-up phase, the project focuses on setting up a Caucasus Barcode of Life Platform (CaBOL)[1], including additional partners from Georgia and Armenia. The project aims to conduct comprehensive and applied biodiversity research using classical and molecular techniques. Identified DNA barcodes of species are stored in a reference database and will be made publicly available. Additionally, the project provides infrastructure and scientific training on modern research methods in the Caucasus, thus strengthening social and economic development in a region with rich and highly-threatened biodiversity.

ACCESS AND BENEFIT-SHARING ELEMENTS

No specific permits were required in relation to access to genetic resources, but collection permits were secured in both countries. In Georgia, collection permits were issued by the Ministry of Environmental Protection and Agriculture and the Agency of Protected Areas in 2018 and 2019. Additionally, clearance letters, which served as export permits, were provided by Ilia State University in Tbilisi. In Armenia, collection permits were issued by the Ministry of Environment.

No benefit-sharing agreement is in place as such, but the project objective and approach promote sharing of both monetary and non-monetary benefits to foster international collaboration, to improve science infrastructures, engage in education, and explore Caucasian biodiversity.

Monetary benefits. More than half of the BMBF financing of CaBOL will be invested in the Caucasus, especially for personnel and infrastructure. In particular, the project provided financial support for the following activities and elements in the provider countries:

- Seven scientist positions, three technicians, and numerous student assistants
- New laboratory infrastructure and field work

Non-monetary benefits included:

- Six, one-semester trainings for Armenian students at ISU in Tbilisi
- Trainings for local researchers on molecular techniques
- Establishment of an international graduate school
- Open access DNA-barcode reference database for the Caucasus, with inter-connected morphological and molecular collections on Caucasian biodiversity
- Scientific cooperation (joint publications, events and excursions, student exchange to ZFMK and events)

1 CaBOL: The new project “Caucasus Barcode of Life Platform” is based on the experience gathered by German scientists from ZFMK with a previous project, German Barcode of Life (GBOL), whose structure and strategy will be adapted to CaBOL. The GBOL project aims at capturing the genetic diversity of animals, fungi and plants in Germany. GBOL builds a comprehensive DNA Barcode reference library and is developing applications, which benefit from a molecular identification system.

Lessons learned and best practices

NATIONAL ABS FRAMEWORK	• Though Georgia and Armenia have not adopted any specific provisions on ABS, ABS principles played an important role - thanks to ZFMK's approach to project partnerships and its strong commitment to ABS principles in its work and the work of partners. This shows that in countries with limited legal requirements on ABS, voluntary tools such as guidelines and codes of conduct can be useful to ensure users respect ABS principles and share benefits.
BENEFIT-SHARING	• Projects involving local communities - for example, through training, citizen science and employment of local scientists and technicians - enhance research activities and build capacities in the provider countries. • Technology transfer is important, such as in cases of facilitating access to modern molecular research and database technology, as well as to collections and information on genetic diversity.
RELATIONSHIP BETWEEN USERS AND PROVIDERS	• Access to genetic resources is facilitated by long-term and trust-based cooperation with local scientists and authorities, together with benefit-sharing arrangements supporting capacity building and research and educational infrastructure. • The distinction between user and provider is not always clear. In these projects, especially CaBOL, both sides can be considered ‚users.' For example, in CaBOL, it is Caucasian partners that will be the main (and sometimes even the only) users of many of the project samples.
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• Capacity building is essential to ABS processes. In these projects, initial phases targeting investment in science and education in Georgia were important ways to foster international collaboration and capacity building at academic and non-academic levels.
OTHER SUPPORTIVE MECHANISMS	• Users should be committed to good practices. ZFMK follows the Consortium of European Taxonomic Facilities (CETAF) "Code of Conduct and Best Practice for ABS," has developed ABS guidelines for its researchers and has named a staff member an ABS contact person for internal and external communication and advice. These projects have developed their own good practices, including on ABS, related to the management and stewardship of genomic samples and their derivatives.

Contributions to the SDGs

SDG 4, target 4.7, 4.B: These projects advance quality education, citizen science and capacity building at academic and non-academic level. Scientific careers are supported by non-monetary benefits and monetary benefits, including academic cooperation, exchange of scientists and students, trainings on molecular methods and joint publications.

SDG 8, target 8.5: Benefit-sharing has resulted in job creation for scientists and technicians in the field of biodiversity research. Both projects promote decent work in the provider countries.

SDG 9, target 9.1, 9.5, 9.A: Benefit-sharing, which included the establishment of a Georgian-German Biodiversity Center (GGBC), supported innovation and the building of research infrastructure. Innovation will be further promoted by mirrored collections in the Caucasus and Germany, applied biodiversity research, and the development of an open access DNA barcode reference database for the Caucasus region. Both projects provide increased access to modern molecular research and database technology. New innovation infrastructure was supported as monetary benefit. The sharing of scientific and technological knowledge remains an important non-monetary benefit of the projects.

SDG 15, target 15.1, 15.4, 15.5, 15.6, 15.A: Both projects contribute to non-monetary benefit sharing by the exploration of Caucasian biodiversity, particularly fauna and flora. Resulting information will support biodiversity management decisions and biodiversity conservation in Georgia and also in Armenia.

SDG 17, target 17.3, 17.6, 17.8, 17.9: The GGBC, established through these projects, has been the basis for a long-term and successful partnership, which provides an important non-monetary benefit and sets the ground for future collaboration. Future developments will include more partners from Georgia and Armenia, leading to a Caucasian Barcode of Life initiative, and will be open to researchers worldwide with interest in the Caucasian biota.

Relevant contacts/sources of information:

- Prof. Dr Bernhard Misof, Monique Hölting, Dr Jonas Astrin, Dr Nils Hein & Dr Peter Grobe (ZFMK, Germany)
- Prof. Dr David Tarkhnishvili & Prof. Dr Cort Anderson (Ilia State University, Tbilisi, Georgia)
- Interview with Monique Hölting
- Websites: https://ggbc.eu/, https://www.zfmk.de/de/forschung/projekte/ggbc-erfassung-monitoring-und-management-der-kaukasischen-biodiversitaet,
- https://www.zfmk.de/en/research/projects/cabol-caucasus-barcode-of-life
- Thorman et al. (2019): A prelude to the Caucasus Barcode of Life Platform (CaBOL): Biodiversity Days in Georgia in 2018 and 2019. – Bonn zoological Bulletin 68 (2): 275–296 https://bit.ly/3kjDC1L
- CETAF Code of conduct: https://cetaf.org/sites/default/files/documents/leaflet-a4_codeofconduct_hd.pdf
- GGBN Guidance – Best practice of ABS: https://library.ggbn.org/share/s/AyZENG2hSMmXH0KFPz5yfg

The potential development of a fragrance or flavour based on the scent of wild honey found in the forest of Tamil Nadu in India
Asia

Kurinji flowers © Creative Commons Licence

OVERVIEW	An ABS agreement for the potential development of a fragrance or flavour based on the scent of Kurinji honey.
SUBJECT MATTER (GR / BR)	Volatile molecules from honey made from the nectar of the Strobilanthes kunthianus flower, commonly called the Kurinji flower. The Kurinji is a shrub found in the shola forests of the Western Ghats in South India.
SCIENTIFIC OR COMMERCIAL USE	Analysis of the scent of Kurinji honey through headspace technology and its reconstitution for the potential development of a fragrance or flavour for commercial purposes
PROVIDER COUNTRY	India
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol ABS measures: • Biological Diversity Act (2002) • Biological Diversity Rules (2004) • Guidelines on ABS Regulations (2014)
USER COUNTRY	France
ACTORS	**Resource providers:** • The Paliyans, an indigenous tribe in Tamil Nadu • Hoopoe on a Hill, a small enterprise based in Kodaikanal • Jasmine Concrete, a supplier **Competent authority:** National Biodiversity Authority (NBA), India **User:** Firmenich Grasse, a fragrance and flavour company based in France
SHORT DESCRIPTION	The Paliyans gather wild honey from the Kurunji flower in the Shola forests in Tamil Nadu. Kurinji shrubs blossom once every 12 years. “Hoopoe on a Hill” works with the indigenous communities to bring their wild honey to the market. “Jasmine Concrete”, the Indian supplier, purchased commercial honey jars from ““Hoopoe on a Hill” for export to Firmenich Grasse. Firmenich uses headspace technology to capture and analyse air-borne molecules emanating from the honey (not the flower itself). The technique does not involve any physical extraction of the flower or honey, but only requires access to a sample of commercialised honey. Thanks to its expertise, Firmenich can then reconstitute the scent of Kurinji honey using other ingredients that are part of their perfumery and flavour palette.

ACCESS AND BENEFIT-SHARING ELEMENTS

An application form was submitted on 6 May 2019 in accordance with the Biological Diversity Rules (2004) to seek approval of the National Biodiversity Authority (NBA). NBA organised local consultations with the Paliyan community. It then prepared an ABS agreement in line with the up-front payments foreseen for research projects. Firmenich Grasse signed the ABS agreement in March 2020 and the signature of the NBA is still needed before the agreement can be formalised.

Through this agreement, NBA will grant access to four commercial jars (250g each) of honey from the Kurinji flower for the purpose of analysing the olfactive properties of this honey by using headspace technology. This technology will enable the capture of volatile molecules emanating from the honey without any physical extraction of the flower or honey and therefore will have no impact on biodiversity.

