

# Nature in Common

Beyond the  
Nagoya Protocol



Under the direction of  
**Catherine Aubertin and Anne Nivart**



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Anne NIVART

**Publications scientifiques  
du Muséum national  
d'histoire naturelle**

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*... all of whom supported our aim of “teasing the Nagoya Protocol”.*

*The authors bear sole responsibility for the views expressed  
in this book.*







# Preface

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**Valérie VERDIER**

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and Chief Executive Officer  
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We are delighted to preface this book, which is the result of our institutions' shared commitment to advancing knowledge and promoting action to preserve biodiversity.

The Nagoya Protocol has revolutionised research on the living world by formally incorporating the issues of access and appropriation, justice and equity, into its everyday activities. As institutions and scientists working with biological resources and the associated knowledge, it compels us to examine the key ethical and economic implications of our research. We must also examine the form that the direct or indirect benefits serving the conservation of biodiversity and its stakeholders, indigenous peoples, managers or politicians, should take.

The Protocol has major ramifications for the French National Research Institute for Sustainable Development (IRD) and the French National Natural History Museum (MNHN). Committed to furthering knowledge, conservation and enhancement of biodiversity, these institutions defend a science of sustainability that lies at the convergence of Earth, life, human and social sciences. Above all, they have a long tradition of working in an equitable partnership and co-construction with actors in the French Overseas Territories and the Global South.

The Nagoya Protocol has thus helped our institutions to embrace the plurality of knowledge systems, with special attention to

indigenous and local populations. It also strengthens the co-construction of programmes with multiple partners, including those involved in participatory-science-based approaches. Our institutions are working specifically to integrate and promote procedures to implement the principles of fair and equitable sharing enshrined in the Protocol.

IRD and MNHN were the first to implement the obligations of the Nagoya Protocol. Dedicated units have been established for access and benefit-sharing (ABS) mechanisms and protocol implementation. Their responsibility is to ensure the legal compliance of specimen collections, their conservation and utilisation. It is also to raise awareness and inform research, administration and collection personnel, and to organize symposia and training. Finally, ABS units ensure coordination with the Ministries in charge of Research and the Environment, other French higher education and research institutions, and territorial stakeholders. In doing so, our institutions make a significant contribution to France's commitment to the objectives of the Convention on Biological Diversity.

This book presents the results of research conducted by our respective institutions and their partners. It is accompanied and enriched by the lessons learned from the experiences of ABS units and testimonies from partners in the French Overseas Territories and the Global South. The Protocol's limitations and potential are analysed because, beyond its ambitions, the complexity of its implementation and the low monetary returns that it generates, testify to the difficulties in setting up mechanisms that can both benefit communities that use or possess knowledge about biodiversity and strengthen actions to protect this biological diversity.

These analyses are highly relevant in light of the COVID-19 pandemic, which has rapidly increased our awareness of inequalities in access to resources and the interdependence of all life forms, with human health linked to that of other living things and ecosystems. To preserve biodiversity, our societies must redirect their development trajectories towards production and consumption models that are ecologically but also socially and politically sustainable in order to guarantee environmental justice for humans and other species alike.

While the Nagoya Protocol alone cannot address the enormity of these questions, it clearly expresses the demands for justice and equity that are strongly reflected in the agreement, and give rise to the passionate debates that are presented with such rigor and clarity in this book.



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# General Introduction

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**Catherine AUBERTIN**

**Anne NIVART**

**Jean-Louis PHAM**

The theme chosen for the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD) could hardly have been more timely: *Ecological Civilisation: Building a Shared Future for All Life on Earth*. COP15 was originally due to take place in Kunming in October 2020. Its postponement, as a result of the COVID-19 pandemic, offers a neat illustration of the inextricable links between biodiversity, human well-being and the health of the planet.

The priority of COP15 is to adopt a global strategic framework to ensure that “by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.” This framework invites each country to make its own commitments in accordance with their development policies, and thus to contribute to the attainment of the Sustainable Development Goals.<sup>1</sup>

While reducing threats to biodiversity is crucial, we also need to meet the needs of the world’s population. In order to set and meet ambitious targets, developed nations will need to devote substantial financial resources to supporting the ecological transition in poorer countries. The conservation of ecosystems,

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<sup>1</sup> CBD, 2021. *First Draft of the Post-2020 Global Biodiversity Framework*. CBD/WG2020/3/3

species and genetic diversity will need to be combined with fair and equitable sharing of benefits between countries and communities. The third objective outlined in the 1992 Convention on Biological Diversity (CBD) – *“fair and equitable sharing of benefits arising from the utilisation of genetic resources and traditional knowledge associated with genetic resources”* – covers this priority. It is significant to note that Access and Benefit-Sharing (ABS) is both a virtuous objective of the strategic framework for 2050, and also a point of contention in the COP15 negotiations.

This book is entirely devoted to ABS, and different forms of reflection, experience and dialogue relating to the Nagoya Protocol constitute the unifying thread that runs throughout these pages. Is the Protocol, in its current design and state of implementation, contributing to a *“transformation in society’s relationship with biodiversity and [ensuring] that, by 2050, the shared vision of living in harmony with nature is fulfilled”* (CBD, 2020)? How might it be possible to live more harmoniously together when nature and cultures are under such pressures?

### **ABS – Access and Benefit-Sharing**

Conservation and sustainable utilisation of biodiversity, the first two objectives of the CBD, are all about protecting nature from predatory human activity. The third objective is largely founded upon the assumption that the utilisation of genetic resources for research purposes, both public and private, leads to the development and commercialisation of products derived from these resources or knowledge, and could thus be a source of income for indigenous peoples and local communities and for developing countries with rich reserves of biodiversity. In boosting the visibility of their contributions to knowledge and enhancement of the living world, and promoting the sharing of the benefits derived from biodiversity, the CBD was driven by considerations of ethics and justice. But the CBD also ushered in a major paradigm shift: genetic resources thus no longer belong to the “common good” forming part of our human common heritage, but are instead subject to the sovereignty of States and the rationale of the market economy. All access to and activities involving knowledge of biodiversity, viewed as a source of benefits, must

henceforth be covered by access and benefit-sharing procedures (ABS), negotiated through bilateral dialogue with national governments, who maintain sovereignty over their genetic resources.

Considering the difficulties involved in implementing such sharing arrangements, and in order to provide a degree of legal security to stakeholders, the CBD was completed by a legally-binding agreement: the Nagoya Protocol, signed in 2010 and taking effect as of 2014. The document requires signatory parties to transpose the obligations of the Protocol into their respective national legislations, focusing principally on the rules governing access to genetic resources: procedures for ensuring the Prior Informed Consent (PIC) of provider countries or representatives of communities whose knowledge will be used, as well as Mutually Agreed Terms (MAT) for sharing arrangements, including expected results and monetary and non-monetary transactions between the partners. *“By promoting the use of genetic resources and associated traditional knowledge, and by strengthening the opportunities for fair and equitable sharing of benefits from their use, the Protocol will create incentives to conserve biological diversity, sustainably use its components, and further enhance the contribution of biological diversity to sustainable development and human well-being.”* (Nagoya Protocol, Introduction, 2010)

Although the term does not appear in this diplomatically-phrased statement of intent, the Protocol also reflects a commitment to ending practices considered to constitute biopiracy, i.e. the illegitimate appropriation of resources and knowledge by industrialised countries and their researchers, at the expense of developing countries with rich biodiversity reserves, and their indigenous communities. The Protocol thus heralds a new era in relations with people who live in close proximity to nature. For the first time, an international agreement requires consent to be obtained and the benefits derived from the utilisation of traditional knowledge to be shared. The rights of communities and the national legislation of the countries from which resources are taken have thus been reaffirmed. Biological specimens are now recognised as being inextricably linked to their ecological, socio-cultural and economic context. The profile of research ethics has received a considerable boost, and non-monetary benefit-sharing, already established practice for many researchers, is now systematic.

Such exchanges serve to enrich the dialogue between different forms of knowledge from different cultural horizons, reinforcing the ethical foundations of research practices. ABS can be regarded as a milestone in the broader process of decolonising research, or at the very least working to impose ethical standards upon research practices. Nevertheless, there is still much work to be done to establish a political and legal equilibrium capable of responding to claims for colonial compensation and a rebalancing of developmental inequalities.

As of September 2021, the secretariat of the Convention on Biological Diversity lists 131 parties who have ratified the Nagoya Protocol, the majority of whom have also implemented national measures for access and benefit-sharing and established competent national authorities. This constitutes a major achievement for the UN, in a domain where past results have been mixed to say the least: governance of biodiversity.<sup>2</sup> Although none of the 20 Aichi Targets in the Strategic Plan for Biodiversity 2011-2020 (adopted in the year the Nagoya Protocol was signed) have been fully achieved, the recent Global Biodiversity Outlook lists ABS as one of 6 “partially-achieved” objectives (CBD, 2020).<sup>3</sup>

### **A simple mechanism which has proved hard to implement**

And yet, many of those directly involved are beginning to raise concerns about the limitations of the Protocol, from users and suppliers of genetic resources to scientists, industrial partners, national governments, NGOs and various local communities and indigenous peoples. The first decade of experimentation with the Protocol does not seem to have satisfied anybody. The cumbersome legislative machinery required to implement the Protocol has, as of yet, delivered relatively few transactions and very few monetary benefits for either national governments, local populations or indigenous peoples. The countless promised benefits of efforts to enhance the value of biodiversity have failed to materialise.

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<sup>2</sup> <https://absch.cbd.int/countries>

<sup>3</sup> [www.cbd.int/GB05](http://www.cbd.int/GB05).

Although researchers are unequivocal in their support for the spirit of sharing enshrined in the Protocol, they are also concerned that it might erect major obstacles to fundamental research on biodiversity (inventories and taxonomies, collections, conservation, evolutionary biology). Legislation focuses primarily on restricting access to resources, for both commercial and non-commercial purposes. A sharing agreement is required as soon as resources are accessed, well before research yields any results.

A large proportion of the unresolved questions concern the interpretation of the scope of the Protocol, since some of the key terms remain vaguely or only generally defined (genetic resources, traditional knowledge, utilisation, research and development), as well as practical questions of implementation, specific to different countries and types of project. Does collecting specimens for a scientific inventory fall within the remit of the Protocol? How should specimens gathered for taxonomic identification be declared? How is it determined who has the authority to sign a PIC or MAT? Are myths and legends combining human and animal elements to be considered forms of traditional knowledge? In spite of the Protocol's stated goal of harmonising procedures, they still vary considerably from one country to the next, and it is often difficult to know what regulations are actually in place in provider countries which have not established a dedicated ABS unit. The time required to obtain official authorisation, and the associated costs, may cause serious problems for research schedules and hamper urgent sample and data-gathering efforts – during pandemic crises, for example. The enhanced speed of research and innovation in the digital age, and the schedules imposed by research funding agencies, are quite at odds with the timescale of legal proceedings, standards and the processing capacities of ABS systems.

Bureaucratic delays are not the only cause for concern. Questions have also been raised as to the compatibility of the Protocol with new scientific practices involving big data and international partnerships. The CBD, signed in 1992, and even the Nagoya Protocol of 2010, both assumed that life sciences would develop spectacularly over the coming years, but they had no concrete vision of what that progress would look like. Thanks to advances in genome sequencing technologies, research in the life sciences has

moved into an age of *in silico* biodiversity, working with digitalised genetic resources. International databases containing digital sequence information (DSI) continue to swell at a breath-taking rate. The bilateral procedures promoted by the Protocol were not designed to keep track of billions of units of data, accessed by millions of users. The scientific community has complained that there is an inconsistency between a regulated access to material genetic resources *in situ*, the foundation of the ABS model, and more open access to international databases which, adopting the principles of open data, correspond to a certain, idealistic view of scientific progress made possible by the sharing of biological materials, data and knowledge... while leaving behind those countries who lack the technological capacities to capitalise on these advances. This inconsistency has a symmetrical impact on the “providers” of genetic resources and the traditional knowledge associated with them. Open access to DSI is viewed by countries in the Global South as a means of getting around ABS, akin to biopiracy, since the DSI is ultimately derived from research conducted using tangible biological resources. The expansion of the field of application of the CBD to encompass DSI will be a crucial issue in the negotiations at COP15.

Paradoxically, the CBD has contributed to the development of the “green gold” myth, buoyed by fantastical visions of a market where providers and users exchange genetic resources and traditional knowledge for fabulous sums of money, made possible by immensely profitable biotechnological innovation. Reality has failed to live up to such expectations. The CBD Access and Benefit-Sharing Clearing House has recorded very few transactions involving monetary compensation, and the sums involved have been derisory compared with the cost of setting up ABS structures capable of designing and overseeing such procedures. Pharmaceutical multinationals have closed their research divisions devoted to natural substances, and commercial demand for *in situ* genetic resources is falling far short of the CBD’s expectations. The time has come to face facts: there is no lucrative market for genetic resources as defined by the Nagoya Protocol, which adopts a simple, linear view of innovation, whereby resources lead to products which generate income. This is only applicable to extremely rare cases in which specific molecules allow for the

creation of a pharmaceutical blockbuster. With the pharmaceutical industry keeping a low profile, we are left with the impression that ABS mechanisms are focussed mainly on fundamental scientific research. And yet, the outcomes of fundamental research in terms of benefit-sharing are primarily a matter of boosting capacities through training, technology transfers and co-authoring of publications. Only rarely does money actually change hands. The registering of patents represents a minuscule proportion of academic research, and even then, in order to generate money a patent must be suitable for industrial and commercial applications, which often only bear fruit after years or even decades of research and development.

Moreover, ABS has done little to improve relations between indigenous peoples and central governments in countries such as Brazil, Indonesia or French Guiana, nor to reassert their biodiversity rights and knowledge. Many communities, and even States, feel cheated when they are unable to secure recognition of their status as the source or proprietor of exclusive knowledge concerning plants and animals which have actually been identified and shared for many years. Indigenous peoples and local communities are rarely involved in the drafting of the regulations intended to protect their rights and aspirations, and which all too often use general terminology which does not accurately reflect the diversity and complexity of circumstances on the ground, particularly when they are not accustomed to the Western practice of viewing nature and culture as discrete entities. Only very rarely are their traditional structures recognised in national legislation as legal entities qualified to manage access to resources and negotiate agreements. With no tangible benefits forthcoming, this disillusionment can soon give way to suspicion (all bioprospecting activities are immediately decried as biopiracy), bureaucratic manoeuvring (excessive costs and lengthy delays in issuing authorisations) and even nationalistic positions (rekindling old North-South divisions).

In the interests of legal security, the Nagoya Protocol identifies two categories of stakeholders – providers and users – capable of entering into contractual relations. It recognises their respective interests, behaviours and even lifestyles, resulting in divisive stereotypes conducive to political misappropriation. Despite its honourable

intentions of promoting fairer and more equitable relations, the Protocol thus risks aggravating the very divisions it is supposed to combat. Can the ambitious, humanist objectives of the Nagoya Protocol really be achieved by a method of legalistic standardisation based on contracts, ownership and market forces?

### **Beyond the Nagoya Protocol...**

Nearly thirty years on, it is time to take a clear-eyed look at the practical and legal consequences of the virtuous framework promoted by the Convention on Biological Diversity and taken up in the Nagoya Protocol. These documents have succeeded in achieving an unprecedented degree of legal stability and security, thanks to the clarity and simplicity of the ABS mechanism. They have fostered the development of resource traceability, in order to combat the plunder of natural resources. They have contributed to a greater appreciation of the plurality of knowledge, and allowed for fairer dialogue on more even terms by recognising the rights of indigenous peoples and local communities. However, the Protocol has also contributed to the imposition of market-based values, attaching rights of ownership to resources, knowledge and patents in a manner which has exacerbated nationalist demands and made it more difficult for researchers to access biodiversity resources. Negotiations for a global system of biodiversity governance have faltered when it comes to finding innovative modes of sharing which satisfy the expectations of all the stakeholders, in a global research context in which living resources are increasingly available in an open-access digital form. Negotiations on how to fund the conservation of biodiversity suggest that expectations regarding the ABS' role as a benefit-sharing mechanism must be scaled back. Might the real strengths of this system reside elsewhere?

At time of writing, more perhaps than any other international convention or regulation, the Nagoya Protocol is at the heart of numerous contemporary debates regarding the relationship between human societies and nature in the Anthropocene era, and against the backdrop of the COVID-19 pandemic. It is time to rethink the processes by which we manipulate and appropriate the living world, along with the legal categories we transpose onto nature, and our definitions of indigenous, consent, ownership,



knowledge and more. We must redefine, in a context of ecological emergency, the role and practicalities of research on biodiversity. Research practices need to be re-examined, with greater emphasis on co-construction in partnership with those directly affected. We can no longer afford to maintain such a disconnect between the places in which biological materials and local knowledge are gathered, and the places in which their academic or economic value is exploited. The Nagoya Protocol compels us to think, to strike up a dialogue, and to examine its real efficacy as an instrument for preserving biodiversity and achieving a fair division of its benefits between rich and poor countries. Although the CBD seemingly swept away the paradigm of nature as the common heritage of all humanity, by affirming the sovereignty of nation States over their resources, the issue of common ownership constantly and inevitably seeps into debates on these subjects.

In order to take these debates fully and faithfully into account, we must combine theoretical approaches with feedback from the field, organise dialogues between different disciplines – law, anthropology, economics, genetics, botany, biology – and also between different stakeholders – researchers, managers and representatives of local communities. We begin by examining the goals of research into biological diversity – which is not without its power struggles, spanning everything from food security to building natural history collections – in order to get a clearer view of the consequences of the Nagoya Protocol for long-standing practices whose universalist dimension is now being contested by new perspectives on colonisation (Part 1). We then look back at the drafting process of the Nagoya Protocol, informed by a market-oriented vision connected with the expansion of biotechnologies, before subjecting the tools defined in the Protocol – the PIC and MAT instruments – to legal analysis (Part 2). We devote much space to the concepts of indigenous peoples and local knowledge, as defined in the Protocol and as they emerge from experiences in the field, and of course from the positions of the peoples directly involved (Part 3). Finally, since negotiations are still in progress, it appeared important to shine a light on the tensions surrounding the Protocol in order to better grasp the opportunities it provides to imagine a new future for research on the living world (Part 4).



## Part 1

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# Biological Resources: Circulation and Collection



In this first part, entitled *Biological Resources: Circulation and Collection*, we describe how, throughout Western history, research on biological diversity has been based on the sampling, circulation and creation of collections of samples of domesticated, cultivated or wild biological resources. The constitution of ex situ collections has always accompanied scientific advances, beginning with the creation of cabinets of curiosities, reflecting the earliest desires to explore the world, then the need to form structured sets of objects and bodies of knowledge in order to understand and exploit nature, and through to the biobanks and seed resource centres of today.

**Jean-Louis Pham** recounts how power struggles have accompanied the domestication of plant and animal species, and, more recently, access to the diversity of genetic resources via biological resource centres (see Chap. 1). **Jacques Cuisin** and **Anne Nivart** examine the history of naturalist museum collections. In line with scientific explorations and technological advances, collections of plants and animals conserved outside their natural environment have attracted new interest due to the DNA revolution and digitisation programmes (see Chap. 2).

In the interests of exhaustiveness and conservation, these ex situ collections are supposed to be universal for the purpose of enlightening the widest possible audience. However, although inseparable from the development of knowledge, they are linked to colonial expansion and the circulation of raw materials, and are associated with power struggles to achieve economic supremacy and ensure food security. They are now confronted with the economic and geopolitical realities of resource grabbing that the Nagoya Protocol is designed to regulate.

Like the Nagoya Protocol, the Convention on Biological Diversity (CBD) does not address the issue of collections, focusing instead on access to in situ genetic resources. The CBD considers countries that possess collections as providers of ex situ genetic resources. Ex situ conservation is an issue covered by Article 9, expressing the desire that it should take

place *preferably in the country of origin of its components*. The Nagoya Protocol does not specifically cover collections, but considers *admittance to ex situ conservation facilities of genetic resources and databases* to be part of the benefit-sharing arrangements.

However, European Regulation No 511/2014 on measures to ensure compliance with the Nagoya Protocol by users in the Union, acknowledges that collections – by default, ex situ collections which are necessarily located outside their places and countries of origin – are the most important providers of genetic resources and associated traditional knowledge in Europe. This assertion, at a time when in situ bioprospecting activities are becoming of more secondary importance, recognises the importance of the reference thesauri constituted by samples of materials, animal or plant specimens as a specificity of Europe, and by extension of “industrialised countries”, primarily in the northern hemisphere.

Therefore, this concentration of resources in collections kept by countries of the Global North is undeniably a benefit that must be shared, since natural resources are not only scientific tools for understanding the world. Their long history of co-evolution with the societies that have selected them, exchanged them, and transformed them into cultural resources, makes them part of the common heritage of humanity. They are also raw materials for biotechnological innovations, which are mainly developed by countries of the Global North, due to their powerful financial and technical resources. Can free access to resources be maintained in light of the rapid development of biotechnologies? Given a choice between universal heritage and resources restricted to a select few, the Convention on Biological Diversity decided to endow States with sovereignty over their genetic resources and associated knowledge from an economic and commercial perspective.

This raises the question of how the practices of collections and museums can accommodate this national sovereignty. As both providers and users, ex situ collections are required to assume a dual role of conservation and distribution due to the fact that they have been historically supported by research

centres. The circulation of samples is central to scientific discoveries and the practices of researchers and museums in order to enable comparison, description, and today, the extraction of genetic compounds, for example. This practice accounts for a considerable volume of shipments, loans, samples and extractions exchanged by researchers, museums, laboratories and amateurs.

Application of the Nagoya Protocol to ex situ collections places these circulation practices under the spotlight by requiring the attachment of legal documentation to any movements in order to provide proof of due diligence, i.e. that access to the resources was legal. By insisting on diligence, the Protocol makes sample traceability central to its implementation. In the context of the biodiversity crisis, having access to properly located and traceable samples from endangered or vanished biotopes is an added value that the due diligence obligation of the Nagoya Protocol should reinforce. In this way, the Protocol contributes to legal certainty and, in so doing, increases the scientific and regulatory reliability of the samples proposed for research.

The preambles to the Protocol and the European regulation stipulate that they should be implemented without creating an additional administrative burden, with specially adapted arrangements for academic research. However, after ten years of experimentation in laboratories and museums, this now seems to be a fanciful notion. The circulation of samples – a *sine qua non* for the viability and vitality of the collections and to ensure their attractiveness for research – could be compromised in the medium term.

The retroactive regularisation processes concerning the conditions for the acquisition of resources, their circulation and the conditions for their provision, or even their retrocession, are not defined by the Protocol. This generates doubt and heated discussion in equal measure. Collections and museums need to innovate. They can now use new digital tools to help them interact with the wider world and define the terms for resource sharing within renewed partnerships.





# Genetic Resources

## From Domestication to Biological Resource Centres

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**Jean-Louis PHAM**

### Introduction

In his book entitled *Guns, Germs and Steel*, American geographer Jared DIAMOND (1997) identifies the control of domesticated plant and animal species as one of the underlying factors in the “pattern of history”. By enabling the development of sedentary societies some 10,000 years ago, in which the search for food was no longer the sole concern of human populations, agriculture enabled the emergence of actors specialising in activities other than hunting and gathering, such as blacksmiths, merchants or bankers. Diamond argues that this allowed for the invention and development of tools of domination (weapons, ships, etc.) and the expansion of the civilisations that possessed them.

This means that power struggles associated with species of agroeconomic interest have been occurring for several millennia. Today, the issues revolving around access to these species in all their diversity and to the information associated with them are equally

important: independence and food security for States, food and economic self-sufficiency for family farming, and economic power for the seed industry. The importance of these issues is reinforced by the urgency of climate change and the agro-ecological transition.

The issue of access to the diversity of domesticated species is all the more important because of the high degree of interdependence between countries: no country can claim to have access to the genetic resources required to meet all its needs, despite the fact that many States have established mechanisms for the conservation of genetic resources of agronomic interest. Innovations in the field of synthetic biology hold enormous promise, but they will not obviate the need for genetic resources. Leaving aside the question of their social acceptability, these innovations as yet concern only the modification of living organisms, requiring the utilisation of genetic resources, and do not enable *ex nihilo* creations.

Unlike much of wild biodiversity, domestic biodiversity has been subject to multiple exchanges between individuals and between human communities throughout its history. Since the earliest days of domestication, it has been the fruit of human labour transformed and passed on from generation to generation. Domestic biodiversity is, in the true sense of the word, a heritage of humanity – biological as well as historical and cultural.

Resource and heritage: this duality of domestic biodiversity causes the principle of access and benefit sharing (ABS) to be considered as both an obvious fact (surely access to domestic diversity and its utilisation should be subject to similar ABS regulations as wild biodiversity) and as a question (why should a heritage of humanity cease to be common?).

These questions will permeate the topics developed in this chapter, which presents a brief history of domestic biodiversity and the emergence of the notion of genetic resources, before discussing the relationship between ABS and collections of agronomic material.

## Origin of domestic biodiversity

The plants that humans grow and the animals they raise did not always exist as we know them today. They are products of the domestication of wild species by humans, followed by selection over the subsequent millennia.

Agriculture has led to the profound transformation of landscapes, with knock-on impacts on the evolution of the biodiversity associated with them. Domestication itself is one of the most striking examples of the impact of human activity on the evolution of living beings; indeed, it was the diversity of domesticated species that helped Darwin understand the effects of selection. Through agriculture, humans ceased to be spectators of nature and became actors in the world they inhabited and transformed (CAUVIN, 2000; COHEN, 2009). The importance of access to resources in natura for food and clothing began to diminish in favour of access to land, plant seeds and breeding animals.

Domestication has occurred in many parts of the world. For example, wheat and barley were domesticated in the Middle East; maize, tomatoes and potatoes in Central and Latin America; millet and sorghum in Africa; rice in Asia and Africa. Other examples include swine in Asia, and sheep in the Middle East. Domesticated species acquire traits that facilitate their cultivation, harvesting or breeding. Plants and pets have come a long way since then. Many species (corn, rice, cows, poultry, etc.) have conquered the planet. This shows that the globalisation of agriculture did not begin in this century or even the last. Human migrations have progressively extended the cultivation and breeding areas of domesticated species, while great explorations took them across the oceans and from one continent to another.

These movements mean that domesticated species are continually evolving and diversifying by adapting to new environments under the combined effects of human and natural selection. Selection by farmers also contributes to diversification, by developing varieties or breeds that correspond to various needs and preferences (early maturity, colour, taste, ease of processing, etc.). Exchanges of seeds between farmers also alter the genetic material

subject to this selection process. Gene flows with related wild species also occur in the evolution of cultivated plants, and sometimes of farm animals or pets. The complex evolutionary history of domesticated species – and especially that of cultivated plants – usually makes it impossible to attribute the creation of a particular cultivated variety to a specific community or farmer, given that communities and farmers work with genetic material that has been modified repeatedly over the course of its history.

However, certain rules have applied to the circulation of seeds, especially in regions where specific plants are deeply rooted in the culture of human communities (millet and sorghum in Africa, yam in Oceania, maize in Mexico, etc.). Many studies have documented the fact that exchanges of seeds between families, village communities or ethnic communities do not occur at random (BELLON, 1991; LABEYRIE et al., 2014; CAILLON & DEGEORGES, 2007). Others have highlighted the role of social status in access to seeds (BACO, 2007; BADSTUE et al., 2006; RICCIARDI, 2015; THOMAS & CAILLON, 2016). The cultural, social and economic regulation of access to genetic resources is therefore an ancient process, and such access is not always governed by formal legal systems.

## From biological diversity to genetic resources

The first collections of domesticated species were of a naturalistic nature (see Chapter 2). They were more concerned with representing the diversity of species – especially “exotics” – than diversity within species, and they were created to further the pursuit of knowledge rather than for agronomic purposes. In France, the Potager du Roy (The King’s Kitchen Garden), which was designed to provide fruit and vegetables for Louis XIV’s table at Versailles, can be considered as the precursor of agronomic collections, marking a departure from the “cabinets of curiosities” of the plant world. However, the conception of biological diversity according to Western science was strongly influenced by Linnaeus and the classification of the living world into entities called species (GOUYON, 2001), which would remain the basic unit for understanding the diversity of life for many years to come.

The emergence of a seed industry and varietal selection processes that were conceptualised along these lines led to the creation of the first collections of what would later be called “plant genetic resources”. In France, the Vilmorin wheat collection in the late 19<sup>th</sup> century (Vilmorin Catalogue 1880) epitomises this consideration of intraspecific diversity.

The tutelary figure in plant genetic resources is the Russian agronomist and geneticist Nicolai Vavilov (1887-1943), who left an immense legacy and body of work. In an attempt to meet the industrialisation needs of Soviet agriculture (PISTORIUS, 1997), Vavilov scoured the continents in order to build up collections that were representative of the diversity of plants of agronomic interest. In doing so, he developed the theory of centres of origin of cultivated plants (postulating that areas with the greatest diversity of these plants are likely to be their areas of origin) (VAVILOV, 1987). Many of his assumptions proved to be correct. Adopting a Mendelian vision of genetics, Vavilov clashed with the sinister Lysenko and his conception of the transmission of acquired characteristics. Lysenko won the power struggle, and Vavilov died in Stalin’s jails.

FENZI & BONNEUIL (2016) integrated Vavilov’s work into the historical construction of a “particular cosmovision of biological diversity”, in which biological diversity is composed of dissociable elements – elementary building blocks that can be used to engineer the living world. With the emergence of genetics, the gene became one of these elements, and the living organisms that contain them were consciously regarded as “genetic resources”, although this specific term does not seem to have been coined until the late 1960s when it appeared in the work of the Australian geneticist Otto Frankel (FRANKEL et al., 1995).

## The major collections of agronomic resources

In the 1960s and 1970s, the Green Revolution had a double effect: on the one hand, it dealt a severe blow to cultivated diversity by supporting the adoption of high-yield varieties over large areas,

accompanied by the relevant package of advice and inputs; on the other hand, it accelerated a movement to safeguard the traditional varieties that were endangered by this adoption, by conducting large-scale campaigns to collect and store the materials collected in these surveys in the genebanks of international agricultural research centres. As far back as 1973, this movement was promoted as an initiative intended specifically to protect “genetic resources” rather than biodiversity for its own sake, insofar as its primary aim was to amass a reservoir of genetic diversity that could be used by breeders (LOUAFI, 2011).

It should be noted, however, that despite being such a powerful concept for the past half-century, the predominance of *ex situ* conservation in the plant genetic resource conservation field was not really established until after the 1967 FAO IBP conference (Pistorius, 1997), where the respective merits of *in situ* and *ex situ* conservation were debated. The principle of an international network of genebanks was endorsed at the end of this conference, and was developed from 1971 onwards with the creation of the CGIAR genebank network (LOUAFI, 2011; Box 1).

In fact, this development of *ex situ* conservation is an extension of the Vavilovian approach. Its intrinsic characteristics and developments, both proclaimed and unspoken, have had a lasting impact on the world of agronomic genetic resources. As a consequence:

- the organisation of genebanks is being professionalised, creating specific jobs and processes. In research centres, genebanks are often independent of varietal improvement departments. In universities, a distinction is sometimes made between courses on genetic resources and courses on plant breeding;
- breeders are seen as the primary clients of genebanks, via the collection-conservation-characterisation-evaluation-use chain. Collections are not only used by breeders, but also by researchers, who frequently justify their research on grounds of the need to improve knowledge of genetic resources before they can improve their use;
- the role of farmers in the origins of diversity is recognised, but they are mainly seen as providers of a diversity (and sometimes of the associated traditional knowledge) that will be used to produce

Box 1.

### **Collections held by CGIAR International Agricultural Research Centres**

CGIAR was created in 1971 to extend the experiments carried out by two international agricultural research centres – CIMMYT and IRRI – located in Mexico and the Philippines respectively, which made pioneering contributions to the Green Revolution with high-yield varieties of wheat and rice. The structure and organisation of the CGIAR have undergone several reforms under pressure from donors, with a view to striking the right balance between the autonomy of the centres and the coordination of their research. CGIAR (five letters that are now a meaningless name and no longer the acronym for the defunct “Consultative Group for International Agricultural Research”) now defines itself as a “global research partnership” comprising 15 international research centres with specific mandates in terms of target crops and geographical areas. These centres conserve the 35 CGIAR collections of genetic resources from plants and trees of major agronomic interest, amounting to a total of around 770,000 accessions, i.e. stored samples considered to represent distinct genetic entities.

These collections are now compiled in the CGIAR Genebank Platform, and their organisation has also changed throughout CGIAR's half-century of existence. The development of the CGIAR genebank network was accompanied, in 1974, by the creation of the International Board for Plant Genetic Resources (IBPGR), a centre tasked with a cross-cutting mission to lead and reinforce this network, whose secretariat was initially provided by the FAO.<sup>1</sup> For more than thirty years, IBPGR – which became IPGRI (International Plant Genetic Resources Institute) in 1991 – has played an important role in the international promotion of plant genetic resources and the development of partnerships with national research entities in countries of the Global South. Many of the collections of tropical plant genetic resources held by French institutions, notably CIRAD and IRD, are the result of surveys conducted in collaboration with IBPGR. The Crop Trust, known for its stewardship of the Global Seed Vault in Svalbard, was established in 2006 for the purpose of securing funding for the CGIAR genebanks. The CGIAR collections are included in the ITPGRFA Multilateral System.

<sup>1</sup> See LOUAFI (2011) and CHIAROLLA (2013) for a detailed account of the toing and froing between FAO and CGIAR in the international governance of plant genetic resources.

varieties for which they will be the end users. Their role in conserving diversity is not recognised since this function is attributed to genebanks. Although they are not prohibited from accessing genebanks, in reality, such access is difficult; farmers are not expected to use genebanks other than by growing improved varieties;

– the cause of global food security justifies the internationalisation of resources.

## A treaty specific to plant genetic resources

The pre-eminence of the international network of genebanks supported by CGIAR has frequently been called into question. In 1983, a challenge to the legitimacy of international collections lodged by countries of the Global South (India, Indonesia, Mexico in particular) led the FAO to reaffirm that these resources were a common heritage of humanity, through the “International Undertaking on Plant Genetic Resources”. However, as THOMAS (2017) pointed out, at a time when the nascent potential of biotechnologies was just beginning to emerge, making resources freely available without any guarantees concerning their commercial exploitation was unacceptable. Therefore, enabling plant genetic resources to benefit from a special regime in the CBD was not sufficient, and the practices of accessing, exchanging and using plant genetic resources were potentially subject to the ABS principle defined by the CBD. This principle makes access to and use of a genetic resource dependent on the user informing the provider about its intentions, on the provider’s prior consent, and on the contractualisation of the terms and conditions for sharing monetary or non-monetary benefits by the provider and the user. The FAO was concerned about the possibility of the transaction costs associated with access regulations hindering the movements and uses of plant genetic resources and jeopardising food security. The FAO Commission on Genetic Resources for Food and Agriculture then had to engage in a balancing act, aligning



the objectives for the conservation and utilisation of plant genetic resources for agriculture and food with the first two objectives of the CBD (conservation and sustainable use), while maintaining a form of open access to these resources (CHIAROLLA et al., 2013). In 2001, the FAO conference therefore adopted the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). This treaty uses a multilateral system to establish a “common pool” of plant genetic resources that can be freely added to by States (in accordance with the principle of States’ sovereignty over their genetic resources).

It is sometimes forgotten that the Nagoya Protocol (Article 4.4) recognises the existence of other regimes of access to genetic resources as long as these regimes are not at odds with its objectives and those of the CBD. Then it does not apply. In its preamble, it also acknowledges the special nature of agricultural biodiversity, the importance of genetic resources for food security and the interdependence of countries. The ITPGRFA, which includes objectives and measures relating to conservation, utilisation, and fair and equitable benefit-sharing, is indeed recognised by the Nagoya Protocol as one of the exceptions to the general regime. SCHLOEN et al. (2011) identified three characteristics of genetic resources for food and agriculture: they are elements of a biodiversity shaped by humans and their existence is closely linked to human activity; most of the products derived from these genetic resources can themselves be used as genetic resources (e.g. new varieties); and the erosion of these genetic resources is not linked to overexploitation, but rather to under-exploitation. For CHIAROLLA et al. (2013), the key issue is that national ABS regulations do not treat genetic resources for food and agriculture as ordinary resources.

The ITPGRFA’s multilateral system enables easy access to the plant genetic resources deposited with it. Benefit sharing is also multilateralised (Box 2).

THOMAS (2014), however, considered the ITPGRFA to be a less virtuous approach than it may initially seem, as it enables the avoidance of contractual negotiations between suppliers and users of genetic resources, and is more favourable to users (researchers, breeders) of the multilateral system than to the farmers who pro-

Box 2.

**International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)**

The ITPGRFA was adopted in November 2001 at the 31st Conference of the Food and Agriculture Organisation of the United Nations (FAO) and came into force in June 2004. Today, 146 States are parties to the ITPGRFA.

The Treaty provides a multilaterally agreed framework for the conservation and sustainable utilisation of crop diversity and the fair and equitable sharing of the benefits arising from such use. Its provisions are consistent with those of the CBD, which pre-dates it by nine years.

The pillar of the Treaty is the Multilateral System, which forms a pool of plant genetic resources. Annex I lists the 64 species that are eligible for inclusion in the Multilateral System. Resources deposited in the Multilateral System are said to be available with facilitated access, as they are accessible through a Standard Material Transfer Agreement (SMTA) if access is required for research, breeding or training for agriculture and food. The framework for the utilisation of resources deposited in the Multilateral System is therefore clearly defined, and the use of a standard agreement dispenses with case-by-case negotiations.

The Multilateral System is mainly funded by the party States, which therefore exercise sovereignty over their resources by deciding whether or not to deposit them in the Multilateral System, or by international organisations. The Multilateral System, which today comprises more than 1.5 million accessions, is not a physical collection of samples, but a form of catalogue or a virtual envelope, with the physical samples kept in the collections of States or organisations that have deposited them in the Multilateral System.

Non-monetary benefit sharing is encouraged in the SMTA. Monetary benefits are shared via the ITPGRFA Benefit-Sharing Trust Fund. This multilateral fund can also be replenished by donations, and is used to finance actions to promote the conservation and sustainable utilisation of plant genetic resources for food and agriculture.

As for the CBD and the Nagoya Protocol, changes to the ITPGRFA are subject to negotiation among stakeholders. The main issues under negotiation are the extension of the Annex I list, the procedures for replenishing the Trust Fund and the issue of Digital Sequence Information (DSI).

vide genetic resources. Moreover, while the ITPGRFA recognises farmers' rights (echoing Article 8j of the CBD), it is not binding and leaves the signatory States free to put in place appropriate measures. These tensions came to the fore in the negotiations on the revision of the ITPGRFA (extension of the list in Annex I, inclusion of digital sequence information [DSI], etc.).

## Biological Resource Centres (BRCs)

In the plant world, the expression “genebanks” or “seed banks” is still very commonly used to designate the infrastructures responsible for the conservation and management of collections of plant genetic resources, in a form that makes it possible to obtain plants from the conserved materials (seeds, entire plants, vitroplants, etc.). The public – even an informed public – is more familiar with this expression than the term “Biological Resource Centre” (BRC – in French: “Centre de ressources biologiques”), which nevertheless prevails today in the French genetic resources landscape.

The BRC concept was promoted by the OECD in the early 2000s and has the advantage of being a single notion covering varied mechanisms for the conservation of very different components of the living world. The main feature common to these mechanisms is the requirement for traceability of the material conserved and distributed. Quality standards have been developed specifically for BRCs (NF S96-900 standard in France).

Biological Resource Centres are part of the infrastructure that provides access to high-quality biological material for public and private research in the life sciences. Varied types of material are preserved. Centres that conserve biological resources of human origin contain samples of blood, tissue, cell lines, etc. Animal and plant BRCs conserve reproductive material (such as embryos and sperm from domesticated animal breeds, seeds), as well as “genomic” resources (mainly DNA fragments), which are used in research and easily exchanged by laboratories.

In addition to the collections of biological material themselves, BRCs manage databases of related information known as “passport” data on the origin of the material, as well as physiological, agronomic and molecular data, etc. This information is becoming increasingly important and sensitive, as the resources conserved are all the more useful when they are documented.

BRCs are tasked with the following main missions:

- ensuring the acquisition and the correct and permanent conservation of the biological material for which they are responsible;
- ensuring the traceability of this biological material, which means being able to identify it precisely at any stage of the conservation, multiplication, distribution, processes, etc.;
- characterising the biological material in the collection in order to promote its use and make information about it available;
- proposing the dissemination of this biological material.

Methodological developments to improve the services rendered and the coordination of networks are often added to these missions. Changes in the socio-economic context impact certain activities. For example, the agro-ecological transition will lead to changes in the methods and criteria for evaluating agronomic resources. The pressure on public funding may lead some BRCs to prioritise their most profitable services.

Compliance with national and international regulations on the exchange of biological material is an imperative for BRCs, in terms of health, biosecurity, the protection of endangered species and, of course, ABS.

## BRCs and ABS

BRCs and the ABS scheme share a similar trajectory, both in their design and implementation, and with regard to the ongoing debates. In fact, the BRCs and ABS regulations are designed and organised on the basis of the same division of living organisms into elementary building blocks: biological resources. The

biological material is central, while the related information is said to be “associated”, whether it concerns traditional knowledge or phenotyping data.

As a result, the approach adopted by BRCs, thanks to the traceability requirements and procedures, can also ensure compliance with ABS regulations. Providing material that offers users legal certainty is just another requirement, in addition to the obligations to provide samples that conform to the characteristics advertised in the catalogue, provide a good germination capacity, and are as healthy as possible. The systematic use of Material Transfer Agreements (MTAs), which predate the ITPGRFA and the Nagoya Protocol, facilitates this adaptation. Nevertheless, the managers of BRCs face problems concerning ABS implementation. The “regularisation” of collections, consisting of auditing and, if necessary, obtaining documents specifying the conditions for conservation and dissemination, is a massive undertaking. Immersion in the archives, and reliance on elders’ recollections about the introduction of given parts of collections are now part of the daily routine at BRCs. The quest for legal certainty is complicated by the heterogeneous implementation of ABS arrangements by States. And even when legal certainty is assured, questions of legitimacy may arise concerning the dissemination of foreign material, or even the depositing of material in the ITPGRFA Multilateral System.

It is noteworthy that in an OECD (2001) report, the related data were included within the scope of biological resources: “Biological resources – living organisms, cells, genes, and *the related information* – are the essential raw materials for the advancement of biotechnology, human health, and research and development in the life sciences.” It should be noted that if it were included in the debate on the inclusion of DSI (digital sequencing information) in the scope of ABS, this definition could simply be expressed as “DSI is a biological resource”! (see Chapter 16).

Finally, BRCs and ABS share the difficulty of transcending their assigned functions.

BRCs are burdened by their image as ivory-towers or even bunkers, preserving diversity for the benefit of industry and research, and remaining aloof from farmers’ needs and concerns,

especially in the plant world. In France, the BRC network consisting of INRAE, CIRAD and IRD is named “Ressources agronomiques pour la Recherche” (Agronomic Resources for Research) (<https://www.agrobrc-rare.org>), even though it is intended to serve other users. Media coverage of the Svalbard Global Reserve has contributed to a skewed perception of what genetic resource conservation really is. In fact, this reserve is merely a backup facility for existing genebanks, and does not perform any of the basic BRC tasks such as characterisation, documentation, or resource distribution, which are the day-to-day activities of plant genetic resource managers. The technologies used for conserving and analysing domestic diversity are not compatible with the more emotional, sensual vision of domestic diversity embodied by certain peasant movements.

The accusations levelled at BRCs are often excessive. However, the role and governance of BRCs will need to change in order to take better account of the expectations of a wider range of stakeholders, broaden the circle of beneficiaries, and embrace a less fragmented, less “gene-centric”, and more dynamic conception of cultivated biodiversity.

To a similar extent, and probably out of necessity, the formalism of ABS reduces biodiversity to the pieces of a jigsaw puzzle that only make sense when they are put together, and the dialogue between stakeholders to the provider-direct user pairing (with the former not necessarily being the actual provider, but possibly the designated authority). ABS is therefore struggling to assert itself as the type of instrument that it needs to become in order to promote a global ambition to conserve biodiversity, mobilising all stakeholders in society. Only time will tell whether this state of affairs will continue, definitively sanctioning the CBD’s original sin of adding a commercial dimension to its objectives, or whether the ambitions of justice and equity pursued by the ABS mechanism will ultimately enable it to atone for what is perhaps only a youthful sin.

## References

BACO M. N., 2007 – *Gestion locale de la diversité cultivée au Nord Bénin : éléments pour une politique publique de conservation de l'agrobiodiversité de l'igname (Dioscorea spp.)*. Orléans, PhD thesis.

BADSTUE L. B., BELLON M. R., BERTHAUD J., JUÁREZ X., ROSAS I. M., SOLANO A. M., RAMÍREZ A., 2006 – Examining the role of collective action in an informal seed system: a case study from the Central Valleys of Oaxaca, Mexico. *Human Ecology*, 34 (2): 249-273.

BELLON M. R., 1991 – The ethnoecology of maize variety management: a case study from Mexico. *Human Ecology*, 19 (3): 389-418.

CAILLON S., DEGEORGES P., 2007 – Biodiversity: negotiating the border between nature and culture. *Biodiversity and Conservation*, 16 (10): 2919-2931.

CAUVIN J., 2000 – *The Birth of the Gods and the Origins of Agriculture*. Cambridge, Cambridge University Press.

CHIAROLLA C., LOUAFI S., SCHLOEN M., 2013 – « An analysis of the relationship between the Nagoya Protocol and instruments related to genetic resources for food and agriculture and farmers' rights ». In: *The 2010 Nagoya Protocol on Access and Benefit-sharing in Perspective*, Leiden, Brill Nijhoff: 83-122.

COHEN D., 2009 – *La prospérité du vice : une introduction (inquiète) à l'économie*. Paris, Albin Michel.

DEDEURWAERDERE T., BROGGIATO A., LOUAFI S., WELCH E. W., BATUR F., 2013 – « Governing global scientific research commons under the Nagoya Protocol ». In: *The 2010 Nagoya Protocol on Access and Benefit-Sharing in Perspective*, Leiden, Brill Nijhoff: 389-421.

DIAMOND J., 1997 – *Guns, Germs, and Steel*. New York, W. W. Norton.

FENZI M., BONNEUIL C., 2016 – From “genetic resources” to “ecosystems services”: a century of science and global policies for crop diversity conservation. *Culture, Agriculture, Food and Environment*, 38 (2): 72-83.

FRANKEL O. H., BROWN A. H., BURDON J. J., 1995 – *The conservation of plant biodiversity*. Cambridge, Cambridge University Press.

GOUYON P. H., 2001 – *Les Harmonies de la nature à l'épreuve de la biologie : évolution et biodiversité*. Versailles, Quae.

LABEYRIE V., RONO B., LECLERC C., 2014 – How social organization shapes crop diversity: an ecological anthropology approach among Tharaka farmers of Mount Kenya. *Agriculture and Human Values*, 31 (1): 97-107.

LOUAFI S., 2011 – *Entre courtiers et communautés de pratique : le rôle des CIRA dans la gouvernance globale des ressources génétiques*. XIth AFSP Congress, Strasbourg, France, August 31 - September 2, 2011.

Organization for Economic Cooperation and Development, 2001 – *Biological Resource Centers: Underpinning the Future of Life Sciences and Biotechnology*. 68 p.

PISTORIUS R., 1997 – *Scientists, plants and politics: a history of the plant genetic resources movement*. Bioversity International.

RICCIARDI V., 2015 - Social seed networks: identifying central farmers for equitable seed access. *Agricultural Systems*, 139: 110-121.

SCHLOEN S. M., LOUAFI S., DEDEURWAERDERE T., 2011 – *Access and benefit-sharing for genetic resources for food and agriculture-current use and exchange practices, commonalities, differences and user community needs. Report from a multi-stakeholder expert dialogue*. Rome, CGRFA Background Study Paper No. 59, July 2011.

THOMAS F., 2014 – Les éthiques du partage des avantages dans la gouvernance internationale de la biodiversité sauvage et cultivée. *Éthique publique. Revue internationale d'éthique sociétale et gouvernementale*, 16 (1).

THOMAS F., 2017 – Ressources génétiques : garantir l'accès à un bien public mondial ou compenser sa marchandisation? *Entreprises et histoire*, 3 : 103-120.

THOMAS M., CAILLON S., 2016 – Effects of farmer social status and plant biocultural value on seed circulation networks in Vanuatu. *Ecology and Society*, 21 (2).

VAVILOV N., 1987 – *Origin and Geography of Cultivated Plants* (translated by Doris Löve). Cambridge, Cambridge University Press.



# Ex situ natural history collections

## A potential renewed by scientific advancements

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The Convention on Biological Diversity (CBD) and the Nagoya Protocol apply both to genetic resources and the associated traditional knowledge conserved *ex situ*, i.e., when conserved outside their natural habitats or even their country of origin. *Ex situ* collections refer to physical resources and associated traditional knowledge embodied in material goods such as herbaria, stuffed animals or ethnographic objects preserved and accessible in the collections historically assembled in the West. *Ex situ* collections are a historical and tangible reality in terms of the number of objects they contain. However, they are not addressed by the text of the CBD or of the Protocol, even though they are one of the sticking points among the parties, in particular due to the conditions of their assembly in what was essentially a colonial context.

There is no legal definition of the notion of a collection. European Regulation no. 511/2014 implementing the Nagoya Protocol established some guidance for collections. This guidance proposes

due diligence mechanisms<sup>1</sup> for the collections in light of their historical presence, their numerical magnitude, their vital importance to research, and the actors involved in the knowledge acquisition chain. Classed as *ex situ* collections, museum and scientific collections remain a key underlying issue in the negotiations, involving in particular the notion of cross-border resources (Article 10 of the Nagoya Protocol – see Chap. 15). They are a cornerstone of benefit sharing.

This chapter will discuss the origin and development of natural history collections and their intrinsic and constitutive links with the birth of the museum, primarily in Europe, using representative examples from France. Why should anyone have assembled these collections, why continue to add to them, why maintain them and ensure their conservation and preservation? There is no obvious answer, and justifications and motivations have diverged with the changing times. Many authors have taken an interest in these collections, and one of the keys to understanding them is doubtless to be found in the history of Western European thought. This is certainly one of the great paradoxes of these collections, which gather both material objects and objects of the mind and science. The concept and uses of these collections have become formalised, multiplied, and even renewed as scientific research and technological advancement has progressed. Collections of physical objects are thus now seen as constituting a kind of thesaurus, and, with the advancement of new technologies, as sources of new knowledge about life.

<sup>1</sup> The notion of due diligence, though it explicitly stipulates no more than the compliance with “applicable legal or regulatory requirement” and implement “best practices,” constitutes one of the expectations and prerequisites of Regulation (EU) no. 511/2014 of the European Parliament and Council of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union (recital 21).

## Why assemble ex situ collections?

The pivotal period of the 14<sup>th</sup>–15<sup>th</sup> centuries constitutes one of the most crucial stages in the assembly of natural history collections, and one that strongly influences our current practice. Nature was gradually ceasing to be considered part of divine Revelation, and plants and more particularly animals were no longer seen only through the symbolic prism conferred upon them by mentions or quotations in sacred and gnostic books. Bestiaries gave way to the treatises, and a new class of person appeared in society in addition to such men of knowledge as apothecaries, scholars, theologians and the like. When the “savant” first appeared, this personage took two distinct types, which would ultimately continue to exist side-by-side: the “curious” type, and another type who could not exactly be called a researcher quite yet but was beginning to investigate causality in beings, beyond mere aesthetics and the knowledge of Antiquity (BONDAZ et al., 2016; POMIAN, 1987). This new personage set out to describe the world according to a compilation method that borrowed greatly from those who had gone before but would gradually begin to incorporate more and more observations, first second-hand, then direct: written elements (not yet known as “data”) would become verifiable, and then reliable. Moreover, the savants began to describe things that they were no longer content to simply proclaim or compile. And thanks to objects preserved in collections, they could prove their assertions. Collections thus bear material witness to the history of ideas and the history of a discipline, and are thereby guardians of our knowledge. We can make reference to these objects as they have been preserved and documented; we can confirm them, specify them, with no time limit other than their material persistence. The objects thus collected and preserved, assembled at a single location, also serve the other pillar of our knowledge: comparison. We compare in order to prove, then to explain, and, finally, to teach. The thematic collection of objects first took shape in the 16<sup>th</sup> century, in cabinets of curiosities. Over time, these cabinets gradually evolved into the institutional or private collections of

the 19<sup>th</sup> century, which were seen as a tool for describing the world, then into those of the 20<sup>th</sup> and 21<sup>st</sup> centuries, seen as a resource for explaining the world.

### **The world in a display case**

Cabinets and collections from the 16<sup>th</sup> to the 18<sup>th</sup> centuries gleaned among objects from Antiquity, novelties collected from the exploration of the world, feats of artistic craftsmanship and natural oddities (including some fake ones too, even then...). Every amateur and collector knows that what one person calls by one name may be the same as what someone else calls by another (see for example BELON DU MANS, 1997). These cabinets were notoriously disparate and disorganised, to say the least (MAURIÈS, 2002; MONCOND'HUY, 2013). Anyway, what criteria should have been used to order them? Collectors used criteria all their own, based on their own conceptions of the world. The lack of organisation or specialisation in these collections lasted a long while, at least in France. Buffon himself chose not to adopt a definitive classification system (DAUGERON 2009), unlike some of his compatriots, such as Bonnier de la Mosson.

In order for there to be a commonly - if not universally - accepted classification, there must first be a common language; yet, while Linnaeus would provide this language in 1759, it would not be adopted by Buffon's successors until some 40 years later. Nevertheless, starting in the early 19<sup>th</sup> century, the movement had begun. Nomenclature and systematics guide the organisation of collections in all European countries. Plants and animals, living or fossilised, and mineral samples would be described and arranged with increasing precision throughout the century, according to identification criteria that would remain more or less unchanged until after the Second World War. Systematics and nomenclature thus came to constitute the new language for communication among savants and the sharing of knowledge.