A number of conditions are also set out in the agreement which include the following:

- Prior approval of NBA shall be sought for the commercial utilisation of the biological resource to which access is granted
- Prior approval of NBA is required before applying for an IPR if activities lead to an invention
- Approval of NBA is required prior to the transfer of the resource and results of the research to a third party
- A status report is requested on a yearly basis

Monetary benefits are foreseen in line with official guidelines on upfront payments for research projects. In case of commercialisation, additional benefit-sharing would need to be agreed upon. The benefits shall be transferred to the National Biodiversity Fund.
Against this background, approval of NBA would be required prior to the development or commercialisation of a product.

Support for the ABS permitting process was provided by the Access and Benefit Sharing Partnership, implemented by GIZ in collaboration with national, state and local authorities in India.

Lessons learned and best practices

NATIONAL ABS MEASURES

- It would have been useful to involve the applicant and/or local supplier in the consultation phase. In this case, the honey is accessed via an online trader. The Paliyan communities had not heard of the project nor the applicant, which made consultations more challenging. The applicant was not invited to take part in the consultation process with the communities although it would have welcomed the opportunity to do so.
- The online application process is a helpful tool, but difficulties still exist for foreign companies going through the process. For example, options available for foreign companies to pay fees are limited. Additionally, the ABS agreement needs to be signed on stamp paper, which can only be obtained in India and needs to be mailed back and forth to applicant through international couriers. It would be useful, especially in COVID-19 times, to move the process entirely online.
- It would also be helpful to be able to check the detailed status of the application and ABS agreement online, with clear indication of the timelines and next steps. This would facilitate communication and information exchange with NBA and assist in limiting delays.

BENEFIT-SHARING

- Up-front payments for research projects are a practical tool that provides legal certainty to companies and research institutions. It enables moving forward swiftly with research activities, setting solid conditions for further authorisations and benefit-sharing if commercialisation were to go forward.

ELEMENTS THAT SUPPORT THE PROCESS

- Facilitation by external partners, including GIZ India and UEBT, was important in streamlining the process. For example, partners follow up with authorities on questions about the application form and process. GIZ also supported the consultation of competent authorities with local communities.

Contributions to the SDGs

SDG 12, target 12.2: This case involves headspace technology, which allows sampling the scents of plants in nature for use in fragrances and flavours. Such technology enables companies to analyse scents without taking any leaves, flowers or other physical parts. Moreover, scents are recreated using other, more readily available raw material, contributing to the sustainable management and use of natural resources. In the ABS context, the relevance and practical approach to headspace technology has long been unclear. This is one of the first few ABS cases involving headspace technology. It provided further clarity and guidance on how ABS procedures and requirements could apply to this technology, and therefore encouraged its use by business.

SDG 15, target 15.5: As per rules in India, benefit-sharing derived from this case will go to conservation and sustainable use of biodiversity in the area where biological resources were collected. Supporting such efforts was an important motivation for the company to engage in ABS in India. In this case, conservation efforts are particularly important for the kurinji flowers, which only blossom every 12 years and have lost most of their habitat to agriculture and housing.

SDG 15, target 15.6: This case illustrates the approach taken by India for the implementation of fair and equitable sharing of benefits derived from the valorisation of its biodiversity, including through research into its properties and development of new products based on such applications.

SDG 17, target 17.16: This case brings together a multinational company, two Indian companies, indigenous peoples and authorities at the national and local levels. It demonstrates how multi-stakeholder partnerships can be leveraged to exchange information, valorise biodiversity and contribute to local efforts for conservation and sustainable development.

Relevant contacts/sources of information:

Direct communications with Firmenich

ABS documents:

- Application form for access to biological resources
- Agreement for Access and Benefit Sharing

A long-term research partnership for the tropical rainforest of Sumatra, Indonesia
Asia

Social networing and agricultural extension services © Yuking Linatra

OVERVIEW	Basic research on ecological and socioeconomic aspects of changing rainforest landscapes in Indonesia, in an evolving ABS legal framework
SUBJECT MATTER (GR / BR)	Plants, animals, and microorganisms
SCIENTIFIC OR COMMERCIAL USE	Basic research on biodiversity, including studies on diversity of plants, animals and soil microorganisms, collection of genetic material for barcoding, and assessments of environmental processes and socioeconomic impacts
PROVIDER COUNTRY	Indonesia
ABS FRAMEWORK IN PROVIDER COUNTRY	Indonesia is Nagoya Protocol Party since 2014. Nevertheless, national strategies and actions for the implementation of the Nagoya Protocol have been in place since 2011. In 2011, a decree issued by the Ministry of Agriculture regulated the conservation and utilization of plant genetics resource. In 2018, a decree issued by the Minister of Environment and Forestry regulated access to genetic resources of wild species and benefit-sharing. A 2019 law on research and innovation slightly modified ABS processes.
USER COUNTRY	Indonesia and Germany
ACTORS	**Resource providers:** • Bukit Dua Belas National Park, managed by National Park Authority • Harapan Rainforest and other protected areas in the Jambi province, managed by BKSDA Jambi, the provincial conservation agency • Smallholder farmers and public and privately-owned companies in Jambi **Competent authorities:** • Ministry of Environment and Forestry, Indonesia • Ministry of Research and Technology/National Research and Innovation Agency, Indonesia • Indonesian Institute of Science (LIPI), Indonesia **National collaborators:** • Institut Pertanian Bogor (IPB University), Indonesia • Tadulako University (UNTAD), Indonesia • Jambi University, UNJA, Indonesia • Public and privately-owned companies (including PTPN VI, PT BSU, PT Humusindo Makmur Sejati), Indonesia **Users:** • University of Göttingen, Germany • University of Hohenheim, Germany • Leibniz-Institute GIGA Hamburg, Germany • Thünen-Institute Braunschweig, Germany

SHORT DESCRIPTION

Over the last decades, the lowlands of Jambi province have undergone a major transformation from forest towards a cash crop-dominated landscape of rubber and oil palm plantations. The project "Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems" (EFForTS) investigates the ecological and socioeconomic effects of such transformation. Its objective is to provide science-based knowledge on how to protect and enhance the ecological functions of tropical forests and agricultural transformation systems at a landscape scale, while improving human welfare. EFForTS is funded by the German Research Foundation (DFG) for two project phases since 2012 and funding has been renewed for a third project phase lasting until 2023.

ACCESS AND BENEFIT-SHARING ELEMENTS

Within EFForTS, a range of different agreements have been established since 2012, including:

- Memorandums of Understanding (MoUs) or similar documents signed between research institutions in Indonesia and Germany, establishing the research partnership
- MoUs signed between local universities and national authorities for establishing long-term plots in protected areas
- Plot contracts between national collaborators and both farmers and companies for compensation measures
- Counterpart agreements signed between participating universities

Additionally, research permits have been obtained from the Ministry of Research and Technology/National Research and Innovation Agency and sample collection permits from the Ministry of Environment and Forestry. Other permits were required for the national and international transport of biological material, and for national and international material transfers.

Since 2013, material transfer agreements (MTAs) between research partners have also regulated the export and use of specimens and samples - particularly ensuring these were only loans.

In 2018, prior informed consent (PIC) was issued by the National Park Authority (for the Bukit Dua Belas National Park) and by BKSDA Jambi (for non-national park areas). Mutually agreed terms have not been signed, as a template for the agreement is not yet available.

The project includes both monetary and non-monetary benefit-sharing.
Monetary benefits: A significant proportion of the 42.7 million euro project funding goes to Indonesian partners through about 160 research grants, 16 capacity building grants, and the setup of new infrastructure (research stations, a herbarium, a soil ecology lab, a hydrology lab and a palynology lab).
Non-monetary benefits:

- Long-term cooperation (over 20 years) between about 200 project members from Germany and Indonesia, including 230 publications, of which 72% jointly with counterparts and 34 with Indonesian first author
- Capacity-building (94 lectures, 24 workshops, 28 lab trainings, training of students: 10 PhD, 28 MSc, 45 BSc and exchange of researchers) and setup of demonstration plots
- Samples deposited in national collections in Indonesia

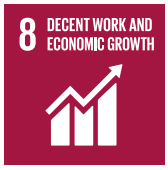
Lessons learned and best practices

NATIONAL ABS FRAMEWORKS	• Internal approaches adopted by users facilitate ABS processes (e.g., establishing ABS service within consortium and as interface with local partners, a CBD Board to monitor the implementation of relevant guidelines at project level, and a Data Management Board to monitor the compliance of data transfer)
	• Local coordinator with in-depth knowledge of the subject matter gives crucial support on ABS matters
	• In spite of facilitation by local partners, ABS processes are sometimes bureaucratic. It is not always understood that studies on genetic material can be done for mere scientific purposes, without any commercial use
BENEFIT-SHARING	• Sharing of benefits contributes to building trust with national and local stakeholders involved in the administrative and legislative implementation of the project
	• Benefit-sharing is a way to disseminate project activities and outcomes among scientists, decision makers, and the general public. However, related administrative procedures are complex, difficult to comprehend for the outsider, and may trigger conflict of interests
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• Capacity-building is essential for ABS processes. It improved collaboration between researchers in Germany and Indonesia
	• Increasing involvement of Indonesian students in projects facilitated sample processing, sample export and joint publications
RELATIONSHIP BETWEEN USERS AND PROVIDERS	• Long-term partnerships – in this project, over 20 years – and a successful cooperation with local scientists, competent authorities, smallholder farmers and other stakeholders enable ABS processes
OTHER SUPPORTIVE MECHANISMS	• Voluntary tools, such as guidelines, can advance ABS principles in cases where no precise ABS requirements exist in the provider country. In this case, the DFG guidelines to promote ABS principles and procedures among its applicants, adopted in 2008, usefully inform and support ABS processes. Moreover, the project developed its own guidelines for scientists on how to use ABS-related funds available from DFG

Contributions to the SDGs

SDG 1, target 1.4, 1.5: Contribution to human welfare and poverty alleviation of smallholder farmers through mobilization of financial resources. For example, project involves plot contracts with farmers and companies that provide compensation measures for research activity and use of data and material.