### **Birth of the museum**

The birth of the museum as we know it today, namely a public institution dedicated to the production of knowledge based on the

study of collections specially assembled according to a defined theme, has been described with great precision by DELOCHE & LÉNIAUD (1989) and by LACOUR (2014). It took place in much the same way across all of Europe in the 18<sup>th</sup> and 19<sup>th</sup> centuries.

In France, the starting point was the French Revolution, when the collections of the nobles and the bourgeoisie were confiscated and maintained, and thus saved from destruction so that they could be used for the education of all. In 1793, the Musée central des arts (the Central Museum of the Arts, later known as the Louvre), the Muséum national d'Histoire naturelle (National Museum of Natural History/MNHN), and the Conservatoire des Arts et Métiers (Conservatory of Arts and Trades) were the first to be created. The network of provincial museums was then established in addition to these original institutions (POULOT, 2005). The idea was to be able to broadly disseminate knowledge through institutions serving as relays for their counterparts in Paris.

At the start of the 19<sup>th</sup> century, the Muséum de Paris was undoubtedly the most renowned establishment in Europe, both in terms of intellectual influence and in terms of its collections. Before the Revolution, there were 1,760 mammals and birds listed in the King's Cabinet. In 1822, inventories show more than 40,000 specimens, primarily the result of confiscations, but also the result of primary collections and primary donations (SCHNITTER, 1996).

Buffon endeavoured to describe nature and as many as possible of the species inhabiting it, but he was still trying to do so based on very few specimens, or even just one. This single-specimen thinking would remain the preferred approach for a long while. Surplus specimens, considered “doubles,” would be provided to schools and museums in the region, or exchanged with foreign museums, a trend that would last at least until the First World War. This particularity of French collections can be seen as an extension of the encyclopaedism so dear to the Age of Enlightenment and shared by Buffon: comprehensiveness was paramount, not the variation within each category.

Once the knowledge associated with natural history collections had a language of its own, it was able to spread throughout France for nearly a century, during both the prosperous and not-so-prosperous periods of the Paris-based driving force and its regional extensions.

The collections, spreading over the whole of the national territory, thus came into their own as material guarantors of knowledge, and as evidence of new knowledge generated by research.

### **Spreading knowledge**

But the ability to achieve the acquisition of knowledge throughout the national territory was only one part of the puzzle, because it was still necessary to develop knowledge before teaching it. The creation of central schools and regional museums was the pillar of this dissemination of knowledge - knowledge that was especially nourished, at least during the first half of the 19<sup>th</sup> century, by what was undeniably the “Golden Age” of the Muséum National (LAISSUS, 1995). Forty years of prosperity and influence established it as an essential institution in Europe, and so it remained for a long while. The Museum’s professors were active in teaching and writing, and their writings greatly contributed to the dissemination of scientific knowledge throughout society.

This period saw the emergence of the savant as a character in society. The establishment of museums in city centres as places of universal knowledge *de facto* made the curator into a kind of local governor, guardian of the collections as well as the intellectual and material issues they represent. The savant thus became essential to the well-being of the nation, and helped it to achieve progress by means of his work and research. But at the same time as educating the greatest possible number of people became a central concern, a corollary question emerged of “how”; how could the language of research, which develops continuously and inevitably undergoes unforeseen changes, be translated into a language of science, which seeks to expose and confirm facts with certainty? The risk of a disconnection between the two languages, and of information loss by elision and over-simplification, was nothing new. The presentation in museums of the specimens upon which the language of science was based was also a way of reducing this risk, since one could always go back to observing them directly.

Collections therefore emerged as a mandatory point of passage for access to knowledge, since the return to observation makes it possible to engage in an act of critique relative to what one has been taught or has read. Observation can temper the risk of

discrepancies or fractures between the different languages. And, of course, it also predisposes the observer to engage in further research.

## Interactions and pathways central to practices and discoveries

Collection methods became more specialised at the same time as the collections' object was made more precise. Though collection had been a rather simple matter in the case of botany, a dominant discipline from the 14<sup>th</sup> to the 18<sup>th</sup> centuries, when it came to systematising harvests for a given taxon, it became more complicated. Thus, in zoology, by the end of the 18<sup>th</sup> century, collection came to be conducted in a more targeted manner. Technical progress made in the 19<sup>th</sup> century (firearms for example) helped optimise campaigns in the field.

### Naturalist travellers

The first major innovation in matters of collection coincided with the rise of the “naturalist travellers.” This started with an approach that brought together naturalists whose enthusiasm for their subject, combined with their circumstances, led them to travel long distances over long periods of time. The traveling naturalist worked in the company of relatively extensive communities of people: porters, cooks, game hunting beaters, wild food hunters and others in the great expeditions of the period 1890-1920, benefiting from the local people's knowledge of nature. The personage of the traveling naturalist could not have appeared without the parallel development of technical means and channels of communication suitable for publicising these novelties.

Beyond discussions of the collection of specimens, however, the words of Alphonse Milne-Edwards, director of the Museum, delivered at the inauguration of the educational programme provided to naturalist travellers in 1894, do provide some food for thought: *“We must now make the most of these new possessions [the colonies]*

*and to do so we must know what they produce, by what race of men they are inhabited, what kinds of fauna and flora they have, what types of metals their soil contains, etc. [...]. Only under such conditions can we begin to exploit them fruitfully.*" (FILHOL, 1894). The stage was thus set that would lead to the human zoo at the colonial exhibition of 1931 in Paris. The explorer of the wild world arrogated a comprehensive body of rights to himself, from the right to survey indigenous resources to the right to exhibit them to the nation. These collections, which exhibit a variety of flora and fauna not quite yet constituting actual biodiversity, then became an emblem of pride for European nations.

### **Museums and exhibitions, tools of colonialism**

This parallel development of technical knowledge and naturalistic knowledge continued throughout the 19<sup>th</sup> century: the biggest of today's museums first rose to prominence during the last quarter of the century.

Moreover, the notion of "natural history" itself was evolving. The term is included on the pediments of buildings with an architecture more reminiscent of ancient religious buildings than anything else: the museum as temple, a holy place of Science, or rather, of the Natural Sciences. Beyond semantics and names, the "science" museum was obliged to evolve, driven by advances in thinking as much as by the growth of the collections themselves and their intellectual and material organisation. The changing methods used for the physical storage of collections – from miscellaneous stacks to specially designed furniture, then to a spatial separation between exhibition spaces and storage spaces (called reserves) – reflect the different conceptions of science in different eras. The rise of taxonomy is the perfect example of the interactions between physical and intellectual approaches to arrangement.

The galleries of the naturalist museums of industrial Europe in the 19<sup>th</sup> gave the observer an impression that they were incessantly assembling their collections, as if nature were inexhaustible, and existed only at the service of Western civilisation. Man (European man) dominated the rest of the world, thanks to his knowledge and technology, and exploited the resources for his exclusive profit. That "looting" has been clearly pointed out in



the case of collections of living mammals (BARATAY & HARDOUIN-FUGIER, 1998), but such observations can easily be adapted to apply as well to collections of non-living mammals and birds, two taxa particularly popular in Western Europe.

The dissemination of knowledge took another turn with the rise of the world's fairs. These were massive public events, exhibiting innovations or the state of the art in certain disciplines, while the same time showcasing the prestige of the organising or participating nations. The movement expressed a desire for power, especially colonial power, and began in earnest starting in 1851, the date of the first world's fair in London. Natural history could hardly be excluded from this tendency to innovate, and took its rightful place within it. World's fairs also helped to promote the spread of a certain way of presenting nature in Europe, in particular by means of "dioramas." These more or less ambitious installations, first designed to present one or more animals in their biotope, also illustrated the Western notion of dominion over nature, as if 19<sup>th</sup> century man could "recreate" it (WONDERS, 1993; DOHM et al., 2017). One might also wonder whether these enormous collections might reflect a kind of uncertainty among scientists, who perhaps had the sense that the more these collections could accumulate on their lab tables and under their measuring instruments, the more disproportionate would appear the magnitude of what remained for them to discover, describe, understand, and archive!

## Collections in the wake of the scientific revolutions

### **From collection to exploitation**

After the First World War, the colonial naturalist traveller gave way to the research-explorer,<sup>1</sup> foreshadowing the rise of another

<sup>2</sup> See HARRAWAY (1984) on the subject of the near-symbolic personage of Carl Akeley, probably the most famous and renowned taxidermist in USA. The different expeditions he had performed for the MNHN lead to the magnificent dioramas presented in African Hall, today classified as National Treasure.

model character, one who was also a coloniser, but only in an intellectual sense. Since World War II, this has become a universal model, since the academic dethroned the naturalist explorer, and the runaway specialisation of laboratories replaced the expansive knowledge of scholars. The evolution of this model has today trended towards the rise of the multi-tasking researcher. Field collections are becoming increasingly technical, and concentrated in specialised programmes intended to meet the new scientific requirements of the genome and the challenges it presents, while in recent years scientific collections have begun to follow an economic control approach. The cost of a field mission is measured above all in its corollaries: publications, patents, and industrial partnerships. Collections have moved away from the splendours of the gallery and have been trending instead toward reserves. In less than thirty years, the growth of reserves,<sup>3</sup> with complex, sometimes even off-putting access procedures, has become a major issue for museums and major collections around the world. Reserve collections at the MNHN include some 68 million specimens, representing several different stages in the acquisition of knowledge, and testifying to the various advancements made in understanding the world. These specimens all need to be arranged, labelled, and protected from degradation – gradual or rapid – but must also be kept constantly available to the public and research teams.

From collection to use, museum and university naturalist collections constantly need to be supplemented and enriched, and their managers must continually justify the reasons for their maintenance and conservation. Collections are often accused of costing more than they earn.

In the second half of the 20<sup>th</sup> century, two major discoveries were made that changed and still continue to disrupt the use and interest of collections, and, by extension, to renew scientific knowledge, illustrating in an exemplary way the potential of the objects preserved in collections. Applied to museum objects, these two dis-

<sup>3</sup> On the enthusiasm for this notion, see FERRIOT & JACOMY (1995) who relate the development of the idea of museum reserves as a new concept in France, to be compared with the development of preventive conservation in the same time.

coveries can be seen as types of “utilisation”<sup>3</sup> within the meaning of the Nagoya Protocol, and thus as modifying the status of the objects and the terms of benefit-sharing.

### **C<sup>14</sup> dating**

The development of radiocarbon dating (also known as C<sup>14</sup>) in 1950 and its application to archaeological and organic objects still remains a benchmark for collection managers, correlating the preservation and the research potential of samples. By using this method, shards of pottery, human or wildlife bones, fragments of coals, oceanographic sediments can be dated and situated within an environmental and cultural chronology. The reliability of museum material has been an important parameter in testing and applying this dating method.

One of the values of the collections resides in their synchronism and diachronism, which makes it possible to retrace history and go back in time in light of discoveries and technological advances. The notion of potentiality thus assumes its fullest meaning in regard to these objects, with properties that are currently known, but may also be linked to knowledge and discoveries still unknown. This shows the impact of the implementation of the Nagoya Protocol in terms of the resources to be admitted into museum collections and made accessible to scientific communities based on specific research questions. The knowledge support potential of resources admitted into collections can thus be tested or detected. How should this potential be taken into account when negotiating with providers?

### **The DNA revolution**

The second discovery now renewing the interest of natural history museum collections is the DNA revolution (PUILLANDRE, 2012). In the mid-1980s, molecular biology techniques allowing the

<sup>3</sup> Article 2 of the protocol thus defines “‘Utilisation of genetic resources’ means to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology as defined in Article 2 of the Convention.”

extraction and isolation of DNA molecules were tested on old objects kept in museum collections. Early zoological tests in particular attempted to link living and extinct species, representatives of some of which are preserved in museums. The molecular potentiality, which may now be isotopic or proteomic, has led to cutting-edge research involving the use of natural history specimens, *ad libitum* renewing their interest and spurring their utilisation as research supports. The findings generated by developments in molecular biology are constantly disrupting taxonomic classifications and visions of the living world; the DNA revolution has confirmed and renewed this connection.

## Collections: a source of renewed knowledge

The information and data contained in collections have been preserved by the methods of preparation and conservation used for the objects, but the potential for new discoveries and the production of knowledge depend on technological developments. We have seen this happen in the two examples cited above; how could a curator who decided in 1890 to put some broken shards and reddish chunks of coal into crates possibly have imagined the future potential for dating these partial, incomplete, dirty objects that he had nevertheless recorded and preserved for the scientific interest associated with their conditions of collection? The interest of museum collections is thus confirmed. Its values are renewed with the advancement of technological and methodological progress, and the development of research questions that call for these objects to be re-examined, whether directly or indirectly. Today, *ex situ* collections serve as supports for data and new discoveries linked to the notion of “utilisation” as defined by the Nagoya Protocol, which has become predominant in contemporary scientific research due to the development of the group of sciences known as “omics” (Genomics, proteomics, etc.). What will be the technology of tomorrow that will reveal data unknown today but perhaps contained in these collections? Paradoxically, it is in

this context that natural objects in collections reveal their data potentiality: by their age, their diachronic dimensions, and their irreplaceable function as witnesses to biotopes that are now degraded or have disappeared.

Physical objects taken, offered or admitted into collections for their aesthetic qualities or the curiosity they arouse, the objects of natural history museum collections have become resources, due to the increasing rarity of their presence in nature, and concerns about protection of the environment and biodiversity, which increase the uniqueness and value of such samples. “Utilisation”, within the meaning of the Convention on Biological Diversity, *via* the omic disciplines as applied to ex situ natural resources increases their interest and their value. They constitute records of the soils and environments that underwent the industrial revolution. They also constitute the traces of periods of accelerated destruction of anthropogenic habitats, global warming and acidification of the oceans, etc. Historically-assembled collections are a thesaurus, and have a renewed interest as a source of information and data due precisely to their age and their historical nature (LISTER, 2011).

## Conclusion

One of the issues that ex situ collections of genetic resources and associated traditional knowledge must face concerns the conditions of their original accumulation, which in light of the Nagoya Protocol could retrospectively be qualified as biopiracy. Ownership of these resources and the retroactive application of modern regulations are now recurring latent issues in agreements and negotiations.

Curators emphasise that ex situ collections in themselves constitute a form of benefit sharing. They have been working to ensure that this sharing is as extensive as possible via the development of digital technology. Resources preserved outside their natural environment, safeguarded from the destruction or degradation of their biotope, are thus potentially accessible via physical corpora

and databases. Though physical resources are highly regulated today, the content and associated data they contain are essentially dematerialised, even intangible; they are now digitalised (LANNOM, 2020), and can therefore be easily mobilised, transferred or searched (see Chap. 16). The proliferation of programmes for digitising collections via high definition images of types of African plants conserved *ex situ*, initiated by the Mellon Foundation-sponsored African Plants Initiative project, is a convincing example (<https://www.tela-botanica.org/2013/11/article5957/>; LE BRAS, 2017).

Geographic and financial barriers have long made consulting *ex situ* collections complex and costly for researchers and communities located outside Europe or the northern hemisphere. Nevertheless, acquisitions made by shipments, exchanges or collections in the field, as well as loans, have always been the core both of the practice of naturalist researchers and of the management procedures of *ex situ* natural history collections. Such movements help build these collections. For several years, alternatives to the physical shipping of samples have multiplied in response to new research orders that prioritise data, as well as in light of the various regulations that may apply, such as the Nagoya Protocol. The lengthening and expansion of loans thanks to digitised collections catalogues, or measures to facilitate the sampling of material from objects (as a variation of utilisations provided under the CBD for museum objects), have helped accommodate the physical inaccessibility and regulatory constraints associated with the movement of collections. The DiSSCo research infrastructure will thus eventually offer virtual access to all the natural history collections in Europe, and to on-demand loans or samples from that corpus, which comprises more than one billion specimens (KOUREAS & RUBIO, 2019).

The challenge these *ex situ* collections now face is how to couple the data on these physical objects and the intangible data now known or yet to be discovered with their availability to the broadest possible public, thus addressing the benefits listed in the Nagoya Protocol, in particular by means of providing access to *ex situ* genetic resource conservation facilities and databases.

## References

- BARATAY E., HARDOUIN-FUGIER E., 1998 – *Zoos. Histoire des jardins zoologiques en Occident (XVI<sup>e</sup>-XX<sup>e</sup> siècles)*. Paris, La Découverte.
- BELON DU MANS P., 1997 – *L'histoire de la nature des Oyseaux*. Fac-similé de l'édition de 1555, avec introduction, notes et commentaires Glargon, Genève, Ph. Droz, 554 p.
- BONDAZ J., DIAS N., JARRASSÉ D., 2016 – Collectionner par-delà nature et culture. *Gradhiva*, 23: 28-49.
- DAUGERON B., 2009 – *Collections naturalistes entre science et empires : 1763-1804*. Paris, Muséum national d'Histoire naturelle, coll. Archives, 635 p.
- DELOCHE B., LÉLIAUD J.-M., 1989 – *La culture des Sans-Culottes. 1, le premier dossier du patrimoine : 1789-1798*. Paris/Montpellier, Éd. de Paris/Presses du Languedoc, 447 p.
- DOHM K., GARNIER C., LE BON L., OSTENDE F. (éd), 2017 – *Dioramas*. Paris, Palais de Tokyo/Flammarion, 347 p.
- FILHOL H., 1894 – *Conseils aux voyageurs naturalistes*. Paris, Imprimerie nationale, 302 p.
- FERRIOT D., JACOMY B., 1995 – *Les réserves dans les musées*. Actes du Colloque international, Paris, CNAM, 223 p.
- HARRAWAY D., 1984 – Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908 – 1936. *Social Text*, 11: 20-64.
- KOUREAS D., RUBIO A., 2019 – DiSSCo as a New Regional Model for Scientific Collections in Europe. *Biodiversity Information Science and Standards*, 3: e37502.
- LACOUR P.-Y., 2014 – *La République naturaliste. Collections d'histoire naturelle et Révolution française (1789-1804)*. Paris, Muséum national d'Histoire naturelle, coll. Archives, 614 p.
- LANNOM L., KOUREAS D., HARDISTY A. R., 2020 – FAIR data and services in biodiversity science and geoscience. *Data Intelligence*, 2(2020): 122-130.
- LAISSUS Y., 1981 – Les voyageurs naturalistes au Jardin du Roi et du Muséum d'histoire naturelle : essai de portrait-robot. *Revue d'histoire des Sciences*, 24 (3-4): 259-317.
- LAISSUS Y., 1995 – *Le Muséum national d'Histoire naturelle*. Paris, Gallimard, coll. Découvertes 249, 144 p.
- LE BRAS G., PIGNAL M., JEANSON M. et al., 2017 – The French Muséum national d'histoire naturelle vascular plant herbarium collection dataset. *Science Data*, 4, 170016 (2017).

LISTER A. M. (Climate Change Research Group), 2011 – Natural history collections as sources of long-term datasets. *Trends in Ecology and Evolution*, 26: 153-154.

MAURIÈS P., 2002 – *Cabinets de curiosités*. Paris, Gallimard, 256 p.

MONCOND'HUY D., 2013 – *La Licorne et le Bézoard*. Montreuil, Gourcuff et Gradenigo, 511 p.

POMIAN K., 1987 – *Collectionneurs, amateurs et curieux : Paris, Venise, XVI<sup>e</sup>-XVIII<sup>e</sup> siècle*. Paris, Gallimard, 366 p.

POULOT D., 2005 – *Une histoire des musées de France, XVIII<sup>e</sup>-XX<sup>e</sup> siècles*. Paris, La Découverte, 198 p.

PUILLANDRE N., 2012 – La « Révolution » ADN. *Techniques & Culture*, 59: 38-345.

ROGER J., 1989 – *Buffon. Un philosophe au Jardin du roi*. Paris, Fayard, 645 p.

SCHNITTER C., 1996 – Le développement du Muséum national d'Histoire naturelle de Paris au cours de la seconde moitié du XIX<sup>e</sup> siècle : se transformer ou périr. *Revue d'histoire des Sciences*, 49 (1): 53-98.

WONDERS K., 1993 – *Habitat Dioramas: Illusions of Wilderness in Museums of Natural History*. Acta Universitatis Uppsaliensis, *Figura Nova Series* 25, 263 p.



## Part 2

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# The Machinery of the Nagoya Protocol



By recognising the sovereignty of States over their biodiversity and promoting commercial exchanges to ensure its protection, the Convention on Biological Diversity (CBD) and the Nagoya Protocol marked a shift from the paradigm in which genetic resources were a common heritage of humanity. This makes them consistent with multilateral environmental policies that promote a market-driven logic. The World Bank created its Environment Division back in 1984, before the Brundtland Report – entitled “Our Common Future” – popularised the reconciliation of economic, social and environmental issues with the objective of sustainable development in 1987. This consensual objective aims to overcome the conflicting tensions between conservation, market efficiency and pro-poor policies. A green economy thus becomes a requirement for poverty reduction.

The Nagoya Protocol sets out to promote and regulate bio-prospecting, which is presented as a way to end the plundering of national and community-owned resources, while guaranteeing financial returns for the conservation of biodiversity. To this end, the Access and Benefit-Sharing (ABS) mechanism is based on two tools: Prior Informed Consent (PIC) and a Mutually Agreed Terms (MAT) contract (see Focus 1).

This second part describes how the machinery of the Protocol was implemented by inviting the authors to discuss the concepts and tools that inspired them.

**Catherine Aubertin** presents the Nagoya Protocol as a product of the convergence of several movements: scientific progress leading to the ever-increasing dematerialisation of living organisms, the generalisation of a market-based approach to the conservation of biodiversity and its appropriation through intellectual property rights, the political affirmation of indigenous movements, and the assertion of rights associated with knowledge of nature. As a product of multiple compromises, the Protocol is based on presumptions and representations of research that are hard to reconcile with the realities encountered in the field, be they the conditions in which progress in the life sciences is made, or the complexity of indigenous and local communities’ relationships with nature (see Chap. 3).

The Nagoya Protocol has put in place a battery of legislation that aims to establish transparent and rigorous procedures (PIC and MAT), but whose political and legal balance is very difficult to discuss and achieve. Designed to provide additional legal certainty for CBD legislation, the Protocol poses genuine implementation problems, as States must decide whether or not to introduce this mechanism into their national legislation. They then adapt it to their constitutional and legal structure. In practice, for example, PIC is quite rare. More often than not, it is replaced by access authorisations or collection permits when it is not simply integrated into the Mutually Agreed Terms contract.

In this section, **Anthony Herrel** reports on his experiences and understanding of the requirements encountered when applying for access to genetic resources belonging to various taxa in different countries (see Chap. 4). He sees the Nagoya Protocol as an additional layer in a pile of regulatory procedures that are already in place, and which are part and parcel of researchers' daily lives. For the past few years, researchers venturing into the field should have been incorporating ethical and regulatory approaches to access, use and export into their procedures and into the design of their research projects.

Failing to comply with the Nagoya Protocol mechanism means running the risk of being accused of biopiracy. The fight against biopiracy is one of the strategic issues of the negotiations. It gave rise to the third objective of the CBD and the Protocol that regulates its implementation (see Chap. 3), although the term does not appear in either text, probably due to the difficulty of giving it a legal definition. Accusations of biopiracy relate to the appropriation – usually through contractual and intellectual property rights – of biological resources and traditional knowledge under conditions that are considered obscure, illegitimate or inequitable. Biopiracy disputes are generally played out in the media spotlight and driven by militant and political rhetoric that claims to uphold ethical values. However, such cases are rarely brought before the courts, giving the impression that the Law lacks the resources required to judge them.

**Loïc Peyen** discusses the passions and controversies aroused by biopiracy, and seeks to understand the dynamics of this issue from the perspective of international law and axiology in order to reveal its complexity (see Chap. 5). In this way, he departs from the political and militant rhetoric that too often surrounds this subject, and explains why the law struggles to address this issue. He strives to define a notion of biopiracy that combines the foundational notions of “provider”, “access” and “utilisation” introduced by the Protocol. Without confusing the moral and legal dimensions, he analyses the values underlying biopiracy and the norm of resource sharing from a legal and resolutely positivist standpoint, according to three key interpretative concepts: utilitarianism, “solidarism” and egalitarianism.

One of the innovations introduced by the Nagoya Protocol is the need to contractualise the PIC and MAT, which requires both parties – Provider and User – to discuss, negotiate and define a written consensus agreement. Contracts are now a fundamental notion, and the existence of these contracts signed by the parties constitutes one of the elements of proof of due diligence.

**Anne Etienney-de Sainte Marie** examines the adequacy of Mutually Agreed Terms contracts (see Chap. 6). What do they mean for societies whose attitudes towards time and trust-based commitments are foreign to Western law? By engaging in a legal reflection on the temporal dimension of these contracts, she sheds light on the questions and difficulties encountered in the field, where negotiations are based on an uncertain event (the production of benefits), nebulous stages (access authorisation before or after the signing of the contract, the time frames for utilisation and for the results of the utilisation, etc.), and disparate expectations. Finally, is Access and Benefit-Sharing (ABS) a condition for the validity of the contract or merely an objective?

**Philippe Karpe** proposes a focus on prior informed consent (PIC) as a recognised right of indigenous peoples, a right that is intrinsically difficult to identify in itself and whose content is hard to define. Adopting an anthropological approach to the law, he provides a foretaste of the debates that will be presented in the third part of this book (see Focus 2).



# What is the background of the Nagoya Protocol?

## The assumptions of the Convention on Biological Diversity

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**Catherine AUBERTIN**

The Nagoya Protocol was adopted in 2010 and entered into force in 2014. It was intended to clarify the provisions of the Convention on Biological Diversity (CBD) in order to facilitate the exchange of biological resources by recognising the contributions made by local populations and provider States to enhancing the value of biodiversity. Fair and equitable benefit sharing should therefore contribute to the conservation of biodiversity, which is the primary objective of the CBD. This paper redefines the context in which the assumptions behind the drafting of the CBD were forged, with the aim of shedding light on the difficulties that the application of the Protocol faces today.

## The CBD: a search for consensus to act

The term biodiversity was coined by scientists seeking to defend nature and engage in public debate under the banner of conser-

vation biology.<sup>1</sup> In this form, biodiversity was immediately established as a political construct at the interface between the natural and social sciences. Although it did not yet feature this new term, the Convention on Biological Diversity, signed at the Rio Earth Summit in 1992, bears witness to this paradigm shift. In the United Nations arena, the aims were to counter the threat of erosion of biodiversity, to bring some order to the multiple agreements addressing certain aspects of the subject (wild species for CITES, wetlands and birds for the Ramsar Convention, food and agricultural plant species for the FAO, etc.), and to this end, to organise an international governance of biodiversity as a whole. Reconciling the different interests and world views of the various members of the United Nations and the lobbies accredited to participate in the negotiations has obviously been a very difficult task. Although biodiversity governance remains the subject of bitter negotiations, 196 Party countries have ratified the CBD since it came into force in 1993, and seem to have agreed on definitions, objectives, procedures, etc.

The CBD defines genetic diversity as “the variability among living organisms from all sources”, which is taken to mean the interrelationships among species, with all their genetic variability, in various ecosystems. Consequently, the CBD aims to unite representatives of all the biological sciences – systematists, ecologists, geneticists, etc. – in a dynamic vision of the living world (DUCARME & COUVET, 2020). The three objectives set by the Convention also reflect the different approaches to nature that society has adopted: ethical, geopolitical, economic, etc. The CBD has been presented as the first convention on sustainable development that seeks to reconcile the economic, social and environmental dimensions, while embodying a project for society.

The first objective – the conservation of biological diversity – harks back to the tradition of conservationists concerned with compiling inventories of species and keeping nature out of human

<sup>1</sup> The term was already employed by environmental NGOs, but its first official use is widely believed to have been in 1988 – the year of the IPCC’s creation – in the proceedings of the National Forum on BioDiversity, published by Edward Wilson (WILSON, 1988).



activities, by assigning it a value in its own right. The second objective – the sustainable utilisation of its components – is familiar to ecologists and environmentalists. It recognises that humans are part of nature, and that nature must be managed properly so that it can continue to function in a sustainable manner and thus contribute to the well-being of societies. It is consistent with the concept of ecosystem sustainability. The third objective – the fair and equitable sharing of the benefits arising from the utilisation of genetic resources – refers to different conceptions of nature: by molecular biologists who study the expression of genes, by industrialists who see nature as a source of raw materials and innovations, by activists who denounce the exploitation of developing countries' resources without compensation,<sup>2</sup> and by the indigenous and local populations that act as custodians of their environments. There is a blatant contradiction between the first two objectives, which are expected in a convention designed to protect biodiversity, and this third objective, which has complicated the negotiations until now.

Without this third objective, it is unlikely that the developing countries, seen as rich in biodiversity but poor in terms of their technical and financial capacities, would have agreed to conservation targets that could hamper their economic development. The definition in Article 2 – “Genetic resources: genetic material of actual or potential value” – confirms the terms of the bargaining. The notions of justice and equity, which are otherwise undefined, imply the sharing of the (presumably largely monetary) benefits derived from the exploitation of genetic resources, i.e. from the research and development efforts of researchers, and from the marketing of biotechnology products.

By pursuing this objective of “fair and equitable sharing” (reiterated in Articles 8j and 15.7), the CBD distances itself from the formerly dominant biodiversity management policies, which were informed by the life sciences and based on sovereign solutions,

<sup>2</sup> Developed/developing countries are terms used by UN bodies. To simplify the language used, the North/South divide is often preferred. During the negotiations, developing countries were represented by the Group of 77 + China and other coalitions: African Union, Small Island States, etc.

such as the creation of protected areas (COMPAGNON & RODARY, 2017). This creates opportunities to use economic tools and intellectual property rights. It is no longer solely a question of conservation and use, but also of commercial exchanges. How did we manage to incorporate such conflicting representations of the relationships between living environments, science and society into a single convention?

The Convention on Biological Diversity can be situated at the interface between several ongoing movements. On the one hand, progress in scientific knowledge is contributing to the rapid growth in the economy of the living world and the intellectual property rights that accompany it; on the other hand, the protection of biological diversity is inseparable from the defence of cultural diversity and the recognition of indigenous and local communities' rights (AUBERTIN et al., 2007). This is indeed a clash between different visions of society.

## The rapid rise of biotechnology and the appropriation of nature

### **The biotechnology revolution**

Scientific advances in knowledge of the living world accelerated in the second half of the 20<sup>th</sup> century, with the discovery of the unity of living organisms when ACTG nucleotides were identified as the basic building blocks of the DNA molecule in 1953, followed by the dogma of molecular biology, which associates genes and biological functions, in 1957. Genomics developed throughout the 1990s and, as François Jacob pointed out in his acceptance speech at the Académie Française in 1997, the living world resembles the products of a gigantic Meccano set, reflecting the incessant tinkering that occurs during evolution (HERMITTE, 2016). This dematerialisation movement continued with synthetic biology in the 2000s. New tools such as sequencing and barcoding

have seen systematists and molecular biologists working together on the identification and classification of species (MAUZ and FAUGÈRE, 2013). Access to information on genetic resources in the form of digital sequence data, as well as new genome editing techniques such as CRISPR Cas9 and its application to genetic forcing, are currently the subject of heated debate in conventions (see Chap. 16).

The promises of biotechnologies, accompanied by their own speculative bubble, have given nature a new status. It is no longer considered as a purely philosophical concept or scientific term (MARIS, 2018), but also as a reservoir of raw materials that can be appropriated, exploited, and profitably enhanced. In this case, we use the term “living world” to denote various biological resources that are studied and exploited for economic purposes. The living world is no longer considered solely as a gift of God or of nature when human intervention is required to reveal it.

### **The patentability of the living world**

The economic stakes are high. Access to genetic resources must be guaranteed, both in order to ensure food independence, as advocated by the FAO, and to sustain the booming biotechnology industry. In 2000, the Lisbon Strategy defined by the European Union was based on the “knowledge economy”: the control of knowledge and the tools of knowledge became an economic and commercial weapon. This “cognitive capitalism” requires the privatisation of knowledge based on registered intellectual property rights covering the intangible components of resources: genetic information, associated knowledge, etc. This dematerialisation of biodiversity is driven by economic issues (AUBERTIN, 2019).

Slowly but surely, the scope of patentability – previously the preserve of the industrial world – has been extended into the living world. A patent confers upon its holder a temporary monopoly on the exploitation of the invention that it concerns. To be patentable, an invention (product or process) must meet the three criteria of novelty, inventiveness and industrial applicability.

Although, from the outset, the processes used to perform a genetic modification (such as a gene insertion) were patentable, the living organisms resulting from these processes (such as GMOs) were not, just like any living organism found in nature. In 1980, a patent allowed by the U.S. Supreme Court on a genetically modified bacterium that was claimed to be able to break down oil (the Chakrabarty case) broke this barrier by recognising that the bacterium was a human creation. This opened the door to the extension of patentability to the plant and animal kingdoms. Since 1994, the European Patent Office has considered that if a new substance is discovered in nature and a process is developed in order to obtain it, then this process can be patented. Furthermore, if this substance can be adequately characterised by its structure, and if it is new in the sense that its existence was previously unknown, then it may be patented as such (HERMITTE, 2016). This means that something that belongs in the public domain can become a patentable invention, giving its inventor an exclusive property right over an innovation which, when it originates from research on natural substances, is often the product of a collective process. Since its creation in 1995, the World Trade Organisation has required its members to protect their plant varieties with intellectual property rights. At an early date, it promulgated an article devoted to the trade-related aspects of intellectual property rights, and stipulating that an invention of a product or a process cannot be excluded from patent law merely because it is a living organism (WTO-TRIPS Art. 27, 1995).

Patenting a molecule of interest derived from a plant confers exclusivity upon its inventor, without taking into account all of this plant's interactions with its ecological context, or with the social and cultural context of the populations that use it. The long-term conservation and improvement of genetic resources carried out by indigenous and peasant communities is not recognised. The technical tools and institutions mobilised by research are also ignored. How can we distinguish between what belongs to nature, traditional knowledge, scientific work, technical tools, and the institutions and conventions that govern the transformation of living things? (LATOUR, 1999; THOMAS, 2015). This privatisation of biological resources, which then lose their status as collective goods, is widely considered unacceptable. All the more so since patents do not

provide any legal protection for “traditional knowledge” which is not new and is not the product of an inventive activity. This form of knowledge is passed down from one generation to the next, and does not have direct industrial applications.

This “disenchantment of the world” studied by Max Weber, in which scientific and economic rationality is established as the main touchstone of the Western world, contrasts with another representation of the world, conveyed by the traditional knowledge of indigenous peoples.

## Affirmation of biocultural diversity

While the CBD recognises three levels of organisation of living things (genes, species, ecosystems), the ecological and indigenous rights movements, supported and informed by ethnoscientists, are imposing a new concept: the traditional knowledge of indigenous and local populations.

### **Ethnoscience and codes of ethics**

Ethnoscience studies the knowledge systems of indigenous peoples, and how this knowledge structures the social ties between all living beings. In this way, they depart from the colonial approach of describing and collecting natural objects with little regard for their social environment and for the local representations and knowledge associated with them (see Chap. 2). These ethnosciences contribute to the critique of a science with universal pretensions based on the opposition between nature and culture (DESCOLA, 2005). They are part of the post-colonial studies movement and call for the decolonisation of research and the abolition of the investigator/respondent relationship. They play a decisive role in linking ecology and traditional knowledge – now merged under the acronym TEK (Traditional Ecological Knowledge) – and in thus recognising indigenous peoples as natural protectors of the environment.

In Latin America back in the 1980s, ethnobotanists and anthropologists used maps to highlight the strong correlation between areas of high biological diversity and those of high cultural and linguistic diversity, a phenomenon that would subsequently be described as “double conservation” (DUMOULIN, 2003). These studies provide confirmation, if it were necessary, that the cultural survival of the Amerindians is inextricably linked to the protection of the Amazonian forest. Of course, this union is not devoid of certain misunderstandings on both sides, as Amerindian populations do not always live up to their reputation as guardians of nature endowed with all the ecological virtues of Western modernity (CONKLIN & GRAHAM, 1995). Similarly, categorising them as “indigenous”, and reduced to cultural practices associated with lifestyles on the margins of the dominant society, is fraught with ambiguity (see Chaps. 7, 8). However, their geographical location is a decisive factor in this regard. Indeed, the strongest link between biological and cultural diversity is found in Latin America, where the use of the term “indigenusness” is a school of thought as much as a political weapon.

It is worth noting that ethnoscience researchers, who were eager to share the results of their research and defend the rights of indigenous populations, were the first to establish codes of ethics to regulate their research. One example is the International Society of Ethnobiology founded by Darrell Posey, whose first congress in 1988 explicitly defined researchers’ and environmentalists’ responsibilities to meet the needs of local communities. The Declaration of Belem provided the first recognition of the central role of indigenous peoples in maintaining biodiversity, as well as the obligation to compensate them for the utilisation of their knowledge and biological resources (ISE, 1988). For these researchers, it is also a question of changing scientific practices, and the 17 principles of the Code of Ethics include the principles of prior informed consent and equitable sharing, which would later become PIC and MAT: the twin pillars of the Nagoya Protocol (see Focus 1).

### **Relevant knowledge**

Researchers involved in conservation science, meanwhile, were sensitive to economic analysis of biodiversity values in their desire

to raise awareness of the importance of biodiversity.<sup>3</sup> To enable the organisation of commercial exchanges, intellectual property rights for traditional knowledge were therefore advocated (POSEY & DUTFIELD, 1996). Since patents are ill-suited to the specificities of local knowledge, a *sui generis* system of intellectual property rights was proposed under the name of “traditional resource rights”. Enhancing biodiversity and providing income for indigenous and local populations in return was consistent with the spirit of the major conferences on the environment.

The 1972 Stockholm Conference on the Human Environment had previously revealed the difficulties of reconciling environment and development, with countries in the Global South denouncing the environmental policies proposed by the industrialised countries of the North as so many obstacles to their economic development. The issue of underdevelopment thus became established in conservation circles: it was impossible to promote biodiversity conservation without considering the conditions for the development of poor countries. The programmes of environmental movements (IUCN, Greenpeace, WWF) drew closer to “third-worldist” programmes, while international agencies (FAO, UNDP, UNEP, World Bank) began to devise development programmes incorporating environmental and social concerns. The Brundtland Report (1987) popularised the concept of sustainable development on the eve of the United Nations Conference on Environment and Development, at which the Convention on Biological Diversity was signed in 1992.

The “traditional knowledge” associated with biodiversity is recognised in the preamble to the CBD as an important contribution, and of key importance to the conservation and sustainable use of biological diversity: “Recognising the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional

<sup>3</sup> The same researchers would subsequently develop the concept of ecosystem services, which was adopted and redefined by economists in the form of payments for environmental services (PES) made to populations whose way of life and environmental management contribute to the provision of these services for the well-being of societies.

knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components [...].” This paradigm is specifically found in article 8j: “Each Contracting Party shall, subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices” (CBD, 1992).

It should be noted that the aim here is to respect traditional knowledge insofar as it is of interest to the conservation and sustainable use of biodiversity, but not for its socio-cosmic, identity-related characteristics, linked to a cultural group.<sup>4</sup> This instrumental vision, taken up by the Nagoya Protocol, would frequently be denounced thereafter.

### **Knowledge and political rights**

Today, the term “biocultural diversity” is gaining ground in the CBD negotiations. Within the major international conventions, the diversity of forms of existence and different ways of knowing are presented as indispensable to the creation of future alternatives to the Western mode of development that is depleting the planet’s resources. For example, the IPBES – Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services – defines indigenous and local knowledge as “practices and beliefs that reflect social and ecological knowledge about the relationships between living beings, including people, and their environment”. The IPBES further notes that “this knowledge can provide information, methods, theory and practice for sustainable

<sup>4</sup> European regulation 511/214 is even more explicit: “Traditional knowledge that is held by indigenous and local communities could provide important lead information for the scientific discovery of interesting genetic or biochemical properties of genetic resources.”



ecosystem management” (IPBES, 2020). Local knowledge helps to re-enchant the world by proposing an alternative model for relating to nature, characterised by spirituality.

The land and citizenship rights that Amerindians were unable to obtain through their local battles are now recognised at the international level, on grounds of their ecological legitimacy and the cultural diversity that is presented as an integral part of biodiversity. Claims concerning traditional knowledge of nature generate claims to rights and thus become a key political tool in the struggle to recognise the rights of indigenous communities in their own countries. (FOYER & DUMOULIN, 2017).

In this way, the CBD incorporates two types of positions based on knowledge of biodiversity: one relating to the knowledge economy, and the other concerning the recognition of political rights. Cognitive capitalism is pitted against cognitive anthropology and the CBD has chosen a market-based solution to reconcile these conflicting positions.

## A distribution of rights for a market-based solution

The injustices denounced by countries in the Global South were initially addressed in economic terms and analysed as an asymmetry of rights leading to a poor allocation of resources. Genetic resources were freely available, but the associated local knowledge was not protected, and the knowledge holders’ rights were not recognised, whereas industrial innovations were protected by intellectual property rights such as patents. Standard economic theory blames this on a lack of appropriation and a failure to assign a sufficiently high value to biodiversity, according to the “tragedy of the commons” developed by G. Hardin in his article (HARDIN, 1988). The failure of the regulatory market meant that property rights must be defined, and market prices must be assigned. The acceptance of this doxa of standard economic theory was all the greater because it was disseminated in the 1980s when

neo-liberal doctrines were at their peak, with examples such as Ronald Reagan's policies in the United States, and Margaret Thatcher's advocacy of the disengagement of the State to give free rein to market forces in the United Kingdom. It was also accepted by some NGOs and indigenous movements, because recognising indigenous peoples' ownership of their resources and knowledge is supposed to protect them from biopiracy and enable the redistribution of wealth.

This was indeed the vision defended by the authors of the CBD, which can be interpreted as a distribution of rights. In fact, the CBD maps out a market-oriented solution to environmental problems and in so doing defines three types of rights: the sovereignty of States over their biological resources (Articles 3 and 15.1); the recognition of intellectual property rights (patents) of the life sciences industries (pharmaceuticals, cosmetics) (Article 16.5); and the assertion and protection of the *sui generis* rights of local and indigenous populations over their resources and their knowledge (Article 8j). The fact that the CBD – a multi-lateral agreement – advocates a policy of contractualising access to biodiversity could be considered paradoxical. Access and benefit-sharing are thus organised on the basis of bilateral agreements: private contracts between the resource provider and the user to regulate bioprospecting (AUBERTIN et al., 2007).

## A binding Protocol under the CBD

It was not until 2000 that a Convention on Biological Diversity working group was tasked with addressing various issues associated with the implementation of the Access and Benefit-Sharing (ABS) mechanism. In 2002, the CBD Secretariat published the "Bonn Guidelines", setting out the stages of the access and benefit-sharing process, with the emphasis on procedures for obtaining prior informed consent from providers of genetic resources and associated knowledge. The Guidelines encouraged the establishment of a single focal point and competent authorities in each State to oversee access authorisations and supervise negotiations.

One appendix provided the elements for Material Transfer Agreements, and a second listed the expected monetary and non-monetary benefits. The wording that States subsequently chose for their national legislation remained very close to these Guidelines. However, the Coalition Against Biopiracy, led by an NGO – the ETC Group – did not support the Guidelines, considering that they promoted intellectual property and made indigenous peoples actors in the plundering of their own resources. The Coalition even awarded its “Worst Smokescreen” prize to the 2004 Guidelines at the Captain Hook Awards ceremony, held during each Conference of the Parties (COP) of the CBD.

At the Kuala Lumpur COP in the same year (2004), it became clear that bilateral contractual agreements, which are inevitably unbalanced in the event of bilateral negotiations between an indigenous community and an industrial company, could not resolve the issue, and that moves towards a binding international regime needed to be made. A global, universal framework was therefore required: a seemingly paradoxical way to promote biological and cultural diversity, which is inherently localised and specific. This would become the Nagoya Protocol, signed in 2010 and effective on 12 October 2014.<sup>5</sup> The EU immediately transformed the provisions of the Protocol into an implementing regulation,<sup>6</sup> leaving member countries free to transcribe the Protocol into their domestic law, or simply implement the EU regulation designed to ensure that collections and research funding conform to the Protocol's requirements. However, each member country was required to designate a competent national authority and specify the penalties for breaches of the due diligence principle.<sup>7</sup>

<sup>5</sup> CBD – Convention on Biological Diversity, 2010 – *Nagoya Protocol*. <https://www.cbd.int/abs/doc/protocol/nagoya-protocol-fr.pdf>

<sup>6</sup> European Union. Regulation (EU) No 511/2014 of the European Parliament and of the Council of 16 April 2014 <https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32014R0511>

<sup>7</sup> With a view to ensuring the effective implementation of the Nagoya Protocol, all users of genetic resources and traditional knowledge associated with genetic resources should exercise due diligence to ascertain whether genetic resources and traditional knowledge associated with genetic resources have been accessed in accordance with applicable legal or regulatory requirements and to ensure that, where relevant, benefits are fairly and equitably shared.

France ratified the Protocol by adopting the Law on Biodiversity, promulgated on 8 August 2016 (see Focus 3).

## Conclusion: a cumbersome initial framework

Today, 131 countries have ratified the Nagoya Protocol. Considerable resources have been invested in its financial and organisational implementation, with each State being required to create its own structure for handling the files. The financial benefits recorded by the ABS Clearing House remain paltry, however, while procedures are becoming increasingly complex.

It is therefore important to analyse the reasons behind these results that are so far removed from initial expectations, and to take a look at the assumptions underlying the CBD and the Nagoya Protocol. They can be summarised as follows: once property rights have been defined, the market must be placed at the service of biodiversity conservation; there is supply and demand for genetic resources and traditional knowledge; a knowledge economy combining technical knowledge and traditional knowledge of natural substances will usher in a new industrial era and generate significant financial benefits; traditional knowledge can be protected by intellectual property rights; local knowledge holders can be easily identified and recognised as legitimately entitled to sign contracts, both by their community and by local or national authorities.

This cumbersome framework would soon be confronted with the realities encountered in the field.

## References

AUBERTIN C., PINTON F., BOISVERT V., 2007 – *Les marchés de la biodiversité*. Paris, IRD Éditions.

AUBERTIN C., 2019 – « Histoire de la loi pour la reconquête de la biodiversité et ses implications en Guyane ». In Fleury M. (ed.): *Pharmacopées traditionnelles des Outre-Mer : de la Recherche à la Valorisation*, 9<sup>e</sup> colloque international sur les plantes aromatiques et médicinales de l’Outre-Mer, Éditions Gadepam: 369/380.

COMPAGNON D., RODARY E., 2017 – *Les politiques de biodiversité*. Paris, Presses de Sciences Po.

CBD – Convention on Biological Diversity, 1992 – <https://www.cbd.int/doc/legal/cbd-en.pdf>

DESCOLA P., 2005 – *Par-delà nature et culture*. Paris, Gallimard, coll. Bibliothèque des sciences humaines.

DESCOLA P., 2013 – *Beyond Nature and Culture*. Janet Lloyd (trad.), Chicago, University of Chicago Press.

DUCARME F., COUVET D., 2020 – *What does “nature” mean?* Palgrave Communication, <https://doi.org/10.1057/s41599-020-0390-y>

DUMOULIN D., 2003 – Local knowledge in the hands of transnational NGO networks: a Mexican viewpoint. *Int. Soc. Sci. J.*, 55: 593/606.

FOYER J., DUMOULIN D., 2017 – « Objectifying traditional knowledge, re-enchanting the struggle against climate change ». In Ayuk S., Foyer J., Morena E. (eds): *Globalising the Climate. COP21 and the climatisation of global debates*, London, Routledge.

CONKLIN B., GRAHAM L., 1995 – The shifting middle ground: amazonian indians and eco-politics. *American Anthropologist*, 97 (4): 695/701.

HARDIN G., 1988 – The Tragedy of the Commons. *Science*, vol. 162, No 3859: 1243/1248.

HERMITTE M.-A., 2016 – *L’Emprise des droits intellectuels sur le monde vivant*. Versailles, Éditions Quae, coll. Sciences en questions.

IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), 2020 – *Glossary of terms*. Available at: <https://ipbes.net/glossary/indigenous-local-knowledge-systems>

ISE (International Society of Ethnobiology), 1988 – *Declaration of Belem*. <http://www.ethnobiology.net/what-we-do/core-programs/global-coalition-2/declaration-of-belem/>

LATOURE B., 1999 – *Politiques de la nature*. Paris, La Découverte.

MARIS V., 2018 – *La Part sauvage du monde*. Paris, Le Seuil, coll. Anthropocène.

MAUZ I., FAUGERE E., 2013 – Les systématiciens à l'épreuve du barcoding. *Revue d'anthropologie des connaissances*, 7 (2): 433. 10.3917/rac.019.0433.

POSEY D. A., DUTFIELD G., 1996 – *Beyond Intellectual Property: Toward traditional resource rights for indigenous peoples and local communities*. Ottawa, Ed. International Research Center.

THOMAS F., 2015 – « Droits de propriété intellectuelle et “communs agricoles”. Comment repenser l'articulation entre biens privés, biens collectifs et domaine public ? ». In Vanuxem S., Guibet Lafaye C. (dir.): *Repenser la propriété*, Marseille, Presses universitaires d'Aix-Marseille, coll. Droits de l'environnement.

WILSON E. O., PETER F. M., eds, 1988 – *BioDiversity*. Washington DC, National Academy Press.

## **Focus 1**

# The Nagoya Protocol and the ABS mechanism

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**Catherine AUBERTIN**

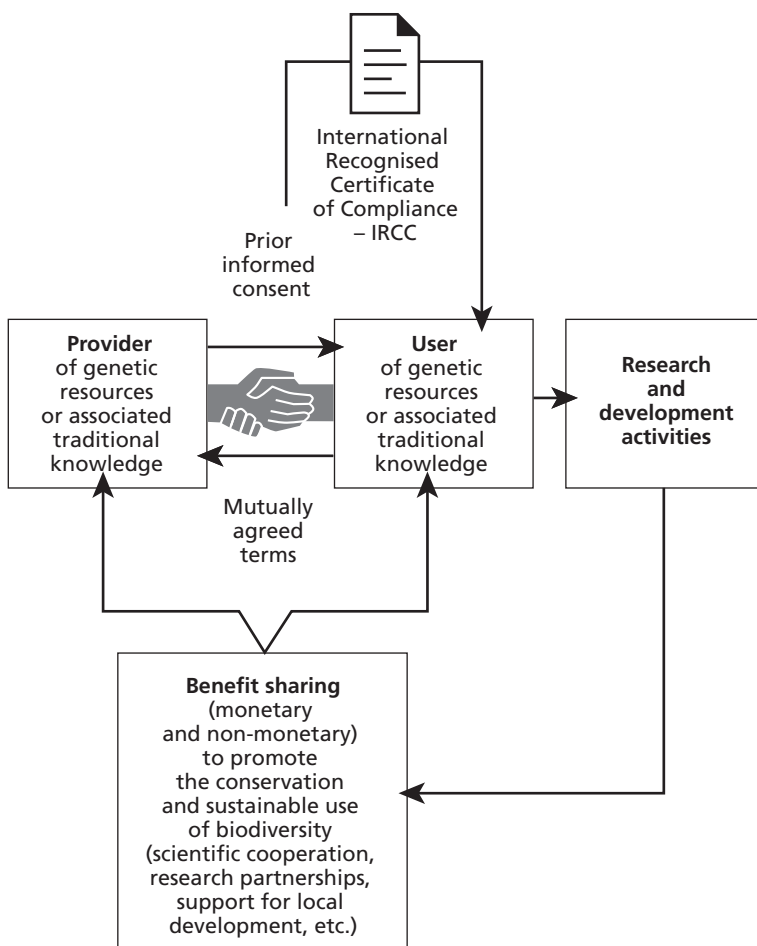
The Nagoya Protocol sets out to involve local stakeholders from the start of the research process, to give local populations a voice in the value-enhancement process and its methods, and to draw up a contract that binds the parties from the outset. This involves tracking biological samples and associated knowledge, documenting the conditions of their collection, and archiving these documents.

The Convention on Biological Diversity (CBD, 1992) gives signatory States sovereignty over their resources, i.e. responsibility for the conservation and sustainable management of biodiversity. The Nagoya Protocol (2010) specifies the legal framework for these undertakings, and each State designates a competent national authority that decides upon the concrete implementation of Access and Benefit-Sharing (ABS).

Two of the basic principles for the collection of biological samples and/or associated traditional knowledge had already become widely established in research practice: 1. identification of the resource to provide information about its characteristics, date of extraction and geographical origin; 2. the biological Material

Transfer Agreement (MTA) with the providing partner. These were accompanied by the following principles: 3. Prior Informed Consent (PIC) obtained from the providing country or representatives of knowledge-holding communities, and finally, 4. a contract defining the sharing obligations for users and suppliers (Mutually Agreed Terms – MAT), and specifying the expected results and reporting to the partners.

### ABS Business Model



Source: *L'APA pas à pas*. Fondation pour la recherche sur la biodiversité (2017). <https://fondationbiodiversite.fr/wp-content/uploads/2017/12/FRB-Guide-APA-2017.pdf>



In order to access and use the genetic resources and traditional knowledge, the user must share the benefits arising from that use with the provider. Therefore, for any utilisation of genetic resources – in the very broad sense of biological resources, ranging from the entire living organism to DNA and metabolic products – researchers must check whether Prior Informed Consent (PIC) is required for access to these resources and whether the fair and equitable sharing of the benefits arising from their utilisation is envisaged.

If such consent is required, it is granted by the providing country, and the sharing of benefits, whether monetary or non-monetary, is established between the latter and the user of the resource on the basis of a Mutually Agreed Terms (MAT) contract.

The CBD recognises the contribution of indigenous and local communities to the conservation and sustainable use of biodiversity. It introduces the notion of “traditional knowledge associated with genetic resources”, of which they are holders. The principle of ABS applies to this knowledge. Their access and utilisation therefore require prior consent and benefit-sharing arrangements.