SDG 4, target 4.7, 4.B: Comprehensive capacity-building and training of students, as part of monetary benefits and non-monetary benefits, including numerous grants and trainings for counterparts, stakeholders, office staff and local assistants in Indonesia. In addition, counterparts and coordinators in Indonesia conduct regular agricultural extension programmes to improve capacity of farmers and to disseminate the research results (for example, on optimal fertilization, organic farming, composting, and farm management).



SDG 8, target 8.5: Mobilization of financial resources for creation of new jobs for researchers as monetary benefit (see under SDG 15 and 17).

SDG 9, target 9.1, 9.5, 9.A: Substantial financial start-up support to counterparts in 2012 (47 projects) and by research grants for partners and stakeholders (ca. 120 grants). Contribution to the development of research infrastructure through the establishment of research stations and different labs (herbarium, soil ecology, hydrology and palynology).

SDG 12, target 12.2, 12.8, 12.A: Support of responsible consumption and production was provided as non-monetary benefit (see under SDG 4 and 15).

SDG 13, target 13.3: Increasing knowledge on influence of land use transformation and climate change on biogeochemical cycles supports decision-making of local authorities and smallholder farmers work.

SDG 15, target 15.1, 15.5, 15.6, 15.9, 15.A: EFForTS contributes to the protection and enhancement of the ecological functions of tropical forests with science-based knowledge with 20 scientific projects by monetary and non-monetary benefits, which are shared with local researchers, authorities and smallholder farmers.

SDG 17, target 17.3, 17.6, 17.8, 17.9: Involvement of stakeholders and indigenous communities: Cooperation with universities, national parks, state and private companies and governmental organizations in Indonesia. Researchers from Germany and Indonesia work in close cooperation on a wide range of disciplines (e.g., ecology, forestry, agriculture, remote sensing, economics, cultural anthropology) and have produced a large amount of joint publications.

Relevant contacts/sources of information:

- Prof. Dr Stefan Scheu & Dr Barbara Wick (University of Göttingen, Germany)
- Dr Aiyen Tjoa (UNTAD - Tadulako University, Indonesia)
- Interview with Prof. Dr Stefan Scheu and Dr Barbara Wick
- Website: https://www.uni-goettingen.de/de/310995.html
- ABS-Clearing House: https://absch.cbd.int/search/nationalRecords

Researching biodiversity to preserve traditional diets and wild plants in the Middle East
Asia

Joint collecting expedition by NARC, SBR and RBG Kew in Jordan to collect plant material of G. tournefortii for analysis and training. © Kew

OVERVIEW	Research and conservation of wild plants used by local communities in their diet, based on ABS principles and benefit-sharing arrangements.
SUBJECT MATTER (GR / BR)	Plant specimens and seeds, phytochemicals, genetic material and associated traditional knowledge
SCIENTIFIC OR COMMERCIAL USE	Basic research activities, including: • Collection of wild plant species used in the traditional diets of local people and associated ethnobotanical knowledge (through interviews) • Conservation of seeds in seed bank and preservation of associated traditional knowledge • Research on seed germination, phytochemistry and genetic diversity
PROVIDER COUNTRY	Jordan and Lebanon
ABS FRAMEWORK IN PROVIDER COUNTRY	Jordan and Lebanon are Parties to Nagoya Protocol. Provider Countries had no ABS legislation at time of project launch. In Jordan, ABS legal requirements were adopted only in 2019. Lebanon does not have a legal framework on ABS.
USER COUNTRY	United Kingdom (UK), Jordan, and Lebanon
ACTORS	**Resource providers:** The States of Jordan and Lebanon **Competent authority:** • National Agricultural Research Centre (NARC) in Jordan • The Lebanese Agricultural Research Institute (LARI) and Shouf Biosphere Reserve (SBR, under the authority of the Ministry of Environment) in Lebanon **National collaborators:** • National Agricultural Research Centre (NARC) and Royal Society for the Conservation of Nature (RSCN), Jordan • Lebanese Agricultural Research Institute (LARI) and Shouf Biosphere Reserve (SBR), Lebanon **User:** Royal Botanic Gardens, Kew (RBG Kew), United Kingdom

SHORT DESCRIPTION

This project aims to conserve and research wild plants used by local communities in their diet, as well as to identify opportunities for these plants to be cultivated, rather than collected from the wild. Gathered information is shared with local partners and communities. It supports sustainable use and commercialization of these plants by local people, the preservation of traditional knowledge, and food security in this region.
NARC is leading the project in Jordan and is responsible for seed conservation and cultivation activities. RSCN supports NARC, works with local communities on cultivation activities, and leads the development of marketable produce and products. LARI is in charge of seed collecting and conservation in Lebanon. SBR is leading the project in Lebanon and is involved in community development and conservation. RBG Kew investigates the seed biology and germination, carries out research on the nutritional quality of wild edible species, supports seed collection and conservation, and promotes research findings, dissemination and capacity building.
This project, called „Restoring the traditional Mediterranean diet through the conservation of wild edible plants", is funded by the MGU-Useful Plants Project.

ACCESS AND BENEFIT-SHARING ELEMENTS

In addition to a project grant agreement, activities are carried out under existing ABS agreements between RBG Kew and partners. NARC and LARI have been collaborating with RBG Kew since early 2000s under the Millennium Seed Bank Partnership (MSBP). These agreements are based on RBG Kew guidelines on ABS principles, given no ABS measures were in place in provider countries. Activities regulated by the agreements include access and use of genetic resources, data sharing, copyrights, and dissemination of information, including joint publications. Permits are also in place for fieldwork and collection of plant material.

The project involves monetary and non-monetary benefits.
Monetary benefits: Funds are transferred both to NARC and SBR to carry out activities in their country. In particular, of the 80 000 US$ project budget, 14 000 US$ are transferred to Jordan and 14 000 US$ to Lebanon.
Non-monetary benefits:

- Training in seed conservation and other technical and scientific support to partners
- Involvement of and capacity building for local communities, including training in cultivation, seed collecting and product development
- Access to plant material hosted at the Kew seed bank
- Information and knowledge transfer and exchange of research data, including creation of a database

Lessons learned and best practices

NATIONAL ABS FRAMEWORK

- Kew ABS expertise and good practices facilitated ABS processes, as Jordan and Lebanon did not have an ABS legal framework in place when cooperation started. Such good practices on ABS include policy advice, regular staff training, an online guide, model agreements and procedures for overseas fieldwork. Model agreements, developed by RBG Kew were adapted to this project and helped to start the process. This case shows that voluntary tools on ABS developed by users are important to implement ABS measures in provider countries.

BENEFIT-SHARING

- ABS processes contribute to the conservation and sustainable use of natural resources (wild edible plants) as well as to the livelihoods of local communities in both provider countries.

RELATIONSHIP AMONG USERS AND PROVIDERS

- A long-term and trustful collaboration is important for implementing ABS. In this case, the NARC in Jordan and the LARI in Lebanon have been collaborating with RBG Kew since early 2000s. They are part of the MSBP aiming at conserving the flora of Jordan and Lebanon by collecting and conserving seeds for many important and indigenous plant species.

Contributions to the SDGs

SDG 1, target 1.4: The sharing of knowledge on the sustainable use and commercialization of wild edible plants with local communities contributes to poverty alleviation.

SDG 2, target 2.1, 2.3, 2.4, 2.5: The restoration of traditional Eastern Mediterranean diet is supported through the conservation of wild edible plant species (genetic diversity) and by preserving associated traditional knowledge. ABS processes in this project limit food insecurity and strengthen local production and consumption, as well as the resilience and adaptive capacity of small-scale and family farmers and of indigenous people. Access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and a ATK is promoted.

SDG 4, target 4.7, 4.B: Benefit-sharing within the project includes building technical and scientific capacity for the collection, conservation and sustainable use of genetic resources from wild edible plants.

SDG 13, target 13.1, 13.B: The ABS activities strengthen resilience and adaptive capacity to climate change as germination requirements of edible plants under different climate change scenarios are investigated. This knowledge will be shared with local communities.

SDG 15, target 15.1, 15.4, 15.5, 15.6, 15.A: Conservation, sustainable use and the fair and equitable sharing of benefits arising from the utilization of biodiversity are supported through ex-situ conservation and knowledge sharing. This project prevents the extinction of threatened wild species through seed banking and mobilizes resources for partners. Through the phytochemical analysis, the project looks at the nutritional value of plants with the intent to promote the Mediterranean diet and in turn the conservation and sustainable use of indigenous edible plants.

SDG 17, target 17.1, 17. 6, 17.7, 17.9: The project enhances partnership and knowledge sharing with providers. Innovation and sustainable development are promoted, and financial resources mobilized as monetary and non-monetary benefits.