# The Nagoya Protocol: experience and feedback from a researcher

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**Anthony HERREL**

## Many questions surrounding the Protocol

The Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation (Secretariat of the Convention on Biological Diversity, 2011) caused general concern among the scientific community. Although each and every researcher undoubtedly agrees with the spirit of this convention aiming at the sharing of benefits arising from the utilisation of genetic resources in an equitable way, many feared it was going to be yet another obstacle hindering scientific research (KNAUF et al., 2019). This was particularly felt given the strong uncertainty surrounding the exact nature of the Protocol and its legal impact. Many researchers, especially those working with genetic resources and collections feared that it would be impossible to continue their work, aimed at providing an inventory and understanding of the diversity of living organisms. Many others interested in associated fields such as comparative

anatomy, archaeology, and palaeontology were clearly also impacted by the new regulations but with a certain level of uncertainty pertaining the extent of these new regulations and the impact it would have on their work. What to do with anatomical specimens not dedicated to genetic analyses and deposited in natural history collections, but which could be used by other for future extractions of DNA? What to do with soil or water samples, microbiome samples, etc... (RYAN et al., 2019)? How would permitting work? Many of the samples collected by biologists contain unknown diversity so how fill out a form requesting species names; how to deal with these types of samples containing thousands or even millions of taxa? What if rapid access is needed as in case of emerging infectious diseases (KNAUF et al., 2019)? What about biological control (Smith et al., 2018)? What about online sequence data (BECK, 2019)? Who to contact and where to obtain the documents needed to be in-line with the new regulations? These are but a few of the questions that I was confronted with when talking to many of my colleagues in field or in the Muséum in Paris. So, how bad is the Nagoya Protocol really in terms of daily work for a scientist doing lots of fieldwork and collections world-wide. To provide some insights into the added burden of the new Nagoya regulations I believe it would be good to evaluate what researchers like me working in five different continents and requiring permits to do research from tens of countries a year had to do before the Nagoya Protocol.

## Procedures in place before the Nagoya Protocol

### **Research and collecting permits**

The first step of any research involving wildlife beyond the establishment of hypotheses, or research questions based on a thorough study of the existing literature is to obtain the required permits to 1) conduct the research and 2) collect the organisms of interest

for study. Obtaining permits can be quite daunting (PAUL & SIKES, 2013) and a single project can involve multiple permits at different legislative levels (national, regional, park etc...). For one project in Europe we were required to obtain national permits, regional permits and then permits from the national park where the field work was conducted. Consequently, it can sometimes take months or even years to obtain a research permit (I am still waiting for some over 15 years after I first requested them – I always imagine they must be lost somewhere on someone's desk in a dusty office). Especially when working in protected areas permitting may be difficult as the impact of the science will have to be evaluated relative to the local ecological context (SAARMAN et al., 2018). Whereas good relations between local collaborators and permitting agencies can definitely help speed along the process, on a few occasions I have decided to fly out and talk to the people in charge of delivering permits in person. This allowed me to explain the project in detail and to make sure both parties were on the same page. This was much appreciated and since then I have never had trouble getting permits.

### **Ethics clearance**

Often, if not most times, obtaining a research permit is contingent upon having prior ethics clearance often both from the researcher's home institution and the country where the research is conducted. Any research involving animals needs prior consideration of its impact whether it be lab (FESTING & Wilkinson, 2007; PERRY, 2007) or field research (CURZER, 2013; LINDSJÖ et al., 2019). Irrespective of the context or the country, the guiding principle in ethics is that of the 3Rs (replace, reduce, refine) and this is essential to incorporate when conceiving a research proposal. The goal is to replace animal experiments whenever possible, to keep the number of animal experiments as low as possible, and to use the appropriate number of animals, not too few nor too many. This is often tricky and may require a priori evaluation of the statistical power of the sample size that is going to be targeted. Lastly, it is vital to ensure that the distress inflicted upon the animals is kept as low as possible. Ethics clearance often requires to contact the institutional ethics, or animal care and use committee,

to discuss the research proposal, and to obtain feedback on how to improve the proposal before final submission. This has been essential and obtaining prior feedback has helped me getting ethics approval much more quickly in many cases. For some Protocols (e.g. behavioural non-invasive research or simply the euthanasia of animals to obtain scientific specimens) and in some countries no official ethics approval may be possible as this type of research does not fall under the official guidelines, but an institutional ethics or animal care and use committee may be able to provide a recommendation and validate the proposal from an ethics point of view. Once ethics clearance has been approved and research permits obtained, the transfer of the material to be collected needs to be negotiated under a material transfer agreement between the country of origin of the material and the host country of the researcher.

### **Material Transfer Agreement**

The Material Transfer Agreement (MTA) is a legal agreement that governs the transfer of specimens or parts of specimens (e.g. organs, tissues, DNA, RNA) between the country or institution of origin and the researcher or his institution (STREITZ & BENNETT, 2003; BUBELA et al., 2015). Materials may include cell lines, plasmids, nucleotides, proteins, transgenic animals, plant varieties, bacteria, pharmaceuticals, and other chemicals extracted from plants or animals. These agreements are typically short and address issues such as the ownership of the transferred material and its derivatives. They may limit the use and further dissemination of the material by the researcher as has been the case recently where I was requested to destroy the biological material after the research project was completed. This implied that specimens could not be entered into our collections or given a collection number but still allowed us to gain access to amazing specimens for research. In other cases, I have been asked to simply return the material to the country of origin or in yet other cases material could be kept and integrated into a natural history collection. The MTA may also discuss publication co-authorship as well as rights to research results or the implications in patents, but this is rather rare in fundamental research. Material transfer

agreements have existed for quite some time and facilitate the exchange of materials and associated data between researchers or institutions and protect the interests of country or institution of origin of the material. However, the MTA does create additional administration and may slow down collaborations or the publication of research results (STREITZ & Bennett, 2003; BUBELA et al., 2015). In fundamental biological research a simple agreement often suffices and this is pretty straightforward in most cases where I have obtained these agreements.

### **Export and import permits including CITES**

Once all the above steps have been taken the field work generally takes place and may involve the collection of specimens that need to be exported back to the country where the researcher works. Depending on whether this is live material or not, things can become complicated. For dead specimens or parts of specimens, the types of permits needed typically depend on the protection status thereof. In the 'worst-case scenario', if a specimen is CITES-listed, obtaining permits may take months or even longer to complete (PAUL & SIKES, 2013). CITES refers to the convention on international trade in endangered species of wild fauna and flora. Although the primary goal of CITES is to regulate the commercial trade, the export of CITES listed specimens for non-commercial, fundamental scientific projects is regulated as well. Depending on the listing of the species in the different appendices, import and export permits may need to be obtained with the export being contingent on the obtention of the import permit. Some scientific institutions such as natural history museums typically are registered with CITES and can obtain a CITES scientific certificate facilitating the import and export of CITES specimens. This facilitates the loans of natural history specimens between researchers greatly and has made my life much easier. However, this is typically a minority of the research institutions, and as such permitting may be quite complicated (PAUL & SIKES, 2013). When specimens are not CITES-listed most countries still require export permits. In most countries a visit to the relevant permitting body or institution will smoothen the process and

ensure the delivery of export permits in a reasonable time frame (from one day to a week). However, sometimes this process can take very long and many colleagues have had specimens stuck in the country of origin for months or even years. Finally, when exporting live animals, things get even more complicated as many countries will require a health certificate signed by a veterinarian from the country of origin, followed by an inspection of the health status upon arrival in the country of destination. Finding a veterinarian with knowledge on wildlife can be tricky, however, and many times I have had veterinarians ask me whether the animals were 'healthy'. Especially when dealing with less known animals like amphibians or reptiles or invertebrates this can be pretty common, even when going through the veterinary clearance in the USA or many European countries.

## Changes induced by the Nagoya Protocol

So, what has the Nagoya Protocol really changed? Are things really that different from before? All the research, collecting, export and import permits one needed before still need to be obtained. Ethics clearance still needs to be obtained while paying attention to the 3Rs, with regulations getting stricter than ever before. The same material transfer agreement now goes hand-in-hand with a set of mutually agreed terms (MAT) which define, in agreement between providers and users, the conditions for the access and utilisation of genetic resources. This document further also establishes the sharing of benefits resulting from the utilisation of the specimens collected, thus in accordance with the Nagoya Protocol to the Convention on Biological Diversity (MORGERA et al., 2015). So, all in all the new Nagoya regulations do not make that much of a difference. Working with biological specimens collected in other countries is not always easy and the administrative load may seem unsurmountable or to say the least, frustrating, to some (PAUL & SIKES, 2013), but in the end the sharing of resources and the benefits occurring from these is important. As the Nagoya Protocol goes into its seventh year,



things have become much clearer and excellent websites and documents are available (e.g. <https://www.cbd.int/abs/>) for those who take the time to look for them. The number of national focal points and contact persons are increasing daily (174 identified so far on the ABSCH website) making it rather straightforward to find the right people. In the end, the key to making the life of a researcher easier is to take the principles of the Nagoya Protocol at heart, share! Collaborations with researchers in other countries allow to share not only the specimens, research and publications, make permitting way easier, but above all make science more interesting.

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## References

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- BECK E., 2019 – Access and benefit sharing. The perspective of basic research. *Phytomedicine*, 53: 302-307.
- BUBELA T., GUEBERT J., MISHRA A., 2015 – Use and Misuse of Material Transfer Agreements: Lessons in Proportionality from Research, Repositories, and Litigation. *PlosBiology*, 13: e1002060.
- CURZER H. J., WALLACE M.C., PERRY G., MUHLBERGER P. J., PERRY D., 2013 – The Ethics of Wildlife Research: A Nine R Theory. *ILAR Journal*, 54: 52-57.
- FESTING S., WILKINSON R., 2007 –The ethics of animal research. *EMBO Reports*, 8: 526-530.
- KNAUF S., ABEL L., HALLMAIER-WACKER L. K., 2019 – The Nagoya protocol and research on emerging infectious diseases. *Bull. World Health Org.*, 97: 379.
- LINDSJÖ J., CVEK K., SPANGENBERG E. M. F., OLSSON J. N. G., STÉEN M., 2019 – The Dividing Line Between Wildlife Research and Management. Implications for Animal Welfare. *Front Vet. Sci.*, 5: 10.3389/fvets.2019.00013
- MORGERA E., TSIOUMANI E., BUCK M., 2015 – *Unraveling the Nagoya Protocol: A Commentary on the Nagoya Protocol on Access and Benefit-sharing to the Convention on Biological Diversity*. Brill, Leiden.
- PAUL E., SIKES R. S., 2013 – Wildlife Researchers Running the Permit Maze. *ILAR Journal*, 54: 14-23.

PERRY P., 2007 – The Ethics of Animal Research: A UK Perspective. *ILAR Jnl.*, 48: 42-46.

RYAN M. J., MCCLUSKEY K., VERKLEIJ G., ROBERT V., SMITH D., 2019 – Fungal biological resources to support international development: challenges and opportunities. *World Journal of Microbiology and Biotechnology*, 35: 139.

Secretariat of the Convention on Biological Diversity, 2011 – *Nagoya protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation to the convention on biological diversity, Text and Annex*. Convention on Biological Diversity, Montreal, Canada, 25 p.

SAARMAN E.T., OWENS B., MURRAY S. N., WEISBERG S. B., AMBROSE R. E., FIELD J. C., NIELSEN K. J., CARR M. H., 2018 – An ecological framework for informing permitting decisions on scientific activities in protected areas. *PLoS ONE*, 13 (6): e0199126.

SMITH D., HINZ H., MULEMA J., WEYL P., RYAN M. J., 2018 – Biological control and the Nagoya Protocol on access and benefit sharing – a case of effective due diligence. *Biocontrol Sci. Techn.*, 28 : 914-926.

STREITZ W. D., BENNETT A. B., 2003 – Material Transfer Agreements: A University Perspective. *Plant Physiol.*, 133: 10-13.

WATANABE M. E., 2017 – The Nagoya Protocol: Big steps, new problems. *BioScience*, 67: 400.

# Biopiracy, the law and values

## On the ideological basis for resource sharing

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**Loïc PEYEN**

The spectre of biopiracy always looms large over the issue of resource sharing. However, although it is essential to understand biopiracy at the international level (see below and Chap. 3), the term does not appear in any legal texts. This absence can be explained by at least two factors: the bad press this phenomenon receives and the difficulty of defining it. This study, without confusing the moral and legal dimensions, is based on positive law (i.e. the laws in force) and sets out to contribute to the knowledge of biopiracy practices by revealing their materialities, different aspects and key issues, which relate to the ideological foundations of resource sharing.

Biopiracy is a complex, evolving and multifaceted phenomenon, which never ceases to arouse controversy and unleash passions.<sup>1</sup> Accused of many evils, it is condemned on both moral and legal

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<sup>1</sup> Many of the developments to be presented below are based on our doctoral thesis, which the reader is referred for more detailed developments: PEYEN (2018). This contribution is intended as an appendix to this thesis, and therefore as a complement to that research.

levels, to the point that the two are often confused. Although law and values are clearly not unrelated, understanding the phenomenon and the legal responses to it requires us to distinguish between these two frames of reference. The issue of biopiracy is, in fact, much more complex than it first appears.

Biopiracy concerns natural resources but also, on an ancillary level, cultural resources, however they are designated (traditional knowledge, traditional know-how, etc.), and is not a recent phenomenon. A genuine component of colonisation, to which it cannot be reduced, the term “biopiracy” was not coined until 1993, to denounce the *conditions of access to and use of resources*. In other words, the practice preceded the name.<sup>2</sup>

Today, biopiracy is covered by several legal instruments at different levels: international, regional, national and local (sub-national). The reference framework in which most of the rules are enforced is mainly that defined by the Convention on Biological Diversity (CBD)<sup>3</sup> and the associated Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation.<sup>4</sup> The Convention and the Protocol set out the general framework for sharing the resources and benefits arising from their utilisation, and leave the definition of the procedures for their concrete implementation to sovereign States.<sup>5</sup> In essence, the sharing norm operates as follows: States allow interested entities to access and use resources located on their territory. In exchange, these entities undertake to share the benefits arising from the utilisation of these resources, in accordance with the rules that apply to them. This system is supposed to combat biopiracy.

<sup>2</sup> (PEYEN, 2018: 2 et seq.) for its naming and (PEYEN, 2018: 65 et seq.) for its links with colonisation.

<sup>3</sup> Rio de Janeiro, 5 June 1992, [United Nations, Treaty Series, vol. 1760, I-30619, vol. 1760, p. 79, No 30619.]

<sup>4</sup> Nagoya, 29 Oct. 2010, from the *Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity, X/1*, 27 October 2011, doc. UNEP/CBD/COP/DEC/X/1

<sup>5</sup> This shifts the responsibility for the (in-)effectiveness of the mechanism to States, and has the dual effect of making them accountable and strengthening the mechanism at the international level – for if it is not effective, the fault will lie at the national level.

However, beyond the flaws in this legal framework, the legitimacy and legality of these resource-and-benefit-exchange practices are regularly challenged (AUBERTIN & MORETTI, 2007), which seems to give the impression that any access to or utilisation of a resource will inevitably lead to accusations of biopiracy. This raises the question of what the legal framework established by the Convention and its 2010 Protocol has actually achieved.

From the standpoint of users, whether public or private research entities or companies, the legal certainty of the utilisations and of their ensuing results appears to have been undermined, not to mention the social disapproval and damage to reputations linked to “naming and shaming” practices.

As far as members of civil society in the broadest sense are concerned, the benefits of these utilisations, be they in the pharmaceutical, food or cosmetic sectors, may not reach them.

From the providers’ perspective, States, user communities (indigenous peoples, local communities, etc.) or any other entity with resources (collections, etc.) may perceive these practices as an attack on their identity or their rights, sovereign or otherwise according to the situation. More prosaically, they may be more concerned about their loss of earnings in the event of appropriation without compensation.

From the legal observer’s standpoint, these practices lead to profound reflection on the status of natural (and cultural) resources and *their utilities*. Indeed, in positive law, “benefits” are subject to a targeted and specific understanding, i.e. they are assessed vis-à-vis the user that accesses and makes use of the resource. However, the “utilities” go beyond this positivist framework, and cannot be reduced to the question of individually applicable benefits, because they focus on the *general utility of resources from the perspective of the human community*. For example, a resource may provide a monetary benefit to the company that develops it and then sells it, while also being useful to humanity, if the final product that is marketed is a medicine, even though, in reality, such products are unlikely to be of benefit to everyone. Benefits and utilities call for considerations that are different in nature and content: while the former are tangible and can be found in the field of law, the latter, despite also being situated in the material

world, are more elusive and relate more closely to the field of values. Of course, this oversimplified presentation should not obscure the fact that, in reality, both these dimensions are intertwined and inextricable. In addition, it should be borne in mind that the same applies to cultural resources, which also call for special considerations associated with community identity. In the meantime, our attention is naturally drawn to the sharing of these natural and cultural resources, i.e. to their purposes, conditions and limitations.

Inexorably, all these elements make it harder to understand the intricacies of biopiracy and, ultimately, the sharing of resources. This intertwining of law and values explains why biopiracy is so difficult to define and explain.

## Defining biopiracy

The major difficulty in understanding biopiracy is that there is no universally accepted definition of the phenomenon. Although attempts have been made, the resulting definitions do not necessarily coincide, which means that beyond the illusion of simplicity that this creates, they actually relate to different realities. This situation is explained by the relationship between the law and values in this field, which leads to problems in defining the phenomenon. Once these difficulties have been overcome, a suitable definition of biopiracy can be proposed.

### **Definitional problems**

“Biopiracy” can seem an elusive term given its multiple and varied manifestations (DELPAS, 2012). In fact, it is one of those terms used with the assumption of a commonly accepted meaning, but this is definitely not the case.

On the contrary, the manifold uses of this expression reflect a plurality of meanings associated with different materialities, limitations and issues. This does not mean that there is no central common denominator; instead, it indicates that this phenomenon

can be approached from different angles covering a wide range of issues of variable importance. However, this diversity hinders the understanding of biopiracy and complicates its study, since switching from one perspective to another prevents any identification of purpose, which is not inconsequential. This is because, as ever, there are two ways to give substance to this issue, and everyone is free to choose as they see fit: the first way is to adopt an existing definition, and the second is to propose a new one.

The first approach – starting with an existing definition, whether provided by a legal text or an observer – has the undeniable advantage of being the easier option: adopting an established definition is tantamount to agreeing on a meaning and, in so doing, to focusing on the same topic of discussion, thereby reducing the risks of divergence. However, this approach is not perfect. Indeed, when it comes to issues as sensitive as biopiracy, the primary definition itself may have several shortcomings, which will thus apply to all approaches based upon it.

This approach may be *subjectively skewed* from the outset, i.e. no longer objective, and worse still, partisan. Beyond the basic scientific imperative that should guide any study and that controls the nuances of meaning, such a definition may concern only one facet of the phenomenon and not encompass it in its entirety. In these cases, biopiracy is seen through a distorted lens without all of its dimensions being precisely measured and formalised. For example, claiming that it is an “outright *theft* of biological resources” (BELLIVIER & NOIVILLE, 2009: 4-7) or “*piracy* of other people’s property” (SHIVA, 1997) suggests that the practice is illegal, i.e. that it is carried out in violation of the legal norms in force.<sup>6</sup> Yet, many examples reveal that acts of biopiracy are not necessarily committed in violation of the legal rules: one need look no further than the resource flow dynamics that took place during colonisation to be convinced of this, as the colonising power’s laws became a *tool* for appropriation (PEYEN, 2018: 65 et seq.) Even in more recent times, as shown by the examples of neem and maca, the most frequently used channels are legal, particularly

<sup>6</sup> See, for example, the definition of theft according to French criminal law, which corresponds to the “*fraudulent* removal of another person’s property” (French Criminal Code, Art. 311-1, *our italics*).

through recourse to intellectual property mechanisms. Flexible interpretations of patentability criteria (novelty, inventiveness, industrial application) have given rise to several cases of alleged biopiracy, since patent offices are not bound by a general obligation to verify the conditions of access to and utilisation of the resources that led to the invention. Indeed, their monitoring currently focuses on the intellectual creation itself rather than on the raw material that made it possible in the first place.<sup>7</sup> More broadly, intellectual property law is quite indifferent to the sharing norm, which makes it difficult, but not impossible, to challenge acts of biopiracy through this channel.<sup>8</sup>

Assuming that the criterion of objectivity is met, the first definition may still suffer from a subsequent *lack of exhaustiveness*, which could lead to the deliberate or inadvertent exclusion<sup>9</sup> of an entire aspect of the phenomenon, and several practices that could nevertheless relate to it. The definitions provided by regulatory instruments in the broadest sense are the most significant in this case, as they generally present biopiracy as being the result of non-compliance with one or more norms. Two preconditions must therefore be met to enable the characterisation of this phenomenon: not only must there be a reference norm, there must also be a violation of it. This brings to mind Peruvian Law No 28216 on the Protection of Access to Biological Diversity and Collective Knowledge of Indigenous Peoples, which defines biopiracy as “unauthorised and unremunerated access to and use of biological resources or the collective knowledge of indigenous peoples by third parties, without the relevant authorisation and in violation of the principles established by the Convention on Biological Diversity and of the relevant rules in force” (Supplementary and Final Provisions, third point). This definition

<sup>7</sup> For example, if it were possible to associate traditional knowledge with the “invention” in question, the latter could not be protected by a patent since such knowledge does not normally meet the criteria for patentability, especially the “novelty” criterion.

<sup>8</sup> This highlights the importance of improving the traceability of resources at the international and national levels, which implies the need for intellectual property law to take account of sharing mechanisms (PEYEN, 2020).

<sup>9</sup> Such an approach may what the author of the first definition intended and can then justify the resumption of the definition.



clearly does not cover acts of biopiracy that took place *before* the instruments in question came into force. This does not imply that biopiracy did not exist before these texts came into force; it quite simply means that referring to norms restricts the scope of biopiracy to the scope of the norms. In this case, there is a discrepancy between the *real* phenomenon and the phenomenon as *circumscribed* by the texts. Of course, this also applies to definitions which specify the means, actors or purposes of biopiracy, with each identifying element being both inclusive and exclusive. The fact that biopiracy is described in common parlance as “the appropriation (patenting) and exploitation by commercial companies, under conditions deemed illegal or unfair, of biological or genetic resources specific to certain regions”<sup>10</sup> is also unsatisfactory, as this definition overlooks the *complexity* of the phenomenon, whether in terms of the diversity of actors (nature and motivations) or the modalities of appropriation, for example. In summary, adhering to an existing definition requires the utmost caution, as “the term biopiracy is applied to a wide range of acts” (AUBERTIN & MORETTI, 2007: 119).

The second method – proposing a new definition – may therefore be preferable, although the preceding remarks should be heeded to avoid falling into the same trap. However, attention should also be paid to the fact that several biases may affect the author of the new definition.

Firstly, his or her training and sensitivity must be taken into account. In this way, a positivist tendency – broadly consisting in considering that the law is embodied by the legislation and is necessarily attached to the State, a legal person under public law – could lead to an underestimation of certain factual data in the definition of the phenomenon, such as the links between communities and their environment. Secondly, the author’s intention should not be overlooked. He or she may be seeking to highlight certain aspects of the phenomenon rather than others, leading him or her to approach biopiracy in a manner that *serves his or her ambitions*.

<sup>10</sup> Larousse French dictionary, available online ([www.larousse.fr](http://www.larousse.fr)), “biopiraterie” or “biopiratage” entry.

Bearing these factors in mind, if the objective – as in this paper – is to understand biopiracy as broadly and objectively as possible, i.e. in all its forms, irrespective of its manifestations, actors or methods, a clear methodology to cover the pursuit of materials must be established. To this end, it is important to develop an open-minded attitude, which means abandoning all ideological considerations, assumptions or generalisations, and adopting a non-speculative approach. This enables the acceptance of reality at face value and its systematisation: in other words, it effectively leads to the listing and consideration of *all hypotheses of biopiracy*, suspected or proven, so as to identify the common, core characteristics of biopiracy. Biopiracy cannot be objectively and comprehensively addressed until this stage has been completed.

### Proposed definition

Biopiracy always has the same characteristics, regardless of the case in question (ayahuasca, rooibos [Box 1]), couachi (see Box 1 in Chap. 12), maca, mamala, neem, pelargonium, Madagascar periwinkle, etc.) (PEYEN, 2018: 7 et seq.)

Biopiracy is first and foremost an *appropriation*, i.e. an action in which an entity assumes the ownership of something in order to satisfy a particular interest. This *can* be obtained through the *intellectual property* channel, but not necessarily, and it is not necessarily *illegal*. On the other hand, it is *always illegitimate*, and its main focus is always a *living natural resource*, i.e. material of a biological nature (such as a seed, a plant or a micro-organism), but it may also concern a *cultural resource that relates to a given living natural resource* (such as traditional knowledge). Finally, it is always carried out *for the benefit of one entity and to the detriment of another*. In all cases, whether the resource or any of these entities are associated with a “developed” or “developing” country has no bearing on the identification of the phenomenon.

Consequently, biopiracy can be defined as “the illegitimate appropriation by one entity – particularly by means of intellectual property, and sometimes in an illicit manner – of natural resources, and/or possibly of cultural resources related thereto, to the detriment of another entity”.

Box 1.

**Rooibos: shared cross-border knowledge**

Rooibos, *Aspalathus linearis*, is a shrub of South African origin from which a tea is extracted, and which is said to have multiple benefits for the treatment of asthma, insomnia, eczema, etc. Rooibos has enjoyed a certain amount of international commercial success under the name of red tea, even though it does not contain any theine.

In November 2019, an agreement was signed to allocate 1.5% of the purchase price of raw rooibos to representatives of the San and Khoi peoples, in compensation for its exploitation and marketing, thus recognising their possession of traditional knowledge about rooibos.

Despite South Africa's robust ABS regime, it took nine years to reach this agreement after the San Council denounced an occurrence of biopiracy and filed a benefit-sharing claim in relation to rooibos.

Recognising the traditional knowledge of several indigenous groups in different countries (South Africa, Namibia, Botswana) was no easy matter, and arbitration was required to determine whether the San and Khoi were indeed entitled to benefits as the primary users of Rooibos in tea form. A battle of conflicting studies ensued between the South African Department for Environmental Affairs and industrial companies. For its part, the South African Human Rights Commission called for further nationwide public consultations to ensure that the Khoi-San community's PIC was obtained. Smaller producers were not considered as they did not come under the "indigenous" category.

It should be noted that this agreement concerns the payment of a percentage of the price of the raw material for the manufacture of herbal tea, but excluded the sharing of benefits from any patents on the utilisation of the genetic resource.

Sources: BAGLEY & PERRON-WELCH, 2020; CHINSEMBU WANA & CHINSEMBU KAZHILA, 2020

More concretely, with regard to resources under national jurisdiction (for resources outside national jurisdiction, see below), biopiracy is manifested in four different ways.

First, biopiracy takes place when a *State's regulations on access to and utilisation of "its" resources are not respected*. This causes harm to

the State, but may also harm the interested entities (communities, owners, managers, etc.) for which the State has established specific rules (consultation, participation, authorisation, etc.), when these rules have been violated. However, non-compliance with State regulations may not be the decisive factor.

Indeed, biopiracy can occur *if a State's regulations, although respected, are not themselves respectful of the entities concerned*. This applies when government regulations do not grant communities a satisfactory status, or do not recognise their rights over their cultural resources or over natural resources with which they have special ties.<sup>11</sup> In this case, the inadequacy of the national system could cause harm to these entities, without really affecting the State itself.

Beyond these hypotheses linked to national regulations, biopiracy also occurs more broadly in *cases in which the conditions of access and utilisation initially agreed upon by the provider(s) and the user have not been respected by the latter*.<sup>12</sup> This would be the case if the user failed to fulfil its resource-use or benefit-sharing obligations under the sharing agreement, for example.

Finally, because this is not a recent phenomenon, since it may have taken place during colonisation (PEYEN, 2018: 65 et seq.), biopiracy is said to occur, *in cases of access to and use of resources that cause harm to a State or non-State entity even before rules on this matter were established*. This case is undoubtedly the most

<sup>11</sup> In France, for example, apart from the cases of New Caledonia and French Polynesia, which are subject to specific regulations, cultural resources are only covered by the mechanism established by the Law of 8 August 2016 on the Reconquest of Biodiversity, Nature and Landscapes (*Loi pour la reconquête de la biodiversité, de la nature et des paysages*), (JORF No 0184 of 9 August 2016, text No 2) if they are associated with certain *communautés d'habitants*, which are only formally identified in French Guiana and Wallis and Futuna. Resources held by other entities or persons not specifically identified are therefore excluded from these arrangements and therefore fall outside the national mechanism. For a critical approach to the French system, see PEYEN (2019) and Chaps 7, 8, 11, 12, 13.

<sup>12</sup> The reverse hypothesis of non-compliance by the provider does not correspond to a case of biopiracy insofar as, a priori, the criteria for defining biopiracy would not be met (for example, there would be no "appropriation" to the user's detriment). However, other legal mechanisms, such as contractual liability, may come into play.

difficult to comprehend in view of the questions it raises from the theoretical (non-retroactivity of legislation and legal certainty) and practical (evidence) perspectives, even if a “catch-up” process seems to be underway.<sup>13</sup>

All of these factors inevitably lead to biopiracy being considered as “resource grabbing”, i.e. appropriation carried out for the benefit of one subject and to the detriment of another (PEYEN, 2018: 21 et seq.) This is why it is so strongly criticised: perceived as enabling the enrichment of some at the expense of others, it may even be presented as a contemporary manifestation of colonisation. Consequently, while some argue that “it is possible that we are overly concerned with biopiracy” (DUTFIELD, 2004: 89-92), others refer to “the return of Christopher Columbus” (SHIVA, 2002: 11-16; KLOPPENBURG, 2011: 15-40) and “the violation of a moral rule” (ROUMET, 2012: 18). This willingness to denounce plays a useful role in drawing attention to this phenomenon, which remains little known and for which there is currently little data, and in protecting the rights and interests of certain entities, both State and non-State (user communities, for example). Biopiracy, which relates to access to resources and their use under questionable conditions, is therefore inherently deleterious. Moreover, the lexical field used to talk about the phenomenon – be it “piracy”, “colonisation”, or the very history of the term “biopiracy”, due to its propensity to arouse negative connotations and indignation – can be extremely productive from the perspective of raising awareness about the practice.

However, it is doubtful whether such an approach has any place in the *scientific* field when it comes to considering biopiracy as a discussion topic. On the contrary, it has a tendency to neglect certain aspects of the phenomenon in order to emphasise others, whereas scientific rigor demands a nuanced and objective approach. And for good reason: these approaches, which focus on the conditions of access to and utilisation of resources,

<sup>13</sup> It is worth mentioning that a tendency to assert claims has emerged and is growing. Inspired by examples of the repatriation of cultural heritage, some States are now demanding the return of some of their natural resources which have been placed in collections.

neglect the purpose of these actions, at the risk of preventing a proper and complete understanding of biopiracy and, more broadly, of resource-sharing processes.

## Understanding biopiracy

Let there be no misunderstanding about future developments: it is not a matter of *justifying* biopiracy, but of *understanding* it, i.e. of taking stock of every aspect of the issue. It is therefore not a question of defending and legitimising this phenomenon, but of highlighting the values that underlie it and permeate it, and which are at the root of the underlying problems and the responses to them, particularly with regard to sharing. These values, which are the real keys to interpreting biopiracy and the legal sharing norm, are based on three doctrines: utilitarianism, solidarism and egalitarianism.

### Utilitarianism

The utilitarian approach is resolutely consequentialist in that it leads to the assessment of actions in terms of their consequences and, more precisely, from the perspective of their utility. Jeremy Bentham once put it this way: “By the principle of utility is meant the principle which approves or disapproves of every action whatsoever, according to the tendency it appears to have to augment or diminish the happiness of the party whose interest is in question.” (BENTHAM, 1789: 8) Applied to biopiracy, several lessons can be learned.

Indeed, the phenomenon takes place because of the actual or potential *utility* of natural resources. Beyond the terminology – it is indeed a question of “resources” – the definitions provided by international instruments leave little room for doubt: the genetic resources are systematically defined as “genetic material of actual or potential value” (Convention on Biological Diversity, Art. 2; International Treaty on Plant Genetic Resources for Food and Agriculture,<sup>14</sup> Art. 2).

I <sup>14</sup> Rome, 3 November 2001, *UNTS*, vol. 2400, p. 303, No 43345.

The significance of this observation cannot be underestimated: if these instruments endorse these *utilitarian* definitions, it is because the authors of these texts conceived of natural resources in this way in advance. The number of parties – more than 190 for the 1992 Convention and more than 140 for the 2001 Treaty – is a further indication of the general consensus on this approach. In fact, it can be argued that natural resources are defined more by their utilitarian purpose than by their natural dimension, as shown by the Nagoya Protocol, which follows in the wake of the Convention on Biological Diversity. To put it another way, this utilitarian destiny (regarding food, pharmaceuticals, science, ecology, etc.), which, incidentally, reflects an indubitably anthropocentric bias, explains why the law – and therefore humankind – are interested in them, with regard to both their use and their protection. The United States Supreme Court had remarkably highlighted the benefits of such an approach by stating that “the value of the genetic heritage is literally incalculable... It is in the best interests of mankind to minimise the losses of genetic variations. The reason is simple: they are the keys to puzzles we are unable to solve, and they can provide answers to questions we have not learned to ask”.<sup>15</sup> In other words, natural resources are incontrovertibly worthy of interest.

The concepts mobilised to regulate biopiracy support this affirmation. The “benefit” to be shared, for example, is nothing more than compensation for the utility of the resource to the user. Sovereignty over natural resources – a crucial concept – is only one facet of the economic sovereignty of States: historically introduced at the time of decolonisation in order to enable emerging States to “reappropriate” their resources, sovereignty is a tool that enables States to ensure their development and, in so doing, to contribute to satisfying the general interest on their territory.<sup>16</sup> The race for territory and resources that took place in colonial times was also motivated by utilitarianism, which largely permeated Western legal thought before spreading to the rest of the world.

<sup>15</sup> United States Supreme Court, *Tennessee Valley Authority v. Hill*, 437 U.S. 153 (1978); J. Sax (1978).

<sup>16</sup> United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962: “Permanent sovereignty over natural resources”.

More generally, the allocation of resource rights is legally equivalent to tying the rights holder to the resource on grounds of interest and utility.

As can be seen, this utility can be assessed from the perspective of a particular entity or community, i.e. a resource may have several simultaneous utilities and be able to satisfy several interests. If a living being can be useful in situ because of its contribution to the ecosystem to which it belongs, once attached to humans, it can be of interest to the provider that possesses it, to the initial user of the resource who accesses or develops it, and to the final user of the resource (the “consumer”), who profits from the end product and its benefits. However, not only may these interests be contradictory and conflicting, in reality, each link in this chain relates to multiple protagonists, who may themselves have divergent interests. The sharing norm is intended to reconcile these interests and utilities in order, in fine, to establish a “win-win” mechanism, and this is why, based on a Rawlsian conception of justice (RAWLS, 1987), the contractual mechanism has been preferred for its implementation, since the sharing must be carried out under mutually agreed terms.

Utilitarianism is therefore an inescapable consideration to be borne in mind in order to understand biopiracy and the responses to it. That said, although it helps to explain why appropriation occurs, it does not fully enable us to understand why certain entities are harmed by it, and this leads us to examine another doctrine: solidarism.

### **Solidarism**

Solidarism is a doctrine that relates to the idea of solidarity and interdependence between people. The fact that its principle was formulated by Léon Bourgeois, at his own level and with respect to his own field, does not make it irrelevant to our subject: “There is (...) for every living man, a debt to all living men, in proportion to the services rendered to him by the efforts of all. This exchange of services is the subject of the *quasi-contract of association* which binds all individuals, and it is the equitable evaluation of the services exchanged, that is, the equitable distribution of



benefits and burdens, of social assets and liabilities, which is the legitimate purpose of social law.” (BOURGEOIS, 1902: 138).

This link between biopiracy and solidarity may not be self-evident, since the phenomenon is often presented as the embodiment of individualism, where the individual takes precedence over the collective. However, biopiracy cannot be reduced to this idea. On the contrary, solidarism is a powerful school of thought from which it does not depart and which, to a certain extent, sublimates utilitarianism. In this respect: since resources have an actual or potential utility, and are likely to contribute to the satisfaction of interests, they can also contribute to the satisfaction of the general interest (for the treatment of diseases, for example). Therefore, should they not, in this respect, benefit humanity as a whole? In other words, is it acceptable for any entity to have sovereignty over these resources without sharing them, i.e. without making them available to others, *especially* when it does not exploit them itself? Should humanity as a whole have a right to these utilities and, therefore, to these resources? These questions are the basis for the third objective of the Convention on Biological Diversity, which is the fair and equitable sharing of the benefits arising from the utilisation of genetic resources (Art. 1).

This raises the question of whether the holders of resources, whether natural or cultural, can deny access to them. Some people consider that this question should not even arise, and that formulating it in this way is even contrary to the spirit of the Convention on Biological Diversity.<sup>17</sup> It is true that the Convention encourages States (which “shall endeavour”) to “create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions that run counter to the objectives of this Convention” (Art. 15.2; also see Art. 8.j). Yet, with regard to natural resources, two things should be noted: first, the ability to determine the conditions of possibility and limitations of the sharing of natural resources is one of the attributes of States’ sovereignty over their natural resources – a pillar of the sharing mechanism – which requires

<sup>17</sup> In this sense: KAMAU & WINTER (2009: 365-379). For others, such a refusal would “likely be deemed arbitrary” (ARBOUR et al., 2012: 697).

States to decide upstream, at least from a theoretical standpoint,<sup>18</sup> whether or not their resources should be shared; second, supposing that States have such a legal obligation to share, which automatically reduces their sovereignty since they must implement the sharing norm, they may well refuse to authorise the movement of their resources if they consider that the conditions for “fair and equitable” sharing have not been met. Similarly, there is nothing to prevent the introduction of a regulatory framework that would be so demanding and restrictive that it would act as a deterrent, and scientists are constantly sounding the alarm about these barriers to research, which is so essential to common progress. The question of cultural resources poses more problems since the definition of the rights relating to them and the implementation of these rights, where applicable, depend largely on the willingness of the States; however, there is always a possibility of the holders of these resources objecting to their access and utilisation. The hypothesis that access might be denied is therefore an entirely realistic and serious possibility.

Take the example of a plant with significant potential in the health and cancer-treatment field, but whose controlling entity – a State or community – decides not to “share” it. How would the law view such behaviour? Although, on the one hand, one can advocate the need to respect the rights of the said entity over “its” resources, on the other hand, one must question the consequences of such choices in terms of the satisfaction of the general interest.<sup>19</sup> To put it more simply: could the refusal to share be detrimental to the general interest? And in this case, could the enforcement of rights in the sense of a refusal be comparable to an “abuse of rights”? Should every resource-holding entity be *required to share* these resources? In the event of refusal, would it then be beneficial to establish a form of obligation to share resources, in the manner of an expropriation process? It is not surprising that the 1992 Convention and its Nagoya Protocol

<sup>18</sup> It should be noted that such a prohibition would be completely futile from a practical standpoint.

<sup>19</sup> Scientists more broadly lament the obstacles to research due fears of biopiracy (DIVAKARAN PRATHAPAN et al., 2018).

remain silent on this point, given the sensitivity of the issue and the fact that it falls outside the strict framework of positive law.

The case of intellectual property comes to mind, through which biopiracy may be carried out, and whose *raison d'être* lies in its contribution to “common progress”: it rewards and stimulates innovation in equal measure. From a different perspective, nobody today would dare to complain about having access to so many fruits and vegetables which were once only found in “exotic” places, before they were brought into wider circulation by the resource grabbing that took place in colonial times. This makes it easy to understand the charges levelled against applications of the sharing norm that complicate advances in medical matters, such as knowledge of diseases and their treatment (CRESSEY, 2014; 2017). There are many such examples, which could actually apply to many cases. Conversely, however, it should also be remembered that patent exclusivity is also problematic in that it confers a power upon holders that may result in reduced access to medicines for certain States or certain populations<sup>20</sup>, as history and even current events have shown.

Therefore, because biopiracy is, in certain respects, likely to contribute to the satisfaction of the general interest, should we consider a kind of *responsibility to share*, in the manner of a “right to interfere”, by analogy with the famous “responsibility to protect” found in public international law?

However, this finalistic interpretation is nevertheless risky and can lead to numerous abuses. The dangers of such an approach, whose components are uncertain and vague, are real: apart from supposing a kind of duty to share, it may also lead, under the pretext of the general interest, to all kinds of instrumentalisation that could lead to spoliation. Not only are traditional criticisms of the responsibility to protect sufficiently well known not to need repeating, but the colonial period also highlighted the profound iniquities and deleterious results of this position vis-à-vis the responsibility to share. Therefore, even if the general interest, which is inseparable from solidarism, is a dangerous concept that

<sup>20</sup> This tension between private and public interest in medicines is covered by D. DE BEER (2011).

must be treated with great caution, its consideration shows that a purely Manichean approach is not a satisfactory way to understand biopiracy as a whole and understand it at its *true value*. Its consequences and methods should be considered in relation to each other.

The problem is that, in this field, the satisfaction of the general interest, approached from the standpoint of the community that benefits from it, inevitably involves the satisfaction of the private interest, approached from the standpoint of the initial user who develops it and makes it available to the greatest number *under certain conditions*. This *private* intermediary – which, unlike the provider, possesses the means of development – then becomes the condition for satisfying the general interest, which can only be satisfied at the cost of harming the provider's interest, as the latter's resources are plundered without compensation, whereas in the case of expropriation, for example, a compensation mechanism is provided. This is where egalitarianism intervenes in order to restore balance to the relationship.

### Egalitarianism

Egalitarianism is the idea that a certain degree of equality needs to be ensured for people around the world, notably by redistributing wealth. In terms of biopiracy, this doctrine can only be understood in light of the two previous ones: while natural resources are sources of utility and should therefore benefit everyone, there is also an *unequal distribution of natural resources around the world*, which means that some people have access to them while others do not, just as *the means to exploit them are inversely distributed*. Consequently, if there is no sharing and a strategy of isolationism is deployed, these inequalities in terms of the environment and development will harm the general interest and, in so doing, the progress of humanity: *reciprocal* sharing is therefore an imperative for common progress, *which can only be achieved if there is a better distribution of means and resources in the world*.

In this sense, insofar as the satisfaction of the general interest (that of humanity) requires the satisfaction of a private interest (that of the initial user) to ensure that the provider's interest is not

harmed, the sharing norm intervenes to *even out* the relationship that is established between these first links in the chain. The law is familiar with this kind of process, since it contains several mechanisms designed to reconcile individual and collective interests, such as expropriation, works falling into the “public domain”, and the provision of data on inventions in the field of intellectual property. With specific regard to the mechanism arising from the Convention on Biological Diversity and its Nagoya Protocol, the agreement of willingness enables the definition of the providers’ and users’ rights and obligations based on a *quid pro quo* rationale, or a “give and take” mechanism: the provision of the resource corresponds to a sharing of the benefits resulting from its utilisation. The aim is to distribute environmental resources as well as “developmental” resources.

This idea is central to the sharing norm for resources under jurisdiction. Almost the same principle applies to resources beyond national jurisdiction, i.e. those in the International Seabed Area and the high seas,<sup>21</sup> although different parameters must be considered. The very idea that biopiracy could exist in these areas may be surprising, since in these places, everyone is free to “reserve” resources for themselves, without harming any particular entity. Nevertheless, in practice, the reservation capacities correspond to levels of development; it was noted in 2011 that “10 States account for about 90% of patents on marine genetic resources”.<sup>22</sup> This means that the open-access regime leads to the enrichment of the most highly developed nations, which are able to exploit these “common” resources and appropriate them in an exclusive manner, while the underdeveloped nations are condemned to a state of creative inertia. Such a situation, which exacerbates the inequalities and development capacities, is therefore likely to harm the least developed States, and consequently, their populations. In this case, it is quite reasonable to add a fifth *concrete* hypothesis of biopiracy to those previously mentioned: *biopiracy occurs when resources beyond national jurisdiction are appropriated*

<sup>21</sup> Convention on the Law of the Sea, Montego Bay, 10 December 1982, *UNTS*, vol. 1834, p. 3, No 31363.

<sup>22</sup> UNGA, *Oceans and the Law of the Sea. Report of the Secretary-General*, 29 August 2011, doc. 1/66/70/Add.2, item 168.

*without sharing the benefits derived from their utilisation, or when the established norms in this area are not respected.*<sup>23</sup>

The basis or bases for sharing then emerge(s). The legitimate question of *why* resources, both under and beyond jurisdiction, the benefits derived from their utilisation, and their utilities should be shared, can be answered in the following manner: *the environment is a common good* (PEYEN, 2018: 65 et seq.) In a context of unequal distribution of natural resources and unequal development capacities, it is in humanity's interest for everyone to benefit from these utilities.

## Conclusion

In short, biopiracy is a complex phenomenon that occurs in many places, contexts and forms, which means that before describing any access to resources and their utilisation as an act of biopiracy, the conditions in which it occurs must be clearly identified. From this perspective, the decision to consider each case individually, made by the authors of the Convention on Biological Diversity and the Nagoya Protocol – who managed to comprehend this elusive phenomenon without naming it – holds considerable promise as the best way to help satisfy the interests at stake. By allowing the different stakeholders to appropriate the sharing mechanism, notably through recourse to the contractual arrangement, these texts enable the adoption of an appropriate response to each situation in which resources are brought into circulation; in so doing, they suggest that the keys to the interpretation of sharing are individually applicable and specific, rather than transposable and common.

With regard to the ideological foundations of resource sharing, utilitarianism, solidarism and egalitarianism form a solid triptych that helps us understand the validity of the rules that have been

<sup>23</sup> See the ongoing discussions on the future access and benefit-sharing regime for these areas. Information available online from the website of the Intergovernmental Conference on Marine Biodiversity in Areas Beyond National Jurisdiction: <https://www.un.org/bbnj/>.

established, but also reflects the different dimensions and key issues of biopiracy. As a result, while natural resources are sources of utility and can contribute to the common good of humanity in a world that is profoundly inequalitarian on the natural, human and technological levels, and which is wrought by fierce competition, the issue of biopiracy reflects a society that is undermined by instability, in which a satisfactory way to ensure harmonious relationships between humans and natural resources, but also between humans themselves, has not yet been found.

At the end of the day, the real issue concerns the sharing of resources and their utilities in the world: the very issue that has been unleashing passions for centuries.

### References

- ARBOUR J.-M., LAVALLÉE S., TRUDEAU H., 2012 – *Droit international de l'environnement*. Cowansville, Yvon Blais, 2nd ed.
- AUBERTIN C., MORETTI Ch., 2007 – « La biopiraterie entre illégalité et illégitimité ». In Aubertin C., Pinton F., Boisvert V. (eds.): *Les marchés de la biodiversité*, Paris, IRD Éditions: 91-120.
- BAGLEY M., PERRON-WELCH F., 2020 – *Study to Identify Specific Cases of Genetic Resources 1 and Traditional Knowledge Associated with Genetic Resources that Occur in Transboundary Situations or for Which it is not Possible to Grant or Obtain Prior Informed Consent*. Meeting of the Parties to the Nagoya Protocol, 1 March 2020, 42 p.
- BEER (DE) D., 2011 – *Brevet, santé publique et accès aux médicaments essentiels. Une fin du droit ?* Bruxelles, Bruylant.
- BELLIVIER F., NOIVILLE Ch., 2009 – « La bioéquité : naissance et contours d'un concept ». In Bellivier F., Noiville Ch. (eds.): *La bioéquité. Batailles autour du partage du vivant*, Paris, Autrement: 4-7.
- BENTHAM J., 1789 – *An Introduction to the Principles of Morals and Legislation*. London, T. Payne and son.
- BOURGEOIS L., 1902 – *Solidarité*. Paris, Armand Colin, 3<sup>e</sup> éd.
- CHINSEMBU WANA W., CHINSEMBU KAZHILA C., 2020 – 'Poisoned Chalice': Law on Access to Biological and Genetic Resources and Associated Traditional Knowledge in Namibia. *Resources* 2020, 9 (83). <https://www.mdpi.com/2079-9276/9/7/83>

CRESSEY D., 2014 – Biopiracy ban stirs red-tape fears. Critics worry Nagoya Protocol will hamper disease monitoring. *Nature*, 514 (7520): 14-15.

CRESSEY D., 2017 – Treaty to stop biopiracy threatens to delay flu vaccines. Industry and public-health experts concerned about ramifications of Nagoya Protocol. *Nature*, 542 (7640): 148.

DELPAS C., 2012 – *Chroniques de la biopiraterie. Du pillage au partage ?* Montreuil, Omniscience.

DIVAKARAN PRATHAPAN K. et al. 2018 – When the cure kills - CBD limits biodiversity research. National laws fearing biopiracy squelch taxonomy studies. *Science*, 360 (6396): 1405-1406.

DUTFIELD G., 2004 – « What is Biopiracy? » In Bellot-Rojas M., Bernier S. (ed.): *International Expert Workshop on Access to Genetic Resources and Benefit Sharing, Record of Discussion*, Mexico, Conabio and Environment Canada: 89-92.

KAMAU E. C., WINTER G., 2009 – « Streamlining Access Procedures and Standards ». In Kamau E. C., Winter G. (pub.) : *Genetic Resources, Traditional Knowledge and the Law. Solutions for Access and Benefit Sharing*, London-Sterling, Earthscan: 365-379.

KLOPPENBURG J., 2011 – « De Christophe Colomb à la Convention sur la diversité biologique : 500 années de biopiraterie ». In Duchatel J., Gaberell L. (éd.) : *La propriété intellectuelle contre la biodiversité ? Géopolitique de la diversité biologique*, Genève, CETIM: 15-40.

PEYEN L., 2018 – *Droit et biopiraterie. Contribution à l'étude du partage des ressources naturelles*. Paris, LGDJ, t. 14.

PEYEN L., 2019 – La biopiraterie a-t-elle encore un avenir en France ? À propos du dispositif résultant de la loi du 8 août 2016 pour la reconquête de la biodiversité, de la nature et des paysages. *Revue générale du droit* on line, 49545.

PEYEN L., 2020 – « La traçabilité des ressources ». In Gindre E. et De Raulin A. (éd.): *La biodiversité partagée*, Paris, L'Harmattan: 111-122.

RAWLS J., 1987 – *Théorie de la justice*. Paris, Éditions du Seuil.

ROUMET R., 2012 – *Le droit international de la propriété intellectuelle à l'épreuve du biopiratage. L'exemple de l'exploitation des vertus thérapeutiques des plantes*. Law thesis, Grenoble, 2012.

SAX J. L., 1978 – Le petit poisson contre le grand barrage devant la Cour suprême des États Unis. *Revue Juridique de l'Environnement*, 3: 368-373.

SHIVA V., 1997 – *Biopiracy: The plunder of nature and knowledge*. Boston, South End Press.



# Temporal aspects of benefit sharing

## Limitations of the contractual tool

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**Anne ETIENNEY-DE SAINTE MARIE**

To achieve its ambitious objectives, the Nagoya Protocol chose a rather modest instrument: the contract. Modest, because a contract manifests the agreement of individual wills, whereas certain objectives of the Protocol – among them biodiversity conservation – concern humanity as a whole. The contract may also appear to be a somewhat derisory instrument since it applies to a human time scale, whereas the Nagoya Protocol contains long-term, or even very long-term objectives.

This is a bold gamble: the conservation of biodiversity, sustainable use of its components and fair and equitable sharing of benefits are partly left to private will. In this respect, the Protocol may be seen as a model of trust in human nature. Measured trust or blind trust? Realism or naivety? On the one hand, past and current events cast doubt upon the capacity of market forces to contribute to a sustainable future. On the other hand, the contractualisation of law – a phenomenon that goes far beyond the scope of the Nagoya Protocol – is based on the idea that negotiated

agreements are better respected than enforced orders.<sup>1</sup> Furthermore, the Protocol does not completely abandon genetic resources and traditional knowledge to the vagaries of freedom of contract. While the contracting parties are left to negotiate the details of the agreement, their wishes must conform to the principles set out in the Protocol, which will be implemented by the States.

The temporal element then becomes a central concern. The contractual instrument can only be effective in ensuring biodiversity conservation and benefit-sharing if many more contracts are signed in the future. For this to happen, the rules governing the contract must be attractive, or at the very least, not be repellent and not discourage users of genetic resources from their utilisation. The adaptation of this system to the needs of economic agents and the legal certainty that it offers are particularly decisive considerations. However, the Convention on Biological Diversity and the Nagoya Protocol use concepts that are sometimes novel and sometimes unclear, especially the notions of prior informed consent, the utilisation of genetic resources and the fair and equitable sharing of benefits. The temporal element, which is inherently difficult to control, is doubly central to these notions. On the one hand, the contract is by its very nature an act of foresight, of taking control of the future, if only because it determines the services to be performed. This control over time proves to be particularly problematic for the contract of utilisation and sharing: the contract must define the permitted uses of the genetic resource and traditional knowledge, even though these future uses are largely unforeseeable. Similarly, how can one define the fair and equitable sharing of benefits that are as yet unknown? On the other hand, the contractual notions arising from the Nagoya Protocol remain vague, notably because they seek to reconcile very diverse national legal traditions. States will therefore be required to transpose these concepts into their domestic law, while seeking to strike a balance between flexibility and certainty, both of which are essential to the attractiveness of the contract system.

<sup>1</sup> This is reflected in particular by the increasing number of "Grenelle" debates (on the environment, integration, and domestic violence): see, among many other references, GÉRARD Ph., OST F., VAN DE KERCHOVE M. (dir.), 2002 – *Droit négocié, droit imposé?* Brussels, Facultés Universitaires Saint-Louis.