Relevant contacts/sources of information:

- China Williams, Dr Tiziana Ulian, Efisio Mattana & Jemma Taylor (RBG Kew, United Kingdom)
- Website: https://www.kew.org/science/our-science/projects/restoring-Mediterranean-diet

The valorisation of the biodiversity of Sarawak through a multi-stakeholder ABS partnership in Malaysia
Asia

Fresh fruits on Litsea tree
© Sarawak Biodiversity Centre

OVERVIEW	A multi-stakeholder ABS partnership involving indigenous communities for the development of personal care products based on research carried out in Sarawak on the active properties of a local tree.
SUBJECT MATTER (GR / BR)	*Litsea cubeba* - a small tree that grows in the forest highlands of Sarawak
SCIENTIFIC OR COMMERCIAL USE	Commercial use: Research carried out on the active properties of *Litsea cubeba* for the development of personal care products, including soap, shampoo, air freshener and essential oil for aromatherapy
PROVIDER COUNTRY	Malaysia
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol ABS measures: • 2014: Amendment to Sarawak Biodiversity Centre Ordinance to include reference to prior informed consent and mutually agreed terms.) • 2016: The Sarawak Biodiversity Regulations are adopted and set out specific ABS requirements. • 2017: The Government of Malaysia adopted the Access to Biological Resources and Benefit Sharing Act 2017 (Act 795). The Federal law does not restrict the right of the State to regulate access to biological resources and benefit-sharing in a manner consistent with the objective and provisions of the Federal law. (section 3.3)
USER COUNTRY	Malaysia
ACTORS	**Resource providers:** Indigenous communities from Sarawak • Bidayuh of Kampung Kiding in Padawan, Kuching • Kelabit of Pa'Ukat and Pa'Lungan in Bario, Miri • Lun Bawang of Long Kerebangan and, Long Telingan in Lawas **Competent authority:** Ministry of Urban Development and Natural Resources of Sarawak **User:** Sarawak Biodiversity Centre (SBC)
SHORT DESCRIPTION	Fruits and leaves of Litsea cubeba used for medicinal and culinary purposes by indigenous communities. Further to research carried out by SBC, oil extracted from fruits and leaves found to contain anti-microbial, anti-inflammatory and repellent properties. Oil developed into a range of personal care products.
ACCESS AND BENEFIT-SHARING ELEMENTS	Prior informed consent (PIC) and signature of benefit-sharing agreement between the SBC and five communities on 20 March 2019. **Monetary benefits** include the purchase of essential oil from the communities involved in the distillation of the essential oil as well as a percentage of sales from the product shared through a community fund. **Non-monetary benefits** include capacity-building and the establishment of facilities for oil extraction.

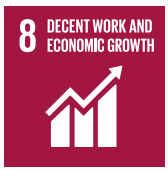
Lessons learned and best practices

VALORIZATION OF BIODIVERSITY AND TRADITIONAL KNOWLEDGE	• Government strategy to valorize its biodiversity, the knowledge of its communities and to build on its research capacity contributed to the success of this case. • Recognition of the value of biological diversity and the importance of its conservation by all actors. • Recognition of the value of traditional knowledge and the important role of indigenous communities in conserving and sustainably using biological resources. • Long-term partnerships along value chain contribute to the valorization of biological resources and associated traditional knowledge.
ABS MEASURES	• The framework developed provides conducive research environment and ensures that communities are recognized for their traditional knowledge and their contribution to the conservation and sustainable use of biodiversity.
BENEFIT-SHARING	• Monetary benefits can contribute to improving the livelihood of communities. • Non-monetary benefits can contribute to enhance and develop new skills in the communities.
ELEMENTS THAT SUPPORT THE PROCESS	• Empowerment of communities and continuous dialog amongst representatives from the government, research institution and communities over a period of five years enabled the conclusion of an access and benefit-sharing agreement. • Technical and financial support provided through a capacity-building project usefully contributed to the development of the ABS framework and to the development of an agreement between SBC and the communities.

Contributions to the SDGs

SDG Goal 1, target 1.4: The development of LitSara products based on the sustainable harvesting of Litsea cubeba contributes to the livelihood of communities.

SDG Goal 5, target 5.5, 5.A: Empowerment of communities through capacity-building also enables women in the community to realize their potential as contributors to their families' incomes and as drivers of innovation in their community.



SDG 8, target 8.3: Through the Sarawak Biodiversity Ordinance, the State of Sarawak has recognized the value of its biodiversity and associated traditional knowledge and harnessed their potential through the Sarawak Biodiversity Centre (promoted development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation).

SDG 9, target 9.5 – 9.B: The Sarawak Biodiversity Centre enhances scientific research and innovation domestically on the basis of local resources (ABS as a tool to support domestic technology development, research and innovation in developing countries).

SDG 12, target 12.2: The development of this value chain and the partnership established contribute to sustainable management and efficient use of natural resources.

SDG 15, target 15.2, 15.6, 15.9: Sustainable harvesting of *Litsea cubeba* contributes to the sustainable management of forests. Through this partnership, local planning has integrated biodiversity values and contributed to development. The ABS framework enabled appropriate access to the resource and fair and equitable sharing of benefits.

SDG 17, target 17.6, 17.9: This multi-stakeholder partnership enabled the mobilization and sharing of knowledge, expertise, technology and financial resources. The capacity-building project also contributed to the development of sustainable development plans.

Relevant contacts/sources of information:

- Communications with the Sarawak Biodiversity Centre, Malaysia
- "LitSara – An essential oil from Sarawak", Borneo Talk, Oct-Dec 2015.
- "The LitSara story from Traditional Knowledge to Innovation", Borneo Talk, Oct-Dec 2016
- "Group, SBC ink deal on the sale of LitSara products", Borneo Post Online, 20 April 2017
- "LitSara souvenir sets of natural personal care products to be sold at hotels in Kuching and Miri", The Star, 27 April 2017
- "Indigenous communities in Sarawak to benefit from commercialization of essential oil", The Star, 20 March 2019
- "Essential help for communities", The Star, 23 March 2019
- "Sarawak Biodiversity Centre seals country's first Benefit Sharing Agreement (BSA) with five indigenous communities", SBC News, 20 March 2019
- "Our Solutions are in Nature – Safeguarding traditional knowledge and biodiversity for improved health and hygiene, finding symbolic solutions to environmental, social and economic challenges", UNDP Ecosystems and Biodiversity, 18 May 2020

The use of a plant from Vietnam for the development of a cosmetic ingredient
Asia

The rich landscape of Vietnam © Pexels

OVERVIEW	An ABS agreement to carry out research on the properties of a plant for the potential development of a cosmetic ingredient.
SUBJECT MATTER (GR / BR)	*Salvia miltiorrhiza*, a perennial plant in the Lamiaceae family, native to several Asian countries and highly valued in traditional medicine.
SCIENTIFIC OR COMMERCIAL USE	Potential development of a cosmetic ingredient for commercial use
PROVIDER COUNTRY	Vietnam
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to Nagoya Protocol ABS measures: • Biodiversity Law (2008) • Decree No. 59/2017/ND-CP – Decree 59 (2017) • Circular No.15/2019/TT-BTNMT (2019) • Circular No.07/2020/TT-BNNPTNT (2020)
USER COUNTRY	France
ACTORS	**Resource provider:** Local private company specialised in the cultivation of organic agricultural products. They harvest products grown on their land and export. **Competent authority:** Ministry of Natural Resources and Environment (MONRE) **National collaborator:** Center for Rural Economy Development (CRED) **User:** BASF Beauty Care Solutions France SAS (BASF)
SHORT DESCRIPTION	In June 2017, BASF accessed a perennial plant in the Lamiaceae family (*Salvia miltiorrhiza*) from a local company who cultivates the plant, to carry out research on its properties with a view to develop a cosmetic ingredient. Upon the entry into force of Decree 59, and based on its transitional provisions, an application was presented to regularise access to the genetic resources. In line with national requirements related to access and benefit-sharing as described below, a license was granted for access to the resource for commercial purposes in April 2020.

ACCESS AND BENEFIT-SHARING ELEMENTS

Decree 59, which entered into force on 1 July 2017, enabled organisations and individuals that accessed genetic resources between 1 July 2009 and 1 July 2017, and wanted to continue utilising these resources, to register and request a license in accordance with the requirements set out in the Decree and thus regularise their situation.

In accordance with Decree 59 the following steps were followed:

- A registration dossier was submitted in January 2018. Given the Decree requires the collaboration of a local science and technology organisation, the BASF entered into a collaboration agreement with the CRED to help with the identification and screening of plants. Following registration confirmation by MONRE in February 2018, an ABS contract was negotiated between the cosmetics company and the local provider and signed in April 2018. The contract was then certified by the Commune-level People's committee in May 2018. The application dossier to request a license to access to genetic resources was then also submitted in May 2018.

- Following receipt of the application dossier, the MONRE held appraisal council meetings and consulted experts and requested further information and data to the applicant, as set out in the Circular 15/2019/TT-BTNMT (2019) prescribing the regulation on organisation and operation of the appraisal committee, to appraise the application for a license to access genetic resources for commercial research and commercial product development purposes.

- On 20 April 2020, the MONRE issued Decision No. 963/QĐ-BTNMT on the licensing of access to genetic resources for commercial purposes.

Once the license is granted, the ABS contract is effective and valid for a 7-year period. The sharing of benefits is addressed in the contract as follows:

Monetary benefits correspond to 1% of the yearly revenue of cosmetics ingredient developed directly from the access to genetic resources (excluding VAT) of the accessor.

Of these aforementioned monetary benefits, 50% is reserved for the provider to finance community development projects (improving working conditions or life quality of local communities) or biodiversity conservation projects or enhance agricultural practices related to the GR; and, 50% is paid to the State budget.

The benefits to the provider will be used to carry out a number of activities such as training courses on farming techniques, on sustainable harvesting and raising awareness about environmental protection and biodiversity conservation.

With respect to the 50% of benefits going to the State, as set out in the Decree 59, benefits directed to the government are to be used for biodiversity conservation projects.