However, the legislator cannot foresee everything, especially since the uses of genetic resources and the benefits derived from them vary greatly from one sector to another. The work on delimiting and clarifying the concepts stemming from the Nagoya Protocol will therefore need to continue over time through case law, as litigation arises. As uncertainty is detrimental to legal certainty, and legal certainty is one of the objectives of contract law in general and of the Nagoya Protocol in particular, national bioprospecting contract systems will therefore take some time to become truly attractive if they ever actually do so. The uncertainty of the contractual system will especially concern the temporal aspects of the contract on utilisation and sharing. Indeed, the highly unusual temporality of this contract, relating to future and largely indeterminate uses and benefits, makes it very difficult to transpose the temporal concepts of normal contract law, which has been developed and then refined by case law and the courts over a very long time. In the meantime, the parties to the contract of utilisation and sharing will have to cope with the uncertainties arising from the two temporal aspects mentioned above: the ambiguities of the rules governing the contract and the vagaries of time that the contract seeks to control. The main difficulties – but not all of them given their large number – associated with the relationships between time and contract on utilisation and sharing can be identified as occurring at two levels: in the conclusion of the contract, and in its content.

## The conclusion of the contract

The temporal element may constitute an obstacle to the convergence of the wills forming the contract, first of all because time is partly a cultural and an individual phenomenon: there may be a divergence between objective time and subjective time. Secondly, two legal acts – prior informed consent (PIC) and mutually agreed terms (MAT) – each with its own temporality – exist side by side in the Nagoya Protocol. Their chronology may therefore be problematic.

## Objective time and subjective time

Legal time is necessarily objective time, the only form that can apply to the design and application of the abstract norms which are the rules of law. However, subjective time – time as it is actually experienced – varies according to each individual and each society, and necessarily influences economic operators. The user of the genetic resource or traditional knowledge will often be under the sway of economic time, and of the need for speed that permeates business life, whereas the provider's behaviour should be more focused on the long term, and on the sharing of benefits, without taking account of cultural differences in the perception of time.

For users, the speed of the procedure for accessing resources and knowledge will contribute to the attractiveness of national rights, especially in competitive situations in which the genetic resource is located in more than one country. Examples that immediately come to mind include the reasonable period of time for prior consent as stipulated in Article 6(3) of the Protocol, differentiated procedures for access to genetic resources, e.g. in order to speed up access for non-commercial research,<sup>2</sup> and the importance of procedures for determining who should give the required consent, especially in the case of indigenous and local communities, which will save users a lot of time.

The users' need for speed can also complicate negotiations with providers, who do not necessarily have the same individual or collective representations of time<sup>3</sup> (HIRSCH, 2016). This may lead prospectors to abandon their projects or obtain resources from another party, i.e. they may break off negotiations because they consider them to be taking too long, or that the flowering period has passed. In the event of a breakdown in negotiations, most legal systems recognise that the disappointed party may claim

<sup>2</sup> Such as the declaration and authorisation procedures provided for by the Environment Code (Art. R.412-12 &s. and R412-18 &s).

<sup>3</sup> See, inter alia, HIRSCH Th., 2016 – *The time of societies: from Émile Durkheim to Marc Bloch*. Paris, L'Harmattan.

compensation from the party that broke off the negotiations if this breakdown was wrongful. For contracts on utilisation and sharing, the difficulty that arises would therefore be to determine whether behaviour that results from a cultural perception of time can really be qualified as wrongful.

Distortions related to subjective time may even cast doubt upon whether a contract has actually been concluded. In principle, in most legal systems, the actual time frame inherent to the formation of a contract, and particularly to negotiations, is abandoned in favour of a fictitious instantaneous exchange of consents. This is known as contracting “at first sight”. National judges should therefore base the contract date on the moment at which the written contract was signed. Conversely, in some customary legal systems, the conclusion of a contract is linked to the performance of a ritual, which is necessarily of a long-term nature. If the written contract is signed without the performance of the ritual, has the supplier really understood the meaning of signing the contract? Did he really give his consent? The risk of undermining contracts that is raised by these questions is easy to imagine, and could lead to users facing the threat of legal action to annul the contracts on grounds of lack of consent or vitiated consent.

### **PIC and MAT: what is the chronology?**

Another set of time-related difficulties specifically arises as a result of the contract formation process under the Nagoya Protocol, which appears to require a certain chronology of operations. Articles 5 and 6 of the Protocol distinguish, on the one hand, between the utilisation and sharing of benefits, subject to mutually agreed terms, i.e. a contract, and on the other hand, the prior informed consent of the provider to authorise access to the genetic resource. There would therefore be two distinct and consecutive legal acts: first the contract on utilisation and sharing, and then the access authorisation. This chronology may be surprising: consent to access is presented in second place, whereas it is logically a prerequisite to the use of this resource and to the sharing of the resulting benefits. Moreover, Article 1 of the model sharing contract

arising from the Order of 13 September 2017<sup>4</sup> adopts a different presentation than that found in the Protocol. Here, the contract has a dual purpose: first, authorising access to the resource, and second, governing utilisation and the sharing of benefits.

Nevertheless, the chronology adopted by the protocol is far from devoid of logic and even appears to be consistent with the doubly pleonastic term of “prior informed consent”. This is because, on the one hand, consent to a legal act is a prerequisite prior to the performance of the obligations resulting from that act, and on the other hand, consent only really exists if it is given in full knowledge of the facts, but not if it is given under the influence of an error or deceit. The cumbersome nature of the expression reflects the need to reinforce the quality of consent, and therefore of the information on whose basis it is given. In order to protect the provider in its decision to grant access to the resource, this provider must be aware of the utilisations and benefit-sharing arrangements that will arise from such access. In other words, an access authorisation could not be granted in an informed manner if the terms of utilisation and sharing had not already been agreed upon. In practice, of course, the two legal acts may be concurrent and combined in a single *instrumentum*, as provided for, *inter alia*, by French law.

The difficulties that may arise from this chronology of two legal acts should be underlined. For example, if an access authorisation were to be ultimately denied, the contract would be necessarily rendered null and void, since it would be impossible to make use of the resource. Nevertheless, denial of access, as well as an excessive delay in issuing an access permit after reaching an agreement on the utilisation and sharing of benefits, could also be viewed as a breach of contract. For example, an excessive delay in authorising access could lead to the provider being held liable and obliged to compensate for damage caused by the delay in using the resource or by the inability to obtain samples, if this activity is subject to temporal constraints (e.g. seeds, flowers, etc.).

<sup>4</sup> Under Law No 2016-1087 of 8 August 2016 for the Reconquest of Biodiversity, Nature, and Landscapes (Law on Biodiversity).

## The content of the contract

While time poses various problems in relation to the conclusion of the contract on utilisation and sharing, it creates just as many, if not more, difficulties with regard to the content of the contract. It is no longer simply a matter of overcoming current difficulties, but of foreseeing and resolving those linked to the vagaries of the future. This makes it difficult to define the utilisation of the genetic resource and the sharing of benefits, both of which, by definition occur in the future and are largely unpredictable.

### Defining future utilisation

Since the main purpose of the contract is to authorise the utilisation of a genetic resource or traditional knowledge, the duration of this use is obviously a key element: the value of this use varies according to whether it is authorised for one, ten or twenty years, for example. The difficulties associated with subjective time, which have already been mentioned with regard to the formation of the contract, could also apply here.

Another problem may be posed by the dissociation of access authorisation and the contract of utilisation provided for by the Nagoya Protocol. Since they are envisaged as two separate legal acts, their duration may also differ: access may be granted for a short period of time when the period of utilisation is much longer. For example, if a single specimen collected were to perish due to a special case such as fire, then utilisation would no longer be physically possible. Therefore, could the user invoke the termination of the contract if a new access authorisation were not granted? In essence, the question is whether the contract is for the utilisation of the genetic resource as interpreted in the abstract sense, or solely on the basis of the concrete specimen collected by the user. Conversely, the question of what happens to the specimen when the term of utilisation of the genetic resource has expired also arises, unless it is specified in the contract. Is the user required to return it to the provider or simply destroy it? The issue at stake is once again the link between the access

authorisation and the contract of utilisation: logically, the sole reason for the existence of the authorisation is the prospect of the intended use.

The main difficulty is likely to arise when the parties have not agreed upon the term of the utilisation of the genetic resource or traditional knowledge. It should also be noted that, while French law governs the term of access to the resource,<sup>5</sup> it remains silent on the term of utilisation. Of course, this duration inevitably varies according to the intended use, and depends on the sector of activity, but it is nonetheless surprising that Article 5 of the contract, entitled “Term and termination” merely provides for the effective date of the contract, without even asking the parties to specify its duration.

Where the term of use remains indefinite, an initial solution would be to apply ordinary contract law in order to enable either party to terminate the contract unilaterally and at any time, subject to providing reasonable notice. However, this solution seems difficult to apply in the context of the utilisation of genetic resources. For example, a situation in which the provider is able to terminate a contract when the user has already made significant investments in the use of the resource seems inconceivable. More generally, the solution would be contrary to the Nagoya Protocol’s aim of increasing legal certainty, even if a notice period were respected. Giving the user six months, one year or even two years’ notice would be insufficient, considering the time required for research and development based on genetic resources.

Another solution could be an implied term, inferred by a judge from the intended use of the genetic resource. However, not only are the terms of contracts rarely set by judges, such a practice would also assume that the utilisation does have an intrinsic duration, which does not apply to basic research or to the conservation of a specimen by a museum, for example.

Should we therefore assume that the resource could be used for an unlimited period of time if the contract does not specify any term? This could be seen as contrary to the prohibition of perpetual

| <sup>5</sup> See Art. R424-13, 5°, and, in fine, R412-22, of the French Environment Code.



commitments, which is even a principle of constitutional value in French law. The user would be obliged to share the benefits indefinitely, but it could be argued that this would only be fair compensation for its right to utilise the resource indefinitely. As for the provider, it would be obliged to tolerate the utilisation of its resource indefinitely, which raises the question of the nature of the right to utilise the resource. As in the case of literary and artistic property, a distinction must undoubtedly be made between the material good that is the specimen collected – such as a drawing, painting or sculpture – and the immaterial right enabling the genetic resource to be used – such as the right to reproduce the work. While an access authorisation could conceivably assign a property right for the specimen to the user – a right that is perpetual by its very nature<sup>6</sup> – it would be trickier to interpret the right of use as a property right or even a real right, i.e. a right relating directly to the genetic resource, without the involvement of a debtor. The right of utilisation appears to be a personal right, an obligation on the part of the provider, and the contract of utilisation can be likened to a type of lease. However, the obligations – particularly those incumbent upon the lessor – are subject to the prohibition of perpetual commitments in order to avoid any resurgence of the perpetual divisions of property that characterised the feudal system. The reasons for this prohibition can be found in the Declaration of the Rights of Man and of the Citizen of 1789, which asserted that property is an inviolable and sacred right, implying that it is plain and whole, in contrast to the feudal system.

The question is therefore whether there are also grounds for prohibiting the perpetual utilisation of genetic resources. On the one hand, the Convention on Biological Diversity marked a paradigm shift: genetic resources are no longer treated as a common heritage, but are on the contrary subject to national sovereign rights. Authorising perpetual use of the resource by a third party, if the contract does not specify the term of utilisation, could therefore be considered contrary to this sovereignty. On

<sup>6</sup> See the questions raised above concerning the fate of the specimen after the expiry of the period of use.

the other hand, it may seem inconsistent to impose a time limit on the use of genetic resources by applying the prohibition of perpetual commitments, given that the Nagoya Protocol aims to promote access to genetic resources, and in so doing, to facilitate their use and the sharing of benefits.

This difficulty relating to the term of utilisation is ultimately symptomatic of a more fundamental and even more delicate question: that of the conventional definition of utilisation. As has been pointed out, the contract is an act of foresight, and the particularity of the contract under the Nagoya Protocol is that it relates to a future utilisation that is not always foreseeable, or that may vary in the future, as in the case of research. Indeed, Article 2(c) of the Protocol, rather than containing a list of specific utilisations, retains an open-ended definition in which genetic resources are utilised to conduct “research and development activities on the genetic and/or biochemical composition of genetic resources”. The contract must obviously define the utilisation precisely, otherwise consent would not be truly informed. It should be noted that the Bonn Guidelines,<sup>7</sup> rather than promoting a positive definition of utilisation that could set these uses in stone, instead urges parties to envisage “Any limitations on the possible utilisation of the material”.<sup>8</sup> A negative definition of utilisation seems more flexible, since it can encompass all uses that may occur in the future, other than prohibited uses. Of course, there is nothing to prevent the parties from opting for a positive definition of utilisation, but in that case they would be urged to include a “change of intent” clause, stipulating that the contract terms may be renegotiated in the event of a change of utilisation.<sup>9</sup>

<sup>7</sup> Adopted in 2002, the Bonn Guidelines are voluntary and are intended to assist States with the implementation of the access and benefit-sharing procedures provided for by the Convention on Biological Diversity.

<sup>8</sup> §. 44 b).

<sup>9</sup> See Art. L. 412-6, in fine, of the Environmental Code, for the notion of “new utilisation”.

## Defining benefit sharing

The difficulties associated with the unpredictability of the future are also apparent when it comes to establishing a contractual definition of benefit sharing. Two points are especially problematic: the timing and the balance of benefit sharing.

Regarding the timing of benefit sharing, this raises the question of how to define the operative event for benefit sharing, since it may be an uncertain event in the future. Ideally, national legislators should endeavour to answer this question. A decision is also required on whether there is a need to compensate the provider solely for the use of the resource. In other words, is the utilisation alone a benefit to be shared, or must it necessarily lead to concrete results? Article 5(1) of the Protocol and Article 15(7) of the CBD are not very explicit. The latter, by providing for “...sharing, in a fair and equitable way, the *results* of research and development and the *benefits arising from the commercial and other utilisation* of genetic resources”, could be interpreted as limiting benefit sharing to the results of utilisation only.<sup>10</sup> On the other hand, the example of the conservation of the genetic resource by the user demonstrates the extent to which this strict interpretation of benefits can be reductive: surely conservation itself is of benefit to a museum?<sup>11</sup> However, if the mere utilisation of a resource requires the sharing of benefits, the question is whether it is subject to an obligation or whether it is merely an option for the user. For example, if the user collected a specimen but never utilise it, would benefits still be due? And if so, how could they be measured, if benefits for the conservation of the resource alone were not defined in the contract?

As for the concrete results that may be generated by utilisation, they are obviously intended to be shared. The focus of the difficulty

<sup>10</sup> The same ambiguity is found in French law: see Art. L412-4, 3°, of the French Environmental Code, which defines benefit sharing as “the fair and equitable sharing of benefits *arising from the utilisation of* genetic resources and associated traditional knowledge, defined as *the results* of research and development” (our italics).

<sup>11</sup> For example, see Art. R412-12 of the French Environmental Code, which provides for benefit sharing when genetic resources “are utilised for conservation purposes in a collection”.

now changes: since these benefits are merely potential, in that they depend on research carried out by the user, the problem relates to the role of time in the balance of sharing. How can we provide for a fair and equitable sharing of benefits such as a scientific discovery or the filing of a patent, which are not yet known when the contract is entered into? The contract may at least be partly described as an aleatory contract, i.e. a contract in which the performance of one of the parties depends, in terms of its existence or consistency, on an uncertain event, as in the case of insurance or lifetime annuities. In other words, sharing will only occur if results are obtained (random event), but the method of sharing provided for in the contract must be equitable.

There is no real difficulty where the national legislation itself determines benefit sharing. This is partly the case in French law, which defines a maximum percentage of 5% of the annual worldwide sales before tax and other income derived from products or processes obtained from the genetic resource.<sup>12</sup> On the other hand, if the law remains silent, could one of the parties apply to the courts for the annulment of the contract on grounds of inequitable benefits if the contract provides for a lump sum rather than a percentage of the volume of sales of the derived product, or if the percentage assigned to the traditional knowledge in question is too low compared to the percentage assigned to the resource by the contract, for example? The question is therefore whether fair and equitable sharing is a genuine condition for the validity of the contract, merely an objective, or – dare we say it – wishful thinking? It is probably merely an objective, particularly in view of the choice of the terms “fair” and “equitable”, which have no precise legal value (rather than “imbalance of benefits”, for example), or the fact that Article 5(1) of the Protocol states, in fine, that “Such sharing shall be upon mutually agreed terms”, which relates solely to the parties’ wishes. More generally, weakening contracts by requiring them to be objectively balanced – when it is particularly difficult to measure the value of an outcome that is both uncertain and unpredictable – would be contrary to the Nagoya Protocol’s objective of ensuring legal certainty. Judges

| <sup>12</sup> See Art. L412-8, V, of the French Environmental Code.

could therefore rely on the legal mechanisms of domestic law to ensure a minimum balance in the contract. Such mechanisms could perhaps be used to good effect by exercising greater vigilance over bargaining power and the quality of the provider's consent.

This approach could also resolve a final difficulty: that of the imbalance in the contract, not from the moment of its formation, but due to subsequent changes in circumstances. Examples include the discovery of commercial potential when the agreed utilisation is non-commercial, or the extinction of a species, which would increase the value of a specimen added to a collection. Of course, the parties are strongly advised to include a renegotiation clause. Failing this, most legal systems provide for a mechanism allowing the judge to revise or terminate the contract in the event that the performance of the contract becomes *excessively onerous* for one of the parties due to unforeseeable changes in circumstances. Is the reference to fairness and equity of sharing in the Protocol likely to encourage judges to extend this mechanism to the case of a contract becoming *less advantageous* to the provider, on grounds of the duty to perform in good faith, for example?

## Conclusion

Examination of the different points of contact between time and the contract of utilisation and sharing reveals the extent to which the success of the Nagoya Protocol is dependent upon the contract – and therefore upon the wishes of resource providers and economic operators – but also, and above all, upon national legislation. Increasing the number of contracts, which is the only way to achieve the Protocol's objectives, will certainly depend upon changes in mentalities, power relations and economic issues. It will also require each State to develop a contractual system that is both flexible and secure: in short, a system that is sufficiently attractive to deter biopiracy. It also assumes that this legislative effort will be common to all States, so that users do not systematically turn to those that have imposed no regulation, or which have implemented regulation that is insufficient in relation to the protocol. The gamble of using the contract as a vehicle to promote

the protection of nature could then pay off, but for how long? A contract-based system of biodiversity protection is the product of an anthropocentric approach to nature as a legal subject, in this case the subject of a contract. This approach may already seem outdated at a time when some legal systems have already granted legal subject status to certain components of nature or to ecosystems such as the Amazonian forest or the Ganges river.

## **Focus 2**

# PIC: a tool for empowering indigenous peoples

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**Philippe KARPE**

Prior informed consent – PIC – must be obtained from the competent authority designated by States which are parties to the Nagoya Protocol. In fact, this PIC is often inseparable from the Mutually Agreed Terms (MAT) contract analysed by Anne Etienney-de Sainte Marie.

A very different question arises when PIC is asserted as a means of empowering indigenous peoples and local communities.

Indigenous communities hold their own specific right: the right to free, prior and informed consent. This right is enshrined in various international texts, both general and specific, of declaratory or mandatory scope, which do not fall under the same regime and do not have the same force. This right is enshrined in international conventions, then it is binding upon States. It could even be considered as having international customary value.

This particularly concerns:

- the United Nations Declaration on the Rights of Indigenous Peoples;
- the Indigenous and Tribal Peoples Convention (ILO Convention 169), International Labour Organisation;

- the World Bank Operational Manual, OP 4.10: Indigenous Peoples;
- the United Nations Convention to Combat Desertification in countries severely affected by drought and/or desertification, particularly in Africa;
- the Convention on Biological Diversity.

On the basis of these texts, and despite differences in the terms used<sup>1</sup> and the fields concerned (land, heritage, governance, education, etc.), we can attempt to establish a general and common description of the right to free, prior and informed consent.

**Consent:** Consultation and participation are essential aspects of consent. Consultation must be carried out in good faith. Consultation requires time and an effective system of communication between the interested parties. Consent to any agreement should be interpreted as reasonably understood by indigenous peoples.

**Free** implies the absence of any coercion, intimidation or manipulation.

**Preliminary** implies that consent has been sought sufficiently in advance of any authorisation or commencement of activity, and that the time frames required for the consultation and consensus-building processes specific to indigenous peoples have been respected.

**Enlightened** is a more difficult term to define, and assumes access to information covering (at least) the following aspects:

- the nature, scale, changes, reversibility and scope of any proposed project or activity;
- the reason(s) or objective(s) for the project or activity;
- their duration;
- the location of the areas concerned;
- a preliminary assessment of likely economic, social, cultural and environmental impacts, including potential risks and the fair and

<sup>1</sup> "Consultation" instead of "consent", "adhere to" or "support" instead of "consent", recognition or non-recognition of a veto right specifically for indigenous communities...



- equitable sharing of benefits, taking into account the precautionary principle;
- personnel who may contribute to the implementation of the proposed project (including indigenous peoples, private-sector personnel, research institutes, government officials and others);
- possible procedures associated with the project.

Other questions arise concerning time frames, the persons authorised to give consent, procedures and mechanisms.

At what point should consent be involved in a decision-making process? Free, prior and informed consent should be sought sufficiently in advance of the start or authorisation of activities, taking account of indigenous peoples' specific decision-making processes, for the assessment, planning, implementation, monitoring, evaluation and termination phases of any project.

Indigenous peoples should be able to participate through their own freely chosen representatives and their customary or other institutions. Information should be accurate and presented in an accessible and understandable manner, including in a language that indigenous peoples can fully understand. The dissemination of this information should take into account the oral traditions of indigenous peoples and their languages.

As a basic principle of consent, all parties must have equal opportunities to discuss any proposed agreement or project, i.e. equal access to financial, human and material resources in order to enable communities to engage in detailed and effective discussions in the indigenous language(s), as appropriate.

Mechanisms and procedures should be put in place to verify the proper application of the principle of free, prior and informed consent, its forms, and its legal value, in such a way as to prevent it from becoming a mere formality. Monitoring and appeal mechanisms, including at the national level, and special joint-decision-making bodies should be established.

Depending on the field, the issue to be addressed, or the national legislation, consent may be interpreted as a veto right and a right without limitations, or as a mere consultative power. How can the rights of non-indigenous peoples be protected within this

framework? Whatever the circumstances, if it is proven that the criteria for consent have not been met, any consent given may be revoked.

The right to free, prior and informed consent has at least three specific characteristics that justify its special recognition. First of all, it is a right that differs from other rights such as participation or citizenship, etc. It is a right that is useful to the people, and which allows them to benefit from and participate in development projects rather than being subjected to them. Finally, it is a right whose proper execution is required and verified in certain situations – in the framework of the Nagoya Protocol, of course – but also in other cases such as eco-certification procedures.

## Part 3

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# Rethinking indigenous rights



The concept of indigenous rights, as it emerges from the Nagoya Protocol, provides an opportunity to confront theoretical approaches with the testimonies and experiences of stakeholders on the ground. Researchers in the field, biodiversity managers, customary delegates all share their own experiences from New Caledonia, French Guiana and Brazil. These three zones are true biodiversity hotspots that are also home to many indigenous communities, and were among the first to establish systems regulating access to biodiversity and organising the sharing of benefits.

In this third section we invite contributors to examine the concept of indigenous rights, either by analysing the political construction of the indigenous concept (see Chap. 7 and 8), or from the perspective of traditional knowledge (see Chaps. 9, 10, 11), or else by highlighting situations where communities have been involved in the implementation of the Nagoya Protocol (see Chaps. 12, 13, 14).

The Convention on Biological Diversity frames the environment as a nexus of conflicting interests to be debated in international forums: the lived environment of local communities, the economic stakes for industry, the geostrategic implications, and of course the climate crisis, etc. We may well wonder whether the adoption of a shared legal language and procedures, such as the ABS system with its emphasis on obtaining prior informed consent, is really capable of satisfying such divergent interests and competing legitimacies. The notion of communities and indigenous interests also needs to be seen within the regional, national and international context of recognition for these groups and their knowledge. The French Law on Biodiversity of 2016 (see Focus 3) thus adopted the term *communautés d'habitants* to refer to those people possessed of "associated traditional knowledge." The roles assigned to such people by environmental policies rarely, and only then imperfectly, take into account the diversity of their history and their circumstances within modern Nation States. Their right to participate in the drafting of legislation concerning them, a right recognised by international norms, is frequently overlooked.

Nadia Belaïdi illustrates the way in which environmental policies, and their concept of indigenous people, fall into a reductive view of these peoples, defining their identity solely on the basis of environmental practices, with reference to a way of life considered to be “traditional,” and failing to recognise their legal personhood (see Chap. 7). Traditional knowledge is thus associated with resources of which the national government assumes ownership. Managing cultural diversity is closely associated with the demands of managing biological diversity. In the same spirit, Philippe Karpe, Sigrid Aubert and Alexis Tiouka recount the prevarications of French legislators faced with the task of giving both a name and a role to *communautés d’habitants* involved in the ABS mechanism. They propose abandoning the concept of indigenous peoples, arguing in favour of a new vision of the law which does not view nature as a mere source of assets to be exploited, but which is instead informed by an idea of life in society, of the common weal, which understands the importance of natural elements within networks of exchange and reciprocity (see Chap. 8).

These two alternative approaches to the law, the anthropological approach developed by Nadia Belaïdi and the concept of “round law” championed by Philippe Karpe, Sigrid Aubert and Alexis Tiouka, are by no means at odds with the positivist approach adopted by Loïc Peyen and Anne Etienney-de Sainte Marie in Section 2 of this volume. Nevertheless, where they do differ is in their insistence upon the need for greater contextualisation to get as close to the lived reality of the stakeholders as possible, ideally with those same stakeholders taking a leading role. Examples of this approach in action include recent efforts by Canadian and Guianese indigenous groups to engage with the dialogue between different legal systems in order to promote the interests of their communities. This vision is founded upon the capacity of each individual to engage with a continuously-negotiated normative system, and respond to the events which oblige societies to constantly adapt and evolve.

In a similar vein, Alexia Mandaoue explores the policies of the government and Customary Senate of New Caledonia with regard to access to genetic resources, while also evoking the long

and often tragic history of the Kanak people, with reference to the preamble of the Nouméa Accord (see Chap. 9). One of the key challenges raised by the Nagoya Protocol is to fulfil hopes for new partner relationships founded upon respect for indigenous rights. Can a legal text ever hope to satisfactorily address centuries of injustice?

Reviewing the voluminous existing legislation dealing with genetic resources, **Laure Emperaire** notes that it has not engaged satisfactorily with the representations and status of these resources among indigenous peoples, as well as their traditional knowledge (see Chap. 10). She highlights the lack of a precise definition of the concepts and categories used in international instruments pertaining to agrobiodiversity, and illustrates their inability to comprehend more subtle, gradual approaches to managing plant resources. **Guillaume Odonne and Damien Davy** then discuss the definitions used in the French law transposing the Nagoya Protocol into national legislation, and propose the concept of biocultural heritage as a tool for furthering efforts to protect traditional knowledge associated with biological resources (see Chap. 11).

These three authors, informed by their experiences in the field in Guiana and Brazil, are united in their insistence upon the diversity of knowledge and its manifestations. They illustrate how their readings of local situations still struggle – in spite of the scientific and ethical commitments and convictions of researchers – to get to grips with local categorisations and meanings attached to environmental practices and knowledge. The Nagoya Protocol, with its tendency to view knowledge simply as information on how to use resources, struggles to fully recognise indigenous peoples and local communities as actors responsible for the fate of their knowledge.

**Tiffanie Hariwanari** (see Chap. 12) and **Raphaëlle Rinaldo** (see Chap. 13) share their own experiences from the French Guiana Amazonian Park, the first French territory to begin experimenting with ABS back in 2006. Early adoption required innovation, and the history of ABS in French Guiana has been marked by tentative progress, conflicts between stakeholders, the fall-out from the “Quassia Affair,” administrative obstacles,

a lack of clearly-designated interlocutors and tensions between this overseas territory and France's central government, as well as between the different groups that make up Guianese society: Amerindians, Bushinenge, Creoles etc. The role assigned to communities within the Amazonian Park and the creation of the Grand Customary Council of Amerindians and Bushinenge Populations, described by Karpe et al. in the preceding chapter, illustrate not only the technical complexity, but also the intellectual, political and institutional difficulties involved in making sure that the voices of those most affected are heard. The local and indigenous peoples in question are mobilising to ensure that their aspirations, territorial rights and relationship to the world at large are taken into consideration. They continue to highlight the urgent need to overturn the centuries-old precedent whereby the laws that govern their relationship to their natural resources and their knowledge are dictated from afar by central government, without their involvement.

Ana M. C. Euler recounts the rise of community protocols, encouraged by the Nagoya Protocol, which give communities themselves the opportunity to define how they wish to work with anybody seeking access to their resources: researchers, commercial prospectors or politicians (see Chap. 14). It becomes clear that this exercise can reinforce or reinvigorate community dynamics, channelling their demands. In such cases, genetic resources provide a pretext for affirming and legitimating the demand for recognition of their citizenship and their rights in other areas of life: from land rights to access to education and healthcare.



### **Focus 3**

# Implementation of the Nagoya Protocol in France

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**Catherine AUBERTIN**

## **The ABS system established in the French Law on Biodiversity**

How can we ensure that genetic resources and their associated traditional knowledge are used sustainably in France? How can we share the benefits of such activities fairly and equitably? How can we promote the involvement of users in the protection and promotion of biodiversity? All questions which find (tentative) answers in the ABS system, in place since 1 July 2017<sup>1</sup> after being announced in the 2016 Law on Biodiversity (Law for the Reconquest of Biodiversity, Nature and Landscapes) which served to ratify the Nagoya Protocol.<sup>2</sup>

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<sup>1</sup> <https://www.ecologique-solidaire.gouv.fr/acces-et-partage-des-avantages-decoulant-lutilisation-des-ressources-genetiques-et-des-connaissances>

<sup>2</sup> Law No. 2016-1087 of 8 August 2016 for the Reconquest of biodiversity, nature and landscapes, [www.legifrance.gouv.fr/jo\\_pdf.do?id=JORFTEXT000033016237](http://www.legifrance.gouv.fr/jo_pdf.do?id=JORFTEXT000033016237)

The ABS procedures established in Section V of this law apply to all persons seeking to access and use genetic resources on French territory, on land or at sea, or associated traditional knowledge held by *communautés d'habitants*. The communities in question are defined as those groups who traditionally derive their means of subsistence from the natural world, and whose way of life has implications for conservation and the sustainable use of biodiversity.

These procedures (requiring a simple declaration for uses of genetic resources with no direct commercial intention, and an application for authorisation in other cases) are designed to ensure that prior, informed consent is obtained, including jointly-negotiated conditions for the sharing of benefits derived from the use of genetic resources or associated traditional knowledge: the French ABS mechanism thus reproduces the fundamental principles of the Nagoya Protocol.

The Law on Biodiversity identifies the Ministry for the Environment as the administrative authority qualified to supervise these procedures. The law also envisages the possibility of the overseas territorial authorities fulfilling this role, but at time of writing none of them have requested this power. In certain overseas territories, such as French Polynesia and New Caledonia, ABS is governed by local regulations, and is thus not subject to the procedures set out in the Law on Biodiversity.

International Recognised Certificate of Compliance (IRCC) are issued by the Ministry for the Environment and registered at the ABS Clearing House<sup>3</sup>, each containing specific benefit-sharing actions to be adopted by users in favour of the territories from which they intend to take resources and knowledge. These users fall into multiple categories (research institutions, companies from the cosmetic industry, food and agriculture firms etc.), as do the projects they are pursuing (fundamental research, commercial development of new cosmetic products, conservation of traditional knowledge etc.).

<sup>3</sup> <https://absch.cbd.int/countries/FR> – by September 2021, 499 IRCC were registered.

### **The *Communautés d'habitants***

The traditional knowledge held by *communautés d'habitants* can only be used subject to a specific authorisation procedure, requiring the prior, informed consent of the *communautés d'habitants* involved, including negotiations to reach a benefit-sharing agreement. The law states that benefit-sharing must directly benefit *communautés d'habitants*.

The Decree of 9 May 2017<sup>4</sup> specifies that this system applies to *communautés d'habitants* residing in Wallis & Futuna and French Guiana. It also names the public legal entities responsible for organising consultations and negotiating and signing benefit-sharing contracts with users.

### **Some specificities**

The French legislation hinges upon the notion of “new utilisations.” If samples are to be used in a research and development project with commercial intentions, departing from the stated purpose used to justify their original acquisition, then users are subject to the same obligations which apply when accessing resources in the field for the first time, and must negotiate the rights to this material with the provider.

A further specificity introduced by the Law on Biodiversity is the requirement for users applying for patents to submit documentary evidence to the National Institute for Intellectual Property (INPI) that they have complied with their obligations under the Nagoya Protocol. This does not have any bearing upon the patent application process, but it does allow for better traceability of resources.

The law also sets the value of financial rewards and sanctions. A maximum of 5% of the annual, global turnover (before tax) generated by products or processes obtained from genetic resources subject to authorisation is payable to the French Biodiversity Agency. A one-year prison sentence and a fine of up to €150,000

<sup>4</sup> Decree No. 2017-848 of 9 May 2017 concerning access to genetic resources and associated traditional knowledge, and the sharing of benefits derived from their use.

are the maximum penalties for using genetic resources or associated traditional knowledge without the necessary documents specified in the European regulations. The fine may rise to €1 million if the unauthorised use is for commercial development purposes.

### **European regulations for compliance with the Nagoya Protocol**

The Ministry for Research is, along with the Ministry for the Environment, one of the two institutions with the authority to implement the European requirements. The ministry performs due diligence on projects receiving funding for research work involving the use of genetic resources and/or associated traditional knowledge; it also monitors applications to add collected materials to the European Register of Collections. Collections listed on the European register are supposed to provide all of the relevant user documentation and information required by European Regulation 511/2014,<sup>5</sup> but they remain responsible for ensuring the compliance of their activities with the ABS legislation of the countries from which the resources originate.

This involves the use of forms:

- for coordinators of research projects receiving funding from outside their: a declaration submitted to the Ministry for Research, certifying that due diligence has been performed,
- for heads of collections (on a voluntary basis): a declaration submitted to the Ministry for Research, requesting that their collections be added to the European register.

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| <sup>5</sup> <https://eur-lex.europa.eu/eli/reg/2014/511/oj>

# Managing cultural diversity to manage biological diversity

## Ingenous rights and State sovereignty over biodiversity

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**Nadia BELAÏDI**

The international negotiations on biological diversity underwent a number of shifts. Several authors have pointed out that, although they were included in the preparatory work for the Convention on Biological Diversity (CBD), “the diverse expressions of the relationship between humans and nature,” were removed from the final text. Biological diversity is now defined in Article 2 of the CBD as the “variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.” In the discussions on Article 8j of the Convention, which is devoted to traditional knowledge, this biological approach was narrowed to focus on genetic resources, a central pillar of the Nagoya Protocol. Based on the objective of *benefit-sharing*, the management of cultural diversity appears to us to constitute a modality for the management of biological diversity. We seek to illustrate this through the example of the transposition of the term “indigenous people” into the French Law on Biodiversity of

2016 (see Focus 3).<sup>1</sup> The use of “indigenous” as a category in international law helps to adapt legal systems to reduce legal insecurity.<sup>2</sup> Nevertheless, in the field of biological diversity, securing the rights of indigenous peoples is not the priority: the objective is instead to frame the insecurity that the enunciation of these rights creates for States.

Although the law carries social values, and in this respect, may support and protect the recognition of the rights of indigenous peoples, it also constitutes a set of techniques, methods and institutions designed to serve the interests of Nation States (and this is the dimension which comes to the fore in the process of establishing standards on biological diversity, through the CBD and its additional protocols such as the Nagoya Protocol).

We propose to look closely at the wording of this law, analysing how it expresses its content in order to consider why it does so. This is an intentionally teleological reading of the law, closely concerned with the purposes that guide it. To address this question, we adopt an analysis through law that combines anthropology, semiotics, grammatical exegesis and psychological interpretation. Through the social values it conveys, the law produced or claimed as a normative whole is taken as a testimony or an expression of a culture, its evolution and even its hybridisation. Our aim is to examine the way in which social and cultural values and practices are inscribed in the normative structures and in the international institutional terminology: the way in which principles, law and fundamental rights are enshrined in legal texts (and the combinations and compromises this entails). These are all legal and institutional ingenuities by different actors, which call into question the term ‘indigenous’ and its evolution in the sphere of law(s). A study of the negotiations leading to the Convention on Biological Diversity and subsequent texts demonstrates the extent to which “indigenous” has become a

<sup>1</sup> Law No. 2016-1087 of 8 August 2016 for the Reconquest of biodiversity, nature and landscapes, [www.legifrance.gouv.fr/lopd/loi\\_pdf.do?id=JORFTEXT000033016237](http://www.legifrance.gouv.fr/lopd/loi_pdf.do?id=JORFTEXT000033016237)

<sup>2</sup> Legal security is a principle of law concerned with protecting citizens from negative side effects, particularly with regard to the inconsistency or complexity of laws and regulations, or the fact that they change too frequently (creating legal insecurity). See PIAZZON (2009).

category of strategic importance (I). In terms of its impact on the principles and rights enshrined in national and international legal frameworks, the way in which we talk about indigenous matters has much to tell us about our understanding of the biological diversity which governments – and particularly the French government, in this case – are keen to protect (II).

## “Indigenous people,” a strategic categorisation

### **Indigenous peoples: “cultural groups”**

Now a global phenomenon, the demands of indigenous peoples to have their rights recognised was taken up within the wider United Nation system in the 1980s. The development of indigenous-specific standards was intended to fill a gap in the treaties regarding the protection of collective entities whose members are discriminated against.<sup>3</sup> The Special Rapporteur of the UN Commission on Human Rights did attempt to formulate a list of criteria to qualify indigenousness, without giving a definition, as the “natives”

themselves were opposed to it: historical precedence in a given territory, experience of conquest or colonisation, non-dominant status and a claim to identity. Set in a broader context of colonial compensation and reconciliation, invoking human rights with regard to indigenous issues has firmly established the connection between recognition of these rights and reparations (MARTINEZ COBO, 1986-1987). While “indigenous peoples” are thus supposed to be identifiable by a number of shared characteristics – territory, language, history or culture – and a desire to preserve their collective identity (self-identification), the term ‘indigenous’ has come to be associated with issues of dominance and economic marginalisation rather than with any connection to the land.

| <sup>3</sup> Leading to talk of a “new” indigenous debate (FRITZ *et al.*, 2005).

In this respect, cultural rights have become primarily a means of ensuring that members of indigenous groups do not suffer discrimination in relation to majority groups.

In parallel, the term “indigenous” has come to be associated primarily with certain cultural practices and lifestyles (hunting, trapping, itinerant agriculture, transhumance), considered to be representative of groups living on the margins of dominant societies (SCHULTE-TENCKHOFF, 2016). Traditional knowledge and relationships to nature are thus regarded as elements of identity, frozen in time and determining the lived experiences, practices and future perspectives of individuals. This orientation has been boosted by the fact that governments are well aware of the ambiguity of the notion of “indigenous people” and are wary of the emergence of new forms of sovereignty to rival their own (LENNOX & SHORT, 2016). Since present-day indigenous groups are descendants of peoples with whom the colonial powers came into contact during the phase of conquest, governments have tended to overlook historic rights in favour of identity-based rights associated with ideas of protecting natural heritage. The lengthy debates over terminology, which were a major feature of the negotiations leading to the Convention on Biological Diversity, are testament to this attitude (HERMITTE, 1992; HERMITTE et al., 2006).

Certainly, focusing on the rights of indigenous peoples helps to emphasise the forms of protection which should be available in situations where affiliation with a specific cultural group is a source of injustice and inequality. However, by ascribing these rights to the individual members of a group (collective rights) – and not to an entity composed of individuals (rights of the collective) – there is a risk that indigenous people’s rights may prioritise the affirmation of individual rights over the recognition of collective rights. This configuration consigns the rights of indigenous peoples to minority law, where only the rights of *those in the minority* are protected, while the rights of *the minority* itself continue to be neglected (KOUBI & SCHULTE-TENCKHOFF, 2000).

Framing the recognition of collective rights within the liberal paradigm of rights is conducive to a greater emphasis on the individual, social and cultural rights arising from specific interests



associated with group affiliation and identity (GIGNAC, 1997). The politics of recognition deal not with communities, but instead with individuals, their rights and autonomy. Collective rights are thus legitimised from the individual perspective. Group identity is treated as an individual attribute, and championed as such in the international texts. The handling of cultural diversity, which is a matter of respect for fundamental rights and freedoms, is reduced to a matter of individual specificity.

As such, the rights extended to indigenous peoples do not promote the rights of communities in and of themselves, but rather the rights of individual citizens belonging to “cultural groups,” (KYMLICKA, 1989) in which individuals are conscious of their identity as grounds for laying claim to specific rights.

### **The rights of indigenous peoples: individual rights to be claimed**

Since there is no recognition of “cultural groups” as being defined by the regulations which govern their shared existence within a specific territory, the rights afforded to them are part of a procedural approach. The claim to a right to its own institutions in accordance with the group’s traditions is transformed into requests to the State for resources or facilities to practice or keep traditions alive, such as education in indigenous languages or the protection of designated territories. This understanding of indigenous rights, which now informs many international policies and agendas, turns social groups into pressure groups, while also reducing expressions of pluralism into a claims procedure – which must be formulated in the language of individual rights. Social groups must adopt this normative language and adhere to the values of legal liberalism in order to gain recognition. It is therefore the majority group that unilaterally defines the terms on which otherness is to be discussed (REITZ & BRETON, 1994). From the outset, this procedure excludes all approaches informed by alternative visions of democracy, rooted in different definitions of society. Moreover, to find one’s place in this process of claiming rights, one must position oneself as a victim in order to be heard and recognised. Identities and cultures are constantly evolving, but the legitimacy of claims, in this system, is deter-

mined by their adhesion to an identity frozen in time. In this context, groups seeking reparations for injustices rooted in the past, particularly the colonial era, may be tempted to fix their identity primarily in that past in order to legitimise their grievances. Since the mechanism of recognition is partly made up of social, cultural, economic and political processes, social norms, languages and manners are tools for those seeking recognition (YOUNG, 1990). The law is one such medium. It is the bearer of social value – supporting and protecting such values – but it is also a strategic tool.<sup>4</sup> Reaffirming the primacy of human rights and their liberal interpretation,<sup>5</sup> and in doing so excluding claims of a collective nature from the recognition of indigenous peoples, the categorisation of traditional populations appears to be a powerful technique to conceptualise identity, difference and otherness. Talking about others, defining what makes them other, is a manner of neutralising and limiting their powers,<sup>6</sup> allocating rights according to criteria determined by the majority. The French notion of “*communauté d’habitants*” provides an excellent example of this process in action.

## “*Communauté d’habitants*” and biological diversity

### Deciding who is indigenous...

In French law, a *communauté d’habitants* is defined as a community “which traditionally derives its means of subsistence from the natural world, and whose way of life has implications for conservation and the sustainable utilisation of biodiversity.”<sup>7</sup> This represents

<sup>4</sup> Authors talk of “legal strategies (OST & VAN DE KERCHOVE, 1992) or “legal astuteness” (BAGLEY, 2008).

<sup>5</sup> Although human rights may have their equivalents in other cultures; see also the notion of “homeomorphic equivalent” (PANIKKAR, 1984).

<sup>6</sup> On this point, see also M. Foucault, *Discipline and Punish: The Birth of the Prison*, where subjectivation of prisoners may serve to transform them into objects of control, particularly through legal processes (FOUCAULT, 1975).

<sup>7</sup> Art. L.412-4-4° of the Environment Code; Art. 37 of the 2016 Biodiversity Act.

the French transposition of the notion of “indigenous and local communities” found in the Convention on Biological Diversity and the Nagoya Protocol (see Focus 3). Why, then, did the French government decide upon the term *communauté d’habitants* (which translates literally as ‘community of inhabitants’) rather than simply translating “indigenous and local communities”? In terms of the French Constitution, the problem lies in the word “people” and not in the term “indigenous.”

In a ruling dated 9 May 1991,<sup>8</sup> the *Conseil Constitutionnel* declared the reference to the “Corsican people” invalid, but did not deny the “cultural identity” of Corsica, which justifies the fact that the administrative sub-division of Corsica should have “more extensive powers than those generally entrusted to regions” (pt. 33). According to the interpretation grid proposed by the Rapporteur to the United Nations Sub-Commission on Human Rights, the indigenous populations of France are to be found in the overseas territories, in South America (French Guiana), Oceania (New Caledonia, French Polynesia and Wallis & Futuna) and the Indian Ocean (Mayotte) (ROULAND et al., 1996). Article 72-3 of the Constitution, which is at pains to name each of the overseas *départements*, regions and collectivities in order to solemnly affirm their attachment to the Republic, recognises “within the French people, the overseas populations”. These territories enjoy a specific status on account of their “particular characteristics and constraints” (General Code of Territorial Collectivities). The legal trend therefore tends to be to recognise the existence of indigenous peoples on French territory.<sup>9</sup>

As such, in New Caledonia and French Polynesia, the French Environment Code does not apply, in order to “take account of the specific interests of each [overseas administrative division] within the Republic.” (Art. 74 of the Constitution)

<sup>8</sup> Ruling No. 91-290 DC of 9 May 1991, <https://www.conseil-constitutionnel.fr/decision/1991/91290DC.htm>

<sup>9</sup> See particularly: « Les autochtones de l’outre-mer français », *Droit et cultures*, n° 37, vol. 1, 1999 ; GARDE (1999) ; GUYON & TREPIED (2013) ; ROULAND (2015) ; de LESPINAY (2016).

These territories therefore have their own, local environmental laws. However, Articles L 614-4 and L 624-5 of the Environment Code state that the notion of *communauté d'habitants* applies in these territories, even though they have already established their own legal provisions in this area, in accordance with their status.<sup>10</sup> Moreover, according to the preparatory work for the law, *communautés d'habitants* are identified with reference to “certain objective specificities connected to lifestyles, practices favourable to biodiversity and traditional knowledge.”<sup>11</sup> This despite the fact that, according to the criteria of the Cobo Report, the identification of indigenous people is not the prerogative of national governments, but is instead a matter for indigenous people themselves.<sup>12</sup>

It is therefore as if, under the 2016 Law, the French authorities intended to regain control over the identification of “natives”, even in defiance of the objective criterion of territoriality that constitutes the basis used until now. France’s parliament and government also appear to consider that the definition of *communautés d'habitants* is a matter of public liberties, which fall under the sole competence of the State (CANS & CIZEL, 2017). Public liberty can be defined as the capacities ascribed to individuals, recognised, structured and protected by the State (MORANGE, 2007). The 2016 law thus entrusts legal persons governed by public law with the responsibility for identifying *communautés d'habitants* (Art. L 412-11 of the Environment Code).

### **... to define what constitutes the “commons”**

The notion of *communauté d'habitants* takes its place in the paradigm of “the commons.” This is a concept derived from feudal

<sup>10</sup> Article 311-5 of the Environment Code of the South Province of New Caledonia; article LP 2000-1 of the Environment Code of French Polynesia.

<sup>11</sup> Draft bill on biodiversity: impact study, 25 March 2014, pp. 129-130, <http://www.assemblee-nationale.fr/14/projets/pl1847-ei.asp>

<sup>12</sup> An indigenous person is an individual who self-identifies as a member of an indigenous community, and is recognised and accepted by that community as one of its own (acceptance by the group), see MARTINEZ COBO (1986-1987).

law, whereby communities are endowed with certain rights, known as communal rights, guaranteed by charters, agreements and established uses (KUCHENBUCH et al., 2003). Prior to the 2016 law, the notion was already present in the Environment Code, where it had been introduced with reference to collective use rights for hunting, fishing and any activity necessary for the subsistence of the populations living in the Amazonian Park of French Guiana (Art. L.331-15-3 of the Environment Code).

With the 2016 Law on Biodiversity, the notion of *communauté d'habitants* continues to provide a framework for access to *traditional knowledge associated with genetic resources*, objects of the “common heritage of the Nation” (Art. L.412-3 of the Environment Code). In accordance with international law on biological diversity,<sup>13</sup> “biological resources” are considered as “natural resources” in much the same way that oil or gas are. They are subject to a principle of permanent sovereignty and not to a principle of free access.

However, we learn from the preparatory work for the law that the French government and parliament deduced a real right of ownership for the State from this principle of sovereignty,<sup>14</sup> even though neither the notion of common heritage of the Nation, nor the principle of sovereignty establish a right of public ownership over the goods concerned (CORNU et al., 2017). Traditional knowledge is thus *associated* with resources of which the State considers itself to be the owner. However, the system regulating access to genetic resources and their utilisation is governed by environmental law, a domain in which French Polynesia and New Caledonia have jurisdiction due to the complete decentralisation of environmental

<sup>13</sup> Per the Convention on Biological Diversity, organisms present within ecosystems constitute “biological resources [...] with actual or potential use or value for humanity.” The CBD also refers to “genetical materials [...] containing functional units of heredity.” (Art. 2). The Preamble to the Convention asserts that “the conservation of biological diversity is a common concern of humankind,” but it also affirms that “States have sovereign rights over their own biological resources.” The Preamble to the Nagoya Protocol also evokes the “economic value of ecosystems and biodiversity.”

<sup>14</sup> See proceedings of the Assemblée Nationale, 7 March 2016, p. 24; Sénat, Débats, 20 January 2016.

powers in these administrative subdivisions.<sup>15</sup> However, by making the *communauté d'habitants* a directly applicable provision, the State is placing indigenous populations and their traditional knowledge under its control. This allows the State to regulate the rights of these people as holders of knowledge associated with resources which belong to the nation. By dissociating these legal frameworks, the State is free to assert its own vision of sovereignty over biodiversity, which it insists “ [...] is also an economic asset for France. [...] Numerous studies have demonstrated the importance of biodiversity as an extremely important form of economic capital. Furthermore, biodiversity is a source of innovation [...] and has significant potential value in this respect.”<sup>16</sup>

## Addressing otherness in law

The system of access to genetic resources and the fair and equitable sharing of the benefits derived from their use, as set out in the Nagoya Protocol and transposed into French law in 2016, address the rights of indigenous peoples in terms of development law, rather than human rights, while claiming the paradigm of “the commons.” The laws on biological diversity, including Article 8j of the Convention, and human rights, as applied to the indigenous question, do not have the same objectives. While the latter are concerned with recognition, visibility and the institutional presence of indigenous peoples, the Convention on Biological Diversity is part of a movement of rehabilitation of their traditional knowledge and practices, and of some elements of recognition of *collective management* in the interests of its biodiversity management objective.

<sup>15</sup> Framework Law 99-209 of 19 March 1999 relating to New Caledonia, *JORF* 21 March 1999, p. 4197 ; Framework Law 2004-192 of 27 February 2004 on the autonomous status of French Polynesia, *JORF* 2 March 2004, p. 4183.

<sup>16</sup> See the preparatory work for the transposition of the Nagoya Protocol into French law: J.-M. Ayrault and Ph. Martin No. 1847 Ass. Nat. 26 March 2014.

Of course, the involvement of indigenous peoples in international negotiations on biological diversity tends to enshrine their claims in the texts, and to have cultural diversity recognised as a means of combatting the climate crisis and the extinction of biodiversity. However, international meetings and summits dedicated to environmental protection – although they mention the contribution of the knowledge and practices of indigenous peoples to the protection of “ecological heritage,” and while they provide a framework to regulate access to their knowledge – operate within an institutional and legislative framework which, both in terms of its instruments (treaties, laws, contracts) and in its understanding of the practices, knowledge and values of these peoples, is far removed from their way of thinking. Existing laws on biological diversity reflect the difficulty of the system in combining the cultural ontologies of indigenous peoples with the Western tradition of rights, even fundamental rights, in order to formulate rights to the environment and environmental law. It reveals a system whose arrangements reinforce the idea that the institutional language and practices used to talk about indigenous peoples are a way of circumscribing their knowledge, their relationship to the world and the manner in which they inhabit it. In the process, current laws on biological diversity illustrate the extent to which Nature is a social construct, based on a set of practices and values linked to conceptions that can form a community – cultural, local, national or international (DARDOT et LAVAL, 2014).

The restrictive delimitation of relations between humans and nature, organised by both human rights and international biodiversity law, is testament to the absence of otherness in law.<sup>17</sup>

We might imagine that, informed by a desire to rehabilitate traditional knowledge and practices, even for biodiversity management purposes, laws on biological diversity would be based upon a profound understanding of the social and cultural phenomena as they occur in these societies. All the more so since the preparatory

<sup>17</sup> This has been a long-standing and fertile subject of debate, see for example CARBONNIER (2001), SÉRIAUX (1975), GARDIES (1979), AMSELEK (1988), ROULAND (1991), ARNAUD (1993).

work which led to Article 8j of the Convention on Biological Diversity was supposedly driven by “the discovery by the West of an indigenous vision of the world.” HERMITTE et al., 2006: 384). And yet, the capacity to allow for a degree of otherness depends upon our ability to recognise *others* (humans, systems, sources of rights etc.) and their existence on their own terms.

Existing biological diversity laws stem from a manner of thinking, a model of society and a vision of the world entirely derived from Western culture – a socio-cultural model which, as has been amply demonstrated, has a tendency to supplant traditional cultures wherever it is introduced. In these circumstances, where the emphasis is on integrating the *other* into Western modes of thought, rather than recognising the existence of alternative ways of thinking, the approach to the “others” could only aim to search for the “same”.

In our opinion, it is only by getting to grips with *the existing state of the world* – seeking to understand different social and societal realities and their contradictions, taking an interest in other ways of regulating life in society (NICOLAU et al., 2007) examining the legal phenomenon that is found in all societies (ALLIOT, 1983), in short, by agreeing to a *making* of the law based on legal pluralism – that we can hope to have a real debate on environmental law in its legal issues. These issues, understood as “those which society considers vital for individual and collective reproduction” (LE ROY, 1999: 159), concern human society as a whole in its relationship with Nature, and between its various members. In this respect, taking on such legal issues, both in international law and when transposed into national law, leads to the construction of a new vision of law whose norms are genuinely conducive to the conservation of a biodiversity shared asset in common. The Nagoya Protocol does not fit the bill, nor does Article 8j of the Convention on Biological Diversity. By making cultural diversity and traditional knowledge preservation entirely dependent upon utilitarian considerations, present laws on biological diversity amount to a denial of the social dimensions of biodiversity.

They also challenge any possibility for the law to seize biodiversity as a Common



## References

- ALLIOT M., 1983 – Anthropologie et juridique. Sur les conditions de l'élaboration d'une science du droit. *Bulletin de liaison du LAJP*, 6: 83-117. <http://www.dhdi.free.fr/recherches/theoriedroit/articles/alliotanthropetjur.pdf>
- AMSELEK P., 1988 – À propos de la théorie kelsénienne de l'absence de lacunes en droit. *Archives de philosophie du droit* : 284 s.
- ARNAUD A.-J. (dir.), 1993 – *Dictionnaire encyclopédique de théorie et de sociologie du droit*. Paris, LGDJ.
- BAGLEY C. E., 2008 – Winning Legally: The Value of Legal Astuteness. *Academy of Management Review*, 33 (2): 378-390.
- CANS C., CIZEL O. (dir.), 2017 – *Loi Biodiversité. Ce qui change en pratique*. Paris, Editions législatives.
- CARBONNIER J., 2001 – *Flexible droit – pour une sociologie du droit sans rigueur*. Paris, LGDJ, 10<sup>e</sup> éd.
- CORNU M., ORSI F., ROCHFELD J. (dir.), 2017 – *Dictionnaire des biens communs*. Paris, Presses Universitaires de France, 893 p.
- DARDOT P., LAVAL Ch., 2014 – *Commun. Essai sur la révolution au XXI<sup>e</sup> siècle*. Paris, La Découverte, 237 p.
- FOUCAULT M., 1977 – *Discipline and Punish: The Birth of the Prison*. New York, Pantheon Books.
- FRITZ J.-C. et al., 2005 – *La nouvelle question indigène. Peuples autochtones et ordre mondial*. Paris, L'Harmattan.
- GARDE F., 1999 – Les autochtones et la République. *Revue française de droit administratif* : 2-13.
- GARDIES J.-L., 1979 – En quel sens un droit, un système de dispositions juridiques peut-il être complet ? *Archives de philosophie du droit*: 285 s.
- GIGNAC J., 1997 – Sur le multiculturalisme et la politique de la différence identitaire : Taylor, Walzer, Kymlicka. *Politique et Sociétés*, 16 (2): 31-65.
- GUYON S., TRÉPIED P., 2013 – « Les autochtones de la République : Amérindiens, Tahitiens et Kanak face au legs colonial français ». In Bellier I. (dir.): *Les peuples autochtones dans le monde, les enjeux de la reconnaissance*, Paris, L'Harmattan: 93-112.
- HERMITTE M.-A., 1992 – La convention sur la diversité biologique. *Annuaire français du droit international*, 38: 844-870.
- HERMITTE M.-A., DOUSSAN I., MABILE S., MALJEAN-DUBOIS S., NOIVILLE C., BELLIVIER F., 2006 – La convention sur la diversité biologique a quinze ans. *Annuaire français de droit international*, 52: 351-390.

KLEMM (de) C., 1985 – « Le patrimoine naturel de l'humanité ». In Dupuy R.-J. (dir.): *L'avenir du droit international de l'environnement*, colloque de l'Académie de droit international de La Haye, 12-14 novembre 1984, La Haye, Martinus Nijhoff Publishers: 117-150.

KOUBI G., SCHULTE-TENCKHOFF I., 2000 – Peuple autochtone et minorité dans les discours juridiques : imbrications et dissociations. *RIEJ*, 45: 6.

KUCHENBUCH L., SCHELER D., MORSEL J., 2003 – *La formation des communautés d'habitants au Moyen Âge, perspectives historiographiques*. Table ronde de Xanten (Allemagne), 19-22 juin 2003.

<https://lamop.univ-paris1.fr/la-recherche-au-lamop/reseaux-et-communautes/formation-medievale-des-communautes-dhabitants/>

KYMLICKA W., 1989 – *Liberalism, Community, and Culture*. Oxford, Oxford University Press.

KYMLICKA W., 1995 – *Multicultural Citizenship*. Oxford, Oxford University Press.

LENNOX C., SHORT D., 2016 – *Handbook of Indigenous People Rights*. London, Routledge.

LE ROY É., 1999 – *Le jeu des lois, une anthropologie dynamique du droit*. Paris, LGDJ.

LESPINAY (de) C., 2016 – Les concepts d'autochtone (*indigenous*) et de minorité (*minority*). *Droit et cultures*, 72 (2): 19-42.

MARTINEZ COBO J., 1987-1988 – *Étude du problème de la discrimination à l'encontre des populations autochtones*. New York, Nations unies, 5 vols.

MICHALLET I., 2016 – « La notion de diversité biologique en droit international. In Négri V. (dir.): *La diversité dans la gouvernance internationale. Perspectives culturelles, écologiques et juridiques*, Bruxelles, Bruylant, coll. Droits Territoires Cultures: 75-95.

MORANGE J., 2007 – *Les libertés publiques*. Paris, PUF, Que sais-je ? 1<sup>re</sup> éd. 1804.

OST F., VAN DE KERCHOVE M., 1992 – *Le Droit ou les Paradoxes du Jeu*. Paris, PUF.

NICOLAU G., PIGNARRE G., LAFARGE R., 2007 – *Ethnologie juridique*. Paris, Dalloz.

PANIKKAR R., 1984 – La notion des Droits de l'homme est-elle un concept occidental ? *Interculture*, XVII, n° 1 et 2, cahiers 82-83: 1-26.

PIAZZON T., 2009 – *La sécurité juridique*. Paris, Defresnois-Lextenso.

REITZ J. G., BRETON R., 1994 – *The Illusion of Difference. Realities of Ethnicity in Canada and The United States*. CD, Howe Institute, Toronto.

ROULAND N., 1991 – *Aux confins du droit*. Paris, Odile Jacob.

ROULAND N., 2015 – Autonomie et autochtonie dans la zone pacifique sud : approches juridique et historique. *Revue française de droit constitutionnel*, 2015/4, 104: 911-934.

ROULAND V. N., PIERRÉ-CAPS S., POUMARÈDE J., 1996 – *Droit des minorités et des peuples autochtones*. Paris, PUF, coll. Droit politique et théorique, 249: 433.

SCHULTE-TENCKHOFF I., 2016 – « La déclaration des Nations unies sur les droits des peuples autochtones : prétexte à quelques réflexions sur les usages de la diversité culturelle ». In Négri V. (ed.) : *La diversité dans la gouvernance internationale. Perspectives culturelles, écologiques et juridiques*, Bruxelles, Bruylant, coll. Droits Territoires Cultures: 33-53.

SÉRIAUX A., 1975 – Question controversée : la théorie du non-droit. *Revue de la recherche juridique – droit prospectif*, 1: 13.

YOUNG I., 1990 – *Justice and the Politics of Difference*. Princeton, Princeton University Press.



# Doing away with “indigenous” as a category in common law

In favour of a new vision  
of law: “round law”

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In spite of the legal progress made in recent decades, indigenous peoples are still falling victim to various forms of dispossession: of land, of fauna and flora, of their knowledge. How can we resolve these injustices? It is possible to use existing legal regulations and institutions and, when they prove to be insufficient, to improve them. In order to do so, however, we must first convince law-makers of the need to collectively (re)define their content, on a case-by-case basis. Indeed, if we really and sincerely hope to make reparation for the injustices endured by indigenous peoples, then the protection of their rights – including the definition of the nature and content of these rights – requires a profound re-examination of the paradigms generally encountered in the fields of law and indigenous rights. In this chapter we argue that the “revolution” required in this field is first and foremost a matter of “decolonising” the laws applicable to indigenous peoples, [1] a subject where past developments in national legislation, particularly in France, may provide a source of inspiration [2]. Ultimately, what we propose here is an innovative approach to legal praxis that we call “round law” [3].

## Indigenous peoples and the law: the need for decolonisation

Indigenous peoples' right to self-determination endows them with certain prerogatives, including the obligation for third parties to obtain their prior, informed consent before making use of their heritage, and also to ensure that the benefits of such usage are shared fairly and equitably.

This necessarily specific system nevertheless assumes that the indigenous character of the people in question is already acknowledged, at the very least by their peers, and ideally by the national government within whose territorial boundaries they live. It also implies the need for an explicit definition of what constitutes their heritage. Neither of these conditions is simple to manage, since neither of these qualities is unquestionable.

First of all, the population in question must be considered to constitute an "indigenous people." There is no undisputed definition of those terms, but their use within the international community appears to be predicated upon a number of cumulative criteria: historic continuity with precolonial populations, a non-dominant situation, a distinct social, economic or political system, a distinct language, a specific culture and set of beliefs and a desire to maintain these specificities, self-identification as an indigenous people, and the fact of being a minority.

The constituent elements of their heritage must then be regarded as "indigenous heritage." Here again, there is no clear and definitive definition. We can, however, draw upon working definitions of the kind put forward by Special Rapporteur Erica-Irene Daes in 1995, in her revised version of the Principles and Directives for the Protection of the Heritage of Indigenous People (see Box 1), partially reproduced in the UN Declaration on the Rights of Indigenous Peoples (Articles 24 and 31).

There are several possible approaches to transposing the necessary conditions for protecting the heritage of indigenous peoples, and

two main types of tools: those associated with juridicity,<sup>1</sup> including codes of conduct and international protocols, and those derived from positive law (KARPE, 2008).<sup>2</sup> In the latter scenario, common law may be invoked – particularly contract law, criminal law and intellectual property law – but this alone is not sufficient to offer comprehensive, targeted protection.

Above and beyond economic and political considerations, there is a fundamental “cultural conflict” at play in the way we understand the living world in general, and its social organisation in particular. This cultural conflict between indigenous peoples and modern states has led, among other things, to claims of biopiracy, where the challenge of distinguishing between premeditation, negligence, incompetence and ignorance makes it very difficult to establish the motivations of those accused (see Chap. 5). This cultural dispute might be defined as a moment of “discord, in the strongest sense of the word, between individuals and cultures [...] confronted with their otherness; that moment, in the necessarily long period of acculturation, where cultures are not capable of either exchange or dialogue because they have no shared idiom. They come into conflict because they are entangled in their respective understandings of Time, Knowledge, Power, the Body and the Law. Their divergent relationships to Time, Knowledge, Power, the Body and the Law are so different that these societies inevitably feel the need to square up to one another: legitimacy against legitimacy, ancestral rules versus modern laws. A clash of Ages.” (LEFEUVRE-DÉOTTE, 1997).

As a result of this cultural conflict, international law concerning indigenous peoples is beset by certain intrinsic weaknesses. First and foremost, it is not representative of a genuine legal pluralism. It remains founded and structured according to a purely Western model. The current status of “indigenous” people (at home and

<sup>1</sup> Juridicity is a concept which enables us to comprehend law not solely in terms of general, abstract norms expressed in legal texts (laws, executive orders etc.), but also in the light of the practices adopted by stakeholders (public authorities, indigenous peoples, women etc.). This focus on praxis serves to reveal other models of conduct and behaviour, casting new light on the meaning and scope of general, abstract norms.

<sup>2</sup> Positive law encompasses all rules of law presently in force.

Box 1.

### Heritage of indigenous peoples

UN Commission on Human Rights, Document E/CN.4/Sub.2/1995/26, Title: Discrimination against indigenous people. Protection of the heritage of indigenous people. Final report of the Special Rapporteur, Mrs. Erica-Irene Daes, in conformity with Subcommission resolution 1993/44 and decision 1994/105 of the Commission on Human Rights. Annex: Principles and Guidelines for the Protection of the Heritage of Indigenous People. Definitions:

11. The heritage of indigenous peoples is comprised of all objects, sites and knowledge the nature or use of which has been transmitted from generation to generation, and which is regarded as pertaining to a particular people or its territory. The heritage of an indigenous people also includes objects, knowledge and literary or artistic works which may be created in the future based upon its heritage.

12. The heritage of indigenous peoples includes all moveable cultural property as defined by the relevant conventions of UNESCO; all kinds of literary and artistic works such as music, dance, song, ceremonies, symbols and designs, narratives and poetry; all kinds of scientific, agricultural, technical and ecological knowledge, including cultigens, medicines and the rational use of flora and fauna; human remains; immovable cultural property such as sacred sites, sites of historical significance, and burials; and documentation of indigenous peoples' heritage on film, photographs, videotape, or audiotape.

13. Every element of an indigenous peoples' heritage has traditional owners, which may be the whole people, a particular family or clan, an association or society, or individuals who have been specially taught or initiated to be its custodians. The traditional owners of heritage must be determined in accordance with indigenous peoples' own customs, laws and practices.

internationally) is still entangled in categories and concepts which are restrictive, dogmatic and closed. It is expressed in the form of specific provisions. In this respect it remains entirely under the control, and defined by the interests, of those who reject and fear the claims of indigenous peoples (see Chap. 7).



"The 'indigenous question' has become part of a broader framework designed to protect peoples considered in terms of inferiority, wherein the superior authorities have an obligation to provide support and assistance in the manner of a guardian or protector. But instead of a legal guardianship, which would end when the subject reaches adulthood, this protection has become a form of permanent legal assistance for incapacitated adults. The final document produced by the high-level meeting of the UN General Assembly concerning the World Conference on Indigenous Peoples of 22 September 2014 did nothing to change this situation. It becomes evident from the very first lines that we have yet to fully escape the minority or guardianship syndrome." (LE ROY, 2020a) In spite of various attempts at hybridisation, with varying degrees of success and the best of intentions, a legal system built on these lines tends to perpetuate a state of affairs characterised by the privation and/or violation of the rights of indigenous peoples (see Chap. 7).<sup>3</sup> Indigenous law is thus in serious need of decolonisation (KARPE, 2008; LE ROY, 2020a; BOUTINOT & KARPE, 2020), which will only be possible and effective if it comes as part of a radical overhaul of legal thought.

## The concept of "*communautés d'habitants*", constraints and opportunities

Informed by its republican tradition and the indivisibility of the nation, France has opted to transpose the Nagoya Protocol into its national legislation by replacing the term "indigenous and local communities" used in the Convention on Biological Diversity with the original coinage "*communauté d'habitants*." (Focus 3). This has given rise to a new common law which builds

<sup>3</sup> The debate surrounding the special legal provisions for indigenous knowledge and resources, and particularly the pertinence of judicial appeals in such matters, is testament to the refusal or inability of legal scholars to settle this question.

Box 2.

**Texts which constitute the special legal framework for the protection of the heritage of local and indigenous communities in France**

**French laws:**

Law No. 2016-1087 of 8 August 2016 for the reconquest of biodiversity, nature and landscapes

Framework Law No. 2017-256 of 28 February 2017 concerning genuine equality in the Overseas Territories, and containing other provisions of a social and economic nature

Law No. 2019-773 of 24 July 2019 establishing the French Biodiversity Office, modifying the responsibilities of hunting federations and reinforcing policing of environmental matters

Executive Order No. 2019-736 du 16 July 2019 designating, for the implementation in French Guiana of the procedure outlined in Articles L. 412-9 et seq. of the Environment Code, the public legal entity responsible for organising the consultation of *communautés d'habitants* holding traditional knowledge associated with genetic resources

Executive Order No. 2017-848 of 9 May 2017 on access to genetic resources and associated traditional knowledge, and sharing the benefits derived from their use

Order of 13 September 2017 establishing a standard benefit-sharing contract for the utilisation of genetic resources taken from within France, as described in Article R. 412-20 of the Environmental Code

**European Laws:**

Regulation (EU) No 511/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union

Commission Implementing Regulation (EU) 2015/1866 of 13 October 2015 laying down detailed rules for the implementation of Regulation (EU) No 511/2014 of the European Parliament and of the Council as regards the register of collections, monitoring user compliance and best practices

Commission notice — Guidance document on the scope of application and core obligations of Regulation (EU) No 511/2014 of the

European Parliament and of the Council on the compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation in the Union (2016/C 313/01)

Report from the Commission to the European Parliament and the Council Regulation (EU) No 511/2014 of the European Parliament and of the Council of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union. COM/2019/13 final

upon that initially established for Amerindian and Bushinenge communities in French Guiana, informed by a clear commitment to avoiding any form of isolation, exclusion or discrimination in the territories in question.

### **The legal status of indigenous peoples in France**

The legal status of Amerindians in French Guiana has been defined by special legal arrangements for several decades now. This legal status long remained a tacit reality. It was to be inferred from the commentary on Articles R. 170-56, R. 170-58 and D. 34 of the Public Domain Code. These texts could be considered to demonstrate that the Amerindians of French Guiana continued to be governed by their own customs, since the articles in question clearly distinguish between tribes (or communities) and associations or companies (purely Western inventions), while also conferring certain proprietary, collective rights upon tribes. This recognition was nonetheless incomplete and discriminatory, since it endowed the community with legal personhood and usage rights under the terms of contemporary French law, and not in terms derived from indigenous law (TIOUKA & KARPE, 1998).

Reading the parliamentary debates on the use of the term 'indigenous' when transposing the Nagoya Protocol into French law, it becomes clear that there was a genuine desire to protect "local and indigenous communities" by reconciling in a manner which was

“fair and measured”<sup>4</sup> and “balanced, realistic, pragmatic and even simplifying”<sup>5</sup> all of the rights, fundamental values and principles, opinions and interests in play. This was corroborated by the subsequent debates on the Law on Biodiversity in the Assemblée Nationale, specifically with regard to certain aspects of the legality of efforts to protect the heritage of indigenous peoples, and whether or not it was apposite to use the term indigenous.

It seemed obvious and legitimate to use the term, since it is “[consistent with] Article 8, paragraph j) of the CBD, adopted at the Earth Summit in Rio de Janeiro in 1992 and subsequently ratified by France.”<sup>6</sup> However, using this term posed a risk that the law would be struck out as unconstitutional, thus rendering the protective measures null and void. In order to avoid this risk and establish an effective legal protection for the heritage of indigenous peoples, the term *communautés d’habitants* (see Chaps. 7 and 11) was selected, an expression which embodies a fragile equilibrium between divergent preoccupations.<sup>7</sup> We might well question the need for equilibrium in these matters; It is by no means certain that the term “indigenous” is unconstitutional (KARPE, 2008). Nonetheless, due to the absolutely singular nature of the objective pursued, there is clearly a desire for reconciliation which has informed this choice of terminology. In light of this singularity, and the sincerity with which the objective of reconciliation has been pursued, some have argued in favour of modifying the Constitution: “Ms. Chantal Berthelot has spoken from the heart, and what she says is correct, and moving. [This text] seeks to grant rights [to Amerindians]. I understand what you are saying, but I refuse to take the risk of contravening the Constitution, which would prevent them from accessing these benefits. You might, however, propose a modification to the Constitution at a later date, so that the inclusion of such terms in a law would no

<sup>4</sup> Mr. Hervé Maurey, President of the territorial and sustainable development committee. Senate Session 2015-2016. Full Proceedings of Tuesday 19 January 2016 JORF, 2016. – N° 4 S. (C.R.) Wednesday 20 January 2016, p. 256.

<sup>5</sup> Idem, p. 255.

<sup>6</sup> Jacques Cornano. Senate Session 2015-2016. Full Proceedings. Wednesday 20 January 2016 JORF, 2016. – No 5 S. (C.R.) Thursday 21 January 2016, p. 412.

<sup>7</sup> An alternative formulation, “residents of the same living community” was proposed and subsequently dropped.

longer constitute an infringement on the overarching standard. I therefore oppose the adoption of this amendment."<sup>8</sup>

A solution was eventually found to facilitate and reinforce the participation of indigenous people in decision-making processes in French Guiana. Following a constructive exchange between member of parliament Chantal Berthelot and the government, a new law was finally adopted. Framework Law No. 2017-256 of 28 February 2017 concerning genuine equality in the Overseas Territories, and containing other provisions of a social and economic nature (EROM) modified the status of the Council for Consultation with the Amerindian and Bushinenge populations of French Guiana (CCPAB), now transformed into the Grand Customary Council of Amerindian and Bushinenge Populations (Article 78). This change of status enables the Council to oversee the creation of a public institution charged with organising the consultation of *communautés d'habitants* who hold traditional knowledge associated with genetic resources, negotiating and signing benefit-sharing agreements with users. The Council is also represented on the new institution's board of directors, and plays a role in appointing its president. The Executive Order of 17 June 2008, which established the Council for Consultation with the Amerindian and Bushinenge Populations of French Guiana (CCPAB), also states that a legal person should organise consultations with indigenous people in order to gather, where relevant, their consent (see Chap. 12).

### **French biodiversity law**

Law No. 2016-1087 of 8 August 2016 on the reconquest of biodiversity, nature and landscapes (the Law on Biodiversity) not only reasserts, but also sets out the precise parameters of the legal protection afforded to the heritage of local communities in French Guiana. This includes access to and utilisation of genetic resources, as well as the utilisation of traditional knowledge associated with genetic resources.

<sup>8</sup> Secretary of State addressing the Assemblée Nationale. Constitution of 4 October 1958, 14<sup>th</sup> Term. Modified report no.3564, recorded by the office of the President of the Assemblée Nationale on 9 March 2016.

With regard to access to genetic resources, *communautés d'habitants* have certain proprietary rights if those resources are found within their territory. These rights differ depending on whether or not the access is for the “direct purpose of commercial development.” In terms of traditional knowledge associated with genetic resources and their utilisation, access is entirely subject to a system of authorisations, which can only be awarded by the “competent administrative authority” by means of a procedure designed to gather the prior, informed consent of the people in question. The consultation must be led by a public legal entity, which may be a public institution for environmental cooperation, a consultative council, or else the central government or one of its public institutions responsible for environmental matters.<sup>9</sup> It must involve a limited number of successive, compulsory and precisely-defined stages (Box 3).

### Progress and restrictions

The different texts which make up these special legal arrangements for the protection of the heritage of *communautés d'habitants* in France are testament to a strong commitment to protecting both their rights and their heritage, not least in the novel and forceful use of very clear language in the text of the law, committing in no uncertain terms to the “fight against biopiracy,” (Article 21) “prior, informed consent” (Article 37) and “fair and equitable benefit-sharing” (Articles 21 and 37), as well as a substantial development of traditional knowledge as a category (Article 37).

Nevertheless, these texts also place certain restrictions upon the protection of these rights (see Chap. 7). They include material restrictions: no protection is afforded to elements of heritage whose ownership cannot be proved, or those “whose properties are well known and have been used regularly over a long period of time outside the *communautés d'habitants*” (Article 412-5-II. e) and f) of the Environment Code). There are also temporal restrictions: this legal status is only applicable to collections of genetic

<sup>9</sup> Currently in French Guiana, the role of the designated public entity is fulfilled, on a temporary basis, by the French Guiana Amazonian Park (see Chaps. 7 and 13).

Box 3.

**Processes for the consultation of indigenous peoples:  
a delicate undertaking**

As per Article L.412-11 of the Law on Biodiversity, the public legal entity shall:

"1° Identify the *communautés d'habitants* affected by the request and determine, where relevant, whether or not these communities have customary or traditional representative structures capable of approving or rejecting the utilisation of the traditional knowledge associated with genetic resources that they hold, and the sharing of the attendant benefits;

2° Determine the appropriate information and participation mechanisms for the *communautés d'habitants* involved;

3° Deliver this information;

4° Consult, where necessary, any institution, agency, association or publicly-recognised foundation qualified with regard to the content of the request, or the *communautés d'habitants* affected;

5° Ensure the participation of all *communautés d'habitants* affected and seek a consensus;

6° Compile an official summary report of the consultation and its results, including:

a) Prior, informed consent to the utilisation of knowledge, or refusal to grant such consent;

b) The conditions governing utilisation of the knowledge;

c) The presence or absence of an agreement on the sharing of the benefits derived from this utilisation, and the condition of this sharing arrangement;

7° Pass on a copy of this report to the representative structures of the relevant *communautés d'habitants*."

During the consultation process, the request file must be presented to the indigenous people involved "in a manner compatible with their lifestyle and culture, and particularly in a language or dialect that they understand."

On the basis of this report, the qualified administrative authority will "approve or reject, wholly or partially, the utilisation of the traditional knowledge associated with the genetic resources." It is stipulated that

the utilisation of the associated traditional knowledge is “restricted to the purposes and conditions explicitly set out in the authorisation [...] Any change of utilisation not covered by the authorisation [...] will require a new authorisation request or declaration.”<sup>10</sup>

Specific monitoring rules and sanctions (refusal of authorisation, damages, fines, prison sentences) are in place in order to guarantee the efficacy and efficiency of these special legal arrangements for the protection of the heritage of *communautés d’habitants*.<sup>11</sup>

resources and associated traditional knowledge constituted since the promulgation of the law. For collections which existed previously, it concerns only new instances of access or new utilisations, the latter being defined as “any research and development activity conducted for the direct purpose of commercial development, in a field of activity clearly distinct from that previously occupied by the same user with the same genetic resource and associated traditional knowledge.” Although they are recognised as the owners of genetic resources, *communautés d’habitants* are not the designated recipients of information and knowledge derived from them by the declaring parties. The benefits to be shared are also limited: the percentage of turnover used to calculate the financial contributions owed by users of genetic resources must not exceed 5%, irrespective of the number of genetic resources covered by the authorisation.

In fact, the inaccuracies and doubts arising from the current status are more detrimental than the clear regulations, even if those regulations impose limitations on rights. As such, the authorisation procedure for accessing genetic resources only applies if the development objective in question is clearly commercial in nature. Worse still, commercial development must be the “direct” purpose of the activity. Similarly, although the use of the term consensus (Article L. 412-11 5 of the Environment Code) surely

<sup>10</sup> Articles L. 412-12.-I. (Paragraph 1), L. 412-12.-I. (Paragraph 2) and L. 412-17.-III. (Paragraph 2) of the Environment Code.

<sup>11</sup> Articles L. 412-14.-II and L. 415-3-1 of the Environment Code.



indicates a desire to respect the (presumed) modes of decision-making in place within *communautés d'habitants*, this term is too vague and open to interpretation, or even manipulation. The pernicious effects of this lack of precision are aggravated by uncertainties regarding the real nature of the power wielded by the administrative authorities involved: are they obliged to participate, do they hold a veto, does silence constitute tacit approval? A further blow to the protection of *communautés d'habitants* is the fact that judges appear ill-equipped to clarify and build upon the existing rules.

## The concept of "round law"

In its efforts to engage with issues of social and ecological justice, the dominant mode of legal thought is wrapped up with positive law in a system which allows it to legitimise and entrench the like-for-like reproduction of modern societies. In this model, with its systematic prioritisation of economic rationality, social and ecological issues are of marginal importance; they are considered only superficially, and undermined as a result.

And yet, as far back as the late 19<sup>th</sup> century Alfred Fouillée was mooting the potential of "social justice as an alternative to naturalistic representations of the organisation of human societies which establish a dichotomy between the individual and the State." (SUPIOT, 2019) In this view, solidarity between individuals is a source of both rights and obligations, and depends upon the ability to live together. This moral normativity can be translated into legal provisions by means of iterative practices shared by users within a given milieu, practices which are adapted over time and in response to the specific circumstances they encounter, and as such are viewed as legitimate by the groups concerned.

By this logic, we must also rethink, on a case-by-case basis, the stakes and objectives of a vision of justice that is at once social and ecological, the starting point for the creation of what we might call "round law," in order to underline the importance of solidarity

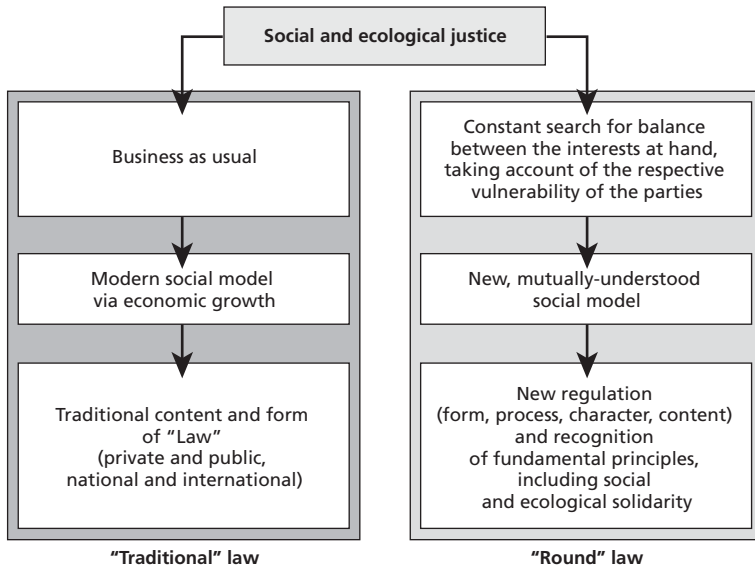
and harmony for all in this new, alternative vision of law. This might provide a platform for negotiating a new vision of common law (i.e. a law of *the commons*), as the basis for a genuine, living community (KARPE et al., 2015).

The legal tradition is very much linear: we start from an objective and set out to attain a result, regardless of the order or nature of the steps required to get there. Norms and standards are accumulated and superposed, constituting an order which guarantees the security of relations between recognised legal entities. Institutionalisation, the dominant thinking goes, is a prior requirement for the identification of the stakeholders to be defended. The securitisation of their relations, meanwhile, is safeguarded by an established external authority, with little consideration for the specific dynamics inherent to the entities involved.

And yet, while social and ecological justice is the stated objective of the special legal arrangements put in place to protect *communautés d'habitants*, defending and promoting a method and a set of values which are genuinely useful to these groups requires us to constantly re-examine what the law is, what it does, and how we define its social pertinence (LE ROY, 2014 ). In this sense, legal experts may prove themselves useful: through sheer “technical/practical” necessity, the “positive,” “humanist” and “inquisitive” nature of legal scholars becomes a fundamental “political and moral” requirement (AUBERT & KARPE, 2019; LE ROY, 2020b). Departing from traditional legal logic, this approach is controversial even now, often accused of a disregard for legal tradition verging on the heretical (fig. 1).

“Round law” is an original vision of the law, a concept still under construction. Encompassing both legal security and juridicity (LE ROY, 2020b), it also encourages unorthodox modes of reflection, writing and presentation. This vision of the law represents a voluntary departure from the usual academic rules. It is largely a matter of “intimate conviction” (DUCRUET, 2019) and resonance (ROSA, 2020). It is not necessarily a particular, pre-defined structural method which does not require further reflection. It is more like an objective, a status, a situation to be exploited, legitimately and legally, within a given time and space. Our vision of round law seeks to initiate a dynamic movement within the law, where

Figure 1.  
In defence of "round law"



the rules governing the utilisation of shared resources are defined by their availability, with respect to the diverse array of users who benefit from them.

In fact, these three terms (round law, juridicity and dynamic law) are complementary rather than contradictory. There are, nonetheless, nuances to be borne in mind, primarily as a result of their respective backgrounds: land law for juridicity, biodiversity for dynamic law, and human rights, including indigenous rights, for 'round' law.

Finally, in order to fully "decolonise" the status of "indigenous" people, it would perhaps be pertinent to encourage the adoption of "indigenous" as a category of common law, drawing upon the Convention on Biological Diversity and the Nagoya Protocol, which establish new rights for communities united by shared ways of life or interests within a given territory (local and indigenous communities). These developments in international law, translated into national legislation (even in jurisdictions which do not directly use the term "indigenous people," like France), constitute important tools for protection and promotion.

For the time being there is no need to prioritise one of these forms of protection over the other, preferring the approach inspired by an alternative vision of the law (“round law”) or that developed within the traditional legal framework. We in fact need to combine them in a strategically intelligent manner in order to remain sensitive to the context (with greater prudence and a more solid grounding). Under no circumstances should this proposal be imposed unilaterally. The goal is to safeguard the freedom of thought and action of legal practitioners and beneficiaries, including indigenous people themselves, and in doing so to affirm the legitimacy and pertinence of their proposals and social innovations. Such innovations could, for example, be developed and piloted by citizens themselves.

The current legal structure in place to protect the heritage of indigenous peoples, particularly as embodied in the French Law on Biodiversity of 8 August 2016, cannot truly be considered compatible with “round law.” Nevertheless, it could represent a significant step towards the intellectual and political acceptance of this vision, and thus its adoption in the long term. Attempts to reconcile indigenous laws with the French Constitution have led to a broader recognition of the importance of living communities and the different forms of solidarity (both social and ecological) which characterise them. The challenge now is to foster the emergence of the conditions required to achieve genuine social and ecological justice, including a new approach to legal practice.

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### **References**

AUBERT S., KARPE P., 2020 – *La juridicité des communs ou le foncier « fait social total »*. *Hommage à Etienne Le Roy /The legality of the commons or the land as « total social fact »*; *Tribute to Etienne Le Roy*. African Commons, International Association for the Study of the Commons, 2020, Web Conference. [https://africa.iasc-commons.org/video\\_presentation/la-juridicite-des-communs-ou-le-foncier-comme-fait-social-total-hommage-a-etienne-le-roy/](https://africa.iasc-commons.org/video_presentation/la-juridicite-des-communs-ou-le-foncier-comme-fait-social-total-hommage-a-etienne-le-roy/)

AUBERT S., KARPE P., 2019 – « Comment envisager le droit des Communs tissés autour de la terre et des ressources qu'elle porte ? » In Delmas B., Le Roy E., Giraud G. (éd.): *Les Communs aujourd'hui, enjeux planétaires d'une gestion locale de ressources renouvelables*, Paris, Karthala: 73-100.

BOUTINOT L., KARPE P., 2020 – « La question autochtone : forme et processus de construction d'une doctrine naissante spécifiquement africaine ». In Hervé-Fournereau N., Thériault S. (éd.): *Peuples autochtones et intégrations régionales. Pour une durabilité repensée des ressources naturelles et de la biodiversité*, Rennes, Presses universitaires de Rennes.

DUCRUET B., 2019 – *L'humilité selon Saint Benoît*. Éditions des Béatitudes, coll. Petits traités spirituels.

KARPE P., 2008 – *Le droit des collectivités autochtones*. Paris, L'Harmattan, Collection Logiques juridiques.

KARPE P., EDOUARD F., TIOUKA A., GUIGNIER A., BOEV I., 2015 – « Privateer, pirate or ghost ship? An inquiry into the complementarity between Community law and French law for the benefit of the indigenous peoples of French Guyana ». In Coolsaet B., Batur F., Broggiato A., Pitseys J., Dedeurwaerdere T. (eds.): *Access and benefit-sharing (ABS) regimes in Europe and the implementation challenges of the Nagoya Protocol in the EU*, Brill/Martinus Nijhoff book: 245-279.

LEFEUVRE-DÉOTTE M., 1997 – *L'excision en procès : un différend culturel ?* Paris, L'Harmattan.

LE ROY É., 2014 – *Le monologisme juridique, le droit constitutionnel et le défi du pluralisme, contribution à une juridicité intégrative*. Congrès mondial de droit constitutionnel, Oslo, 17 juin 2014, Paris, Laboratoire d'anthropologie juridique de Paris.

LE ROY É., 2020a – « En quoi et pourquoi l'intégration est-elle requise des sociétés autochtones ? » In Hervé-Fournereau N., Thériault S. (éd.): *Peuples autochtones et intégrations régionales. Pour une durabilité repensée des ressources naturelles et de la biodiversité*, Rennes, Presses universitaires de Rennes.

LE ROY É., 2020b – *Pourquoi et comment la juridicité des communs s'est-elle imposée dans nos travaux fonciers ? Récit d'une initiation*. <http://www.foncier-developpement.fr/publication/pourquoi-et-comment-la-juridicite-des-communs-sest-elle-imposee-dans-nos-travaux-fonciers-recit-dune-initiation/>

ROSA H., 2020 – *Rendre le monde indisponible*. Paris, La Découverte.

SUPIOT A., 2019 – *La force d'une idée suivi de L'idée de justice sociale d'Alfred Fouillée*. Paris, Les liens qui libèrent.

TIOUKA A., KARPE P., 1998 – Droits des peuples autochtones à la terre et au patrimoine. *Journal d'agriculture traditionnelle et de botanique appliquée*, bulletin n°1-2, « Conserver, gérer la biodiversité : quelle stratégie pour la Guyane ? »: 611-633.

WILLETT G., 1996 – Paradigme, théorie, modèle, schéma : qu'est-ce donc ? *Communication et organisation* [En ligne], 10 | 1996, mis en ligne le 26 mars 2012, consulté le 03 avril 2020. <http://journals.openedition.org/communicationorganisation/1873>.

# The protection of traditional knowledge associated with biodiversity in New Caledonia

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Among the objectives expressed in the Nouméa Accord of 1998 on the institutional future of New Caledonia – particularly its Preamble – one is not to undo, but rather to rectify, the inequalities, denials of civil and political rights and various forms of cultural and material theft suffered by the indigenous Kanak people throughout the 150-year history of French colonisation in the archipelago. The very idea, if not the principle, of sharing the benefits derived from biological resources and associated forms of traditional knowledge (access and benefit-sharing, or ABS), enshrined in the CBD and the Nagoya Protocol, corresponds to the need for recognition and acceptance of a restored sense of equality felt by Kanaks, a necessary prerequisite for the “common destiny” heralded as a road map for the people of New Caledonia in the Nouméa Accord.

The first section of this chapter offers a recap of the specific historical and institutional context of New Caledonia. This context needs to be borne in mind when contemplating the political and legal structures required to oversee ABS, addressed in the second section.

## Specificities of the Caledonian context

### Historical context

To a certain extent, the current context of New Caledonia has been shaped by the historical and constitutional heritage it shares with France, and as such it is important to begin with an extract from the Preamble of the Nouméa Accord of 5 May 1998 (see Box 1 for the full text). Rereading this text is essential to better comprehending the context in which the issue of ABS exists in New Caledonia. After addressing the conditions in which France unilaterally seized possession of the New Caledonian archipelago, the preamble describes the importance of the indigenous inhabitants' sense of connection to the land, one of the fundamental pillars of Kanak identity. It makes no sense to talk of access to the land – or the sea – and their resources without first acknowledging the profound connection of the Kanaks to this land, which is above all an object of respect and dignity, rather than a source of monetisable resources.

The Nouméa Accord is unequivocal in this regard:

“The impact of colonisation had a long-lasting traumatic effect on the indigenous people.

Some clans lost their names when they lost their land. Large-scale land colonisation caused considerable population movements, in which the Kanak clans saw their subsistence resources depleted and their places of memory lost. This process of dispossession engendered a loss of identity markers. [...]

At the same time, the Kanak artistic heritage was considered non-existent or looted.

To this denial of the fundamental elements of the Kanak identity, were added restrictions on public freedoms and a lack of political rights [...].

The Kanaks were relegated to the geographical, economic and political fringes of their own country [...].

Colonisation harmed the dignity of the Kanak people and deprived them of their identity. In this confrontation, some men and women lost their lives or their reasons for living. Much suffering resulted



from it. These difficult times need to be remembered, the mistakes recognised and the Kanak people's confiscated identity restored, which equates in their mind with a recognition of their sovereignty, prior to the forging of a new sovereignty, shared in a common destiny."

Nonetheless, one of the strengths of the Nouméa Accord is that it is not simply content with restating these painful facts. It also sets out to heal old wounds in a somewhat original manner: rather than proposing a return to the pre-1853 status quo (the year in which France took possession of the islands), an unrealistic prospect which amounts to ignoring the course of history, the accord prioritises the restoration of the dignity of the islands' indigenous inhabitants along with their lost sovereignty, with a resolutely forward-looking attitude: "The past was the time of colonisation. The present is the time of sharing, through the achievement of a new balance. The future must be the time of identity, in a common destiny."

Restitution of the identity stolen from the Kanak people, and recognition that now is the time for sharing, are key principles contained in the preamble to the Nouméa Accord which also serve to legitimise and operationalise the application of Article 8J of the 1992 Convention on Biological Diversity and the Nagoya Protocol in New Caledonia.

These texts reassert the sovereignty of national governments over their genetic resources, and the rights of local communities over the traditional knowledge associated with those resources, both prerequisites for the fair and equitable sharing of the benefits derived from them.

### **The institutional context**

The Nouméa Accord of 1998 comprises the preamble discussed above along with a "policy document" which was then extensively transposed into law in Articles 76 and 77 of the French Constitution dealing exclusively with New Caledonia, as well as Framework Law 99-209 of 19 March 1999 regarding the institutional future of New Caledonia. The negotiators responsible for the Nouméa Accord thus combined the road map for a shared destiny, as set out in the preamble, with an institutional

architecture every bit as original, often described – and not without reason – as a “mille-feuille” arrangement that is complex, but also goes to great lengths to maintain balance and peace between the Kanak people and other communities living on the island as a result of colonisation.

Without addressing this institutional architecture in too much detail, it is worth discussing its principal points in order to give a clearer picture of the myriad subtleties involved in creating an appropriate legal framework for the deployment of an ABS mechanism in New Caledonia.

The first level of institutional engineering in play in New Caledonia makes use, as numerous authors have noted, of the possibilities offered by a two-tier federal system. This corresponds to the relationship between France and New Caledonia, on the one hand, and between New Caledonia and its three provinces, on the other, these three provinces having been created in 1988 and confirmed in 1998.

There are thus four layers of administrative subdivisions in New Caledonia: the State, New Caledonia, the provinces of Loyalty Islands, North and South, and the thirty-three municipalities. In parallel to these administrative divisions, there are eight customary areas (*aires coutumières*) covering the whole country.

The Framework Law of 99-209 established the division of statutory authority between these administrative divisions. While allocating specific responsibilities to central government, to the New Caledonian government and to the municipalities, the law also states that the Provinces have full regulatory authority in all other matters. For its part, the French government has promised to gradually transfer to New Caledonia the majority of its responsibilities under the Law of 1999, with the exception of sovereign powers such as defence and international relations, whose transfer would be tantamount to granting full sovereignty to New Caledonia.

Each administrative division is endowed with a number of institutions charged with delivering upon its responsibilities.

New Caledonia thus has its own Territorial Congress, with elected officials from the provinces. The Congress acts as both

the deliberative and legislative authority for New Caledonia. Executive power is held by a collegiate government appointed by the Congress, and whose make-up reflects the balance of loyalist and independentist parties in the Congress.

Each province has its own deliberative assembly, with the president of each endowed with executive powers.

Justice is exercised by the State Tribunals and Courts.

It is also interesting to observe the institutionalisation of customary authority structures: a Customary Senate has been established, with 16 senators. The eight customary areas nominate, in accordance with their own customs and practices, two representatives each.

The Customary Senate acts as co-legislator on issues relating to Kanak identity. In this respect, the Senate has proven itself to be proactive when it comes to protecting traditional Kanak knowledge, recently taking the initiative on a bill which would regulate access to genetic resources and associated traditional knowledge throughout New Caledonia, establishing a system for the valuation of these resources and forms of knowledge.

As a result of this distribution of responsibilities, different aspects of regulatory intervention associated with the implementation of the ABS mechanism fall within the remit of different administrative divisions.

The French government, for example, remains accountable to the international community for the implementation by New Caledonia and its provinces of the international agreements signed and ratified at national level, with the Nagoya Protocol being a notable example.

New Caledonia, which now has a legislative power through the *lois du pays* voted by its Congress, has been responsible for matters of civil law since July 2013, including the protection of intellectual property rights. It therefore falls to New Caledonia to ensure the security of the traditional knowledge associated with biodiversity held by Kanak clans and tribes, but also by individuals within some of the communities present in their territory, including Pacific islanders and those of Asian origin.

There is now a permanent understanding in place whereby the provinces are responsible for their environmental policies, with each provincial government charged with regulating access to natural resources and sharing the benefits derived from their utilisation.

The three provinces have therefore adopted their own environmental codes (Loyalty Islands in 2016, North Province in 2008 and South Province in 2009), which means that there are also three different ABS mechanisms in play. The South Province mechanism dates back to 2009, but it was recently updated to take account of the French Law on Biodiversity passed in 2016. The North Province adopted its own ABS mechanism in January 2019. Loyalty Islands Province adopted an ABS system in June 2018 which differs from those in place in the other provinces on certain key points, including the decision not to distinguish between different reasons for accessing biodiversity resources. This means that commercial and non-commercial operations alike require authorisation from the Loyalty Islands Province and the relevant customary authorities, whereas the other provinces have established simplified procedures for research with no commercial purposes.

New Caledonia, meanwhile, is shortly due to adopt new rules regulating access to biological resources and the sharing of benefits derived from their utilisation, applicable specifically to the Caledonian exclusive economic zone (EEZ). New Caledonia's 1.3 million square-kilometre EEZ is now better known as the Coral Sea Nature Park, established by order of the New Caledonian government in 2014.

## How is traditional knowledge regulated in New Caledonia?

Having briefly outlined the specific historical and institutional circumstances, let us now clarify what the notion of traditional knowledge entails in New Caledonia, and revisit some previous initiatives designed to protect this knowledge against the risk of unauthorised exploitation.

## **The notion of traditional knowledge in New Caledonia**

New Caledonia is endowed with exceptional biodiversity, and the rate of endemism among both animal and plant species exceeds 75%. The Kanak people have long been experts in making use of this biodiversity, particularly the islands' flora, especially for medicinal purposes.

In Kanak society the utilisation of biodiversity, particularly for medicinal purposes, is the preserve of certain clans and families, who in the past had virtually exclusive ownership of knowledge passed down from generation to generation, sometimes by means of specific rituals. Most of this knowledge is imbued with a sacred dimension, incorporated into complex cosmogonies passed on in accordance with very particular rules, and certainly not available to just anybody. Nevertheless, since the earliest days of the colonial period New Caledonia's biodiversity has attracted Western botanists keen to describe the flora of Grande Terre and the Loyalty Islands and, where possible, to establish the connections between these plants and the knowledge and expertise held by local clans and tribes. Notable studies of the flora of New Caledonia include the work done by Dominique Bourret at ORSTOM in the 1970s. Building upon this work, a small army of researchers and doctoral candidates have painstakingly created individual files for each plant, describing their properties and the different ways in which they are used throughout the archipelago. In 2017, IRD ceremonially presented the Customary Senate with some 1171 ethnobotanical files focusing on plants of the New Caledonian archipelago and their uses. These files, testament to the wealth of New Caledonia's botanical resources and knowledge, are now registered with the Agency for the Development of Kanak Culture (ADCK). Additional work to identify connected traditional knowledge is being undertaken by the IKAPALA association on the ground in New Caledonia, while other associations continue to catalogue the islands' biodiversity. More work will probably be needed to coordinate these separate initiatives.

Traditional knowledge associated with biodiversity is not limited to medicinal practices. It is important to bear in mind the importance of biodiversity for traditional crafts such as basket-weaving, where a number of specific techniques are utilised.

There is also a wealth of expertise in botany, not least with regard to the cultivation of yams and endemic plant varieties, as well as specific farming methods, sometimes with cultural characteristics which are different in different parts of the archipelago.

Last but not least, we must not neglect the importance of intangible heritage, wrapped up with numerous forms of knowledge which are sometimes exposed to risks of theft or appropriation. These include countless songs, dances, stories and legends told in the islands' many languages (34 languages still spoken, of which four are at risk of extinction). By way of an example, American singer and producer Moby sampled a traditional Kanak song from the island of Tiga without even citing the source, let alone considering any form of remuneration for the island's people.

Globalisation, the multiplication of exchanges and the proliferation of new technologies, as well as the desire of local people to open up to the world and to tourists by showcasing their knowledge and know-how, are all factors which serve to exacerbate the vulnerability of intangible heritage, and thus to increase the need for regulation.

### **Attempts at regulation**

This need for greater regulation is by no means a new phenomenon, and while the importance of what is at stake here seems to be clearly understood, the implementation of intellectual property laws in New Caledonia needs to be sensitive to both the collective underpinnings of Kanak society and the New Caledonian institutional context, with numerous obstacles which will need to be removed or overcome. In the absence of sufficient regulation, contractualisation might be envisaged as a means of facilitating access to resources and sharing benefits. But, once again, the oral culture of many Pacific islands' societies does not lend itself easily to such contractualisation, especially when the benefits to be shared may not materialise for a number of years.

In 2011 and 2013 two attempts were made to introduce regulations pertaining to traditional knowledge, first by the government of New Caledonia and subsequently by the Customary Senate.

The first bill was submitted for consideration by the Conseil d'Etat in 2011, with the latter ruling that this matter fell within the realm of civil law. However, at that time, matters of civil law were still within the purview of France's central government, not the government of New Caledonia which was therefore not able to legislate on the issue. The bill has been left in the pipeline since, despite legislative authority in matters of civil law being transferred to New Caledonia in 2013.

The Customary Senate, meanwhile, prepared an alternative proposal and submitted a bill to Congress encompassing both access to resources and the protection of knowledge. At time of writing, this bill has still not been passed. First because the Customary Senate, under the current institutional arrangements, does not have the right to propose legislation, and also because the scope of the bill exceeded the remit of the New Caledonian government and infringed upon the prerogatives of the provinces.

In 2015, following the formation of New Caledonia's 14<sup>th</sup> government, President Philippe Germain declared the protection of traditional knowledge to be one of his government's main priorities. In spite of the short tenure of this government, discussions on the matter continued.

In 2017 Mr. Poidyaliwane, the member of the new (15<sup>th</sup>) government responsible for customary affairs and sustainable development, took the measure of Kanak expectations on this subject and embarked upon a collaboration with the Customary Senate and the organisations involved in the preparatory work, with a view to summing up the current state of efforts in this direction.

During the formation of the 16<sup>th</sup> government, and as discussions continued about its legislative road map, Mr. Poidyaliwane and New Caledonian President Mr. Santa decided to enshrine the protection of traditional knowledge in the General Policy Statement presented to the Congress of New Caledonia on 22 August 2019.

The government of New Caledonia, in partnership with the Customary Senate, now finds itself in a political context conducive to finding effective responses to the social demands of the Kanak population, among others. In a manner somewhat different from

that of other administrative sub-divisions, which depend upon the central government for matters involving the protection of knowledge, the New Caledonian authorities have a duty to act precisely because they have been endowed with the necessary degree of autonomy. As New Caledonians, it is up to us to share our experiences and preoccupations, and to listen to feedback from other countries who have already transposed the Nagoya Protocol into their local context.

Box 1.

#### **Preamble to the Nouméa Accord**

New Caledonia Accord signed in Nouméa on 5 May 1998

##### **Preamble**

**1.** On 24 September 1853, when France took possession of 'Grande Terre', which James Cook had named 'New Caledonia', it acquired a territory in accordance with the conditions of international law, as recognised at that time by the nations of Europe and America. It did not establish legally formalised relations with the indigenous population. The treaties entered into with the customary authorities in 1854 and subsequent years did not represent balanced agreements but were, in fact, unilateral instruments.

This territory, however, was not empty.

Grande Terre and the outlying islands were inhabited by men and women now known as Kanaks. They had developed their own civilisation, with its traditions and languages, in which custom, which governed social and political life, prevailed. Their cultural and spiritual life was expressed through various forms of creativity.

The Kanak identity was based on a particular relationship with the land. Each individual and each clan defined itself in terms of a specific link to a valley, a hill, the sea or a river estuary and carried in its memory the acceptance of other families on its land. The names attached by tradition to each element of the landscape and the taboos affecting some of these, as well as the customary ways, gave structure to space and exchanges.

**2.** The colonisation of New Caledonia occurred as part of a broad historical movement which saw the European countries impose their domination on the rest of the world. In the 19<sup>th</sup> and 20<sup>th</sup> centuries, many men and women came, either with the conviction that they



were bringing progress, or inspired by their religious faith, or sent against their will or seeking a second chance in New Caledonia. They settled there and made it their home. They brought with them their ideals, knowledge, hopes, ambitions, illusions and contradictions.

Some of them, especially the cultured people, priests and pastors, doctors and engineers, administrators, soldiers and political leaders, looked differently upon the original inhabitants, showing greater understanding and genuine compassion.

Through their scientific and technical knowledge, the Territory's new communities participated in mining and agricultural activity, often under difficult circumstances, and, with the help of the State, in the shaping of New Caledonia. Their determination and inventiveness made it possible to use resources and lay a foundation for development.

The relationship of New Caledonia with the distant motherland long remained marked by colonial dependency, a one-sided relationship and a refusal to recognise specific characteristics, from which the new communities, in their aspirations, also suffered.

**3.** The time has come to recognise the shadows of the colonial period, even if it was not devoid of light.

The impact of colonisation had a long-lasting traumatic effect on the indigenous people.

Some clans lost their names when they lost their land. Large-scale land colonisation caused considerable population movements, in which the Kanak clans saw their subsistence resources depleted and their places of memory lost. This process of dispossession engendered a loss of identity markers.

Kanak social organisation, even if its principles were recognised, was thus thrown into upheaval. Population movements damaged its fabric, while ignorance, or power strategies, all too often led to the negation of the legitimate authorities and the installation of leaders considered under custom to have no legitimacy, which aggravated the identity trauma.

At the same time, the Kanak artistic heritage was considered non-existent or looted.

To this denial of the fundamental elements of the Kanak identity, were added restrictions on public freedoms and a lack of political rights, despite the fact that the Kanaks had paid a heavy toll in the defence of France, especially during the First World War.

The Kanaks were relegated to the geographical, economic and political fringes of their own country, which, in a proud people not without warrior traditions, could not but cause revolts, which were violently put down, aggravating resentment and misunderstanding.

Colonisation harmed the dignity of the Kanak people and deprived them of their identity. In this confrontation, some men and women lost their lives or their reasons for living. Much suffering resulted from it. These difficult times need to be remembered, the mistakes recognised and the Kanak people's confiscated identity restored, which equates in their mind with a recognition of their sovereignty, prior to the forging of a new sovereignty, shared in a common destiny.

**4.** Decolonisation is the way to rebuild a lasting social bond between the communities living in New Caledonia today, by enabling the Kanak people to establish new relations with France, reflecting the realities of our time.