Lessons learned and best practices

NATIONAL ABS MEASURES

- Provisions allowing for regularisation of access to genetic resources are essential to allow companies to approach competent national authorities with questions about past or ongoing activities and be able to move forward with legal certainty.
- The process of securing prior informed consent and benefit-sharing agreements functions well where the local provider is a company. Parties were able to exchange information and reach meaningful conditions and benefits to be shared.
- The implementation of a proactive solutions-oriented approach by competent national authorities can contribute to swift and constructive communication between the relevant actors and facilitate ABS implementation.
- Templates and guidelines that accompany ABS provisions in Vietnam are invaluable tools for applicants to understand and follow required steps.
- Unexpected delays can make the process of ABS compliance difficult. For example, committees foreseen by ABS provisions to assess applications were not in place.

BENEFIT-SHARING

- Benefit-sharing discussions are often facilitated when parties agree on the importance of using benefits for local livelihoods and biodiversity. In this case, benefits in the agreement were shared for training of its farmers and awareness-raising activities on nature and biodiversity conservation. In addition, the benefits directed to the State are also to contribute to biodiversity conservation in accordance with the requirements set out in the Decree.

Contributions to the SDGs

SDG Goal 1, target 1.4: As described above, benefits shared with the provider will finance community development projects that will improve working conditions or life quality of local communities and contribute to the livelihood of the communities who harvest the resource for the provider.

SDG 15, target 15.6: This case illustrates the approach taken by Vietnam in the implementation of the Nagoya Protocol, in particular the ABS process established by Decree 59, including the contribution of benefits to conservation and sustainable use.

target 15.A: Through this ABS agreement, benefits to be shared with the provider and the State are specifically targeted towards conservation and sustainable use of biodiversity. Hence, this case illustrates how ABS can contribute to mobilising financial resources for conservation and sustainable use. More specifically, benefits to the provider will contribute to training activities related to sustainable harvesting, environmental protection and biodiversity conservation, while benefits to the State will be used for biodiversity conservation projects.

SDG 17, target 17.16: This case involves a French company, a Vietnamese company and science and technology organisation as well as local communities and national authorities. It demonstrates how multi-stakeholder ABS partnerships can contribute to conservation and sustainable development.

Relevant contacts/sources of information:

- Direct communications with Nature and Biodiversity Conservation Agency, Vietnam Environment Administration, Ministry of Natural Resources and Environment

The development of cosmetic products based on Amazonian biodiversity
Latin America

Natura cosmetics using Andiroba oil
© Natura

OVERVIEW	Long term partnership with extractive communities of the Amazon for the development of cosmetic products
SUBJECT MATTER (GR / BR)	*Astrocaryum murumuru* (Murumuru) and *Carapa guianensis* (Andiroba)
SCIENTIFIC OR COMMERCIAL USE	Development of cosmetic products using Andiroba oil and Murumuru butter.
PROVIDER COUNTRY	Brazil
ABS FRAMEWORK IN PROVIDER COUNTRY	Non-Party to Nagoya Protocol but official ratification expected soon. ABS measures: • Provisional measure 2186-16 of 23 August 2001 was in force at the time of this case. It was replaced by Law n. 13,123 of 17 November 2015 and Decree n. 8,772 of 11 May 2016.
USER COUNTRY	Brazil
ACTORS	**Resource providers:** • Extractive communities from the Media Jurua region of the Amazon • The Chico Mendes Institute for Biodiversity Conservation (ICMBIO) **Competent authority:** The Genetic Heritage Management Council (CGEN) **User:** Natura Cosmetics, a Brazilian cosmetics company, now part of the Natura & Co Group.
SHORT DESCRIPTION	Over a decade, Natura has worked with extractive communities from the Media Jurua region of the Amazon to establish sustainable supply chains for Andiroba oil and Murumuru butter. In these supply chains, Natura Cosmetics considers not only technical but also anthropological and social issues, to ensure a positive contribution to the wellbeing and livelihood of the communities. Compliance with ABS requirements in Brazil has been an important component in developing these supply chains as further described below. Although the involvement of numerous actors contributed to a long process, it also enabled the establishment of a robust agreement in terms of mechanisms for benefit-sharing, in line with its broader sustainability strategy and desire to establish strong and close relationships with communities of the Amazon. Lessons learned from this experience have also usefully informed the establishment of additional supply chains.

ACCESS AND BENEFIT-SHARING ELEMENTS

Natura started building a relationship with the extractive communities of the Medio Jurua in 2003 and the first purchase of Murumuru butter and Andiroba oil occurred between 2004 and 2005.

In 2005, Natura approached the government to find out whether ABS requirements would be applicable in an extractive reserve.

In 2009, further to the elaboration of a value chain and management plans for Andiroba and Murumuru, prior informed consent (PIC) was obtained from the communities. In 2011, mutually agreed terms (MAT) were reached between the three community organizations (ASPROC, CODAEMJ and AMARU), ICMBIO, as the management authority, and Natura. At the end of a long process, this access activity was regularized by CGEN (the competent national authority) in 2015, in accordance with the 2001 provisional measure.

Benefit-sharing was addressed in the MAT as further described below. **Monetary benefits** are linked to the revenues earned by the Natura products using Andiroba oil and Murumuru butter and are shared with communities through a fund that invests in projects for conservation, sustainable use and local livelihoods.

What benefits to share? Natura proposed the parameters which were being considered for the new Brazilian law on ABS (under discussion at the time). It was agreed that 0.75% of benefits from the revenue of products during the period they are commercialized would be targeted to conservation projects, paid every year.

For 2017, benefits in the amount of 789 859 BRL (approximately 133,899.42 Euro) were shared by Natura. These benefits supported projects involving four organizations, which represent 485 families from 42 communities. For 2018, benefits reached an amount of R$ 989 946 BRL (167,602.82 Euro) and benefited nine organizations.

How to share benefits? A key element of the MAT was the creation of the Medio Jurua Fund. The Fund is managed by an executive secretary and a committee composed of representatives from Natura, ICMBio as well as the three community organizations. The executive secretary is responsible for the administrative management of the committee as well as management and monitoring of project implementation.

A call for projects is published by the committee in order to identify projects proposed by communities from the Media Jurua region that are best suited to receive financial resources through the fund. Once a project is approved, the management committee informs Natura who transfers the budget approved to the organization responsible for the selected project. Through the projects selected, the fund has supported a number of activities related to conservation and sustainable use and contributed to the improvement of the livelihood of the communities involved, including:

- Conservation of forest areas, as well as endangered turtles and the pirarucu fish.
- Capacity-building through environmental education activities (e.g. species conservation programmes targeting the youth) and management trainings
- Improvements to local infrastructure (e.g. establishment of three community shops for easier access to items such as food, fishing material and fuel at a more affordable price)
- Empowerment of local people (e.g. participation of community representatives in general assemblies and participation in decision-making)
- Enhancement of the supply chains (e.g. increased production yield, improvement in quality of Andiroba oil)

Lessons learned and best practices

BENEFIT-SHARING

Key lessons learned from this case include the establishment of a fund to ensure transparency and positive impact of benefits in the communities. Points to highlight in this approach include:

- Representation of the communities, Natura and ICMBIO on the management committee contributes to good governance and ensures that the interests of all are taken into account in decision-making and the selection of the projects to receive funding.
- The benefit-sharing mechanism established by the fund which involves the call for projects from local community organizations from the region and the selection of projects by the management committee involves a fair distribution of the funds available and has contributed to strengthening local organizations throughout the region.
- The fund has contributed to local development through the improvement of value chains (Andiroba and Murumuru supply chain, as well as other supply chains such as pirarucu), increase in social participation through capacitation workshops, improved management through meetings of organization leaders, projects focused on training young leaders and activities for species conservation.

ABSENCE OF INTERMEDIARIES

The absence of intermediaries between Natura and the communities enabled the establishment of a direct and transparent relationship with community organizations. This unique relationship developed over time has contributed to establishing strong ties based on trust between Natura and its suppliers, which have been mutually beneficial, in line with Natura' sustainability strategy.

POSITIVE CONTRIBUTION OF PARALLEL COMPLEMENTARY INITIATIVES

Through the establishment of supply chains, local communities were empowered thanks to a number of parallel initiatives:

- Capacity-building through trainings on a variety of issues, including health and safety, management, nature conservation.
- Enhancement of supply chains through technology transfer, improvements in quality contributing to increased value of the products supplied.

LEARNING BY DOING

Although it was a lengthy process, it enabled the establishment of a solid relationship and a strong foundation for the ongoing partnership between Natura and communities in the Amazon which has now expanded to a number of supply chains. The partnership established with extractive communities is in line with Natura's broader sustainability vision which, among other objectives, aims to establish strong and close partnerships with communities of the Amazon.

Contributions to the SDGs

SDG 1, target 1.4: Several initiatives established through support provided by the Media Jurua Benefit-sharing Fund have contributed to the increase of family incomes.

SDG 4, target 4.4: Projects supported by Natura contribute to educating young people about sustainable use of the natural resources in their region thereby contributing to employment and sustainable development.

SDG 5, target 5A: Some of the projects funded and the community organizations from the region focus on reinforcing the important role that women play in society and hence contribute to gender equity.

SDG 8, target 8.3: As demonstrated above, the Fund supports the livelihoods of the communities through job creation, entrepreneurship based on sustainable harvesting of natural resources.

SDG 15, target 15.2, 15.5, 15.9: Maintenance of a sustainable extractive supply chain and enhancement of the effectiveness of processes contribute to forest preservation. The interest and involvement of young people in environmental projects also contribute to the achievement of this SDG. The establishment of these supply chains also demonstrates how biodiversity values can be taken into account in local planning and development processes.

Relevant contacts/sources of information:

- Direct communication with Natura
- Impact Case Study: Natura's Commitment to Ethical BioTrade
- Natura 2018 Annual Report
- Natura 2050 Sustainability Vision
- Natura & Co 2030 Sustainability Vision

The development of cosmetic products based on the Uchuva calix from Colombia
Latin America

The Uchuva fruit and its calix © Pexels

OVERVIEW	An ABS agreement for the development of a cosmetics ingredient based on the active properties of the Uchuva calix
SUBJECT MATTER (GR / BR)	Uchuva (*Physalis peruviana*) – a tropical fruit
SCIENTIFIC OR COMMERCIAL USE	Development of a cosmetic ingredient for commercial use following research and development on the active properties of the Uchuva calix
PROVIDER COUNTRY	Colombia
ABS FRAMEWORK IN PROVIDER COUNTRY	Non-Party to Nagoya Protocol ABS measures: • Andean Decision 391 (1996) • Resolution 620 establishing the ABS procedure (1997) • Decree 1348 on activities that constitute access (2014) • Resolution 1352 modifying Resolution 1348 (2017) • Article 252 of Law 1753 on contracts for access to genetic resources and their derivatives (2015)
USER COUNTRY	France
ACTORS	**Resource providers:** OCATI, tropical fruit exporter, Colombia **Competent authority:** Ministry of Environment and Sustainable Development, Colombia **National collaborator:** Universidad Agraria de Colombia **User:** Cosmo International Ingredients (Cosmo), France
SHORT DESCRIPTION	Following research and development on the active properties of the Uchuva calix, Cosmo developed a potent natural ingredient from its extract. This new ingredient was then used by Cosmo's exclusive customer – a popular cosmetics brand in Latin-America – to develop an anti-ageing cream and eye contour cream.

ACCESS AND BENEFIT-SHARING ELEMENTS

In accordance with article 252 of Law 1753 enabling the regularisation of access to genetic resources, a contract for access to Uchuva was requested by Cosmo on 22 December 2015. In March 2017, an ABS contract was signed and a commercialisation permit was granted to Cosmo.

A ten-year contract was signed by Cosmo and representatives from the Ministry of the Environment and Sustainable Development as the competent national authority. The negotiation of benefits also involved "the Universidad Agraria de Colombia" which provided scientific endorsement and advice on non-monetary benefits. In addition, OCATI, the supplier, is mentioned in the contract and actively involved in activities related to the sharing of benefits with the farmers who collect the raw material.

Monetary benefits include:

- As usually requested, a lump-sum payment of approximately 60USD per species investigated, in this case "Physalis peruviana".
- An initial payment was also paid at the moment of the signature, taking into account other negotiated terms, in particular the estimated value of the non-monetary benefits.
- During the ten years of the contract, an annual payment is made corresponding to a negotiated percentage of the net margin (total sales of ingredient – raw material purchase – production costs – administrative costs – taxes) earned the previous year.

Non-monetary benefits include:

- Presentation of the results of the research, in the form of a seminar or international congress focused on the subject of the project with a view to take advantage of the project to raise awareness about ABS at national level.
- Publication of an article in a scientific journal, presenting the results of the research.
- Annual workshops with a minimum of 30 farmers, who supply OCATI with Uchuva, for training on subjects related to the sustainable use of biodiversity and green businesses.
- Support to two green business projects initiated by farmers who supply OCATI, by financing the alignment with green businesses assessment criteria established by the Office of green businesses (Oficina de Negocios Verdes).

Lessons learned and best practices

NATIONAL ABS MEASURES

- The establishment of transitional/intermediary measures which enable users to regularise access to genetic resources in accordance with newly established ABS requirements can facilitate ABS implementation and contribute to the establishment of a climate of trust between users and providers.
- Although it was not relevant in this particular case, it was pointed out that the Colombian approach which enables the granting of research permits for bioprospecting of new plants in specific areas over a specific period of time is more practical from a user perspective than having to request access for each individual plant accessed for bioprospecting purposes.

BENEFIT-SHARING

- Agreeing on the fair and equitable sharing of benefits at the outset can be a challenge. To ensure equity for both the user and the provider of genetic resources, it would be useful to plan to review benefit-sharing terms one or two years into the implementation of the contract once there is greater visibility with respect to the sales and turnover of the product developed using the genetic resources. If sales and turnover exceed the initial amount expected, the sharing of benefits could be increased, or conversely decreased if the benefits are lower than expected.
- Important for users to have clarity on how benefits flow back to biodiversity conservation and sustainable use: Users of genetic resources, who are committed to sustainable practices would appreciate receiving further information regarding the use of the monetary benefits shared and having the opportunity to choose the type of projects supported thanks to the benefits shared. They are interested in knowing that the benefits they share contribute to conservation and sustainable use.

ELEMENTS THAT FACILITATES THE PROCESS AND THE CONCLUSION OF AN ABS AGREEMENT

- Having a local person involved in the process and dealing with national authorities can contribute to a better understanding of the process and to successful partnerships.
- The credibility of the user as a company seeking to value nature can contribute to establishing a climate of trust between the user and the provider.

Contributions to the SDGs

SDG 8, target 8.3: Non-monetary benefits contribute not only to sustainable use but also to economic and social development, through trainings on sustainable use and support provided to green business projects.

SDG 12, target 12.2, 12.6: This partnership contributes to sustainable management and efficient use of natural resources. It also illustrates how transnational companies can contribute to sustainable practices through ABS partnerships.

SDG 15, target 15.6: Although Colombia has not yet ratified the Nagoya Protocol, this case illustrates the approach taken by Colombia in implementing ABS measures and negotiating ABS agreements following the entry into force of the Nagoya Protocol.

SDG 17, target 17.6, 17.16: A multi-stakeholder ABS partnership can contribute to sustainable development through the sharing of knowledge, expertise, technology and financial resources.

Relevant contacts/sources of information:

- Communications with Cosmo International Ingredients
- "Cosmo's experience of ABS process in Colombia – example of the uchuva extract", presentation by Cosmo International Ingredients, UEBT Conference, May 2019.
- "Estudio de caso contrato de accesso a recursos geneticos y sus productos derivados RGE0168" presentation by Ministry of Environment of Colombia, Regional UNDP workshop for Latin America and the Caribbean on the negotiation of ABS contracts, Punta Cana, 2019.

The development of a cosmetic product based on the properties of green coffee from Costa Rica
Latin America

Green Coffee

OVERVIEW	An ABS agreement involving the development of a cosmetics based on the active ingredients found in green coffee from Costa Rica.
SUBJECT MATTER (GR / BR)	Genetic resources of Coffea arabica
SCIENTIFIC OR COMMERCIAL USE	Commercial use of biochemical components found in green coffee for the development of cosmetics with an anti-aging effect that revitalize and contribute to healthier looking skin, as well as smooth wrinkles and expressive lines.
PROVIDER COUNTRY	Costa Rica
ABS FRAMEWORK IN PROVIDER COUNTRY	Non-Party to Nagoya Protocol ABS measures: • Biodiversity Law No. 7788 (1998) • Executive Decree 31514-MINAE (2003) on access to genetic resources • Executive Decree 33697-MINAE (2007) on *ex-situ* access • Executive Decree 39341-MINAE (2016) on sanctions for unauthorized access
USER COUNTRY	France
ACTORS	**Resource providers:** • A rural coffee cooperative from Nicoya Peninsula • A Costa Rican company manufacturer of vegetable oil, specialized in green coffee oil extraction **Competent authority:** Comisión Nacional para la Gestión de la Biodiversidad (CONAGEBIO) **User:** Chanel Parfums Beauté (Chanel), a French cosmetics company
SHORT DESCRIPTION	In 2014, Chanel started research on molecules from green coffee originating from the Nicoya Peninsula with the aim of developing a cosmetic formulation. The research showed that the molecules of Kahweol and Cafestol found in this coffee have exceptionally active antioxidant and anti-inflammatory properties. As those molecules only appear in the oleaginous form of the green coffee, Chanel worked with a local oil seed manufacturer, which developed an innovative technique to extract the oil from the dry beans. Once the research was completed, Chanel requested a commercial permit to use the coffee molecules and provided a description of the use of the genetic and biochemical elements to be extracted. The whole process was carried out under the supervision of CONAGEBIO, the national authority responsible for granting access to genetic and biochemical resources of biodiversity, in accordance with ABS requirements in Costa Rica.

ACCESS AND BENEFIT-SHARING ELEMENTS

In 2016, for the first time in the country, CONAGEBIO granted a permit for commercial use related to access to biochemical and genetic resources of green coffee from Nicoya. The mutually agreed terms (MAT) were established between Chanel and the local coffee producers. However, CONAGEBIO played a key role in supervising and mediating the negotiation process.

As non-monetary benefits Chanel financed a new coffee-roasting unit to encourage the production and sale of locally roasted coffee. This increased the coffee's purchase price and helped restore profitability.

Chanel signed a three-year renewable framework agreement for sustainably grown plant-based raw materials providing financial security (monetary benefits) to the raw material providers.

Lessons learned and best practices

ABS MEASURES

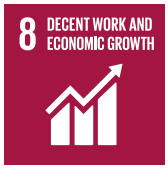
- ABS measures must be clear in order to provide legal certainty with respect to the requirements and procedures for access to the resource and the distribution of benefits.

ELEMENTS THAT SUPPORT THE PROCESS

- Trust and a good relationship between all parties facilitate the negotiations.
- When negotiating, providers and users must have a good understanding of the procedures and processes established in their respective countries.
- Information and training can facilitate the understanding of the process. It is very important that the local provider of the resource understands the steps of the ABS process, including benefit-sharing.
- In Costa Rica, ABS contracts provide that the applicable law in the event of a dispute is the law of Costa Rica. Understanding and acceptance by users that the provider country may require that potential disputes are governed by the law of the provider country can facilitate the ABS process.