Through their participation in the construction of New Caledonia, the communities living in the Territory have acquired a legitimacy to live there and to continue contributing to its development. They are essential for its social balance and the operation of its economy and social institutions. Although accession of Kanaks to positions of responsibility remains insufficient, and needs to be increased through proactive measures, it is also a fact that the participation of other communities in the life of the Territory is essential.

It is now necessary to start making provision for a citizenship of New Caledonia, enabling the indigenous people to form a human community, asserting its common destiny, with the other men and women living there.

The size of New Caledonia and its economic and social balances do not make it possible to open the employment market widely, and justify action to protect local employment. The Matignon Accords, signed in June 1988, demonstrated the will of the inhabitants of New Caledonia to put violence and rejection behind them and tread the path of peace, solidarity and prosperity together.

Ten years on, a new process needs to commence, entailing the full recognition of the Kanak identity, as a pre-requisite for rebuilding a social contract between all the communities living in New Caledonia, and entailing shared sovereignty with France, in preparation for full sovereignty.

The past was the time of colonisation. The present is the time of sharing, through the achievement of a new balance. The future must be the time of an identity, in a common destiny.

France stands ready to accompany New Caledonia on that path.

**5.** The signatories of the Matignon Accords have therefore decided together to come to a negotiated agreement, based on consensus, which they will, jointly, call upon the inhabitants of New Caledonia to endorse.

This agreement specifies the political organisation of New Caledonia and the arrangements for its emancipation over a twenty-year period.

Its implementation will require a Constitutional Bill which the Government undertakes to draft for enactment by Parliament.

The full recognition of the Kanak identity requires customary law status and its links with the civil law status of persons governed by ordinary law to be defined, and provision to be made for the place of customary bodies in the institutions, particularly through the establishment of a Customary Senate; it requires the Kanak cultural heritage to be protected and enhanced and new legal and financial mechanisms to be introduced in response to representations based on the link with land, while facilitating land development, and identity symbols conveying the essential place of the Kanak identity in the accepted common destiny to be adopted.

The institutions of New Caledonia will reflect further progress towards sovereignty: some Congress Resolutions will be deemed to be laws and an elected Executive will draft and implement them.

During this period, signs will be given of the gradual recognition of a citizenship of New Caledonia, which must express the chosen common destiny and be able, after the end of the period, to become a nationality, should it be so decided.

The entitlement to vote in elections to New Caledonia's own local assemblies will be restricted to persons with a certain period of prior residence in New Caledonia.

In order to take into account the limited size of the employment market, provision will be made to give priority access to local employment to persons residing on a long-term basis in New Caledonia.

The sharing of responsibilities between the State and New Caledonia will signify shared sovereignty. This will be a gradual process. Some

powers will be transferred as soon as the new arrangements commence. Others will be transferred according to a set timetable, which the Congress will be able to modify, according to the principle of self-organisation. The transferred powers may not revert to the State, reflecting the principle of irreversibility governing these arrangements.

Throughout the period of implementation of the new arrangements, New Caledonia will enjoy the support of the State, in terms of technical assistance, training and the funding necessary to exercise the transferred powers and for economic and social development.

Commitments will be applied to multi-annual programmes. New Caledonia will participate in the capital and operation of the main development institutions in which the State is a partner.

At the end of a period of twenty years, the transfer to New Caledonia of the sovereignty powers, its achievement of full international responsibility status and the conversion of citizenship into nationality, will be voted upon by the people concerned.

Their approval would mean full sovereignty for New Caledonia.

(Official Journal of the French Republic, No. 121, 27 May 1998, p. 8039)

# Each to his own biodiversity and knowledge

## Local knowledge and global legal instruments

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**Laure EMPERAIRE**

### Introduction

In May 2019, media reports relayed the conclusions of the seventh meeting of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services: one million species are at risk of extinction in the immediate future (IPBES, 2019). That dire warning was widely reported, but another major conclusion reached by the experts and delegates from 132 countries who contributed to the declaration went largely overlooked: the importance of local knowledge for biodiversity conservation at the global level.

“Regional and global scenarios currently lack and would benefit from an explicit consideration of the views, perspectives and rights of Indigenous Peoples and Local Communities, their knowledge and understanding of large regions and ecosystems, and their desired future development pathways. Recognition of the knowledge, innovations and practices, institutions and values of Indigenous

Peoples and Local Communities and their inclusion and participation in environmental governance often enhances their quality of life, as well as nature conservation, restoration and sustainable use.” (IPBES, 2019)

The message could scarcely be any more explicit, and is backed up with a wealth of scientific arguments. The spatial analysis conducted by GARNETT et al. (2018) demonstrates that not only is 28% of the earth's landmass occupied, managed, used and inhabited by indigenous peoples, but these territories are also in a better state of conservation than the land surrounding them. These 350 to 450 million individuals, belonging to around 5,000 indigenous peoples (HALL & PATRINOS, 2010), accounting for between 4 and 5% of the global population, ensure the conservation of the territories in which they live. Directly or indirectly, the whole planet benefits from this conservation work, despite a history of colonisation, dispossession, despoliation and resistance stretching back centuries. The current debate hinges on several priorities: guaranteeing the integrity of the territories and resources of indigenous peoples and local communities, recognising their past and present contributions to biodiversity, and leaving room for plurality in the forms taken by the relationship between society and nature. These demands are clearly expressed in the Declaration of Belém, issued in 1988 by the International Society of Ethnobiology, which recognises the importance of indigenous knowledge and the importance of compensation for its use (ISE, 1988).

With regard to adaptation to climate change, the contribution of traditional knowledge has already been highlighted in Article 7 of the Paris Agreement. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) also states in its preamble that “respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment,” while Article 31 adds that “Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties

of fauna and flora.” (UN, 2007) Indigenous people are thus in full control of the future of their knowledge and expertise. This declaration echoes the Indigenous and Tribal Peoples Convention promulgated by the ILO (1989) but never ratified by France.

Almost thirty years later, by the time the Nagoya Protocol came into force in 2014, local knowledge was the focus of new debates. On the one hand, the immense variety of knowledge and the ways in which societies interact with and act upon their natural environments is now understood to represent a vital material and cognitive resource as we seek to save the planet from its present ecological morass. On the other hand, an instrument of international law, allowing for a certain degree of progress on an ethical level, is now in place to regulate the utilisation of biodiversity and associated knowledge when they are exploited for their potential economic or scientific value. Local knowledge of biodiversity thus finds itself embroiled in a mercantilist vision of the world at a time of ecological emergency, despite being regularly marginalised and discredited by many public policies, and remaining fragile and vulnerable as a result of threats to established modes of knowledge creation and transmission.

The question which arises from this situation is how best to integrate such knowledge into a modern world imagined, constructed and managed by external forces, a situation defined by substantial asymmetry of power. Is this modern world capable of supporting and renewing the production of local knowledge, considered as cognitive resources, or, on the contrary, does it irremediably undermine their scope by considering them purely in terms of ecological and/or economic efficiency? In this respect, there is now an urgent need to better identify and understand the diverse array of processes, norms and standards which underpin knowledge of biodiversity, and how they differ from the schemas embodied by legal instruments. With this goal in mind, we propose to compare the principal legal instruments applicable to such knowledge in the light of a concrete example: knowledge pertaining to agrobiodiversity in the Amazonian context, with a particular focus on the values and norms which define their existence and that of the biological objects to which they relate. Cultivated plants are a pertinent starting point from which to examine local knowledge,

to the extent that plants and knowledge are inextricably connected to domestic and social life, making it easier to trace their geographical (they exist in a given place), memorial and social (their known history) trajectories, as well as their associated techniques and uses. Traceability of this kind is harder to achieve for spontaneous biodiversity.

## To each instrument its own understanding of biodiversity and knowledge

The complex relationship between culture and nature can be perceived in the diverse array of legal instruments applicable to agrobiodiversity. Phytogenetic resources are not directly covered by the Nagoya Protocol (NP), one of the protocols derived from the CBD, but instead fall under the FAO's International Treaty on Plant Genetic Resources (PGR) for Food and Agriculture (ITPGRFA), which came into force in 2004 (see Box 2, Chap. 1). Agrobiodiversity also falls within the scope of the International Union for the Protection of New Varieties of Plants (UPOV), in place since 1968 and last updated in 1991. Nevertheless, and unlike the CBD, these instruments make only the briefest references to the knowledge associated with PGR. They also include their own access and benefit-sharing (ABS) standards, which places them outside the scope of the Nagoya Protocol (GREIBER et al., 2014; FRISON, 2018). Article 9 of the ITPGRFA, relative to the rights of farmers, recognises “the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources” and insists on the importance of “protection of traditional knowledge relevant to plant genetic resources.” (Articles 9.1 and 9.2 a) The notion of recognition, although establishing precedence, remains vague. Responsibility for implementing the article lies with national governments, who are merely encouraged to do so (MOORE & TYMOWSKI, 2008).



The UPOV convention was designed to protect innovation by plant breeders by means of a *sui generis* system of intellectual property rights, and in doing so to encourage the creation of new plant varieties. Article 15 contains a number of exceptions to breeders' rights, including non-commercial activities (and thus subsistence agriculture) and the right for farmers "to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety (...)." (UPOV, 1991) This latter exemption is regarded as a privilege and a form of benefit-sharing, which also places this agreement outside the scope of the ABS mechanism introduced by the Nagoya Protocol (MOORE & TYMOWSKI, 2008). The issue of local knowledge thus remains out of bounds and, while the agreement recognises the importance of producing new varieties and the provision of phytogenetic material, its scope is restricted to professionals, with no concrete rights to recognise the fundamental contribution of local farmers to genetic diversity.

Another forum for discussing the protection of local knowledge was opened up in 2000 by the World Intellectual Property Organisation (WIPO), with the creation of an Intergovernmental committee for intellectual property relating to genetic resources, traditional knowledge and folklore. The agenda for the committee's 2020 meeting (WIPO, 2021), marking twenty years since its creation, was dominated by the need to support innovation based on resource and knowledge, and for more transparent disclosure of sources in the patent system, echoing the terms of the UPOV accord (SANTILLI, 2012).

ABS and the protection of innovation by means of patents are not the only legal instruments applicable to genetic resources, with international instruments of cultural recognition (UN, UNESCO and the FAO, with its Globally Important Agricultural Heritage Systems (GIAHS) becoming increasingly important in this domain. The vast diversity of cultivated plants is the result of human actions, of choices made between options defined and constrained by bio-ecological factors. As Sauer argued in 1963, cultivated plants are *artefacts*, i.e. cultural products, and agricultural diversity is a manifestation of the biological materiality of knowledge (SAUER, 1963).

A new chapter was opened in 2018 with the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas. This text draws heavily upon the Nagoya Protocol, the CBD and the ITPGRFA, but also invokes cultural rights and human rights in defence of the diversity of peasant identities, knowledge, practices and resources. This represents a clear, albeit still theoretical, breakthrough. Article 19 recognises peasants' rights to "maintain, control, protect and develop their own seeds," and also addresses the protection of traditional knowledge, equitable benefit-sharing and involvement in decisions concerning the use of PGR, as well as "the right to save, use, exchange and sell their farm-saved seed or propagating material". Article 26 approaches the issue of traditional knowledge from a human rights perspective:

"1. Peasants (...) also have the right to maintain, express, control, protect and develop their traditional and local knowledge, such as ways of life, methods of production or technology, or customs and tradition. [...]"

3. States shall respect, and take measures to recognise and protect, the rights of peasants relating to their traditional knowledge, and eliminate discrimination against the traditional knowledge, practices and technologies of peasants." (UN, 2018, Article 26)

However, the instruments described here do not explicitly address the continuity of assets which cannot be reduced to a sum of phytogenetic resources, and which may be produced collectively in extremely varied cultural and ecological conditions, over vastly different timeframes.

## Gradients or categories?

The categorisation of biodiversity using legal instruments relies heavily on the spontaneous/cultivated or wild/domesticated dichotomy. However, for both species and ecosystems, modern science – particularly in the fields of historical ecology, genetics and anthropology – continues to challenge and deconstruct these traditional naturalist categories and contrasts. Recent research by

FRANCO-MORAES et al. (2019), conducted in partnership with an Amerindian colleague, has clearly demonstrated that the North-West Amazon has been shaped by historical forest management, with an increased concentration of useful species around former villages. The existence of anthropogenic soils which can be dated to between 500 and 2500 years BP is evidence of the diffuse anthropisation of the Amazon rainforest. This human impact can also be discerned in the rapid expansion of a species which was long viewed as spontaneous, *Bertholletia excelsa* or the Brazil nut tree (ANDRADE et al., 2019). There are numerous other examples of this phenomenon in action, with the diversity of local understanding and uses of plants blurring the boundaries set by law.

## The diversity of cultivated plants, knowledge and local norms in the Brazilian Amazon

### **Access to traditional knowledge associated with biodiversity in Brazil**

Under the aegis of provisional measure (MP) No. 2186/16 of 2001, the bilateral research programme between CNPq and Unicamp-IRD entitled “Populations, agrobiodiversity and associated traditional knowledge,” coordinated by Mauro Almeida (Unicamp) and Laure Emperaire (IRD), was launched in 2006 after first obtaining the prior informed consent of the villages where we planned to work as well as the Association of Indigenous Communities of the Middle Rio Negro (ACIMRN). This consent is an ethical and legal obligation for any research project, and was enshrined in an initial document which formed the basis for discussions between the researchers and local people. Although its structure was determined by the institutional requirements, and remained largely scientific in nature, this document also incorporated research requests submitted by the ACIMRN, with a particular focus on genetic erosion in peri-urban areas. Once this consent had

been obtained, the whole application was submitted to the Brazilian Genetic Heritage Committee (CGEN), with an authorisation issued and duly published in the *Official Journal*.

The history of this legislation illustrates the connections between environmental and cultural institutions. The post-CBD thinking sees a market structure for biodiversity. The provisional measure and its corresponding implementing decree (BRASIL, 2001a, b), urgently issued in 2001, regulate access to traditional knowledge but fail to fully secure the rights of the groups involved. Authorisations are issued by the CGEN, attached to the Ministry for the Environment. Since 2011, the Institute for National Historical and Artistic Heritage, attached to the Ministry for Culture and accredited by the CGEN, has been responsible for handling authorisation applications for scientific purposes (BRASIL, 2011). Collective rights over biodiversity are beginning to come to the fore, with a convergence of practices between these two institutions (ABREU, 2003).

### **North-west Amazonia, an epicentre of agrobiodiversity**

The incredible diversity of cultivated manioc in the Rio Negro prompted us to investigate the conditions which led to such a diverse array of plants being cultivated in this region, where the population is predominantly indigenous. Twenty-two ethnic groups belonging to three broad language families (Arawak, Tukano and Maku) form a socio-cultural complex based upon negotiated social relations and networks for the exchange of knowledge, food and objects (ANDRELLO et al., 2015). *Dabucuri* rituals allow for the exchange of fruit, fish, manioc beer, basket-work, manioc graters and other items. Slash-and-burn agriculture, the central importance of manioc and the resulting dietary system are its principal regional characteristics.

The landscape is dominated by dense forest, with a scattering of cleared land around hamlets. A more substantial belt of cleared land can be observed around the region's three small towns: Barcelos, Santa Isabel do Rio Negro and São Gabriel da Cachoeira. To summarise very briefly, slash-and-burn agriculture in this

region involves the annual clearing of a plot of land (or *swidden*) generally smaller than 0.3 hectares, which will be used to cultivate manioc and other fast-growing plants for three years before being planted with fruit trees. Families oversee a patchwork of three or four plots of land at different stages in this cycle, as well as fallow land in different states of regeneration. After ten to twelve years, the *swidden-fallow-forest* cycle begins again. The dense forest coverage on the banks of the river, even though the composition of its flora differs from that of older forest, is testament to the ecological viability of local practices.

The slashing and burning of new plots of land are considered to be a man's work, whereas decisions on what to plant and day-to-day management of the *swidden* are the responsibility of women, the *donas de roça*, holders of vital agrobiodiversity knowledge. The *swidden* is a private space which constitutes the epicentre of their domestic life: creating a new *swidden* means opening up a new living space, which will also provide food for the family. Feeding one's children with one's own manioc flour creates a tight bond between the generations. The *roças* also provide the food and manioc beer consumed at *dabucuris*. This emphasis on agriculture does not, however, preclude the use of other forest resources by means of hunting, fishing and gathering of wild fruit. The domestic economy also relies upon local and regional commerce, with the sale or exchange of various products.

### **Managing plants and producing biological diversity**

As many as forty-plus varieties of bitter manioc may be cultivated in forest clearings. These varieties can be identified by their morphotypes, and numerous studies have demonstrated that the diversity of names used by local peoples closely reflects the genetic diversity of the plants (EMPERAIRE et al., 2003 ; PERONI et al., 2007). The notion of diversity is central to the management of cultivated plants, both manioc and other species. This diversity is functional, and reflects the need to stagger harvests, to occupy different ecological niches in forest clearings and to boost resistance to pathogens and predators. But it also transcends these practical considerations. With its diversity of forms and many-hued leaves,

the swidden is a space with a clear aesthetic dimension. The diversity of varieties also has an impact on the preparation of the various products derived from manioc, since single varieties are not reserved for specific uses. Different varieties are blended to make flour as well as other products. As with manioc, the great diversity of peppers available also lends itself to blending. Cultivated varieties are used to create a mix known as *jiquitaia*, a condiment made with dried and crushed peppers.

From a western agronomical perspective, we might consider the diversity encountered in the plantations of the *donas de roça* as an example of hyperdiversity, but in the Amazonian context it is the norm. Diversity is not simply a juxtaposition of varieties; it adds up to a structured whole. Each variety has a name, and these names are fundamental attributes. The ensemble created by these varieties has a social dimension, incorporating a number of human priorities. They must be treated well, they must not be burned or abandoned, their living environment must be looked after, they are to be raised and not simply planted and left to grow (EMPERAIRE et al., 2010). A whole corpus of rules defines the relationship between manioc and the *donas de roça*.

### **Agrobiological diversity and local standards**

There are various norms and precepts governing the existence of this agrobiodiversity, covering three major dimensions: the biological objects, the produce derived from them and the spatial environment of agricultural activities. Species and varieties circulate freely, but not without differentiation. Plants – the productive materiality of an informational asset – are a shared asset which cannot be withheld when requested. Making use of this collective asset implies adhesion to the norms described above, taking responsibility for the care these plants require. The harvest, meanwhile, is the exclusive property of the *dona de roça* and the family unit she is responsible for feeding. Fruit trees are covered by property rights reserved for men: husbands, brothers, sons, grandsons. They enjoy full ownership of their trees, and are responsible for their maintenance and output. Finally, there is a regulatory framework governing the space used. While the forest

is, theoretically, common property, permission to clear a parcel must be obtained from the head of the village. Once a space has been cleared and planted, its productive potential is the exclusive preserve of a single family. Nevertheless, these usage rights remain dependent upon ecological processes, and will wane as the forest grows back (ELOY & LASMAR, 2011). This very brief summary offers some idea of the different rights which coexist and overlap, depending upon the biological object in question and the dynamic nature of usage rights in the forest.

### **Diversity and social media**

Manioc cuttings, like seeds and cuttings from many other plants, circulate intensively within networks of kinship and acquaintance which stretch across the whole Rio Negro basin. This circulation is a marker of social relations, collective memory and life stories, reflected in the plants found in swiddens (EMPERAIRE, 2017). This dynamic is maintained by the farmers' active interest in new varieties, with every journey providing an opportunity to enrich and renew their plant collections. But plants do not circulate independently of social norms: manioc circulate primarily among women, passed down from mother to daughter, while fruit trees are passed between men.

We observed 110 different names for varieties of manioc planted in fields by 30 women farmers in the Rio Negro region. Of these, 52 were only found in the plantation of a single *dona de roça*, and just 7 were present in more than a third of all plantations. Among the 329 other cultivated plants identified in the plantations of the *donas de roça*, 159 were only cultivated by a single farmer while just 9 were cultivated by more than 10 farmers. These data highlight the strongly individual nature of agrobiodiversity. The differential effect powers a network of intense circulation which stretches from Manaus to Colombia. The plant registry is constantly expanding, with new species borne by commerce. New varieties are also derived from the attentive observation of new morphotypes which appear unexpectedly (hybrids or mutations) in swiddens and are promptly added to plant collections. Agrobiological diversity is not simply preserved, it is continuously being enriched.

Box 1.

**Knowledge,  
expertise or information?**

It is worth considering what exactly is the nature of the content to which ABS mechanisms allow access. While “knowledge” and “expertise” are the most widely-used terms, are we sure that they refer to a general understanding of biological diversity, or do they only grant access to its operational aspects, the part which might be considered a resource?

Different conventions and instruments employ the terms “knowledge,” “expertise” and, more rarely, “information.” MARGOLINAS (2012) makes the distinction between knowledge and expertise in the educational field. Knowledge is an institutional product, and in this case is the preserve of a cultural group rooted in a defined territory. Expertise, meanwhile, is more situational and dependent upon experience, individual trajectories and subject-object relations. The third term, information, is probably more apposite for the subject matter of the Nagoya Protocol and the CBD. Article 8j on the “knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity” establishes divisions within knowledge. Are applicants seeking information, details on the properties of biodiversity, or knowledge more generally?

Much like the act of reducing a seed to a genetic sequence, and thus making it patentable (GIRARD, 2018), is it possible to reduce “knowledge” to a simple unit of information, without running the risk of atomisation and appropriation? Another risk inherent to the use of the term “knowledge” is that it prioritises a global, generalist vision of this intangible component of agrobiodiversity, and in doing so neglects the multiplicity of content and modes of knowledge (OLIVEIRA, 2019). We need to examine more closely what exactly is being sought by ABS requests, in order to better understand the impact of such requests on the existence of local knowledge, its expressions and its transmission, without forgetting that, as the 2007 UN declaration makes clear, indigenous peoples [and local communities] have the right to “control, protect and develop their cultural heritage and traditional knowledge.” (UN, 2007)



What is at stake here is not a resource, strictly speaking, but rather a complex ensemble of biological objects, practices, knowledge and relationships between human and non-human beings. This example serves to illustrate the diverse array of component elements which make up what we call “knowledge” of a cultivated plant. This term encompasses the data used to identify and describe plants, as well as their properties (agronomical, nutritional etc.) and, last but not least, the wealth of information that determines its place in society (name, trajectory, origin, the affective value with which plants are endowed etc.). This knowledge also has a broader purpose, that of fostering a form of biological diversity which is closely correlated to individuals and the society in which they live. Knowledge pertaining to cultivated plants is inseparable from the individual who cares for those plants, and individuals are inseparable from their cultural affiliations. Although the *donas de roça* are identified as the holders of this knowledge, it actually encompasses the whole chain of production from which diversity emerges: they are, along with their families, experts in cultivating, selecting, obtaining, distributing and using agrobiodiversity. Their “knowledge” resides not only in their agronomic expertise in relation to their plants, but also in a more general expertise in the production, management, conservation and use of biological diversity, as well as in their relationship to this diversity.

## Ideals in action

This title is borrowed from Manuela Carneiro da Cunha who, in “*Culture and culture: Traditional Knowledge and Intellectual Rights*,” sets out to analyse the many discrepancies and incompatibilities between local and legal rights (CARNEIRO DA CUNHA, 2009). It appears clear that, in the context of the Rio Negro, the notion of a “resource” scarcely suffices to cover the array of meanings inherent to agrobiodiversity. Our exploratory attempts to analyse the elementary events which determine the diversity of cultivated plants found in a given place make it clear that the paradigms utilised by the legal instruments only very partially reflect the

complex reality. The ideal-types of these instruments need to be more nuanced: the notion of collective ownership needs to be counter-balanced with a greater appreciation of individual contributions, free circulation with the existence of differentiated norms and law, static content with the importance of innovation, usage values with the multiplicity of values attached to phenomena considered as resources, the functional nature of knowledge with greater recognition of encyclopaedic knowledge and the universal urge to learn about and name the world around us (CARNEIRO DA CUNHA & ALMEIDA, 2002).

Cultivated plants are technical, cultural and relational objects which connect and are connected by society, individuals, spaces and temporalities. How can (or even should) legal instruments such as the CBD, the Nagoya Protocol and ITPGRFA hope to encompass this complexity? Is there a community of values united around the ABS mechanisms? What other options are open to these people? Community protocols represent a step forward, but are they sufficient to encapsulate such a diverse array of cultural expressions? Carneiro da Cunha suggests that we lack the imagination required to effectively comprehend the multiplicity of relations between local knowledge and the legal structures associated with them. "Our much-vaunted global governance cannot forever remain restricted to the economic-legal sphere." (DELMAS-MARTY, 2004) Will the Nagoya Protocol, and other UN instruments, rise to the challenge, or will they end up undermining the very thing the economic powers are seeking to grasp? Is the goal to legally appropriate these cognitive resources, or to guarantee that indigenous peoples and local communities retain control over the destiny of their own knowledge?

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### References

ABREU R., 2003 – « A emergência do patrimônio genético e a nova configuração do campo do patrimônio ». In Abreu R., Chagas M. (éd.): *Memória e patrimônio: ensaios contemporâneos*, Rio de Janeiro, DP & A/FAPERJ/Unirio: 30-45.

ANDRADE V. L. C., FLORES B. M., LEVIS C., CLEMENT C. R., ROBERTS P., SCHONGART J., 2019 – Growth rings of Brazil nut trees (*Bertholletia excelsa*) as a living record of historical human disturbance in Central Amazonia. *PLoS ONE*, 14 (4): 18.

ANDRELLO G., GUERREIRO A., HUGH-JONES S., 2015 – Space-Time Transformations in the Upper Xingu and Upper Rio Negro. *Sociologia & Antropologia*, 5: 699-724.

BRASIL, 2001 a – Decreto nº 3.945, de 28 /09/2001 sobre a composição do Conselho do Patrimônio Genético.

BRASIL, 2001 b – Medida provisória nº 2186-16, de 23/08/2001 sobre o acesso ao patrimônio genético, a proteção e o acesso ao conhecimento tradicional associado, a repartição de benefícios e o acesso à tecnologia e transferência de tecnologia para sua conservação e utilização.

BRASIL, 2011 – Deliberação CGEN nº 279, de 20/09/2011 sobre credenciamento do Instituto do Patrimônio Histórico e Artístico Nacional.

CARNEIRO DA CUNHA M., 2009 – “Culture” and Culture: *Traditional Knowledge and Intellectual Rights*. Chicago, Prickly Paradigm Press.

CARNEIRO DA CUNHA M., ALMEIDA M. W. B. D., 2002 – *Enciclopédia da Floresta, o Alto Juruá: práticas e conhecimentos das populações*. São Paulo, Ed. Companhia das Letras.

DELMAS-MARTY M., 2004 – *Vers un droit commun de l’humanité*. Paris, Textuel.

ELOY L., LASMAR C., 2011 – Urbanização e transformação dos sistemas indígenas de manejo de recursos naturais: o caso do alto rio Negro (Brasil). *Acta Amazonica*, 41 (1): 91-102.

EMPERAIRE L., 2017 – « Savoirs traditionnels et diversité des plantes cultivées en Amazonie ». In Baptiste B., Pacheco D., Carneiro da Cunha M., Diaz S. (eds.): *Knowing our Lands and Resources: Indigenous and Local Knowledge of Biodiversity and Ecosystem Services in the Americas*, Vol. 11, Paris, Unesco: 148-167.

EMPERAIRE L., MÜHLEN G. S., FLEURY M., ROBERT T., McKEY D., PUJOL B., ELIAS M., 2003 – Approche comparative de la diversité génétique et de la diversité morphologique des manioc en Amazonie (Brésil et Guyanes). *Les Actes du BRG*, 4: 247-267.

EMPERAIRE L., VELTHEM L. H. VAN, OLIVEIRA A. G. DE, SANTILLI J., CARNEIRO DA CUNHA M., KATZ E., 2010 – *Dossiê de registro do sistema agrícola tradicional do Rio Negro*. Brasília, ACIMRN/IRD/IPHAN/Unicamp-CNPq.

FRANCO-MORAES J., BANIWA A., COSTA F. R. C., LIMA H. P., CLEMENT C. R., SHEPARD G. H., 2019 – Historical landscape domestication in ancestral forests with nutrient-poor soils in northwestern Amazonia. *Forest Ecology and Management*, 446: 317-330.

FRISON C., 2018 – Redessiner un commun pour les semences : évaluation critique du système multilatéral d'accès et de partage des avantages du Traité international sur les ressources phytogénétiques pour l'alimentation et l'agriculture. *Revue interdisciplinaire d'études juridiques*, 81: 211-241.

GARNETT S. T., BURGESS N. D., FA J. E., FERNÁNDEZ-LLAMAZARES Á., MOLNÁR Z., ROBINSON C. J., ..., LEIPER I., 2018 – A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, 1 (7): 369-374.

GIRARD F., 2018 – « Composing the common world of the local bio-common at the age of the Anthropocene ». In Girard F., Frison C. (eds.): *The commons, plant breeding and agricultural research: challenges for food security and agrobiodiversity*, London/New York, Routledge: 117-144.

GREIBER T., MORENO S. P., ÅHRÉN M., CARRASCO J. N., KAMAU E. C., MEDAGLIA J. C., OLIVA M. J., PERRON-WELCH F., ALI N., WILLIAMS C., 2014 – *Guide explicatif du protocole de Nagoya sur l'accès et le partage des avantages*. Gland, UICN.

HALL G., PATRINOS H., 2010 – « Introduction ». In Hall G., Patrinos H. : *Indigenous Peoples, Poverty, and Development*, Washington DC, World Bank: 1-15. <http://siteresources.worldbank.org>

ILO, 1989 – *C169 - Indigenous and Tribal Peoples Convention*, 1989 (No. 169).

IPBES, 2019 – *Press Release*. <https://ipbes.net/news/Media-Release-Global-Assessment>

ISE, 1988 – *Déclaration de Belém*. <http://www.ethnobiology.net/wp-content/uploads/Decl-of-Belem-in-French.pdf>

MARGOLINAS C., 2012 – « Connaissance et savoir. Des distinctions frontalières ? » In Losego P. (éd.) : *Sociologie et didactiques : vers une transgression des frontières*, Lausanne, Suisse, Haute École pédagogique de Vaud : 17-44.

MOORE G., TYMOWSKI W., 2008 – *Guía Explicativa del Tratado Internacional sobre los Recursos Fitogenéticos para la Alimentación y la Agricultura*, Gland (CH), UICN.

OLIVEIRA A. R. d., 2019 – Manioc-stem transects: vital flows, technical processes and transformations. *Vibrant*, 16.

UN, 2007 – *United Nations Declaration on the rights of indigenous Peoples*, 61/295. HRC.

UN, 2018 – *United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas*, 39/12/ HCR.

PERONI N., KAGEYAMA P., BEGOSSI A., 2007 – Molecular differentiation, diversity, and folk classification of “sweet” and “bitter” cassava (*Manihot esculenta*) in Caicara and Caboclo management systems (Brazil). *Genetic Resources and Crop Evolution*, 54 (6) : 1333-1349.

SANTILLI J., 2012 – *Agrobiodiversity and the law. Regulating genetic resources, food security and cultural diversity*. Oxon, New York, Earthscan.

SAUER C. O., 1963 – « Cultivated plants of South and Central America ». In Steward J. H. (ed.) : *Handbook of South and Central America Indians*, Washington, D.C., Smithsonian Institution of American Ethnology, bull. n° 4.

UPOV, 1991 – *International Convention for the Protection of New Varieties of Plants of December 2, 1961, as Revised at Geneva on November 10, 1972, on October 23, 1978, and on March 19, 1991*. [https://www.upov.int/edocs/pubdocs/en/upov\\_pub\\_221.pdf](https://www.upov.int/edocs/pubdocs/en/upov_pub_221.pdf)

WIPO, 2021– *Chair’s Text of a Draft International Legal Instrument Relating to Intellectual Property, Genetic Resources and Traditional Knowledge Associated with Genetic Resources*. [https://www.wipo.int/edocs/mdocs/tk/en/wipo\\_grtkf\\_ic\\_41/wipo\\_grtkf\\_ic\\_41\\_5.pdf](https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_41/wipo_grtkf_ic_41_5.pdf)



# From “associated traditional knowledge” to the notion of biocultural heritage

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## Introduction

One of the key inspirations for the Nagoya Protocol, building on the Convention on Biological Diversity (CBD), was the pioneering Declaration of Belém, issued in 1988 by the International Society of Ethnobiology. The CBD, cited as a landmark text by many researchers, was designed to improve access to biological resources while promoting their reasonable protection and enhancement, by means of a mechanism for fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. This tool has since been transposed into national legislation, leading to any number of disappointments which appear to owe as much to the nature of the objects in question as they do to the divergent interests of the groups involved in the application of the mechanism. It is, in fact, the culmination of a long process of negotiations (first at the international, and subsequently at the national level) between politicians, the private sector, the academic world and NGOs, all involved to varying extents depending on the national and political contexts.

France, like all members of the European Union, was obliged to transpose the Nagoya Protocol (signed in 2011 and ratified in 2016) into national legislation. In order to fulfil the country's international commitments, and in accordance with the French Constitution, legislators produced two texts to a fairly tight deadline: Law No. 2016-1087 of 8 August 2016 "for the Reconquest of Biodiversity, Nature and Landscapes" (the Law on Biodiversity - see Focus 3) and its corresponding implementing decree No. 2017-848 date 9 May 2017. Some of the terminology and expressions used in these texts raise important questions. Rather than attempting to reconstruct the narrative of the debates and consultations involved, in an attempt to put the positions of the different groups into perspective (AUBERTIN, 2018; BOURDY et al., 2017), we instead propose to focus on the definitions and their application in the specific case of French Guiana, and in doing so to illustrate the complexity of "traditional knowledge associated with genetic resources" along with some of the inconsistencies and paradoxes which have emerged from this legislative initiative.

French Guiana is an overseas department defined in Article 73 of the French Constitution, and the principle of legislative identity means that it is possessed of the same legislative arsenal as metropolitan France (MÉLIN-SOUCRAMANIEN, 2012). In addition to its rich biodiversity, two of the defining features of this territory are the presence of indigenous peoples, as per the definition used in the CBD (AUBERTIN et al., 2007), and the wealth of natural expertise found among Guiana's various cultural groups (FLEURY et al., 2014; GRENAND et al., 2004; OGERON et al., 2018). There is also a certain degree of political defiance from some stakeholders with regard to France's metropolitan decision-making centres, partly as a result of the State's excessively Jacobin approach to implementing its laws, sometimes ill-suited to the realities of the overseas territories. This delicate political context, which makes enforcing the new law difficult, is not helped by the law's lack of precision on the concepts employed.

The ambition for this paper is to highlight this imprecision, and where possible to propose theoretical clarifications of certain concepts. Starting with the key definitions of the French law which



transposed the Nagoya Protocol into national legislation, considered from an anthropological and ethnobiological perspective, we discuss the relevance of the choices made, the pitfalls likely to beset the enforcement of the law and the reasons underlying them. In the process, we address a number of key questions:

1. Who owns the knowledge envisaged by this law? We address the notion of *communautés d'habitants*, the scope of such concepts, and the difficulties inherent to asserting ownership of knowledge;
2. What do we mean by knowledge relating to nature in Amazonia, and particularly in French Guiana? We consider the nature, temporality and evolution of such knowledge.

## Who owns traditional knowledge?

The Law on Biodiversity offers a brief definition of the *communautés d'habitants* likely to be in possession of traditional knowledge associated with resources: "Any community of people who traditionally derive their means of subsistence from the natural world, and whose way of life has implications for conservation and the sustainable use of biodiversity" (see Chap. 7).

### **The difficult task of defining a *communauté d'habitants***

The notion first appears in a ministerial order of 1987 establishing a system of "collective usage right zones," which specifies that the beneficiaries of these collective land reserves are those "*communautés d'habitants* who traditionally derive their means of subsistence from the forest," a category of people whom the law struggles to define (DAVY et al., 2016). The concept has since been taken up in various other legal texts, including the new Forestry Code of 2005, the National Parks Act of 2006, and Article 19 of the order establishing the Guiana Amazonian Park (PAG).

One of the notable blind spots of this definition is its use of the term *communauté d'habitants*<sup>1</sup> as a signified concept to define the properties of the signifier, a logical short-circuit which renders the whole enterprise ambiguous. PINTON & GRENAND (2007) have already noted, with reference to the CBD, that Article 2 (Use of Terms) does not offer a definition of local communities or indigenous peoples. Furthermore, the concept of community is intrinsically vague, since the term may be used to refer to anything from a family unit to an ethnic group or village, or even to refer to more expansive collective sociological or cultural entities (GOSSIAUX, 1991). The very meaning of the term, and its appropriation by various social groups, has been the subject of much discussion in other areas of the social sciences and humanities (MACQUEEN et al., 2001).

As per the implementing decree for this law, in the Guianese context the term *communauté d'habitants* specifically refers to “Amerindian and Bushinenge” groups living at a remove from urban centres. The executive order establishing the PAG also adopts this definition of *communautés d'habitants*, thus excluding the Creole people of Saül. Some have decried this as a flagrant injustice to those rural Creole communities engaged in hunting, fishing and even slash-and-burn farming, although their numbers are dwindling.

The rationale behind this distinction between Amerindians and Bushinenge (a good number of whom now live in urban areas in and around Cayenne, Kourou and Saint-Laurent) and Guianese Creole people living in the same circumstances is rarely apparent. Creole and Maroon societies, which are not considered indigenous under the UN definition, nonetheless have a shared history of deportation and enslavement.

<sup>1</sup> In a recent article, while refusing to use the word “indigenous” and sticking resolutely to the default expression *communauté d'habitants*, COLLOT (2020) goes as far as to argue that “this choice has saddled the French system with a fundamental flaw, demonstrating the intention of both the government and the parliament to relegate the communities in question to second-class status within the ABS system.” The article offers a thoroughly pertinent legal deconstruction of the application of the Nagoya Protocol in French legislation.

It seems clear enough that this is a way for the State to tacitly recognise the existence of indigenous peoples, or at least to attempt to transcribe this concept into French law. The implication of this decision was that Creole communities were not entitled to claim rights over their own forms of knowledge, and the resentment in Guiana was palpable. This approach is obviously informed by international treaties according specific rights to indigenous peoples and minorities, but it is still entirely legitimate to question its distinction between the knowledge held by indigenous peoples and that associated with other rural communities (in both Guiana and metropolitan France) (PINTON & GRENAND, 2007). The former are protected by a system of authorisations, while the latter are not. In light of the constitutional principle that all French citizens are equal before the law, this raises some legal difficulties.

This interpretation thus appears to contradict the very first article of the French Constitution, which states that all French people are born equal. It is, however, consistent with the EROM Law<sup>2</sup> and its creation of a Grand Customary Council of Indigenous American and Bushinenge populations, evidence of the French State taking another step towards recognising those whom it still officially refuses to call "indigenous" people.

Returning to the use of the term community, there are two key sticking points in the Guianese context. Who defines this term? And how?

We remain convinced that these points should have been discussed in advance with the cultural groups intended to benefit from the new legislation. This was certainly the wish of the Grand Customary Council (see Chap. 12), expressed in its final response to the Guiana Amazonian Park in September 2019. One of the major stumbling blocks which has beset this whole process is the methodology employed: French, or European, legislators imposing their views upon Guianese communities. There was no real effort made to consult different Indigenous American and Bushinenge peoples on the ground, in order to co-construct what we now call community-oriented protocols (see Chap.14).

<sup>2</sup> Law No. 2017-256 of 28 February 2017 concerning genuine equality in the Overseas Territories, containing additional social and economic provisions.

Another major limitation is the failure to consider groups based outside Guiana, Wallis and Futuna, New Caledonia and the Pacific islands, since the law only covers the aforementioned territories. By way of an example, consider the shepherds of the Causses region, whose sheep help to maintain the orchid prairies (some varieties of orchids flourish on these limestone prairies, grazed by sheep) (O'ROURKE, 2006), whose way of life undoubtedly has "implications for conservation and the sustainable use of biodiversity." The same could be said of winegrowers in the Jurançon area, maintaining singular ecosystems on their limestone hillsides which would otherwise disappear. Without these *communautés d'habitants*, as per the definition adopted in the Law on Biodiversity, these habitats would be at risk. So why should they be prevented from demanding a special status?

Indeed, the influence of past societies on any number of ecosystems has been extensively demonstrated by research in the field of historical ecology, from India to Amazonia and British Columbia to the Mediterranean basin (BALÉE, 2013; BLONDEL, 2006; GADGIL & THAPAR, 1990; LEPOFSKY et al., 2017; O'DONNE et al., 2019). It is never easy to establish a baseline when it comes to "conservation of biodiversity," not least because the concepts of "initial state" and "baseline" are themselves hard to define (BARLOW et al., 2012; BEISNER et al., 2003; PAPWORTH et al., 2009).

### **What about individuality? The status of knowledge**

The fact that the legislation uses the expression "one or more communities" seems to imply that this law only applies at the community level. Does this exclude individual knowledge? Does the law consider that no knowledge in relation to genetic resources can be individually held within these communities? This question is not an anodyne detail, since the relationship between individual and collective knowledge, and the different levels of collective identity, are subjects of study and debate among ethnobiologists and anthropologists (REYES-GARCÍA et al., 2007 ; see Chap. 10).

Distribution of knowledge may also be gendered (TORRES-AVILEZ et al., 2016; VOEKS, 2007). In Amazonia this is true of basket-weaving and the plants used to stun fish, considered to be primarily masculine activities, while knowledge of plants used to dye fabric or ease childbirth is a predominantly female concern. But this is not to say that there are not specialists with expertise in specific areas of biocultural heritage, and their technological, medical, hunting or agricultural dimensions. There is clear evidence of such specialisation, although it is certainly less present than in other, more hierarchically-structured societies. Among the Teko of French Guiana, for example, there are specialists in myth (*baekwōt a'e kuwapat*), medicinal plants (*ka'a lewa*), spiritual interactions (*paze*) and dance (*polāzat*). Rather than a dichotomy between specialist and generalist knowledge, what we actually find is a continuous spectrum ranging from individual knowledge to shared, community knowledge. A *paze*, for example, holds knowledge gleaned from interpersonal teaching, i.e. passed from master to student, but also derived from allied non-human entities; the latter is an example of personal, often inexpressible knowledge. Another example comes from the Zapara people in Ecuador, where dreams play a major role in the learning process (BILHAUT, 2011). At the other end of the spectrum, storytellers are repositories of knowledge which is community-owned, albeit subject to individual reappropriations and perpetual variations. This is essentially what COLLOMB (2018) argues when he asserts that the “questions raised by the *Quassia amara* affair also highlight the difficulty of identifying – in debates of this kind – who, collectively, knows what, or indeed of solidifying the idea of a specific individual or group as ‘holders of knowledge,’ and thus as the legitimate recipients of the benefits derived from the work done by researchers using this knowledge.” (see Box 1 Chap. 12).

### **Collectives with variable contours**

The question of how to delimit communities may also be approached from a diachronic perspective, since ethnohistorical research has clearly established that present-day communities are the result of a long series of reconstitutions and coalescences (GRENAND et al., 2017). In southern Guiana, historical maps can be

used to illustrate the gradual disappearance of different groups, who have in fact combined to form the three composite groups that live in the region today: Teko, Wayãpi and Wayana. Amazonia is a world in perpetual movement, although the speed of this movement was drastically accelerated by the European invasion. Furthermore, interactions between Amazonian and European cultures stretch back further than we sometimes imagine, and these influences raise further questions in terms of usage.

Without wishing to overly simplify the issue of the origin of knowledge, the majority of Amazonian mythologies agree that virtually all knowledge of nature and associated techniques comes from other peoples, who may be human or non-human. This certainly applies to knowledge of vines containing fish toxins. A certain number of species, particularly from the Fabaceae family, and specifically the *Lonchocarpus*, *Derris* or *Tephrosia* genera, are used as toxins for fishing purposes (MORETTI & GRENAND, 1982): threshing these plants in the water releases a toxic substance which stuns the fish, making them easy to catch. According to Wayãpi oral history, these techniques, particularly those involving *Lonchocarpus* vines, were originally taught to them by capuchin monkeys (GRENAND, 1982).

Another example is provided by the reeds used in basket-weaving, known as *arouman*. For the Palikur people (DAVY, 2011), the technique of weaving plants was learned from birds, specifically the yellow-rumped cacique. Moreover, knowledge of the two most commonly-used species of *arouman* was transmitted to them by the agouti and tapir respectively.

All of these myths<sup>3</sup> serve as metaphors highlighting the importance of the dissemination of techniques through exchanges and alliances with other clans and ethnic groups. Whether it represents historical reality or is more a projection of socially desirable interactions, this Amazonian ethos, which has been extensively discussed by anthropologists, illustrates the significance of exchange and alliance. Numerous studies have demonstrated instances of technical and

<sup>3</sup> The list is endless: a brief excursion into the thousands of pages of Claude Lévi-Strauss' *Mythologiques* is enough to get a sense of the inextricable connections between these neighbouring worlds (LÉVI-STRAUSS, 1964).

artisanal complementarity between different groups. For example, there were long-standing networks of exchange spanning several hundreds of kilometres and involving dozens of groups: in the Guiana highlands, some of these networks stretched from Venezuela to Amapá (DREYFUS, 1992). We also know that on the Rio Negro in Brazil, and in Guiana too, some groups specialised in the production of manioc graters, others in the fabrication of feather headdresses, others in the training of hunting dogs and so on. All of these groups thus had their own forms of specialisation. The objects they produced travelled far and wide, and were subsequently imitated. It is therefore difficult to determine who owns the intellectual property rights to many Amazonian inventions. Furthermore, intellectual property is a very important issue in French law, and the system struggles to get to grips with these forms of knowledge and their transmission by dreams, mythical ancestors or non-human beings, and for which the notion of ownership needs to be approached differently (PINTON & GRENAND, 2007).

## Content and contours of knowledge

Above and beyond the challenges involved in determining who owns knowledge, defining what it is they actually own is also a complex matter. We shall consider the definition given in the Law on Biodiversity of "traditional knowledge associated with genetic resources:" "[...] knowledge, innovations and practices relating to the genetic or biochemical properties of that resource, its use or its properties, which have been held historically and continuously by one or more of the *communautés d'habitants* mentioned in paragraph 4°, as well as any developments to these practices and knowledge which can be attributed to the *communautés d'habitants*."

### The nature of the objects in question

This definition raises further questions as a result of its vagueness. The first potential sticking point is the nature of the objects in question.

What does the law mean by *innovations*? Technical procedures? We might, for example, apply this definition to the preparation of the fruit of the açai palm tree (*Euterpe oleracea*). This is a complex process similar to that required to transform bitter manioc (which is toxic) into an edible foodstuff. These processes, and many others, are excluded from the legal definitions on account of their cross-cultural reach. If this criterion serves to rule out knowledge which is too widely-shared, and which would require highly complex discussions, the fact remains that these are Amazonian collective inventions. This exclusion is undoubtedly advantageous from an industrial perspective, since projects to develop açai palm operations in French Guiana, drawing upon long-established practices, would otherwise be considered akin to co-opting practices and innovations for mercantile ends (what some would call biopiracy).

Next, what do we consider as *properties*? A speckled blue colour? A bitter flavour? Ability to fly? Size? In fact, it seems that any adjective applied to a biological resource can be considered a property of that resource. This has major implications for nomenclature and definitions, not to mention uses. In fact, the consequences extend to all fields of social sciences and humanities, from the most rigidly descriptive ethnography to the latest ethnosciences. As anybody who has spent any time with people in the Amazon will know, rarely does a conversation go by without mention of the size of a fish caught recently, the colour of a monkey spotted in the treetops, the ideal period to pick such and such a fruit, etc. Amazonian ways of life depend upon a tightly-woven tapestry of relations between the elements and entities which make up the world, in which man is just one player among many.

### Temporality

The second potential pitfall in these definitions is a matter of time. What does the law mean by “historically” held knowledge? Is fifty years enough? A hundred? Does this principle of longevity apply to all objects and knowledge? Oral societies evolve in remarkably dynamic ways, and the traceability of the knowledge they hold (its ontogenesis, to borrow a term from the analytical sciences) is a highly complex issue. It is difficult to



even approach this issue without drawing upon inferences which are often hotly-debated, to the extent permitted by linguistics, archaeology and ethnohistory.

On a more general note, it is the notion of tradition which should give us pause for thought. *POUILLON* (1991) defines it as "that part of the past which survives in the present, where it is passed on and remains active and accepted by those who receive it and, in turn, pass it on to future generations." The anthropological literature on this subject is extensive, but clearly the legislators are not overly concerned with this corpus. We have known since the work of *HOBBSAWM & RANGER* (2012), *LATOUR* (1991), *LENCLUD* (1987) that it is a vain endeavour to attempt to distinguish between so-called "traditional" societies and what we might call "modern" or "historical" societies. Indeed, considering "traditional" populations, or people engaged in "traditional" activities, as distinct from other people is a highly sensitive subject in the 21<sup>st</sup> century.<sup>4</sup>

As an illustration of these temporal dynamics, the example of the plants used by the Wayãpi to treat leishmaniasis is informative. As we have demonstrated in a previous publication (*ODONNE et al.*, 2011), most of these plants had changed over the course of the preceding thirty years. Among the 38 plant species identified by our study in 2009, only one was used to treat the same condition thirty years previously. Among the mechanisms which may have contributed to this evolution in knowledge, we might cite: shifts in uses, for example a plant initially used to treat a skin condition may prove to be useful for a different skin condition; intercultural shifts, with plants exchanged between groups; and, finally, original creations and discoveries, since the Wayãpi experiment with the use of different plants on a daily basis.

This knowledge is dynamic and constantly evolving. Indeed this highlights two of the great strengths of Amazonian societies: their capacity to adapt in complex environments, and their resilience in the face of changes which can often be brutal. But how can we establish the continuity of such knowledge, another

<sup>4</sup> From a legal perspective, it is not longevity which determines tradition, but rather the way in which knowledge is constituted and transmitted, considered to represent the primary criterion for identifying and defining traditional knowledge (*COLLOT*, 2020).

key requirement of the law? Proving the continuity of material cultural is always a complex undertaking in a context defined by impermanence, a result of the fragility of so many Amazonian objects, so retracing the history of intangible heritage is a serious challenge. Should we simply take people at their word? Variations on the affirmation “my grandparents always did it this way” are heard time and time again in field surveys... In this case, how do we deal with secret or discreet knowledge?

Last but not least, the idea of “developments of these practices and knowledge which can be attributed to the *communautés d’habitants*” also demands further attention. How do we define such developments to practices and knowledge? This formulation appears to reflect an intention to avoid excessively rigid definitions, taking into account the perpetual dynamism of local knowledge. But it also raises a number of new questions. Is the development of a practice not a practice in and of itself? Once again, the difficulty here is to situate such developments within a longer timeframe, with regard to knowledge of techniques within Amazonian societies. The contrast established between continuity and evolution is strange, if not paradoxical.

### **Transversality of knowledge and practices**

The latter point also raises the issue of the origins and movements of local knowledge through time, space and cultures. By excluding both “traditional knowledge associated with genetic resources which cannot be attributed to one or more *communautés d’habitants*” and “traditional knowledge associated with genetic resources whose properties are well-known and have been in regular, long-standing use outside of the *communautés d’habitants* sharing them” from the scope of ABS schemes, legislators seem intent on simplifying the benefit-sharing process for shared knowledge. But demonstrating the ownership, or non-ownership, of knowledge is a fiendishly tricky business. In the aforementioned study of plants used to combat leishmaniasis in Oiapoque (ODONNE et al., 2011), we demonstrated that it could be reasonably assumed that around 60% of species used in 2010 were the fruit of exchanges of knowledge between cultural groups. As demonstrated with increasing frequency in the ethnobiological literature, such

exchanges are the principal source of development in local knowledge (DELÈTRE et al., 2011; DÍAZ -REVIRIEGO et al., 2016; TAREAU, 2019; TAREAU et al., 2019). It would also be useful to study the "cultural biogeography" of knowledge transmission in greater detail, in order to better understand the dynamics in play. However, somewhat paradoxically, these processes require complex authorisation processes. Indeed, comparative studies on a pan-Amazonian level generally run up against the paucity of available data (ODONNE et al., 2017). Putting things into perspective, it seems highly likely that the volume of traditional knowledge shared beyond or between *communautés d'habitants* is much greater than generally assumed. Indeed this is one of the main findings of TAREAU'S (2019) work on exchanges between cultural groups on the Guianese coast. Knowledge and species travel freely from one group to the next, and some cultural groups – in this case, Creole communities – occupy a key position within this system, acting as intermediaries between other cultures in Guiana. Tareau thus demonstrates that 75% of the medicinal plant species mentioned in his surveys were cited by at least 5 different cultural groups, with 31% cited by 10 of the 16 cultural groups interviewed (TAREAU, 2019: 262). These figures give some idea of the significance of shared knowledge of medicinal plants, and in most cases it would be a vain endeavour indeed to attempt to ascribe knowledge of a particular plant to a specific community. The example of *Quassia amara* has become emblematic in French Guiana (BOURDY et al., 2017; see Box 1 in Chap. 12). In TAREAU'S view, informed by extensive research, it appears that knowledge of this plant is not specific to any group in Guiana! It was probably introduced in 1772, and the neighbouring colony of Suriname exported 265 tonnes of it to Europe in 1869, to be used as a bitter tonic, malaria remedy and insecticide. It is still to this day the 5<sup>th</sup> most-used medicinal plant on the Guiana coast, employed by 12 different cultural groups (TAREAU, 2019). As such, and in spite of the ongoing controversy, if somebody were to commission a study into the anti-malarial properties of this well-known plant species, there would be no need to apply for authorisation because this "traditional knowledge [is] associated with genetic resources whose properties are well-known and have been in regular, long-standing use outside of the *communautés d'habitants* sharing them." (Law on Biodiversity, 2016).