Contributions to the SDGs

SDG 1, target 1.1: The green coffee producers of the Nicoya Peninsula receive significant monetary benefits from Chanel which have contributed to the improvement of quality of life at the local level.



SDG 8, target 8.1: Benefit-sharing included a new coffee-roasting unit that helped restore profitability by encouraging production and sale of locally roasted coffee and increasing the coffee's purchase price.

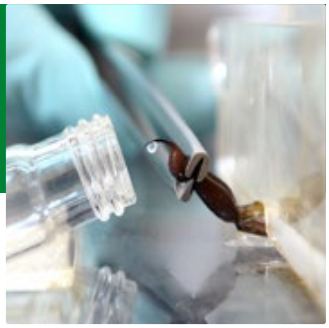
target 8.5: The ABS case generated employment opportunities due to better business opportunities.

SDG 15, target 15.6: The collaboration between the company and the community contributed to fair and equitable sharing of the benefits arising from the utilization of genetic resources.

Relevant contacts/sources of information:

- Angela Gonzalez Grau, CONAGIEBO
- José Alfredo Hernández Ugalde, CONAGEBIO
  Melania Muñoz García, CONAGEBIO
- GIZ: ABS - Practical examples from Central America and the Dominican Republic.
  https://bit.ly/32NbdeL
- Chanel (ed.) (2018): Report to Society.
  http://services.chanel.com/i18n/fr_FR/pdf/Chanel_CSR_0305_Proof_180620_for_web.pdf

An ABS agreement for the commercial use of venom from the Dominican Republic
Latin America



venom extraction © Medolife

OVERVIEW	An ABS agreement for the commercial use of scorpion venom, including the sharing of monetary and non-monetary benefits.
SUBJECT MATTER (GR / BR)	Genetic resource of *Rhopalurus princeps*, known as „*blue scorpion*“
SCIENTIFIC OR COMMERCIAL USE	Genetic resource used for production of medicines with anti-cancer properties
PROVIDER COUNTRY	Dominican Republic
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to the Nagoya Protocol Relevant ABS measures in place at time of the agreement • Law of biodiversity no. 333 (2015) • Regulation on access to genetic resources, associated traditional knowledge and fair and equitable sharing of associated benefits (2018)
USER COUNTRY	United States of America
ACTORS	**Resource providers:** local community in Neiba, Bahoruco Province **Competent authority:** Ministry of Environment and Natural Resources of the Dominican Republic (Ministry of Environment), **User:** Medolife S.R.L., an international pharmaceutical company (USA)
SHORT DESCRIPTION	In Neiba, Bahoruco province, scorpion (*Rhopalurus princeps and R. abudi*) venom has been traditionally used on a daily basis to relieve bone ailments. Medolife International was interested in potential properties of the scorpion venom and was granted a research permit in 2018.

ACCESS AND BENEFIT-SHARING ELEMENTS

In 2018, an ABS agreement for the commercial use of the venom was signed between the Ministry of Environment and the pharmaceutical company, and included the sharing of benefits.

Monetary benefits:

- Contribution of 5% of the annual net profits from the commercialisation of the drug to the Ministry of the Environment

Non-monetary benefits:

- Construction of a Biotherium (research centre) in which the Rhopalurus princeps specimens will be raised.
- Technology transfer and training for students from academic entities regarding the biotherium, laboratory work, sample collection and the entire process involving the collection, treatment and technique used in the extraction of scorpion venom.
- Preparation of a Biodiversity Conservation Plan for the Neiba area including public awareness.
- Resulting derivative products will be labelled specifying their geographical origin.
- Donation of one hundred (100) bottles per year of natural medicine according to production, availability and requirement.
- 30% of the direct jobs generated will be people from the community, especially women.

Lessons learned and best practices

NATIONAL ABS FRAMEWORK

- The Dominican Republic was able to build on its experience around the blue scorpion, to design, propose, test and establish mechanisms for consultation with the local communities, which led to the development of the biocultural protocol called “Protocolo comunitario biocultural para las comunidades de Los Llanos, Nigua, Blanco, Jiminillo en Elías Piña, San Juan, San Cristóbal, Cotui República Dominicana”.

RELATIONSHIP BETWEEN USER AND PROVIDER

- The flow of information as well as open and effective communication between the Ministry of Environment, as the competent national authority, the researchers and especially the community were key elements of this case to be supported and strengthened.

ELEMENTS THAT SUPPORT THE PROCESS

- Recognition of the local communities’ needs and their existing capacity should be the starting point of projects. Communities have generated close links between nature and their own development and generally manage biodiversity efficiently in their territories. The structure and management processes of these communities need to be taken into account in the establishment of projects, development actions, and in the elaboration of a legal ABS framework.
- The country‘s capacities were reinforced with on-site training by UEBT as external ABS experts. The capacity-building element offered an additional channel of communication between UEBT, the Ministry of Environment, Medolife and local communities.

Contributions to the SDGs

SDG 1, target 1.1: The region around Neiba is one of the least developed in the country. Thanks to the ABS project, local communities have benefited from employment opportunities and capacity-building which can contribute to poverty reduction.

SDG 3, target 3.8: The project has contributed to universal health coverage by advancing anti-cancer research.

SDG 5, target 5.5: The project generated jobs for people from the community of Neiba, especially women.

SDG 8, target 8.5: Benefit-sharing through training, capacity-building and knowledge transfer has contributed to the generation of new employment opportunities, such as technicians, employees, collectors and stewards.

SDG 15, targets 15.1, 15.6, 15.B: Benefit-sharing activities, including workshops and other conservation related activities, have supported biodiversity conservation programmes in the Neiba area. A financial contribution has contributed to national conservation efforts. In addition, the project experience contributed to the adoption of a legal framework for the fair and equitable distribution of benefits.

Relevant contacts/sources of information:

- Jeremías Yanes, Biólogo, MPhil.
- GIZ (ed): Access and Benefit Sharing (ABS) policies in a changing climate in Central America and Dominican Republic: Accessed: https://bit.ly/3eJ61Nq
- UNDP (ed.), 2018: ABS is Genetic Resources for Sustainable Development. https://bit.ly/35hxoeI p. 180-188
- Castillo Bautista de Espinal, Luisa Arelis; Sibilio, Lida (2018): Access Procedures of the Dominican Republic. In: Suhel al-Janabi, Ute Feit, Eva Fenster, Thomas Greiber and Peter Schauerte (Eds.) Vilm ABS Dialogue 2018 – Informing about Domestic Measures for Access to Genetic Resources p. 87-93. https://www.bfn.de/fileadmin/BfN/service/Dokumente/skripten/Skript524.pdf

Access to genetic resources in a natural reserve of Panama for commercial purposes
Latin America

Collecting Simaba cedron

OVERVIEW	ABS agreements, including monetary and non-monetary benefits, for the development of an anti-malarial agent.
SUBJECT MATTER (GR / BR)	Genetic resources of *Simaba cedron*, a tree native to Latin America
SCIENTIFIC OR COMMERCIAL USE	Research on Simaba cedron constituents suitable for modification to improve its potential as antimalarial agent for commercial use if the results of the research phase are positive.
PROVIDER COUNTRY	Panama
ABS FRAMEWORK IN PROVIDER COUNTRY	Party to the Nagoya Protocol Relevant national measures related to ABS in effect at the time: • Law No. 41 of 1998 or General Law on the Environment with general provisions on access and benefit sharing. • Decree No. 25 from 2009 regulates access permits. • Law No. 20 on traditional knowledge has been in place since 2000, and was amended by Law 17 of 2016 protects traditional knowledge used in the indigenous medicine. • Law No. 37 of 2016 established consultation and free prior and informed consent for indigenous people. ABS is now regulated by Executive Decree No. 19, 2019 which amended all ABS measures listed above.
USER COUNTRY	United Kingdom (UK)
ACTORS	**Resource providers:** National Association for the Conservation of Nature (ANCON), a Panamanian environmental non-profit organization, owning and managing the nature reserve Punta Patiño Reserve, here the provider. **Competent authority:** Ministry of Environment of Panama **User:** UK research partner **Facilitator:** INDICASAT, a Panamanian national research institute **Facilitator:** Indigena Biodiversity Ltd., a company based in the UK, facilitates the development of naturally-occurring materials using expertise in intellectual property and commercialization, acted as an intermediary/facilitator.
SHORT DESCRIPTION	*Simaba cedron* is a bush or shrub-like tree of up to five meters in height, with a single trunk and few branches, native to Latin America. Indigena Biodiversity approached ANCON as a source of plant species to identify resources containing properties of potential commercial interest. From the many species available on the Punta Patiño Reserve, Indigena Biodiversity identified *Simaba cedron* as having constituents suitable for modification to improve its potential as an antimalarial agent. Indigena selected a research partner in the UK to carry out the research with the objective of eventually developing an antimalarial agent.

ACCESS AND BENEFIT-SHARING ELEMENTS

In 2018, a permit for scientific research and non-commercial use was granted by the Ministry of Environment, as the competent national authority, prior to accessing the genetic resource. The issuance of the permit provided evidence that prior informed consent was given by ANCON, as the owner and manager of the reserve and the provider of the resource.

Indigena Biodiversity negotiated two separate agreements. One with the UK research company and the other with ANCON, the natural resource providers in Panama, and INDICASAT, a Panamanian national research institute who agreed to collaborate in the project on the basis of mutually agreed terms (MAT).