### The eternal difficulty of observing change

Linguistic science provides another means of reconstructing historical exchanges. The names of plants in the many languages spoken in Guiana (and beyond) bear witness to extensive cultural exchanges (GRENAND, 1995). Consider the example of the *Euterpe oleracea* palm tree, known variously as: *was* (Palikur), *wasey* (Wayāpi), *watsey* (Teko), *wassaïe* (Guianese Creole), *wasay* (Kali'na), *açaí* (Brazilian Portuguese) and so on and so forth. The phonological similarities are evident, even to readers not well-versed in the subtleties of historical linguistics. The same can be said of the fish toxins derived from plants in the *Lonchocarpus* genus, known as *ñeku* in Wayāpi and *Beku* in Teko. One particular species was thus assigned the Latin taxonomical name *Lonchocarpus nicou* (initially *Robinia nicou*) by Aublet, who collected and named it with the help of Kali'na Indigenous Americans, who referred to it as *nicou* (AUBLET, 1775). This phenomenon can be observed for many of the most emblematic Amazonian plants, testament to the transversality of Amazonian cultures: these peoples have mutually enriched one another, and far from existing as impermeable entities they are bound together by thousands of years of material, matrimonial, conflictual and linguistic exchanges, predating the changes brought about by colonisation.

### Resituating the notion of biocultural heritage

All of these reflections are to be framed within the context of the Nagoya Protocol and its implementation in France, and specifically French Guiana. International debates and agreements, along with the attention of politicians, have been focused primarily on the equitable sharing of the benefits derived from the utilisation of traditional knowledge. But we know from previous incarnations of these texts that they were originally concerned entirely with State ownership of biological resources, and have since been expanded – under pressure from indigenous militants and learned societies – to encompass local knowledge of biodiversity.

We find ourselves faced with two radically different phenomena: biodiversity, and the knowledge pertaining to it. Protecting the former is often a matter of leaving it well alone, or at least using it selectively. The latter is a much less stable category, particularly where societies with predominantly oral traditions are concerned. Protecting this knowledge is a matter of taking all possible measures to keep it alive, and thus making it available for repeated access. As such, while it is possible to protect biodiversity by limiting access, we cannot hope to protect "associated knowledge" by stymieing its dissemination. Traditional knowledge only fades away if it is not used...

The result is a form of hybrid knowledge, a combination of naturalist expertise and cultural features, practice and theory, which is poorly preserved. This may well be the heart of the problem. The inherently contradictory nature of the existing legal texts – which seek to protect phenomena which they strive to define, focusing instead on the sharing of the benefits they generate – requires us to imagine a new conceptual framework, existing at the intersection of natural and cultural heritage, tangible and intangible heritage: biocultural heritage (MAFFI, 2018). Without this indispensable conceptual work, and without the creation of dedicated programmes of conservation and museum presentation, conservation stakeholders will remain locked in endless debate, and knowledge will continue to disappear along with those who hold it.

In France, at time of writing, there is no institution allowing for the combined collection of biological taxa, their seeds, multimedia documents illustrating the knowledge and know-how associated with these taxa, and objects created by or associated with these practices. The situation elsewhere in Europe is scarcely any better. There are *economic botany* collections in the United Kingdom (Kew Gardens) and the United States (Missouri Botanical Garden), but these are only capable of meeting a tiny fraction of demand.

The examples cited in this chapter are illustrative of simple, localised problems which provide examples of definitions running up against reality, specifically the vast diversity of natural knowledge among Amazonian societies. Groups whose recent history has been marked by geographical instability, such as the *Galibi*

*Marworno* in Brazil, or the *Ndjuka* in Suriname, and now French Guiana, raise further questions. These groups are certainly Amerindians or Bushinenge, but some of them do not have French nationality. What laws apply to them? French law? Brazilian? Surinamese? While the species they use are undeniably found in Guianese territory, in some cases the knowledge they apply to them originates in their native country, where the biodiversity is largely identical... Perhaps, then, we should follow the UNESCO example and create a special status? In light of the shared history of our human societies, perhaps the notion of biocultural heritage of humanity, or global biocultural heritage, would be appropriate with regard to the recent concept of biocultural law (COLLOT, 2020).

## Conclusion

It now seems clear that our existing laws and implementing decrees, in the name of protecting biodiversity and associated knowledge, are in fact compromising conservation efforts and discouraging those who wish to study them. In these circumstances it is impossible to say “who benefits from this crime?” since – against all expectations, particularly in French Guiana – the legal texts ignore the position of the people who hold the knowledge. At no point do they consider the possibility of Amazonian perspectives on the living world, preferring to rely exclusively upon ethnocentric interpretations. In terms of Amazonian perspectivism, as studied by VIVEIROS DE CASTRO (1998), all of these definitions of “biodiversity” are inconsistent. In Amazonia, relations between humans and non-humans are often viewed in terms of alliances, crises, family histories etc. Cognitive schemas which our legislators are powerless to transpose. To quote PINTON & GRENAND (2007: 194): “When it comes to the conservation of biodiversity and associated knowledge, it is surely better to favour flexible approaches, to maintain forums for negotiation, to avoid enshrining the rights and duties of all parties in overly restrictive terms in the legislation, so that satisfactory compromises can be found.”

Moving beyond the relatively narrow conceptual confines of natural and cultural heritage, the notion of biocultural heritage (tangible or intangible) makes sense, particularly since it is often impossible to separate the tangible from the intangible in some societies (PINTON & GRENAND, 2007). Perhaps it is time to seriously consider recognising the shared biocultural heritage of humanity.

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### References

- AUBERTIN C., 2018 – « Le protocole de Nagoya à l'épreuve de la recherche sur la biodiversité ». In Pomade A. (éd.) : *Hommes-Milieux: Vers un croisement des savoirs pour une méthodologie de l'interdisciplinarité*, PUR: 99-111. <http://www.documentation.ird.fr/hor/fdi:010075061>
- AUBERTIN C., PINTON F., BOISVERT V. (éd.), 2007 – *Les marchés de la biodiversité*. Paris, IRD Éditions. <https://doi.org/10.4000/books.ird.editions.2302>
- AUBLET F., 1775 – *Histoire des plantes de la Guiane françoise, rangées suivant la méthode sexuelle...* (Vol. 4). Paris, Didot.
- BARLOW J., GARDNER T. A., LEES A. C., PARRY L., PERES C. A., 2012 – How pristine are tropical forests? An ecological perspective on the pre-Columbian human footprint in Amazonia and implications for contemporary conservation. *Biological Conservation*, 151 (1): 45-49.
- BEISNER B. E., HAYDON D. T., CUDDINGTON K., 2003 – Alternative stable states in ecology. *Frontiers in Ecology and the Environment*, 1 (7): 376-382. [https://doi.org/10.1890/1540-9295\(2003\)001\[0376:ASSIE\]2.0.CO;2](https://doi.org/10.1890/1540-9295(2003)001[0376:ASSIE]2.0.CO;2)
- BILHAUT A.-G., 2011 – *Des nuits et des rêves : Construire le monde zapara en Haute Amazonie*. Société d'ethnologie.

BLONDEL J., 2006 – The ‘Design’ of Mediterranean Landscapes: A Millennial Story of Humans and Ecological Systems during the Historic Period. *Human Ecology*, 34 (5) :713-729. <https://doi.org/10.1007/s10745-006-9030-4>

BOURDY G., AUBERTIN C., JULLIAN V., DEHARO E., 2017 – Quassia “biopiracy” case and the Nagoya Protocol: A researcher’s perspective. *Journal of Ethnopharmacology*, 206 : 290-297. <https://doi.org/10.1016/j.jep.2017.05.030>

COLLOMB G., 2018 – L’affaire du *Quassia amara* : Jeux et enjeux politiques en Guyane, du global au local. *Recherches amérindiennes au Québec*, 48 (1-2) : 193-200. <https://doi.org/10.7202/1053717ar>

COLLOT P.-A., 2020 – « Un dispositif d’accès et de partage des avantages sans peuple autochtone ni communauté locale ou les omissions de la loi française pour la reconquête de la biodiversité ». *Vertigo - la revue électronique en sciences de l’environnement* [En ligne], Volume 20 numéro 1: <http://journals.openedition.org/vertigo/27946> ; DOI : <https://doi.org/10.4000/vertigo.27946>

DAVY D., 2011 – *De l’anaconda à l’urubu : Mythe et symbolisme animal chez les Amérindiens de l’Oyapock*. Ibis Rouge éditions.

DAVY D., FILOCHE G., GUIGNIER A., ARMANVILLE F., 2016 – Le droit foncier chez les populations amérindiennes de Guyane française: Entre acceptation et conflits. *Histoire de la justice*, 26 (1): 223-236.

DELÈTRE M., MCKEY D. B., HODKINSON T. R., 2011 – Marriage exchanges, seed exchanges, and the dynamics of manioc diversity. *Proceedings of the National Academy of Sciences*, 108 (45): 18249-18254.

DÍAZ-REVIRIEGO I., GONZÁLEZ-SEGURA L., FERNÁNDEZ-LLAMAZARES Á., HOWARD P. L., MOLINA J. L., REYES-GARCÍA V., (2016) – Social organization influences the exchange and species richness of medicinal plants in Amazonian homegardens. *Ecology and Society*, 21 (1), art1. <https://doi.org/10.5751/ES-07944-210101>

DREYFUS S., 1992 – Les Réseaux politiques indigènes en Guyane occidentale et leurs transformations aux XVII<sup>e</sup> et XVIII<sup>e</sup> siècles. *L’Homme*, 32 (122/124): 75-98. JSTOR.

FLEURY M., DAVY D., GRENAND P., 2014 – « Des palmiers et des Hommes ». In Grandville D., Gayot J.-J., Marc X. (éd.), *Guide des palmiers de Guyane*, Sylvétude, ONF : 50-81. <https://hal.archives-ouvertes.fr/hal-01845654>

GADGIL M., THAPAR R., 1990 – Human Ecology in India. Some Historical Perspectives. *Interdisciplinary Science Reviews*, 15 (3): 209-223. <https://doi.org/10.1179/isr.1990.15.3.209>



GOSSIAUX J.-F., 1991 – « Communauté ». In Bonte P., Izard M. (éd.) : *Dictionnaire de l'ethnologie et de l'anthropologie*, Presses Universitaires de France: 165-166.

GRENAND F., 1982 – *Et l'homme devint jaguar : L'univers imaginaire et quotidien des Indiens Wayâpi de Guyane*. Paris, L'Harmattan.

GRENAND P., 1995 – Le voyage des mots. Logique de la nomination des plantes: exemples dans des langues tupi du Brésil. *Cahiers du Lacito*, vol. 7, numéro thématique « Les mécanismes du changement culturel et linguistique »: 23-42.

GRENAND P., MORETTI C., JACQUEMIN H., PRÉVOST M.-F., 2004 – *Pharmacopées traditionnelles en Guyane: Créoles, Palikur, Wayâpi*. Paris, IRD Éditions.

GRENAND P., GRENAND F., JOUBERT P., DAVY D., 2017 – Pour une histoire de la cartographie des territoires teko et wayâpi (Commune de Camopi, Guyane française). *Revue d'ethnoécologie*, 11.

HOBBSAWM E., RANGER T., 2012 – *The invention of tradition*. Cambridge, Cambridge University Press.

LATOUR B., 1991 – *Nous n'avons jamais été modernes*. Paris, La Découverte.

LATOUR B., 1993 – *We have never been modern*. Simon and Schuster, Harvard University Press.

LENCLUD G., 1987 – La tradition n'est plus ce qu'elle était... Sur les notions de tradition et de société traditionnelle en ethnologie. *Terrain. Anthropologie & sciences humaines*, 9: 110-123. <https://doi.org/10.4000/terrain.3195>

LEPOFSKY D., ARMSTRONG C. G., GREENING S., JACKLEY J., CARPENTER J., GUERNSEY B., MATHEWS D., TURNER N. J., 2017 – Historical ecology of cultural keystone places of the Northwest Coast. *American Anthropologist*, 119 (3): 448-463.

LÉVI-STRAUSS C., 1964 – *Mythologiques*. Paris, Plon.

MACQUEEN K. M., MCLELLAN E., METZGER D. S., KEGELES S., STRAUSS R. P., SCOTTI R., BLANCHARD L., TROTTER R. T., 2001 – What is community? An evidence-based definition for participatory public health. *American Journal of Public Health*, 91 (12): 1929-1938.

MAFFI L., 2018 – Biocultural diversity. *The International Encyclopedia of Anthropology*, 1-14.

MORETTI C., GRENAND P., 1982 – Les Nivrées ou plantes ichtyotoxiques de la Guyane française. *Journal of Ethnopharmacology*, 6 (2) : 139-160. [https://doi.org/10.1016/0378-8741\(82\)90002-2](https://doi.org/10.1016/0378-8741(82)90002-2)

ODONNE G., BERGER F., STIEN D., GRENAND P., BOURDY G., 2011 – Treatment of leishmaniasis in the Oyapock basin (French Guiana): A K.A.P. survey and analysis of the evolution of phytotherapy knowledge amongst Wayãpi Indians. *Journal of Ethnopharmacology*, 137 (3): 1228-1239. <https://doi.org/10.1016/j.jep.2011.07.044>

ODONNE G., HOUËL E., BOURDY G., STIEN D., 2017 – Treating leishmaniasis in Amazonia: A review of ethnomedicinal concepts and pharmaco-chemical analysis of traditional treatments to inspire modern phytotherapies. *Journal of Ethnopharmacology*, 199: 211-230. <https://doi.org/10.1016/j.jep.2017.01.048>

ODONNE G., BEL M., VAN DEN BURST M., BRUNAUX O., BRUNO M., DAMBRINE E., DAVY D., DESPREZ M., ENGEL J., FERRY B., FREYCON V., GRENAND P., JÉRÉMIE S., MESTRE M., MOLINO J.-F., PETRONELLI P., SABATIER D., HÉRAULT B., 2019 – Long-term influence of early human occupations on current forests of the Guiana Shield. *Ecology*, 100 (10) : e02806. <https://doi.org/10.1002/ecy.2806>

OGERON C., ODONNE G., CRISTINOI A., ENGEL J., GRENAND P., BEAUCHÊNE J., CLAIR B., DAVY D., 2018 – Palikur traditional roundwood construction in eastern French Guiana: Ethnobotanical and cultural perspectives. *Journal of Ethnobiology and Ethnomedicine*, 14: 28. <https://doi.org/10.1186/s13002-018-0226-7>

O'ROURKE E., 2006 – « Biodiversity and land use change on the Causse Méjan, France. » In Hawksworth D. L., Bull A. T. (Eds) : *Human Exploitation and Biodiversity Conservation*, Springer Netherlands : 271-286. [https://doi.org/10.1007/978-1-4020-5283-5\\_15](https://doi.org/10.1007/978-1-4020-5283-5_15)

PAPWORTH S. K., RIST J., COAD L., MILNER-GULLAND E. J., 2009 – Evidence for shifting baseline syndrome in conservation. *Conservation Letters*, 2 (2): 93-100.

PINTON F., GRENAND P., 2007 – « Savoirs traditionnels, populations locales et ressources globalisées ». In Aubertin C., Pinton F., Boisvert V. (éd.) : *Les marchés de la biodiversité*, IRD Éditions : 165-194. <https://doi.org/10.4000/books.irdeditions.2318>

POUILLON J., 1991 – « Tradition ». In Bonte P., Izard M. (éd.) : *Dictionnaire de l'ethnologie et de l'anthropologie*, Presses Universitaires de France: 710-712.

REYES-GARCÍA V., MARTI N., MCDADE T., TANNER S., VADEZ V., 2007 – Concepts and methods in studies measuring individual ethnobotanical knowledge. *Journal of Ethnobiology*, 27 (2): 182-203.

TAREAU M.-A., 2019 – *Les pharmacopées métissées de Guyane. Ethnobotanique d'une phytothérapie en mouvement*. Université de Guyane.

TAREAU M.-A., DEJOUHANET L., PALISSE M., ODONNE G., 2019 – Circulations et échanges de plantes et de savoirs phytomédicinaux sur la frontière franco-brésilienne. *Revue Francophone sur la Santé et les Territoires*, décembre, 19.

TORRES-AVILEZ W., MEDEIROS P. M. DE, ALBUQUERQUE U. P., 2016 – Effect of gender on the knowledge of medicinal plants: Systematic review and meta-analysis. *Evidence-Based Complementary and Alternative Medicine*, 2016.

VIVEIROS DE CASTRO E., 1998 – Cosmological deixis and Amerindian perspectivism. *Journal of the Royal Anthropological Institute*, 4 (3): 469-488.

VOEKS R. A., 2007 – Are women reservoirs of traditional plant knowledge? Gender, ethnobotany and globalization in northeast Brazil. *Singapore Journal of Tropical Geography*, 28 (1): 7-20.



# Grand Customary Council of Amerindian and Bushinenge Populations

A new dialogue  
in French Guiana

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**Tiffanie HARIWANARI**

The first Council for Consultation with the Amerindian and Bushinenge Populations of French Guiana (CCPAB) was established in June 2008 during the presidency of Nicolas Sarkozy, by means of an amendment submitted by senator Georges Othily to the Overseas Territories Bill. This amendment stipulated the creation of an administrative commission of a consultative nature, attached to the Prefecture, to be consulted on “any bill or proposal debated by the regional or departmental council with consequences for the environment, living environment or cultural activities of Amerindian and Bushinenge populations.” This body seemed doomed to failure since, as George Pau-Langevin, Minister for Overseas Territories, readily admitted, it had neither the financial resources nor the status required to “deliver better representation for the indigenous populations of Guiana and promote their specific interests.”

The communities in question greeted this lack of adequate resources as the latest in a long line of humiliations. They felt that their voices had already been suppressed over previous decades,

particularly with the establishment of municipal authorities which acted as checks on their own powers, the arrival of money and its consequences for relationships within villages, and the disruption to cultural traditions caused by Christianisation.

The negotiations which led to the recent Law on Biodiversity (2016) helped to move things along. The member of parliament for French Guiana, Chantal Berthelot, sought to make the CCPAB a public legal entity responsible for organising consultation of *communautés d'habitants* holding traditional knowledge associated with genetic resources, and negotiating and signing benefit-sharing agreements with users. To this end, she proposed an amendment to the Bill on Genuine Equality in the Overseas Territories (EROM) in February 2017, stipulating the creation of a Grand Customary Council of Amerindian and Bushinenge Populations (GCCPAB).

The Grand Customary Council finally took shape on 10 and 11 February 2018, a historic occasion on which all of Guiana's Amerindian customary chiefs and Bushinenge captains gathered together. From East to West, North to South, all of the chiefs and leaders of Amerindian and Bushinenge associations attended the launch of the Council. They were charged with electing a governing committee for a period of three years, by means of a secret ballot, as well as determining the Council's regulations. After two days, 16 representatives were put forward by their communities (12 customary chiefs and 4 associative representatives, with an equal split of Amerindian and Bushinenge members). The Minister for Overseas Territories then designated two additional representatives with the agreement of the represented communities. The much-criticised yet hotly-anticipated Grand Customary Council was finally a reality.

Many militants (primarily Amerindians) expressed their frustration at France's incorrigibly unilateral understanding of customary representation. They denounced Article D. 7124-46 of the Decree implementing the EROM Law as being typical of this stubborn paternalism: "The cost of running the Grand Customary Council is covered by the State. The Grand Customary Council's secretariat is attached to the office of the central government's representative in Guiana." They also bemoaned the longstanding failure to demonstrate sufficient consideration for local populations, embodied in the purely consultative role of the Grand Council in

relation to the representative of central government in the French Guiana Territorial Authority. Nonetheless, the French State had finally recognised, to some extent, the legitimacy of the customary chiefs by establishing a Grand Council complete with the requisite funding, which represented an improvement on the previous state of affairs. The Grand Council is also qualified to intervene, at its own initiative, on all matters directly or indirectly affecting the indigenous population (environmental, societal and cultural issues etc.). Nevertheless, and crucially, the Grand Council remains to this day a purely consultative administrative body. The GCCPAB cannot assume the role of a public legal entity.

However, the most pressing priority was to make indigenous voices heard, since projects with consequences for their lives were still being launched without proper consultation of those most affected. It soon became clear that, without the presence of the Grand Customary Council, this deleterious state of affairs would only continue. Furthermore, following the accusations of biopiracy levelled at IRD in the high-profile “Couachi Affair” (see Box 1), there is much work to be done on the gathering of consent before access is granted to traditional knowledge associated with genetic resources. Under the terms of the Law on Biodiversity, the Grand Customary Council can intervene in order to manage this consent-gathering process. As per Article 78 of the EROM Law, the Guiana Territorial Authority may, at the request of the Grand Customary Council, “create a public institution for cultural and environmental cooperation” tasked with implementing Article L. 412-10 of the Environment Code. In other words, the Grand Council may organise the consultation of *communautés d’habitants* holding traditional knowledge associated with genetic resources (see Chap. 8). However, since the Council is not a public legal entity, it cannot negotiate or sign benefit-sharing agreements.

The situation remains complex and uncertain, with differences of opinion within both the Territorial Authority and the Grand Council hampering the creation of a public legal entity. The concrete reality of these relations appears to be a major obstacle to collaboration. It is worth noting that socio-cultural differences between Amerindian and Bushinenge communities require different decision-making and consultation processes.

Box 1.

**The *Couachi* Affair – (*Quassia amara*)**

Well known in Suriname since the 18<sup>th</sup> century as a treatment for fever, *Quassia amara* is a plant first described by Swedish botanist Linnaeus in 1763. It is found in Central America, the Caribbean and on the northern shores of the Amazon region, and is listed in the French Pharmacopoeia under the name *Quassia de Surinam*. It has been domesticated and cultivated in “Creole gardens” and is grown on an industrial scale in Guiana, where it is known as *couachi*, and in Costa Rica.

Taking up the directives of the WHO’s ‘Roll Back Malaria’ programme, and prompted by a surge in treatment-resistant malaria cases in Guiana, an epidemiological inquiry was conducted in 2003 by the French National Research Institute for Sustainable Development (IRD). 117 participants from a diverse array of backgrounds (Brazilians, Creoles, Europeans, Galibis, Hmong, Palikur) were surveyed on how they dealt with this disease. The surveys and interviews confirmed that *couachi* leaves were widely-used in anti-malarial decoctions. Biochemical analyses were then conducted in laboratory conditions to test this practice, and attempt to define protocols for extracting and identifying the chemical compounds present in the plant.

After several years of research, in 2008, a molecule known as Simalikalactone E (SkE) was identified and protected by two patents registered by IRD. The first patent covered the procedure used to extract and use SkE to treat malaria; the second, registered in 2011, protects the utilisation of this molecule in cancer treatments.

In October 2015, Fondation France Libertés lodged an appeal against the first IRD patent with the European Patent Office (EPO) and launched a media campaign accusing the institution of biopiracy. The resonance of this campaign was amplified by its timing, since it coincided with the parliamentary debates over the Law on Biodiversity, which introduced an ABS mechanism for France and thus for French Guiana. The political context was complex, with the creation of the new Guiana Territorial Authority, sealing the merger of the previous departmental and regional authorities. The issue of biopiracy became a lightning rod for various tensions, exacerbating the political and public debate. Any number of individual and collective grievances became mixed up in this affair: affirmation of indigenous identities



via the denunciation of the appropriation of traditional remedies, conflicts between socio-cultural groups in Guiana claiming ownership of knowledge of the plant, criticisms of France's colonialist attitude, the new Guiana Territorial Authority hoping for decentralised management of biodiversity matters, etc.

An oral hearing was held in February 2018, at which the EPO fully confirmed the validity of the patent. Since this affair, however, projects intended to capitalise on the patents, initiated and negotiated by IRD and the relevant Guianese structures, have fallen by the wayside, and opportunities to develop the industrial production of a drug based on the SkE molecule have not been pursued.<sup>1</sup>

With regard to access and benefit-sharing mechanisms (ABS), the Guiana Amazonian Park is provisionally acting as the legal entity overseeing implementation of procedures for access to genetic resources, particularly the consultation of communities with regard to requests for access to traditional knowledge associated with genetic resources. Consultation of these communities requires a number of complex procedures to be implemented locally, in order to obtain a response from both the territorial authority and the Grand Customary Council.

Finding a mode of consultation consistent with the lifestyles of the communities in question is therefore a priority, and the implementation of community-specific protocols is crucial (see Chap. 14). However, the French government, through the intermediary of the Guiana Amazonian Park authorities, has proposed a consultation model that is incompatible with local customs: a question is put to the chief, who is expected to answer on behalf of the whole community. This of course implies that a customary chief represents the whole community, which is generally not the case among Amerindian groups, where a man's word is his own

<sup>1</sup> For further information see BOURDY G., AUBERTIN C., JULLIAN V., DEHARO E., 2017 – Quassia "biopiracy" case and the Nagoya Protocol: a researcher's perspective. *Journal of Ethnopharmacology*, 4 (4): 290-297. COLLOMB G., 2018 – L'affaire du *Quassia amara* : jeux et enjeux politiques en Guyane, du global au local. *Recherches amérindiennes au Québec*, 48 (1-2) : 193-200.

and he does not speak for the community at large. A considerable amount of information and educational work is required with communities benefiting from ABS, so that they can create their own protocols for establishing prior, informed consent among themselves. Such protocols would be of use not only for ABS purposes, but also for the many other matters on which communities are consulted. At the time of writing, the absence of clear protocols means that the same individuals within a given territory are consulted repeatedly, while others remain invisible, for various reasons (language barriers, lack of interest, etc.). This raises questions as to who can truly be considered qualified to represent the knowledge of a community.

As such, a methodology tailored to each community must be developed in collaboration with the members of the Grand Customary Council. It should come as little surprise that the first discussions in this area have highlighted the limitations of the legislative framework, specifically with regard to what constitutes traditional knowledge (see Chaps. 10 and 11).

By way of an example, Bruno Apouyou, the Boni captain of the Saramaca village in Kourou, and Vice-President of the Grand Customary Council, has offered an explanation of the division of traditional knowledge between the village, the family and the *lo* or *be* (clan) in Boni culture. If a request were to be made for access to traditional knowledge associated with genetic resources held by the Bonis, the issue of the origin of this knowledge would arise. Knowledge may be considered maternal or paternal in origin, but not both simultaneously. A boy who learns from his father how to use a certain plant for medicinal purposes is not supposed to share this knowledge with his maternal family. If such transmission were to occur, the knowledge would be considered to have been shared with the maternal family, but not given to them as owners. The maternal family would have no such claim over the knowledge.

Taking such practices into account requires adjustment to the ABS model. The Vice-President of the Grand Customary Council is unequivocal: "French law must adapt to our laws." In order to achieve this, he feels that a robust dialogue on the different manners of approaching the traditional knowledge of *communautés d'habitants* is indispensable.

The continuation of these discussions with the Grand Customary Council and the mediators from the Amazonian Park must improve our understanding and recognition of the ways in which knowledge is constructed, transmitted and used. By affirming the rights and will of local populations in all their diversity, community-specific protocols will provide clear guidance as to how such knowledge can be used to further our understanding of biodiversity.



# Sharing lessons learned from the establishment of an ABS mechanism (French Guiana Amazonian Park)

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**Raphaëlle RINALDO**

The implementation of an Access and Benefit-Sharing (ABS) procedure in French Guiana (between 2007 and 2016) was the first project of its kind in France. Nobody involved was fully prepared, not even the local stakeholders who had requested the creation of such a mechanism as a prerequisite for the establishment of the French Guiana Amazonian Park. As we shall see, these local players did not always facilitate the implementation process. In this chapter we look back over these years of tentative progress, hard work and constant mediation, an experience fraught with legislative, political and human challenges, and a process which had the unexpected effect of bringing together historical opponents around a core of shared ideas.

## Creation of the French Guiana Amazonian Park

An idea which began to gain traction in naturalist circles in the 1970s, the project to create a major national park in French

Guiana was officially approved by President François Mitterrand on 4 June 1992 at the Earth Summit in Rio. It then took fifteen years of negotiations and two abortive proposals rejected by local stakeholders (in 1993 and 1999) to finally arrive at what would become the French Guiana Amazonian Park (French acronym: PAG) on 28 February 2007. The Park was a new addition to France's network of national parks, and is officially Europe's largest national park thanks to its 3.4 million hectares spanning the southern third of Guiana.

This missions of the French Guiana Amazonian Park are as follows:

- conservation of terrestrial and aquatic ecosystems and associated human practices;
- recognition of cultural diversity and transmission of knowledge;
- improving quality of life and supporting development.

In order to finalise the creation of the Park, changes were required to the legislation on national parks in order to update their missions by making them responsible for ensuring sustainable development locally, and to introduce the concept of "*communautés d'habitants* who traditionally derive their means of existence from the forest" into French law. This was achieved on 14 April 2016 (see the French Law on Biodiversity, Focus 3 and Chaps. 7, 8 and 11). The law contains provisions favourable to the interests of these communities (Box 1).

Box 1.

**The order establishing the PAG  
introduced an ABS mechanism in Guiana**

"Access to the genetic resources of species found in the national park, and their use, are subject to authorisation" (Article L.331-15-6 Para. 1 of the Environment Code). "Authorisations shall be issued by the President of the Regional Council, with the approval of the President of the Departmental Council and after consultation with the public institution responsible for the national park, with no bearing on the enforcement of the provisions of the Intellectual Property Code." (Article L.331-15-6 Para. 3 of the Environment Code)

## Communities and ABS in the creation of the Park

In order to better understand the stakes at play in terms of access to genetic resources in the Park, we must look back at the involvement of local communities in the creation of the project.

In 1993, a memorandum of understanding for the creation of a new national park was signed in Guiana by the Departmental and Regional Councils and the Ministries for the Environment, Overseas Territories, Agriculture and Forestry. The Steering Committee established by this agreement was tasked with defining the zoning of the new park. It included representatives of the government, alongside scientists and elected officials.

In 1994, the Commission for the Creation of the Park declared the full consent of Guiana's indigenous populations to be an essential prerequisite to their involvement with the park project, particularly with regard to tourism in the areas occupied by these groups. Nevertheless, this appears to have been something of a formality, since none of the communities in question were represented on the Steering Committee (LEPRÊTRE, 1998). The first draft proposal was roundly rejected by local authorities, concerned that its excessively naturalist vision neglected the importance of economic development and failed to guarantee their own powers within the governance of the future Park. Regional elected officials subsequently backed the revised proposal put forward in 1996.

In 1998, the Amerindian and Bushinenge populations were largely sceptical or even openly opposed to the creation of the Park. They did not truly understand the issues at stake, or else feared that their freedom to access territories and resources would be curtailed (FLEURY, 1998).

On 21 June 1998, at the initiative of the Federation of Indigenous Organisations of Guiana (FOAG), a meeting bringing together Amerindian and Aluku Bushinenge customary chiefs was held in Twenké. This meeting resulted in the 'Twenké Resolution,' in which customary chiefs demanded that the central government

and local authorities (Regional and Departmental Councils) abide by the commitments that France had made in Rio in 1992. Among them was a promise that the State would “recognise the identity, cultures and interests of indigenous peoples.” They demanded legal recognition of the customary and spiritual authorities of indigenous and traditional populations, as well as their rights to the land and its national resources.

The second draft proposal for the Park thus gave local communities more control and decision-making power, through the intermediary of their traditional political authorities. This new version was rejected by both the national parliament and local elected officials, since it afforded preferential treatment under the law to a certain community.

In 2006, after years of silence on the matter followed by a new round of consultations facilitated by intermediaries, the Commission for the Creation of the Park published a new draft proposal in which local and indigenous communities were given consultative power, not mentioned specifically in the executive order establishing the Park. The channels available to them to make their voices heard were the PAG and the Regional and Departmental Councils. Only the President of the Departmental Council was to be endowed the authority to issue binding decisions (see Box 1) (FLEURY & KARPE, 2006).

In terms of implementing these new arrangements, it was agreed that, at the initiative of the Conference of Regional and Departmental Representatives, the charter of this new national park should define the terms for accessing and using genetic resources. The Environmental Authority made the Park an experiment to conceive the implementation of an ABS mechanism consistent with France’s international commitments under the 1992 Convention on Biological Diversity, updated in the Nagoya Protocol of 23 October 2010. Guiana thus became the first region in France to regulate access to its genetic resources. It remained the only region with such procedures in place until 1<sup>st</sup> January 2017.

Although they are not afforded final decision-making authority in the executive order establishing the Park, local and indigenous communities do hold seats on its board of directors, with customary



chiefs and captains serving as the official representatives of Amerindian and Bushinenge communities to the French State. Whereas among the Amerindian groups found in the south of Guiana (Wayana, Wayampi and Teko) the customary chief (or, more accurately, chief “of customs”) is not necessarily a representative or guarantor of order, among the Aluku (a Bushinenge people), the customary and spiritual chief (*gaan man*) unequivocally does not sit on administrative bodies of this sort. In their designated territories, it is *kaptén* appointed by the Guianese authorities who maintain law and order and sit on the committee. The membership of the Park’s Local Community Committee, which serves as its socio-economic committee, primarily comprises local people. By 2007, at least on paper, a system of inclusive governance had been established allowing for the genuine involvement of local communities.

## ABS experimentation in the Guiana Amazonian Park (2007-2018)

Once the Park had been formally established by executive order, the task of establishing a governing charter began. This task was finally completed in 2012, and the Charter was signed by the central government and local stakeholders. In the meantime, and primarily within the Park’s Scientific Committee, work was ongoing to develop an ABS system, leading to the publication of a best practice guide for access to genetic resources.<sup>1</sup>

In 2007, neither the Departmental nor the Regional Council had specific resources dedicated to ABS. This was despite the fact that it was the Councils who insisted upon including ABS in the executive order establishing the Park, ensuring that it was written into the PAG’s founding documents.

| <sup>1</sup> Appendix IV to the Charter of the French Guiana Amazonian Park, 2012.

### **2007-2011: procedures not yet formalised**

In 2009, upon receiving the first request for authorisation – involving wild cocoa trees in the Trois-Sauts region, with the potential to yield a patent or commercial use – the local authorities and Park agreed upon the following procedure: the Park receives access requests from bioprospectors, checks the validity of these requests, refers them to the Scientific Committee (and, where relevant, the customary authorities) and submits their decisions to the Departmental and Local Councils.

This first application was submitted by the French Agricultural Research Centre for International Development (CIRAD), and required two years of correspondence and interviews with the researchers behind the project before a first formal decision was reached. Three other applications also underwent the same procedure. Others “slipped through the net” due, among other reasons, to the lack of a formal procedure for cooperation between the Park and the regional authorities, and the region’s failure to respond to the Park’s overtures in this respect.

Nonetheless, basic precautions were taken to ensure that local communities approved of the proposed research programmes, particularly in the form of preliminary consultations conducted by the Park authorities. It is worth noting that the Park also lacked specific resources allocated to the management of ABS.

### **2011-2012: formalised procedures**

A best practice guide given as an appendix to the Park Charter and drafted by the members of the scientific committee – including a Kali’na legal expert – has been applicable since December 2011 to all projects within the territorial scope of the French Guiana Amazonian Park.

It applies to users seeking to access genetic resources located within the French Guiana Amazonian Park. The PAG’s scientific committee assesses project applications with reference to this guide. The Director of the Park then submits a detailed opinion

to the President of the Regional Council, who is qualified to issue authorisations. It is made clear that “the procedure does not apply to customary uses or to the exchange of genetic resources and traditional knowledge within and among local and indigenous communities.”

This best practice guide identifies four categories of bioprospecting based on purpose (commercial vs knowledge) and access (or absence of access) to traditional knowledge. It also includes an obligation to leave copies of all genetic material and information gathered with a Guianese organisation. For requests involving traditional knowledge, the Director of the Park must consult the customary authorities represented on the board of directors and local relations committee, comprising socio-economic stakeholders from across the territory. Supervision of implementation is also required. The actual content of ABS contracts, however, is not specified

Signed in October 2012, the Charter for the Guiana Amazonian Park incorporates guidance on access to genetic resources and their use, as well as the best practice guide. Prior, informed consent from communities is required in order to access genetic resources for subsequent use, or where this access involves traditional knowledge.

Although this best practice guide represented a major step forward, theory and practice were once again shown to be different matters. The best practice guide mentions consultation with the internal structures of the Park administration, namely the board of directors (for final approval) and the Local Community Committee, in cases involving traditional knowledge associated with genetic resources. And yet, during the meetings of these committees, local and indigenous communities do not truly participate in reaching informed decisions. Although resources are made available to facilitate the attendance of their representatives and translators, no time is devoted to genuinely preparing for the meetings with them.

For the local authorities concerned, the Congress of Elected Officials held on 21 July 2011 expressed a desire to see an ABS mechanism put in place for the territory of Guiana as a whole, covering all biological resources and not simply genetic

resources,<sup>2</sup> in keeping with the Nagoya Protocol and contrary to the executive order establishing the Park.<sup>3</sup> The Congress passed a resolution on access to genetic resources, biological resources and associated knowledge, as well as the sharing of resulting benefits. This resolution also encouraged the French government to ratify international agreements on the rights of indigenous peoples. There is a clear consensus here in favour of a prospective approach to working with researchers.

### **2012-2017: ABS structure, synergy and powerplay**

ABS measures began to take shape between 2012 and 2017, thanks in large part to the appointment of a Biodiversity Project Manager by the Guiana Region, which had now been subsumed in the Guiana Territorial Authority (CTG), following the merger of the Regional and Departmental Councils after the 2015 regional elections. The Project Manager worked in partnership with the Scientific Director of the Amazonian Park to develop an application procedure acceptable to all stakeholders.

The ABS secretariat is responsible for receiving and examining applications, most of which come from researchers, meaning that these applications are no longer submitted via the intermediary of the Park. This process also gives applicants time to think about the consequences of their research for the territory, particularly in terms of benefit-sharing, before they are required to deal with political authorities. This preliminary dialogue phase has been crucial in allowing all involved to recognise the importance of putting a clear system in place.

The ABS secretariat subsequently passes on applications to the ABS committee, made up of numerous territorial stakeholders (fig.1),

<sup>2</sup> Genetic resources are defined in the Convention on Biological Diversity as “any material of plant, animal, microbial or other origin containing functional units of heredity with actual or potential value.” Biological resources include genetic resources, organisms (whole or partial) and all other biotic elements of ecosystems.

<sup>3</sup> Appendix 3 to the Charter of the French Guiana Amazonian Park.

for a consultative assessment. Their decision is passed on to the Guianese Economic, Social and Cultural Committee (CESECEG), and then to the President of the Territorial Authority for final approval.

Between 2012 and 2017, 30 applications were handled. This represented a clear increase in the number of applications dealt with annually, now that a clear procedure and standard framework agreement were in place. The average processing time was between 2 and 6 months for each application. The majority of the applications received were concerned with access to genetic resources for scientific purposes, not requiring access to traditional knowledge.

Of the 90 scientific actions supported or backed by the French Guiana Amazonian Park, forty-four have involved ABS, just four of which required access to associated traditional knowledge.

Figure 1.

**Composition of the ABS committee set up by the Regional Council in 2012.**

<b>Local and municipal authorities</b>	President, Regional Council
	President, Departmental Council
	Representative of Mayors of Guiana
<b>The State and its departments</b>	Prefect and designated departments
<b>Scientific and research bodies</b>	President, GIS IRISTA
	President, University of Guiana
<b>Natural environment managers</b>	Director, Guiana Amazonian Park
	Director, Guiana Regional Natural Park
	Director, National Forest Office
<b>Nature associations and ONG</b>	President, Guyane Nature Environnement
	Regional Delegate, WWF
<b>Bioresources professionals</b>	Director, Guyane Développement Innovation
	Regional Director, Office for the Development of the Overseas Agricultural Economy (ODEADOM)
	President, Organisation of Indigenous Nations of Guiana (ONAG)
<b>Representatives of indigenous and local communities</b>	President, Federation of Indigenous Organisations of Guiana (FOAG)
	President, Council for Consultation with Amerindian and Bushinenge populations

The ABS committee, the body responsible for discussing and approving applications, has provided stakeholders who would not usually engage in dialogue with a dedicated forum for consultation and debate on the outcomes of research for the territory. It has also allowed parties who were initially sceptical about the usefulness and legitimacy of an ABS scheme to engage in constructive dialogue and develop a common language (fig. 1). Establishing this dialogue was not always easy. The two driving forces behind the ABS scheme – the CTG Project Manager and the PAG Scientific Director, neither of whom are able to focus on these matters on a full-time basis – at times bore the brunt of the frustration among researchers, who did not comprehend why the Territorial Authority should be “entitled” to judge their work and what it could bring to the region.

Representatives of local and indigenous communities, who participated little (if at all) in the ABS committees, were largely absent until the “Couachi Affair” of 2016, when NGO Fondation France Libertés sued the IRD for registering a patent on a molecule derived from a plant used to treat malaria (see Box 1. in Chap. 12). Since 2016, the indigenous communities living on the coast have at last been actively involved in the committee, conferring greater legitimacy upon its deliberations.

## Lessons and questions

### **The CTG-PAG-scientists triumvirate: from ABS appropriation to the acquisition of a common language**

#### **Multiple questions**

The ABS committee has been obliged to innovate relentlessly. The first task facing the committee was to reach an agreement on what precisely constitutes a genetic resource, as opposed to a biological resource, and how we define what represents access to traditional knowledge.

For example, am I bound by the ABS mechanism if I go looking for timber in a forest inhabited by Teko indigenous groups, and they explain the properties of the wood to me? Have I thus been granted access to traditional knowledge? Do I need to request authorisation? Am I allowed to write the information down?

Lacking legal expertise, the project managers at the Territorial Authority and the Park, both ecologists by training, attempted to draft a definition that would be acceptable to all. They soon found themselves stuck between the competing demands of scientists keen to exempt virtually everything from the scope of the ABS mechanisms, and a Territorial Authority determined to make that scope all-encompassing. They made repeated requests for legal expertise from the Territorial Authority, but progress was slow when it came to harmonising terminology and definitions to make sure that everybody understood that the law defines resources in terms of their usage.

Next, they needed to consider potential commercial uses. For example, if a botanical garden comes to collect plants from the Amazonian Park, and then uses those cuttings to enhance its flowerbeds, for which it charges an entrance fee: how should these benefits be shared at the territorial level, even if the botanical garden in question is privately-owned?

The third point in need of clarification was the geographical scope of the ABS mechanism. The Territorial Authority wanted to expand it to the whole of French Guiana, and mulled the possibility of applying it differently in the Park and in other areas. The Ministry for the Environment, consulted on the matter in 2014 before it had even established an ABS unit, decided to restrict the territorial applicability of rules governing access to genetic resources to the Amazonian Park itself, until such time as municipal authorities should choose to sign up to the Charter.

### **Common procedures**

Establishing common procedures was a gradual process, and not always a smooth one. Contrary to some of the rumours circulating, researchers attached to public institutions (mostly based in Guiana), the source of most applications, were receptive to this

process, regarding the Territorial Authority as well-placed to facilitate benefit-sharing arrangements. Indeed many researchers were unaware of how to set up a benefit-sharing system in the territory, and had simply avoided the procedure, although they were not against making efforts in this direction as long as they received some help and support.

The creation of a standard framework agreement for access to genetic resources with no commercial objective and no access to associated traditional knowledge enabled all stakeholders to agree on their respective roles, improving relations with research institutions, who were by now reassured as to the intentions of the ABS scheme. The drafting of this standard document was greatly assisted by the French National Center for Scientific Research (CNRS) legal department, who took charge of the process. As it happens, the CNRS itself had a project which had been stuck in limbo for two years, involving access to both genetic resources and associated traditional knowledge, a situation for which there was no legal precedent.

The Guiana Territorial Authority (CTG) did a lot of work to raise awareness among researchers, particularly in the form of ABS study days and meetings between the ABS technical secretariat and the heads of relevant networks (naturalist associations, the Guianese conservatory for natural spaces, the Center for the Study of Biodiversity in Amazonia laboratory etc). These contacts then passed on the message to their peers and thus contributed to the dissemination of information.

Moreover, the Territorial Authority abandoned their desire to control every aspect of the process and streamlined their ABS procedure. Its committees responsible for assessing applications soon developed a strong working relationship with the ABS committee, admitting that they were sometimes challenged by the seemingly abstruse technical content of some applications. This served to facilitate the procedure for the simplest cases. We can also observe the substantial efforts made by the scientific community, with a progressive simplification of the vocabulary used in applications, and a willingness to engage with questions from the ABS committee.



### **Considerable tension over access, not so much over benefit-sharing**

The eagerly-awaited windfall from Guiana's "green gold" (awaited eagerly by local authorities, and sometimes by local and indigenous communities too) has failed to materialise. In fact, tensions have more frequently arisen over issues of access to territory than over benefit-sharing negotiations with the authorities, or with local and indigenous communities.

In reality, the issue of access is only the most visible facet of a much broader debate about the legitimacy of different stakeholders – indigenous and local people, the Park, the Territorial Authority – to determine who is entitled to go where, what the benefits should be, economic or otherwise, for which territory, for whom and at what scale.

The Guiana Territorial Authority (CTG) has at times been perceived as a killjoy by those involved in research and biodiversity, creating tensions over points of principle and stoking defiance in a manner which has occasionally made dialogue difficult. Some researchers were convinced that their very presence in Guiana was a form of benefit-sharing, since they were contributing to knowledge of the territory. The organisation of the delegations (of elected officials) by the Territorial Authority does raise questions as to the true extent of political commitment to sustainable development in the region. Although there is a "Sustainable Development and Mining" delegation, there is no such delegation for higher education and research. Furthermore, the Territorial Authority has decided to focus its human and technical resources squarely on the sustainable development of mining. Responsibility for overseeing ABS was thus delegated to the "Biodiversity Department," which comprised a single employee in 2013, with no operating budget.

### **A missed opportunity to introduce community-focused protocols**

This pioneering experiment could have gone further still by introducing community-focused protocols (protocols for obtaining prior informed consent), along the lines of what has been done in Brazil (see Chap. 14) and some African countries.

The Park has proven experience of mediation, and could have introduced community consent protocols in 2014, but instead preferred to leave this to the Guiana Territorial Authority. The latter never took up the matter, in spite of proposals from the ABS technical secretariat. This oversight appears curious, especially since the necessary financial resources were available: the gold tax, which brings in an average of €350,000 each year, was supposed to be used to fund actions in favour of biodiversity. It would thus have been interesting, in the run-up to the adoption of the Law on Biodiversity, to launch legal studies in order to clarify certain aspects relating to intellectual property, in need of such detailed analysis. Another good use of these funds would have been to organise missions to establish consent protocols with one or two communities.

Without such community-focused protocols, and since the procedure for consulting local communities had never been formally established, even orally, it was virtually impossible for the ABS committee to offer an informed opinion on authorising access to genetic resources in cases involving associated traditional knowledge, held by very specific communities.

As such, one authorisation request remained in limbo, batted back-and-forth between the Park, the ABS committee, the communities and the scientists, for over four years. The Park's Local Community Committee was involved in the process (as stipulated in the best practice guide for scientific projects involving access to traditional knowledge). However, reaching agreement on the ABS principle and accompanying benefit-sharing contract proved to be an arduous affair. The first proposal was not up to standard, and was thus dismissed. The contract negotiated between the researchers and the community was simply a piece of paper to be signed by a member of the indigenous community, giving the researchers the right to conduct research for a thesis, with the main benefits to be shared consisting of the publication of a book.

The members of the scientific committee rapidly took up the matter, playing a major role in the dissemination of ABS practices among their peers. The Local Community Committee, however, comprising socio-economic stakeholders from the territory, rarely

had the opportunity to discuss issues of science and mediation, since the agendas of its meetings are often heavily overloaded.

## **Questions of legitimacy...**

### **In terms of the representation of communities**

What is the validity of a decision taken collectively if all of the legitimate stakeholders are present, but only on paper, and those most directly concerned are not involved in the discussions? At the outset of this process, in the absence of representatives of local and indigenous communities, the members of the ABS committee felt isolated and illegitimate. Moreover, the indigenous organisations selected to sit on the ABS committee were not representative of the indigenous communities of southern Guiana. According to the latter, these organisations were as condescending towards them as the local and governmental authorities based on the coast. It should be noted that, in the wake of the “Couachi Affair,” representatives of Amerindian communities did return to take up their seats on the committee. However, none of these representatives belonged to the Council for Consultation with the Amerindian and Bushinenge Populations of French Guiana. This meant that the Council was not involved in the meetings of the ABS committee, casting a shadow over the legitimacy of its work.

Other questions have been raised as to the representation of communities possessed of historical knowledge, including Creole communities. Indeed, there has thus far been no official, qualified Creole representation, comparable to that established for local and indigenous communities. The Law on Biodiversity only acknowledges the value of the knowledge held by Amerindians and Bushinenge communities, but the African-descended Creole community also has its own distinctive knowledge and expertise, and represents the dominant community in political terms. By establishing a hierarchy of traditional knowledge to be preserved, the law runs up against the primary reason cited by the French government for not granting specific rights to indigenous communities: “All French citizens are born free and with equal rights.”

### **In the attitude of the scientific community**

With regard to researchers, generally the most resistant to ABS schemes, the challenge has been to make it clear that the Region/Territorial Authority was not attempting to judge the academic value of their work, but that these authorities were legitimately entitled to enquire as to what contribution their research could make to the territory. There were fiery debates between the Guiana Territorial Authority and the CNRS, with the latter reluctant to concede that participating in the annual Science Festival and publishing books is neither sufficient nor pertinent in terms of benefit-sharing. On a broader level, some researchers were unable to step back and question the actual impact of their work, if only in terms of public profile and the advancement of knowledge in Guiana. Faced with questions such as: “What has the research done on local and indigenous communities over the past thirty years contributed to the territory?” the responses and examples provided were unconvincing. This was true across all academic disciplines, from the humanities to the “hard” sciences. And yet, we know full well that French researchers understand and abide by the principles of ABS when working in other countries. CIRAD, CNRS and the IRD even published a joint guide on access to genetic resources in the Global South in 2011. Working in Guiana, on French territory, researchers apparently did not feel obliged to go through the motions.

However, when the parties did manage to achieve a mutual understanding, they were then able to work from a shared foundation. It is worth noting that the introduction of an ABS procedure has also allowed for greater recognition of those stakeholders who were already working with best practices.

### **The peculiar position of the CTG**

Another source of the uncertainty hanging over ABS processes and procedures has been the strange case of the Office for Amazonian Biodiversity in Guiana (OBAG), the Territorial Authority’s enforcement arm tasked in 2016 with handling the whole ABS protocol. In actual fact, this Office was never created. In 2021, the Territorial Authority is supposedly in the process of establishing

a Regional Biodiversity Agency, which could oversee a knowledge registration system, and whose precise relationship with the French Biodiversity Office (established by the Law on Biodiversity) remains to be seen.

Furthermore, we might wonder why the Territorial Authority, in spite of its support for ABS, has not been more proactive in helping local and indigenous communities to express their prior informed consent, despite calling regularly for more benefits to be felt in the territory. The situation does appear paradoxical, since the CTG spearheaded the recognition of indigenous peoples with the launch of the Indigenous People Days, the organisation of debates on indigenous affairs, and the creation of a delegation for indigenous affairs among its territorial councillors.

### **Recording traditional knowledge: who and why?**

Another key question is who actually owns traditional knowledge (communities or individuals), and how best to record it. Who has access? Discussions have touched upon the field notebooks of researchers, and their access to members of local and indigenous communities, the source of the raw knowledge reproduced in those notebooks. In law, scientists retain intellectual property of the notes they take during field missions or laboratory work.

The information-gathering required to identify which community can lay claim to which knowledge is a simply gargantuan task. We also need to reconsider the expression “knowledge held by a *communauté d’habitants*.” This generic expression is essentially meaningless, since experience has taught us that knowledge is primarily held by individuals. The fact that an individual from a given community shares knowledge relating to the use of a genetic resource does not mean that this knowledge is community property. Indeed, with the exception of certain forms of communal knowledge, every society has its specialists (physical and spiritual healers, craftspeople, spiritual authorities etc.), which makes it difficult to talk of “community knowledge” (see Chaps. 10, 11, 12), let alone define who owns this knowledge (BUGNOT, 2018). In another interesting development, the municipality of Awala

Yalimapo, a Kali'na village, has established its own development policy based upon its cultural heritage: at the request of the municipal authorities, a number of studies focusing on this heritage have been conducted by universities and the Directorate for Cultural Affairs. These studies have taken great care to involve local people.

### **A Law on Biodiversity perceived as an abandonment**

The French Law on Biodiversity of 2016 and its accompanying implementing decree had the effect of annulling the ABS system in place in Guiana, which had finally come to be accepted by all concerned. The Park and the Territorial Authority, having been consulted during the drafting of the bill, considered it to be unrealistic in its practical aspects, and proposed that more should be done to learn from past experiences in Guiana and the procedures already in place. These proposals fell on deaf ears at the Ministry for Ecological Transition (MTES, the ministry with responsibility for the environment). In fact, the new law introduced a simple declaration process for access to genetic resources which does not involve traditional knowledge, rather than a system of authorisations. Furthermore, it recentralises the declaration and authorisations procedures to Paris.

Two people were recruited by the MTES in Paris to handle ABS applications for the whole of France. They did not take up their positions until 2018, leaving the whole procedure up in the air for over a year. During that time, the CTG, the Park, DEAL<sup>4</sup> and the Sub-Prefecture for the Interior tried, in vain, to handle applications jointly and organise ABS on a local level.

At the *Assises de Guyane* of October 2017, the Guiana Territorial Authority even requested legal expertise from the central government, so that it would be free to manage access to genetic resources as it previously did. The CTG also refused to act as the local administrative authority responsible for issuing ABS authorisations,

<sup>4</sup> Directorate for territorial development and housing (formerly the Regional Environment Directorate).

since the new legal framework fails to take into account both the specificities of the territory and the pre-existing framework, which represented the fruit of years of hard work.

## Conclusion

The sense of experimentation which attended the creation of the French Guiana Amazonian Park enabled numerous stakeholders to enter into constructive dialogue. The work was done transparently, with the human and financial resources available. There was a certain amount of “administrative improvisation,” negotiations and tensions, but the whole process helped to boost the ABS expertise of all involved.

One of the first consequences of this experience was the warm welcome reserved for the Law on Biodiversity of 2016 by the local scientific community, already well-accustomed to cooperation. However, while the local scientific community was well-informed of the administrative work required of them, researchers travelling from metropolitan France to work in Guiana have sometimes been less receptive to ABS procedures, questioning their usefulness.