The ABS Agreement between Indigena Biodiversity, ANCON and INDICASAT included the sharing of monetary and non-monetary benefits:

Monetary benefits: All partners will share a percentage of the global sales, if a commercial product is developed. The agreement sets the terms under which each of the parties will distribute benefits, should a future commercial malaria product be developed as a result of this collaboration. A portion of that monetary benefit will be paid into a community fund. In addition, there is agreement to consider future collaborations on Panama-based research opportunities.

Non-monetary benefits: The research collaboration, especially for INDICASAT, is an opportunity for the exchange of methods of research between research institutions.

Lessons learned and best practices

NATIONAL CONTEXT

- ABS procedures are complex. To implement ABS projects, understanding on different levels of society is needed. In Panama at the government level, people are open for negotiations on ABS agreements but they face difficulties with indigenous groups who find ABS complex. To involve indigenous communities a huge effort must be invested to manage expectations, to create an understanding for conditions of bio-prospecting projects in terms of outcomes, needed investments and possible benefits.

RELATIONSHIP BETWEEN USER AND PROVIDER

- In the case of Simaba cedron, a neutral facilitator i.e. Indigena Biodiversity Ltd facilitated the process between the UK research partner and the resource provider. The collaboration was beneficial for all sides. The user steered clear of getting involved in procedural details. Indigena and was supported by Ancon which had the local institutional knowledge to clarify legal uncertainties of the national regulations as Decree No 25 from 2009 regulating access permits in effect at the time. ANCON as provider benefited from Indigena's expertise on commercial realities, intellectual property rights and international contacts. In addition, the Panama research entity gained the prospect of future collaborations to expand the potential of its own research.

- The arrangement of two separate contracts facilitated the negotiation as Indigena Biodiversity had already established good working relationships with all parties, knowing both perspectives. Furthermore, having two contracts allowed each agreement to be governed according to the different types of processes established in their national norms.

Contributions to the SDGs

SDG 1, target 1.1: When research results are utilized for commercial purposes monetary benefits are shared, thus contributing to alleviating poverty. The local community who lives close to the forest will receive benefits from the community fund. A participatory approach involves the communities in decision-making regarding the use of the funds.

SDG 9, target 9.5: Panama's legal framework promotes the development of national research capacity. When a permit is issued by the competent authority, research must be carried out in the country and agreements must involve the collaboration of national scientists. INDICASAT-AIP as the national research partner therefore benefits from the agreement in terms of research opportunities and knowledge transfer.

SDG 17, target 17.17: The contract arrangements between Indigena Biodiversity, ANCON and INDICASAT were considered as a model agreement that can be easily transferable to other research areas. The arrangement established a multi-stakeholder partnership that mobilizes and shares knowledge, expertise, technology and financial resources.

Relevant contacts/sources of information:

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Preserving medicinal plants and associated traditional knowledge in Peru
Latin America

Landscape around Yunga: The study region in the high Andes of Moquegua Department, Peru. © Kew

OVERVIEW	A project to preserve medicinal plants in seedbanks and herbaria, as well as to gather associated traditional knowledge, in line with ABS legal requirements
SUBJECT MATTER (GR / BR)	Medicinal plants and associated traditional knowledge held by local community in the highlands of Moquegua, Peru
SCIENTIFIC OR COMMERCIAL USE	Basic research activities, including: • Seed-banking to preserve genetic diversity and enhance conservation and access to medicinal plants • Collection of plant specimens for taxonomic verification and deposit in herbaria • Collection of associated traditional knowledge • Preliminary experiments on seed germination and longevity
PROVIDER COUNTRY	Peru
ABS FRAMEWORK IN PROVIDER COUNTRY	Peru is Party to Nagoya Protocol. ABS measures in place at time of agreement. Andean Decision 391 defines ABS principles, requirements, and procedures, which are further developed through national laws and regulations. The two main national instruments on ABS are: 1) Supreme Decree 003-2009-MINAM (ABS regulations) and 2) Law 27811 on traditional knowledge.
USER COUNTRY	United Kingdom and Peru
ACTORS	**Resource providers:** Communities in the District of Yunga, Moquegua, Peru **Competent authorities:** • Ministry of Environment (MINAM) is the regulatory authority • National Forest and Wildlife Service (SERFOR) is the competent authority for access to genetic resources from wild fauna and flora **National collaborators:** • Universidad Nacional Mayor de San Marcos • Instituto Nacional de Salud (INS) **User:** Royal Botanic Gardens, Kew, United Kingdom

SHORT DESCRIPTION

This project, called "Enhancing conservation and access to medicinal plants in Peru", aims at preserving the genetic diversity of medicinal plants by collecting seeds and conserving them in seed banks in Peru. It created a seed bank for wild medicinal plants, to serve as a central resource for the researchers at the National Centre for Intercultural Health (CENSI) botanic garden and herbarium. Medicinal plants are seed-banked to enhance conservation and access to medicinal plants and viability is tested for its potential impact in access to medicinal plants. INS collects associated traditional knowledge using best practice interviews. Duplicates of plant specimens are kept at the Kew herbarium for taxonomic verification and to strengthen Kew's diverse collections. This project has included some preliminary research on seed germination and longevity carried out by Kew with Peruvian researchers and students, although a greater emphasis has been placed on training and wider capacity building. A commercial use is not currently considered.

The project runs between February 2018 and December 2020.

ACCESS AND BENEFIT-SHARING ELEMENTS

Activities have been undertaken in line with existing ABS measures in Peru. In 2019, prior informed consent (PIC) was obtained from local providers, through a decision of the community assembly. A permit was granted to INS for activities to be conducted, through Wildlife Research Authorisation Resolution 310-2019-MINAGRI SERFOR DGGSPFFS[1] .

Further agreements include:

- Memorandum of Collaboration, in place between RBG Kew and INS (2019)
- Research agreement N° 002-2019-FONDECYT, signed by INS

The project involves primarily non-monetary benefit-sharing.
Monetary benefits: These have not been significant and only include small research items.

Non-monetary benefits:

- Research cooperation and community benefits, including training provided by Kew seed banking specialists to 22 Peruvian scientists including four representatives from the District of Yunga communities
- Community participation in research activities and ABS legal review workshops, with the ability to influence the scientific studies carried out on their flora
- Scientific platform created within CENSI for greater access and use of named, tested, viable seed collections of priority medicinal plants, to assist practitioners and support livelihoods in the communities that depend on them
- A co-authored article on medicinal plants is being submitted for publication in scientific journal

[1]DGGSPFFS= Dirección General de Gestión Sostenible del Patrimonio Forestal y de Fauna Silvestre.

Lessons learned and best practices

NATIONAL ABS FRAMEWORK	• Voluntary tools developed by users are useful in guiding and facilitating ABS engagement in provider countries. RBG Kew provides policy advice on ABS and has a "Policy on Access to Genetic Resources and Benefit-Sharing" to ensure that all material brought into Kew has been legally acquired. In this project, RBG Kew support the review of the Peruvian legal, policy and administrative regime and propose facilitated mechanisms to develop future conservation and research projects that include seed banking of medicinal plants.
BENEFIT-SHARING	• Sharing of benefits contributes to the livelihood of communities as shown in this case where knowledge on medicinal plants is shared with communities (an estimated 80% of Peruvian population depend on medicinal plants for their healthcare). • This project also establishes a scientific platform within CENSI for greater access and use of named, tested, viable seed collections of priority medicinal plants, in order to assist practitioners and to support livelihoods in the communities that depend on them. • CENSI's work with traditional medicine practitioners and the participation of communities in research and legal review of national ABS processes contribute to benefit-sharing. A community dialogue has been established to identify priorities and opportunities for enhanced access to medicinal plant materials.
SUPPORT THROUGH CAPACITY-BUILDING PROJECTS	• Capacity building is an important tool to involve communities in research, as well as to further develop ABS processes in order to open additional research opportunities. As the local community participates in this research, its capacity to better use and manage wild medicinal plants increases.
RELATIONSHIP AMONG USERS AND PROVIDERS	• RBG Kew has long-term institutional partnerships in Peru, which allows jointly developing appropriate benefit-sharing and supports ABS implementation.
FURTHER LESSONS LEARNED	• To carry out effective research based on clear and comprehensive prior informed consent from local communities, CENSI and collaborators have needed close contact with community representatives and close liaison with permit bodies throughout this study. The partners are seeking students from the village and local University to participate in future projects and to strengthen the knowledge in the next generation from Moquegua Department. The continuous dialogue with and involvement of communities enables the fulfilment of ABS agreements and long-term partnerships.

Contributions to the SDGs

SDG 3, target 3.B: With its activities, including on ABS, the project improves knowledge of wild medicinal plants and supports local access to plant material and information for research.

SDG 4, target 4.7, 4.B: Benefit-sharing in the project includes the building of scientific capacity through training to Peruvian scientists and representatives from the communities, supporting the conservation and sustainable use of genetic resources as well as ABS legal review.

SDG 15, target 15.1, 15.4, 15.5, 15.6, 15.A: Conservation, sustainable use and the fair and equitable sharing of benefits arising from the utilisation of genetic resources are supported by the project, for instance through preserving species of local importance. Threatened plant species are protected and prevented through seed banking. Financial resources are mobilised to conserve and sustainably use biodiversity.

SDG 17, target 17.1, 17.6, 17.7, 17.9: The project enhances partnership and knowledge sharing with providers through participation in research and legal review workshops. It gives support for implementing effective and targeted capacity building.

Relevant contacts/sources of information:

- China Williams & Michael Way (RBG Kew, United Kingdom)
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