This process of experimentation with ABS, which demanded considerable effort in light of the scarcity of available resources, finally yielded a working ABS mechanism for the French Guiana Amazonian Park. The experience was rewarding and productive. And yet, this delicately-poised balance of formal and tacit agreements was swept away by the introduction of the Law on Biodiversity in 2016.

This unprecedented endeavour, which forced all involved to forget about “Business as usual,” also raised some profound questions about the status and involvement of local and indigenous communities, supposed to be the prime beneficiaries of such initiatives. As far back as 1941, Prefect Robert Vignon was already pushing the idea that indigenous and local communities were in need to development, and attempting to “accelerate” the development of Guiana’s most isolated corners (NAVET, 1998). That meant more schools in villages far from the coast, and the advance of

monetarisisation, developments which in many cases served to aggravate the disintegration of local communities. Even now, these communities are not represented in positions of responsibility within scientific and naturalist institutions, despite the emergence of a generation determined to exert their rights. This new generation is now ready to make its voice heard, faced as it is with a system that has been unwilling (or unable) to understand. Neighbouring countries who have already introduced community-oriented protocols provide sources of inspiration and support, as Guianese communities continue to speak out and stand up for their rights in every area of their lives.

### References

- BUGNOT N., 2017 – *Étude juridique sur les savoirs traditionnels, droit patrimonial immatériel et droit d'auteur en Guyane*. Rapport phase 2, Direction des affaires culturelles.
- DESSAUW D., FELMANN P. et al., 2011 – *Lignes directrices pour l'accès aux ressources génétiques et leur transfert*. Paris, Cirad, 59 p.
- FLEURY M., 1998 – Les populations du Haut-Maroni et le projet de Parc national de la Guyane. *Journal d'agriculture traditionnelle et de botanique appliquée*, 1-2: 577-610.
- FLEURY M., KARPE P., 2006 – Le parc national de Guyane : un arbitrage difficile entre intérêts divergents. *Journal de la Société des américanistes*, 92 (1-2). <https://journal.openedition.org/jsa/3210>
- LEPRÊTRE L., 1998 – Les Amérindiens wayana et la mise en place du projet de Parc national guyanais. *Journal d'agriculture traditionnelle et de botanique appliquée*, 1-2: 559-576. <https://doi.org/10.3406/jatba.1998.3692>
- NAVET É., 1998 – Le Parc de la forêt tropicale guyanaise : espace de vie ou dernier avatar du colonialisme ? *Journal d'agriculture traditionnelle et de botanique appliquée*, 1-2: 329-354. <https://doi.org/10.3406/jatba.1998.3677>



# Community protocols in Brazil

## An instrument for the protection of indigenous peoples and traditional communities

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**Ana M. C. EULER**

The Nagoya Protocol calls upon all Parties to take account of the customary laws of indigenous and local communities, along with their protocols and procedures. It also urges them to support the creation of community protocols to define the minimum conditions required for the negotiation of mutual agreements, along with standard contractual clauses for the fair and equitable sharing of benefits arising from the utilisation of traditional knowledge associated with genetic resources (Art. 12).

There are already twenty or so community protocols in place in Brazil and they are regarded as important tools for the organisation and defence of the territories, culture and natural resources of indigenous peoples and traditional communities.<sup>1</sup>

<sup>1</sup> These protocols can be found on the website of the protocol observatory, attached to the Centre for Research in Social and Environmental Law (CEPEDIS): <http://direitosocioambiental.org/observatorio-de-protocolos/protocolos-comunitarios-de-consulta>.

## The regulatory framework

It is worth reminding ourselves of the principal national and international regulatory frameworks ratified by the Brazilian government, which have laid the foundations for a policy designed to guarantee indigenous peoples and traditional communities the right to self-determination, respecting their distinctive forms of organisation and protecting their knowledge.

Since the Second Constitution of 1934, all of Brazil's constitutions have recognised the sovereignty of indigenous peoples over the territories in which they live. However, only the Constitution of 1988 devoted two articles specifically to indigenous peoples (Articles 231 and 232), recognising the social structures, customs, languages, beliefs and traditions of the Amerindians, as well as their fundamental rights over the land which they have traditionally occupied. It also provides protection for these rights, particularly with regard to the utilisation of natural resources located on indigenous land.<sup>2</sup> It establishes the legitimate right of indigenous peoples and their organisations to defend their rights, and authorises the public prosecutor to intervene on behalf of indigenous peoples.<sup>3</sup>

Convention 169 of the International Labour Organisation, promulgated in Brazil as Decree No. 5.051 dated 19 April 2004, expands the recognition of these rights. In addition to indigenous peoples, it includes traditional communities and encompasses multiple dimensions: identity, culture, physical integrity, religion, education, involvement in decision-making processes, work, land, resources and development, environmental protection and intellectual property.

The right to prior consultation is established by Convention 169 and the Decree which transposed it into Brazilian legislation. The government must conduct advance consultations with local

<sup>2</sup> Legally-recognised Amerindian territories in Brazil, *terras indígenas*, are the property of the Federal State, reserved exclusively for the use of the Amerindian populations living therein.

<sup>3</sup> The public prosecutor has a responsibility to protect the general interests of society at large before the courts.

populations, using appropriate procedures, whenever a proposal affects their territories or way of life, with a view to reaching an agreement and securing their free, prior, informed consent on the measures in question.

The Convention on Biological Diversity was ratified by Brazil in Decree 2519/1998, and was initially subject to Provisional Measure 2186-16/2001, and subsequently Law 13123/2015. This regulatory framework establishes instruments for the protection of Brazil's genetic heritage, recognises the traditional knowledge associated with the utilisation of indigenous plant varieties and animal species, and acknowledges the right of the "providers" of such knowledge to receive a fair and equitable share of the benefits derived from their economic utilisation. Brazil signed the Nagoya Protocol on 2 February 2011, but political upheaval and opposition from sections of the agro-industrial complex prevented its ratification in Congress.

The national policy for the sustainable development of traditional peoples and communities, enshrined in Decree 6040/2007, represented a major social breakthrough, the fruit of an extensive process of public debate. It introduced and defined the concept of traditional peoples and communities (PCT): culturally differentiated groups who recognise themselves as such, have their own forms of social organisation, and occupy and use territories and natural resources as vectors of their cultural, social, religious, ancestral and economic reproduction, making use of knowledge and innovations derived from tradition. In May 2016, Decree 8.750 established the National Council of Traditional Peoples and Communities, identifying 29 societal "segments" spanning everyone from indigenous peoples to Quilombolas,<sup>4</sup> from traditional fishing communities to Romani and the Babaçu nut breakers.<sup>5</sup> These hugely diverse groups are spread across the whole country.

<sup>4</sup> Communities descended from slaves who fled the plantations and mines.

<sup>5</sup> Among the traditional communities recognised since 2007, notable examples include the *Sertanejos*, *Seringueiros*, *Fundo e Fecho de Pasto*, *Extrativistas*, *Faxinalenses*, *Pescadores Artesanais*, *Povos e Comunidades de Terreiro*, *Povos Ciganos*, *Pantaneiros*, *Quebradeiras de Coco Babaçu*, *Caiçaras*, *Comunidades do Cerrado*, *Quilombolas* and *Pomeranos*.

Indigenous people comprise 305 identified groups, speaking 274 languages. According to the National Indian Foundation (FUNAI), there are some 50 groups living in voluntary isolation in the Amazon region. According to the Coordination of the Indigenous Organisations of the Brazilian Amazon (COIAB), the number is over 100 if we include groups living in the territory of other countries.

## Consultation protocols

Numerous consultation protocols have been established since 2014, initially at the behest of organisations representing the indigenous peoples of Amazonia, and subsequently expanding to encompass other regions and traditional communities, extractive workers (products derived from the forest, *Cerrado* savannah or rivers) and Quilombolas.

These protocols share a number of common concerns: the need to organise in order to confront the threats hanging over traditional territories, and a sense of dissatisfaction born of a long history of unfair and unequal relations with the government and the private sector. Against a backdrop of uncertainty and repeated violations of their rights, indigenous peoples and traditional communities view the consultation mechanism and its emphasis on free, prior, informed consent as a means of guaranteeing fundamental collective rights, primarily territorial and cultural rights.

In Amapá, the pioneering initiative in this respect was the action taken by the Wajãpis people, who produced their own consultation protocol following a territorial conflict with settlers enacting the agrarian reform. In parallel to this initiative, the local communities and extractive producers of the Bailique Archipelago have developed their own community protocol, driven by the need to promote more equitable commercial relations in the açai sector<sup>6</sup> and challenge the government on the lack of public policies for this territory. 2019 saw the launch of a new protocol for the indigenous

<sup>6</sup> A liquid extracted from the açai palm (*Euterpe oleracea*) whose commercial potential has boomed due to its new-found international popularity as a natural energy drink.

peoples of the Oiapoque, suffering the consequences of the new federal road slashing through their territory. The protocol asserted these peoples' rights to education and healthcare. The river-dwelling communities of the Amapá estuary, meanwhile, adopted the *Beira Amazonas* protocol.

Autonomously-constructed consultation protocols have thus been adopted to guide dialogue with the government and other external parties in the process of seeking free, prior and informed consent for any action, project or public policy with a direct impact on the territory and way of life of the groups in question (see Box 1).

Box 1.

#### **Protocols, tools for asserting rights**

These protocols are closely entwined with political and symbolic demands, something which emerges clearly from the declarations made by the representatives of the social movements involved in the drafting process.

"Now, we tell the government how we want to be consulted" Domingos Santa Rosa,<sup>7</sup> speaking at the launch of the Protocol of the Indigenous People of the Oiapoque.

"We want to be consulted before any decisions are taken!" Jawarwá Wajāpi, indigenous leader and municipal councillor for Pedra Branca do Amapari

"It is also a form of internal organisation, we have to follow the rules too." Simone Karipuna, coordinator of the Association of indigenous peoples of the Oiapoque and northern Pará.

"This is an important instrument for the self-determination of our peoples, as we gather together to talk, to reaffirm our values, our organisation and our strength." Wemerson Santos, Coordinator of the Panamazonian Forum.

"It is our weapon, our instrument for defending ourselves, this consultation process. For talking to the white man. And it is there in writing, so that city-dwellers can understand it." David Kopenawa, Yanomami leader.

<sup>7</sup> Historic leader of the indigenous peoples of Oiapoque, *in memoriam* (1961-2020).

## Protocols strengthening communities

As we have seen, the great strength of these protocols resides in the processes of organisation, coordination, appropriation and understanding that they inspire, as indigenous peoples and traditional communities get to grips with their rights. When people engage fully with their right to consultation, social organisation is strengthened and the protocol achieves greater legal and political resonance (see Box 2).

Can we assess the practical impact of this instrument? Does it provide real protection?

Box 2.

### **Guidelines used in the creation of community protocols**

#### **Principal guiding questions:**

Who are we?

What are the main threats we face?

#### **The consultation process:**

Who should launch the consultation process and when?

Who should be consulted?

Where should the consultation be conducted?

Who should call the consultation meetings?

What should be on the agenda?

Who should monitor the consultation process?

How long should the consultation last?

Who should cover the cost of the consultation?

In what format should the proposal/project be presented?

How do we make decisions?

How will indigenous people living outside of the villages participate?

What instrument will be used to guarantee the implementation of the agreements reached?

What is the procedure if an agreement cannot be reached?

Major infrastructure projects imposed in a violent and arbitrary manner, including huge hydroelectric dams at Santo Antônio and Jirau and Belo Monte, have become emblematic cases of malpractice in the Amazon. Questions have been raised as to whether the preliminary consultation protocols were respected, or whether they were manipulated by those in positions of power, with contempt for both legal process and the legitimate representatives of the peoples affected.

In December 2017, an important and unprecedented ruling recognised the legally-binding nature of the protocols. The Regional Federal Court of the 1<sup>st</sup> district reminded the State of Pará of its obligation to consult the Juruna people, suspending the environmental authorisation process initiated by the Belo Sun mining company. The main argument put forward by the federal prosecutor was that the preliminary consultation did not comply with the consultation rules set out in the Juruna protocol, which must be followed before any authorisation can be issued.<sup>8</sup>

In a similar case, the protocol of the Mundurucu indigenous people contributed to the abandonment of the environmental authorisation process for a proposed hydroelectric dam on the river Tapajós. When a consultation was conducted in accordance with the relevant directives, with the close involvement of the communities affected, the project was ruled to be unfeasible.

The federal prosecutor plays a fundamental role in steering and supporting the development of these protocols. As an institution acting to defend the rights of indigenous peoples and traditional communities, it draws upon these protocols as vital adjuncts to national legislation and international conventions.<sup>9</sup>

Other actors have also played important roles, including the Amazonian Cooperation Network formed by several indigenous

<sup>8</sup> See: <http://www.mpf.mp.br/pa/sala-de-imprensa/noticias-pa/trf1-ordena-consulta-previa-a-indigenas-afetados-pela-mineradora-belo-sun-e-mantem-suspensao-do-licenciamento>

<sup>9</sup> The thematic chamber of indigenous populations and traditional communities (6<sup>th</sup> Chamber of Coordination and Review) specifically addresses issues related to groups that share a traditional way of life distinct from the majority national society, such as indigenous peoples, quilombolas, extractive communities, riverine communities and gypsies.

and indigenist organisations,<sup>10</sup> the NGO *Terra de Direitos*, and the Pastoral Land Commission. It is perhaps worth noting that the financial resources required to support the creation of community protocols have largely been provided by international organisations.

## Going beyond the question of genetic resources

For the indigenous movement, a major topic of discussion at present is how best to guarantee the rights of peoples living in voluntary isolation. At a time of repeated attacks against indigenous peoples and their land, these groups are the most vulnerable of all. Another point, on which consensus has not been achieved, is the need to expand the discussion regarding the best way of providing appropriate, differentiated forms of consultation for women. Many women still have trouble making their voices heard in an equitable manner in public settings such as hearings and meetings. Women's associations, for example, are important organisations that need to be consulted in an appropriate manner.

The community protocols introduced by the Nagoya Protocol can and should set the course for a more balanced and equitable process of access and benefit-sharing for traditional knowledge associated with biodiversity. Above and beyond the question of access to genetic resources, they serve to establish rules for consultations on all matters affecting local and indigenous communities, ensuring that real negotiations take place between communities, governments and other social and economic stakeholders.

| <sup>10</sup> See: <https://rca.org.br/consulta-previa-e-protocolo/>



## Part 4

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# Spillover and Tensions



In this fourth and final section, entitled *Spillover and Tensions*, contributors consider the latest developments concerning the Nagoya Protocol and the current state of negotiations over the Convention on Biological Diversity, situating them within the eternal chess match of geopolitical negotiations. While implementation of the Protocol has given rise to questions which clearly transcend the issue of biodiversity, perhaps to a greater extent than any other regulatory text, it also provides an opportunity to reassess the handling of ex situ collections, the role of museums and the nature of scientific research partnerships.

Anne Nivart and Claire Chastanier consider the possibility that the access and benefit-sharing model promoted by the Nagoya Protocol could be transposed to the management of cultural property, as part of an innovative response to demands for cultural restitution (see Chap. 15). Fifty years on from the UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, France's Sarr-Savoy report caused waves internationally with its recommendations concerning the restitution of African cultural heritage. At the same time, the debate sparked by the new definition of museums proposed by the International Council of Museums (ICOM) is indicative of a broader challenge to the Western museum model and its universalist stance. These contemporary debates in the fields of biodiversity and culture overlap when it comes to discussing the future of ex situ collections of natural and cultural assets. They are also informed by background tensions, in a context of diplomatic manoeuvring and nationalist posturing not unlike the processes underlying accusations of biopiracy.

Catherine Aubertin and Jean-Louis Pham consider the latest negotiations in relation to the Convention on Biological Diversity, and one subject in particular which has been the source of much conflict: the possibility of including *digital sequence information* (DSI) within the scope of the Convention (see chap. 16). Access to this data, predominantly held in international gene banks, is not covered by the ABS mechanism, which was initially designed to regulate access to biodiversity *in situ* but not *in silico*. Along with the hot topics of synthetic

biology and gene editing, covered by the Cartagena Protocol, CBD negotiations are thus tackling weighty subjects such as value grabbing and the appropriation and manipulation of the living world, which continue to slip between the cracks of legal and democratic oversight. One of the reasons that representatives of indigenous peoples have been so keen to engage with the Convention on Biological Diversity is that it provides a platform for them to raise the alarm over the risks to biodiversity and culture posed by the transformations reshaping our world, not least the triumph of market principles. In this context, the authors consider potential solutions for rethinking the access and benefit-sharing mechanism for genetic resources.

# The Nagoya Protocol, a future template for the restitution of cultural property?

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**Anne NIVART**

**Claire CHASTANIER**

The purpose and missions of ex situ collections have become a subject of intense discussion, in a cultural context seeking to redefine the role and nature of museums, and also as part of negotiations taking place within the framework of the Nagoya Protocol. Critics have questioned the pertinence and even the legitimacy of ex situ collections, challenging the right of institutions to retain and claim ownership of such artefacts, while also examining the use and utilisation<sup>1</sup> of this property and its associated knowledge, particularly for cultural property of a natural, ethnological or anthropological nature (AUBERTIN & NIVART, 2017). Could the legal model proposed by the Nagoya Protocol, with its emphasis on key stages and ad hoc tools to regulate access and benefit-sharing, constitute an alternative response to calls for the restitution of cultural property currently held by museums? Museums and institutions in possession of ex situ collections need

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<sup>1</sup> Article 2 of the Nagoya Protocol defines "Utilisation of genetic resources" as "research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology."

to rethink the way they work, placing greater emphasis on their embrace of otherness, the universalism which has historically been part of their DNA. Are we heading towards a thorough overhaul of the Western museum model and, by extension, the very existence of *ex situ* collections?

## Has the museum model run its course?

Why have these tensions crystallised around the museum as an institution? We might propose a few simple explanations. Museums have historically been spaces devoted to material artefacts. The institutionalisation of the museum is a cultural marker of European nations, a symbol of westernisation and industrialisation and a harbinger of the cultural and scientific model centred upon the collection. If we consider the entire operational sequence which constitutes the life cycle of artefacts – from their collection, purchase or other form of acquisition through to their usage – the museum is the only lasting structural system dedicated to both conserving and promoting the value of objects. The artefacts preserved in collections and museums are a form of testimony, they are archives... always meaningful, always polysemic (see Chap. 2). This cultural model, sometimes denounced as the result of asymmetric power relations derived from the prevailing Eurocentrism of the 19<sup>th</sup> century, still remains largely unchallenged. While the forms taken by museums have become more diverse, the concept of a facility devoted to the permanent conservation of physical traces of the living world and human creation remains a unique model. The lack of an institutional alternative could be one factor feeding into current challenges to the *de facto* hegemony of the museum model.

Reflections on the future of *ex situ* collections and museum holdings are partly rooted in the contemporary debate over updating our definition of what constitutes a museum, as witnessed by recent discussions with ICOM (the International Council of Museums). The current definition is as follows: “A museum is a non-profit,

permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.” This definition has changed little since 1947, and applies to the international museum community as a whole.

During the ICOM General Assembly held in Japan in 2019, a proposed new definition was the subject of impassioned debate: “Museums are democratising, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artefacts and specimens in trust for society, safeguard diverse memories for future generations and guarantee equal rights and equal access to heritage for all people. Museums are not for profit. They are participatory and transparent, and work in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary well-being.”

This proposal seems to reflect a determination to incorporate the notion of communities (a concept which has no legal validity in French law), along with an explicit injunction to consider demands for restitution in the light of armed conflicts associated with colonialism. This somewhat confused proposal (ICOM France, 2020; GIRARD, 2019; OCIM, 2019) reflects the increasing divergence of opinions on what a museum should be, torn between a universalist vision, considering humanity in all its cultural diversity, and a community-driven vision which prefers to highlight our specificities. This proposed definition represents a challenge to the notions of universalism and encyclopaedism previously developed and defended by so many museums (particularly long-established institutions). In this view, all visions and all points of view would be welcomed into the museum fold; a museum of natural history might thus expand its remit to discuss creationist theories.

But this inevitably raises questions of legitimacy: the legitimacy to hold items, the legitimacy to address certain issues. Such tensions underlie many of the controversies surrounding artefacts held in museum collections.

These debates lead us to pose a further question: is the Nagoya Protocol, in some respects, an indication of the future which awaits the restitution of cultural property? There is a certain amount of shared context here, with questions over the conservation and utilisation of the property and knowledge earmarked for protection, and the role of the institutions performing these functions. How can the Nagoya Protocol help us to think differently about demands for restitution?

The Nagoya Protocol deals with benefits derived from the utilisation of genetic resources. It is thus closely connected with biotechnological developments which are changing our understanding of the items held in natural history collections, with the emergence of a new field of research which has been dubbed “museomics” (RAVEN & MILLER, 2020). What was once viewed as an ordinary sample has now become a trove of genetic data, whose analysis could potentially yield commercial opportunities. The implementation of the Nagoya Protocol and the negotiation of benefit-sharing arrangements with “providers” could inform negotiations over the future, and thus the status, of physical artefacts containing genetic resources or associated traditional knowledge.

In the post-Nagoya context, materials collected and conserved in museums are in need of a clear legal status. Provider countries often refuse to transfer ownership of such materials. The legal framework which applies in such cases is the “deposit” model. The French Civil Code defines a deposit as an arrangement whereby an institution receives an item or asset belonging to a third party, with a responsibility to look after it for a certain period of time and subsequently return it. Exchanges between museums have functioned on this basis since the early 19<sup>th</sup> century, especially for the purpose of distributing and allocating collections across the country. Experiments with applying the deposit system to materials for which provider countries wish to retain ownership, while also monitoring uses, have not been convincing. Museums find themselves entangled in all sorts of clauses and conditions, juggling deposit arrangements and Nagoya contracts.

So the implementation of the Nagoya Protocol provides an opportunity to explore alternative approaches to allocating and managing materials, moving away from 19<sup>th</sup> century categories which are neither pertinent nor effective for 21<sup>st</sup> century materials.



A new field of legal possibilities is beginning to open up, but these possibilities need to be scrutinised and weighed against the advantages and stakes associated with publicly-owned collections that are not bound by any time limit.

## Towards a convergence of the international regulations

Parallels have already been drawn between conventions designed to protect cultural heritage and conventions for the protection of the environment and biodiversity. Perhaps the most convincing of these comparisons is that between the Convention on International Trade in Endangered Species of Wild Fauna and Flora (known as the Washington Convention or CITES), which applies to natural history and ethnological collections, and the 1970 UNESCO Convention<sup>2</sup> on the illicit trade in cultural property, which specifically references the archaeological and artistic collections of museums. Both of these texts have at their heart a commitment to combatting trafficking, by means of a system of authorisations governing the circulation of the resources or property in question. These two international conventions date from the same period: the UNESCO text was signed in 1970, and the CITES agreement in 1973. Questions of legal circulation and the illicit crossing of borders are also of central importance to both mechanisms, specifically the restriction of trade in endangered species and the fight against the trafficking of cultural property. A similar chronological concordance can be observed in the subsequent texts which have extended and expanded these conventions: the Convention on Biological Diversity, signed in 1992, and the 1995 UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects.

Now is perhaps the time to attempt a new approach – not comparative, but systemic – to both the Nagoya Protocol and the demands for restitution addressed to museums, calling into question the

<sup>2</sup> 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property.

very concept of *ex situ* conservation of artefacts. The Convention on Biological Diversity, the Nagoya Protocol and EU regulation 511/2014 all acknowledge the long-term genetic resources and associated traditional knowledge embodied in artefacts of material culture, such as herbaria or domesticated animals. The BAGLEYAND-PERRON-WELCH report (2020), commissioned by the CBD secretariat, proposes extending Article 10 of the Nagoya Protocol, establishing a global and multilateral mechanism for benefit-sharing, to *ex situ* collections considered to constitute cross-border collections.

This Article proposes a framework for managing genetic resources and associated traditional knowledge, for which the PIC and MAT (prior informed consent and mutually-agreed terms – See Chap. 3) mechanism is not suitable. One example would be resources or knowledge found in multiple countries and also present in collections outside of their countries of origin. During COP15, this notion of cross-border resources was re-deployed to refer to resources and knowledge kept in the northern hemisphere, arguing that they have thus been removed not only from their regions of origin, but also from the countries in which they were collected, having been taken beyond the borders of the “provider.” This clash of contexts and positions serves to illustrate one of the political dimensions underlying these negotiations; it reaffirms the challenge to the existence of collections previously described as *ex situ* and now frequently referred to as cross-border, raising doubts about access conditions and unauthorised removal of property, actions theoretically in contravention of the Nagoya Protocol or the CBD.

Indeed, *ex situ* collections comprise cultural property and genetic resources collected or acquired in historical or more recent contexts, involving the crossing of borders (to remove artefacts from the provider countries and bring them to Europe, for example). These objects are thus located and conserved outside their country of origin or native area. Seen from this perspective, *ex situ* collections could be likened to cross-border resources, a concept originally introduced for resources and knowledge found in multiple countries. This would represent a major change, moving from a bilateral mechanism involving negotiations between countries to a global mechanism whereby benefits are paid into a joint fund. Article 10

of the Protocol has never been activated, and thus remains hypothetical, but the mechanism of a joint global fund is currently at the centre of negotiations over digital sequence information within the CBD context, as well as discussions on how to regulate access to maritime resources in international waters (see Chap. 16). The concept of a joint fund allows us to appreciate the international complexity of these issues. BAGLEYAND & PERRON-WELCH (2020) nonetheless note the possibility that countries from which resources were collected in the past might assert their rights, availing themselves of contemporary regulations introducing a principle of retroactivity. The idea of retroactively applying contemporary regulations to historical collections established over two hundred years ago is problematic, as it would involve *a posteriori* judgements on collection contexts, motivations and conditions formulated by countries “of origin” or “providers” determined to assert some form of natural right over their cultural property.

## A future equivalent of the Nagoya Protocol for cultural property?

There are parallels to be drawn between the fight against piracy and the fight against illicit transfers of cultural property. We might even argue that applying the Nagoya Protocol to *ex situ* collections would represent a pioneering move, situated at the vanguard of new thinking on the rights attached to heritage artefacts, which will ultimately have wide-ranging consequences for all museum collections. The access and benefit-sharing procedure (ABS) appears to present a future model for the management of public cultural property, in a global context being reshaped by a greater willingness to engage with north-south rebalancing efforts and benefit-sharing. Does the PIC and MAT model introduced by the Nagoya Protocol hint at the future of contractualisation for cultural property?

As noted above, the fact that most such collections have historically been formed and kept in the Global North, thus keeping genetic resources *ex situ*, is mentioned in the text of both the Convention

and the Protocol, and was one of the key factors which led to the adoption of EU Regulation 511/2014. A number of authors have picked up on these developments, including Thomas BURELLI (2012): “This dual obligation [facilitating access to genetic resources and the sharing of benefits derived from their use] arose from the observation, formulated around the time that the Convention [on biological diversity] was signed, that biodiversity resources were predominantly located in the Global South, where the financial resources required for their conservation were in short supply, while access requests came predominantly from the North, from States with greater financial means.” Might we not make a very similar argument with regard to cultural property?

### **Traceability and due diligence**

The first point of convergence between the fight against biopiracy and the fight against trafficking of cultural property actually concerns two key aspects: the increasingly rigorous standards of traceability and the obligation of due diligence, including compliance checks (for example, checks to be conducted on genetic resources during the research commissioning or commercial launch phase of commercial development).

With regard to traceability, for cultural property in particular, public institutions are now under obligation to determine the provenance of all items. There are strict moral and political norms in place obliging institutions to trace the history of artefacts in order to ensure that they have not been illegally acquired or exported without authorisation from their country of origin. This represents a significant administrative burden for the holders of public collections, primarily museums. Public institutions cannot consider themselves exempt from these obligations (CHASTANIER, 2013). In reality, however, this new “behavioural standard” is still struggling to impose itself in the art market. As for the “new relational ethics” recommended by the SARR-SAVOY report (2018), it would imply a total inversion of the burden of proof, applicable retroactively. In an address to the University of Ouagadougou in November 2017, French President Emmanuel Macron opened a new chapter in the debate over the restitution of cultural property, particularly items originating in sub-Saharan Africa, when he

declared his intention that “within five years, procedures should be in place for the temporary or definitive restitution of African heritage to Africa.” To this end he commissioned a study from academics Bénédicte Savoy and Felwine Sarr, who reported back in November 2018. One of the primary recommendations made in their report concerned the “rapid, definitive and unconditional restitution of heritage items to the African continent.” The report also approaches the contexts in which items were collected (and collections constituted) from this same perspective, taking the view that the conservation of African cultural property in French museums is the result of forceful appropriations, or else that such artefacts can be “presumed to have been acquired in inequitable conditions,” rendering them automatically eligible for restitution.

Doubts over provenance and superficial diligence are now grounds for public protests, or even the withdrawal of items from auctions. Gaps in the life story of an artefact can put its pedigree in doubt. For objects held in public collections, this may lead to calls for restitution at a time when the moral dimensions of exchanges are becoming increasingly prominent (ICOM France, 2019). As for property containing genetic resources and/or associated traditional knowledge, the Nagoya Protocol requires users to obtain prior, informed consent and to establish contractually-binding benefit-sharing arrangements. It also provides a degree of legal security, specifying which documents are to be obtained from whom and defining the necessary due diligence. It differs in this respect from the texts pertaining to the trafficking of cultural property, where these matters are much less clearly defined.

Another pivotal point which links efforts to combat the illicit trade of cultural property and the goals of the Nagoya Protocol is their shared emphasis on due diligence. Responsibility lies with those in possession of artefacts at a given moment in time, who suddenly find themselves accountable for the previous lives of all objects in their collections. They must be able to justify their presence, or else face accusations of theft or biopiracy. An obligation to verify legality (i.e. compliance with the law) exists in both contexts, certainly, but it lacks a formal framework in the context of cultural property. This is largely due to the fact that the convention on cultural property is still not sufficiently implemented by the States who have signed up to it. However, the recent European

Directive on the restitution of cultural property<sup>3</sup> provides new indications on how to determine whether or not persons in possession of cultural property in need of restitution have satisfied their due diligence obligations. Nevertheless, it is often difficult to know how far arbitration should go, particularly in cases where acquisitions have not actually been completed.

It thus becomes necessary to remind ourselves of one of the fundamental attributes of artefacts held in public collections. Museum collections are not for sale, and thus cannot be illicitly traded (unless they are stolen), which guarantees their integrity and their conservation without concerns over their potential financial value. This allows us to focus on their polysemic nature. K. POMIAN (1987) coined the term “semiophore” to describe this phenomenon: museum collections are bearers and vectors of all values and all meanings – scientific, cultural, social, religious etc. – and, simultaneously and paradoxically, are stripped of all meaning by the neutrality intrinsic to their conservation in public institutions.

### **The emergence of demands for restitution**

The second point of convergence concerns growing demands for more sharing, or even the reappropriation and/or transferral of ownership of artistic and cultural property, giving rise to the restitution debate, often with reference to indigenous peoples. These demands have become closely wrapped up with the issue of consent, which features prominently in both the Nagoya Protocol and the SARR-SAVOY report (2018) on the restitution of African cultural property. This report called upon the French government to return all items obtained during the colonial period, on the grounds that the consent of the peoples involved was inevitably compromised by asymmetrical power relations. These issues, which are common to both the Nagoya Protocol and the restitution controversy, continue to cause great consternation among curators and researchers who, and no value judgement is

<sup>3</sup> Directive 2014/60/EU of the European Parliament and of the Council of 15 May 2014 on the return of cultural objects unlawfully removed from the territory of a Member State and amending Regulation (EU) No 1024/2012.

implied here, were not “formatted” to think in this manner. The professionals responsible for managing collections are not accustomed to thinking of artefacts and genetic resources as shared objects, having previously been assured that good conservation work, often over multiple centuries, was enough to put their legitimacy beyond question. These old assumptions are now beginning to evolve. Nonetheless, the conservation and scientific promotion of these artefacts have established certain rights and conferred legitimacy upon the institutions who have taken charge of them, sometimes avoiding their loss or destruction.

In the meantime, we can observe a trend whereby the applicable international instruments have become progressively stricter:

- from CITES and the 1992 Convention on Biological Diversity to the Bonn Guidelines of 2002, culminating in 2010 with the Nagoya Protocol (implemented in October 2014) which introduced a binding international ABS system (access and benefit-sharing);
- for cultural property the rate of change has been gentler, progressing from the UNESCO convention of 1970 and UNIDROIT convention of 1995 to the 2015 operational directives in relation to the former and, in the near future, the strong possibility of a binding protocol to strengthen the UNESCO convention 50 years on. This new protocol might impose systematic conditions for restitution, stricter regulation of the art market with regard to the origin of objects offered for sale, and potentially even retroactive applicability to cases prior to the entry into force of the convention. This protocol will likely whip up considerable North-South tensions, between the Western countries in which most museums and collections are held, and the G77 nations who are becoming increasingly vocal in their demands for a new restitution protocol.

The demand for automatic restitution and de facto retroactivity also raises the possibility of re-examining the history of collections, with all the legal insecurity this could create for historic transactions and cases which would normally be covered by the statute of limitations.

Finally, there is perhaps a third point of convergence in the growing instrumentalisation of collections in diplomatic posturing, nationalist rhetoric and national policies, motivated by highly divergent interests.

## Conclusion

The present debate on the new definition of museums proposed by ICOM has inspired a broader questioning of their underlying cultural and institutional model, with calls to “decolonise” museum institutions attracting no small amount of controversy.

If the Nagoya Protocol and its directives concerning procedure and standard documents are seen as precursors of the future evolution of the international legal framework governing the circulation of cultural property, then this evolution could have the positive effect of improving legal security by providing clearer and more detailed guidelines for traceability and due diligence. Nevertheless, while this new legal model may appear pertinent and effective when applied to new acquisitions, it is not compatible with historical collections without introducing a precedent of retroactivity which would cast doubt upon the operations and indeed the fundamental purpose of the institutions in which they reside.

The need to open up and adapt to alternative modes of ownership has inspired new conversations about the status of the assets held in public collections, principally in museums. The holders and financial backers of *ex situ* collections must now face up to some complex questions regarding the long-term care and conservation of artefacts, one of the founding missions of such collections in their capacity as facilities for the lasting conservation of material culture. To what extent will central government and territorial authorities, the main owners and financial backers of *ex situ* collections in France, continue to fund the conservation and promotion of artefacts of which they are merely users, managers, “tenants”? In concrete terms this funding translates into premises, personnel and technical and budgetary resources, all essential to the conservation and promotion of material artefacts. Moreover, such artefacts may be subject to constraints and charges restricting their use (preventing loans to third parties, for example, or forbidding the removal of samples for genetic studies), obliging potential users to enter into new negotiations with providers. If their rights over such assets and collections continue to shrink, will governments continue to finance the *ex situ* conservation of artefacts which they only partially control?



Pressure from countries calling for redistribution of cultural heritage, and making demands for restitution, may serve to speed up adoption of a mechanism comparable with the Nagoya Protocol. However, with regard to cultural property, the countries behind such demands are primarily interested in full and final restitution, i.e. transferral of ownership rather than the sharing of benefits.

Relatively little thought has been given to the nature of these benefits, with negotiations focusing instead on the ownership and possession of assets, both natural resources and cultural property. In parallel the implementation of the Protocol has largely focused on issues of access and the obstacles created by the new administrative and legal procedures with which researchers and research organisations must now comply. This polarisation over access has come at the expense of a real analysis of the potential benefits to be negotiated and delivered in a concerted and collaborative fashion, and particularly the positive consequences of transferral of ownership and the scientific study of assets. Adapting the spirit of the PIC and MAT system to requests for the restitution of cultural property could finally create an opportunity for dialogue, helping to refocus the debate surrounding benefit-sharing: benefits to all stakeholders of artefacts being held in museum collections, benefit and knowledge-sharing on the ecological, cultural and human biodiversity dimensions of conservation in collections, and even joint projects to facilitate the circulation of cultural property. Surely what is needed here is a collaborative rather than an oppositional approach, abandoning outdated postures and legal and conceptual frameworks based on possession, property and ownership.

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## References

AUBERTIN C., NIVART A., 2017 – « Musée et collections sous le protocole de Nagoya ». In: *Définir le musée du XXI<sup>e</sup> siècle*, ICOFOM: 133-137.

BAGLEYAND M., PERRON-WELCH F., 2020 – *Study to Identify Specific Cases of Genetic Resources 1 and Traditional Knowledge Associated with Genetic Resources that Occur in Transboundary Situations or for Which it is not Possible to Grant or Obtain Prior Informed Consent*. Meeting of the Parties to the Nagoya Protocol, 42 p.

BURELLI T., 2012 – Faut-il se réjouir de la conclusion du protocole de Nagoya ? *Revue juridique de l'environnement*, 2012/1 (Volume 37): 45-61.

CHASTANIER C., 2013 – Traçabilité des biens culturels : état de la question au ministère de la Culture et de la Communication. 2<sup>e</sup> journée d'étude sur la déontologie, co-organisée par le Comité français de l'ICOM et le Service des musées de France. *Lettre du Comité français de l'ICOM*, 38: 5-10.

GIRARD E., 2019 – *Analyse de la provenance des termes utilisés*. Contribution d'ICOM France à l'analyse des termes de la proposition de nouvelle définition du musée, 06.09.2019. <https://www.icom-musees.fr/actualites/proposition-de-la-nouvelle-definition-du-musee>

ICOM France, 2020– *Museums today and tomorrow ? Definitions, missions and ethics*. Journée des comités ICOM, Muséum national d'Histoire naturelle de Paris.

ICOM France, 2019 – *Restituer ? Les musées parlent aux musées. Clés de lecture du rapport sur la « Restitution du patrimoine africain » remis par Felwine Sarr et Bénédicte Savoy au président de la République*. 60 p.

OCIM, 2019 – *Vers une nouvelle définition du musée ? Dossier*, *La Lettre de l'OCIM*, 186: 10-27.

POMIAN K., 1990 – « Musée et Patrimoine ». In Jeudy H. P. (dir.): *Patrimoines en folie*, Paris, Éditions de la Maison des sciences de l'homme/ministère de la Culture: 177-198.

SARR F., SAVOY B., 2018 – *Rapport sur la restitution du patrimoine culturel africain. Vers une nouvelle éthique relationnelle*. Rapport remis au Président de la République, Emmanuel Macron, le 29 novembre 2018 (n° 2018-26), 240 p.

RAVEN P. H., MILLER S. E., 2020 – Here today, gone tomorrow. *Science*, 370 (6513): 149.

# ABS and the digitisation of the living world

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Along with the funding of conservation efforts, access and benefit-sharing, or ABS, has become one of the major sticking points in negotiations over the CBD which, at the risk of over-simplifying, have pitted industrialised nations rich in technology against developing nations rich in biodiversity. Above and beyond the tensions caused by globalisation and unequal exchanges, this antagonism also says a lot about the way our societies are being transformed by digital and biotechnological innovation, reshaping both our relationship to the environment and the distribution of the value derived from its exploitation. These tensions are embodied in the debate over DSI – *Digital Sequence Information* – which we propose to analyse in this chapter.

The implementation of the Nagoya Protocol has not lived up to expectations. Ten years on, there is no avoiding the fact that the monetary benefits generated by the ABS mechanism have been negligible and hampered by lengthy negotiations, while the accompanying administrative formalities have been decried as obstacles to research and innovation. In light of these criticisms, emanating from both provider countries and the users of genetic

resources, why does the Nagoya Protocol not appear to have been seriously challenged?

The Access and Benefit-Sharing Clearing House (ABSCH) continues to register new ratifications from countries party to the Protocol. The total now stands at 131, all signed up to both the theoretical principles and the concrete obligations of ABS (as of September 2021, 68 countries were still non-parties to the Protocol). Many States have thus committed to passing binding national legislation, accompanied by costly implementation processes, based upon the ABS model set out in the Protocol. Some of them do not appear to have given much thought as to the viability of such a model. At the international level, the preparatory working documents for the *Post-2020 Global Biodiversity Framework* to be negotiated at COP15 propose counting the number of countries who have actually received monetary or non-monetary benefits in return for granting access to genetic resources and associated traditional knowledge, as well as the total value of these monetary benefits established with the goal of “meeting people’s needs through sustainable use and benefit-sharing.”<sup>1</sup> This ambitious proposal seems misguided, when the examples of ABS recorded by the ABSCH are so few in number and so poorly-documented, whereas the frustrations of the research community are being voiced loud and clear (DIVAKARAN et al., 2018; DEPLAZES-ZEMP et al., 2018; ROURKE, 2018).

The results achieved by the Nagoya Protocol thus far have been so disappointing that we might have expected a thorough overhaul. Instead, the plan appears to be to carry on regardless, engaging is some sort of race between advances in scientific practice and modifications to the scope of the CBD, which is clearly struggling to keep pace.

## Carry on regardless

In spite of all the evidence to the contrary, the “green gold” myth dangled by the CBD is alive and well among many of those designated as “providers.” And yet, for many “users,” the idea of

<sup>1</sup> CBD, 2021. *First Draft of the Post-2020 Global Biodiversity Framework*. CBD/WG2020/3/3

bioprospecting for biological resources lost its sheen well before the signing of the CBD in 1992. This model, based on accessing physical resources held by a given country or community, no longer reflected the realities of the pharmaceutical industry, which was already busy developing high-throughput screening techniques to seek out new active ingredients from among the thousands of molecules supplied by the chemical industry.

The scope of the biological resources eligible for ABS, which was initially limited to those containing functional units of heredity (i.e. genetic resources as defined in the CBD), has gradually been expanded since it became obvious that the most substantial financial rewards would come not from the utilisation of genetic materials, but instead from molecules used to create new drugs. The Nagoya Protocol was thus expanded to encompass derivatives, which it defines as follows: “Derivative: a naturally occurring biochemical compound resulting from the genetic expression or metabolism of biological or genetic resources, even if it does not contain functional units of heredity (Art. 2c).”

The ABS model championed by the Protocol therefore applies to natural molecules, resulting from the metabolism of organisms living or dead, including crude extracts. Enzymes, essential oils, resins etc. are thus classified as derivatives.

Negotiations are now in progress for further expanding the scope of application of the ABS mechanism under the aegis of the CBD. The plan is to encompass DSI (Digital Sequence Information), a field in which the dedicated working group has yet to reach agreement on the preferred terminology to be used.

## DSI (Digital Sequence Information)

### What is it?

All of the new branches of science denoted by the suffix -omics (genomics, proteomics, transcriptomics, metabolomics and so on and so forth) generate billions of units of digital data. DSI is the fruit of DNA sequencing technologies which have become progressively cheaper and faster.

Breakthroughs in genomics and bioinformatics, methods of statistical analysis and cross-comparison with other data make it possible to extract results from DSI which can be used in various disciplines and at various levels. Among other things, they can cast new light on the mechanisms of molecular interaction and the evolutionary history of living organisms. Research into the living world has now entered the age of *in silico* biodiversity. Much of this work is done on computers, connected to data processing centres and making use of what we might describe as dematerialised genetic resources. The information and knowledge contained in DNA sequences can thus be extracted, transformed and exchanged independently of the physical genetic material to which they relate. For researchers in the life sciences, accessing DSI is more like accessing a service than using a material asset, although the latter status is still assigned to genetic resources in the text of the Protocol.

The rise of DSI has been made possible by the development of calculation capacities and new methods for processing big data, as well as free or open access to the principal genetic sequence databases. The International Nucleotide Sequence Data Base (INSCD) is acknowledged in the CBD as a key partner for the recognition and protection of biodiversity. It encompasses the three main databases maintained at national or regional level: GenBank in the USA, DNA Data Bank in Japan and EMBL-EBI for the European Union. The data they contain are freely available to anybody with a computer and an internet connection. There are even entire genome sequences free to download in open access mode (CETAF, 2017).

These genetic sequence databases are, naturally enough, supplied by researchers. They are invited – or obliged – by the major scientific journals to register their sequences so that their articles can be reviewed and published. *Nature* and *Science* both insist upon the registration of sequence data as a compulsory precondition for publication (ROURKE, 2018), like the botany journals which require registration of a reference specimen with a herbarium, as per the requirements set out in the International Code of Botanical Nomenclature. Making data available to others is thus common practice in the scientific community, and may also be backed up by national research policies. In France, the Digital Republic Law of 26 October 2016 requires all data gathered, produced or

published with public money to be made available to citizens. This enthusiasm for open data stands in stark contrast to the restrictions placed upon access to in situ or ex situ genetic resources by texts such as the Nagoya Protocol. Scientists thus find themselves caught between contradictory injunctions.

New practices have revolutionised research involving genetic resources. DSI are now being touted as a new form of “green gold”, with online consultations of genome databases viewed in much the same way as prospecting for natural substances in situ was envisaged in the 1980s and 1990s, the sort of activity that the CBD was intended to regulate. The results thus far have been broadly similar, too: illusory visions of wealth and accusations of biopiracy. The Convention on Biological Diversity thus finds itself confronted with a phenomenon which, for some, is a textbook example of open science advancing thanks to the pooling of biological materials, data and knowledge; while for others it is simply a new form of biopiracy (AUBERTIN, 2018).

### Historical note

We can trace the origins of the DSI debate back to the 2015 meeting of the Ad Hoc Technical Expert Group of the Cartagena Protocol on Biosafety – another CBD protocol which came into force in 2003 – a group responsible for examining the potential negative and positive effects of synthetic biology (KEIPER & ATANASSOVA, 2020). They flagged up the utilisation of ‘digital genetic information’ derived from genetic resources and not accompanied by fair and equitable benefit-sharing. States party to the Nagoya Protocol were encouraged to look into this matter.<sup>1</sup>

At COP13 in Cancun in 2016, the key topics of discussion for the two CBD protocols thus overlapped: the risks of synthetic biology, covered by the Cartagena Protocol, and the implementation of an access and benefit-sharing (ABS) mechanism for information on genetic resources in the form of data sequences, falling within the scope of the Nagoya Protocol.

<sup>1</sup> CBD/SYNBIO/AHTEG/2015/1/3 ; §31 et §66 (i) <https://www.cbd.int/doc/meetings/synbio/synbioahteg-2015-01/official/synbioahteg-2015-01-03-en.pdf>

The utilisation of digital sequence information has now expanded far beyond the realm of academic research on biodiversity. Rapid advances in genome editing techniques (including the famous CRISPR-Cas9 protein) are opening up vast new horizons for the manipulation of the living world, with potentially serious implications for biodiversity and equally colossal possibilities for businesses in the food, pharmaceutical and cosmetics industries. There are concerns that this technology is currently escaping democratic control; 150 NGOs have demanded a moratorium on “gene drive” organisms. Meanwhile the industrial sector (for example, seed-producing firms editing the genomes of cultivated plant varieties using information derived from “desirable” gene sequences), unfettered by ABS mechanisms, is making full and free use of DSI available in open access format. Furthermore, these new techniques primarily benefit researchers and industrialists in developed nations, equipped with the technological and human resources required to exploit them (bioinformatics, molecular biology).

We can easily understand why countries lacking these capacities would take issue with a practice which to their eyes is inconsistent and unfair: access to digitised resources is free and easy. Most digitised genetic sequences are accessible via public databases which do not require submissions to specify the origin of the resources from which sequences are derived, nor to identify all contributors or users, nor to sign up to general terms conditions. DSI are thus beyond the reach of access and benefit-sharing mechanisms, and accusations of biopiracy have returned with renewed intensity.<sup>3</sup>

This debate harks back to some of the issues which inspired the creation of the CBD: how can intellectual property rights be used to stave off the risk of DSI being appropriated improperly? How can it be ensured that the benefits derived from the utilisation of DSI are shared fairly? Does open access to DSI databases constitute a circumvention of the Nagoya Protocol ?

<sup>3</sup> See PRAT F., 2021, <https://www.infogm.org/7107-biopiratage-des-sequences-numerisees-deux-exemples>. Another example: the famous Svalbard Global Seed Vault has been accused of providing long-term storage for dead seeds that only major multinational seed producers will one day be able to use, by extracting sequence information.



At COP14 in Egypt, negotiations led to an agreement that DSI could not be effectively managed within the framework of the Nagoya Protocol, charging the CBD with proposing an appropriate sharing system.

## Spirited discussions

Since 2016, the issue of DSI has been firmly on the CBD agenda. A programme of work has been established, under the aegis of both the CBD<sup>4</sup> and the Nagoya Protocol.<sup>5</sup> A study was commissioned (LAIRD & WYNBERG, 2018), and a technical expert group formed. The latter, after much deliberation, produced a “recommendation” (a set of reflections intended to inform a future decision on how best to manage DSI under the Nagoya Protocol at COP14) that was entirely in brackets, reflecting the lack of a clear consensus among the Parties.<sup>6</sup>

Two calls for submissions were launched by the CBD Secretariat in 2016 and 2018. National governments, NGOs, research centres and businesses were all invited to submit their views on the matter. The resulting position papers were published on the CBD website: <https://www.CBD.int/DSI-gr/2019-2020/submissions/>. They provide an insight into the dynamics of the debate (NOTHIAS, 2020).

It should come as no surprise that we find, broadly speaking, two opposing camps in this debate. Countries in the Global North and various learned societies are determined to fight the inclusion of DSI within the remit of the CBD. Still reeling from the difficult experience of implementing the Nagoya Protocol, they argue that the free flow of information is essential to scientific and industrial

<sup>4</sup> COP Decision XIII/16 with regard to *DSI*, 16 December 2016  
<https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-16-en.pdf>

<sup>5</sup> Recommendation NP-2/14 on *DSI*, 16 December 2016:  
<https://www.cbd.int/doc/decisions/np-mop-02/np-mop-02-dec-14-en.pdf>

<sup>6</sup> Recommendation adopted by the SBSSTA n°22/1 on *DSI*, 7 July 2018, [CBD/SBSTTA/REC/22/1]: <https://www.cbd.int/doc/recommendations/sbstta-22/sbstta-22-rec-01-en.pdf>

innovation.<sup>7</sup> Countries from the South, on the other hand, argue that DSI very clearly originates from genetic material, and as such there should be controls on database access and a system for the fair and equitable sharing of the benefits derived from its use, in accordance with the Nagoya Protocol. Frustrated by the lack of financial returns generated by the Protocol, they protest that its scope of application is too narrow. Their view is that it should be expanded to encompass all tangible and intangible forms of life, with no time limit to ensure retroactive applicability. The debate now hinges upon the definition of DSI, and how to apply an ABS mechanism.

### **Agreeing on the terminology**

At time of writing, the dedicated working group has yet to agree upon a definition of DSI. And yet, from a legal perspective, it is absolutely essential to define the terminology in order to determine whether or not an ABS mechanism may be applied.

To bring it within the scope of application of the CBD, DSI would have to be regarded as a “genetic resource” (Article 2 of the CBD) or, at least, as a form of “utilisation of genetic resources,” tantamount to “research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology.” Or else, following the example of “associated traditional knowledge,” DSI might be regarded as information associated with a genetic resource.

Brazil decided not to wait for an international consensus, adding genetic information to its definition of genetic heritage in a law passed in 2015. The Brazilian government has demanded ABS procedures for digital sequences derived from its own biodiversity registered in foreign genetic databases. Ethiopia also defines genetic resources as “all material derived from a biological resource containing genetic information with actual or potential value for

<sup>7</sup> See, for example, the Alliance of Science Organisations in Germany, 2018, <https://www.fraunhofer.de/en/press/research-news/2018/February/the-alliance-of-science-organisations-in-germany-sees-open-access-to-digital-sequence-information-at-risks.html>

humanity, including derivatives and DSI.” India holds that the value of genetic material “resides in the genetic information that it contains, whether it be tangible, intangible or potential.” Argentina, meanwhile, interprets the term DSI as “digital information concerning the sequences of genetic resources,” treating information as a component of genetic resources, and thus considering DSI to be included in genetic material.

Industrialised nations, meanwhile, maintain that DSI is a form of immaterial, intangible data not covered by either the CBD or the Nagoya Protocol. They insist on the distinction between data, which are the fruit of research, and information associated with genetic resources. Australia, for example, defines DSI as “non-physical entities of an electronic nature,” and thus not containing any genetic material. France has proposed a definition which translates as “digital sequence data from genetic resources.”

On a more general level, industrialised nations have pointed out that gene banks hold a wide variety of materials. They have pushed for a more precise definition of DSI, classifying sequence information into multiple groups (DNA and RNA, proteins and epigenetic modifications, metabolites and other macromolecules etc.) which need to be handled differently. They argue that the majority of sequences found in gene banks are human sequences, or sequences from organisms collected in developing nations where they are freely available in open access mode, and thus not subject to the Protocol.

### **Resolving technical issues**

The arguments deployed have not been limited to haggling over the definition of DSI. Existing criticisms of the constraints imposed by the Nagoya Protocol have resurfaced: administrative chicanery, the complexity of handling large quantities of data, the notion of benefit-sharing etc. These arguments have focused particularly on the long delays and bureaucratic obstacles involved in obtaining permits to access and gather data, as well as the risk of legal uncertainty. In an age of high-speed access to genome data, the time required to obtain access and usage permits is viewed as a waste.

The technical difficulties inherent to DSI, already encountered in relation to marine micro-organisms, have also been highlighted (WiLDSI, 2020). Cross-disciplinary research would also require multiple authorisations. Evolutionary biology (for computational phylogenetics), research into active ingredients (screening immense quantities of DNA sequences) and research on infectious diseases (studying new pathogens) all require access to thousands, or even millions of sequences. How would it be possible to assess the provenance and value of each individual sequence?

Sequences themselves cannot be patent-protected. A large number of identical or highly similar sequences are to be found in many organisms, on account of the common origins shared even by organisms which seem very different. Within a given species, a sequence may vary from one individual to the next, and natural mutations may contribute to this variation within a relatively short timeframe. Potential commercial developments would in any case be derived from a combination of sequences, so how would the usage value of a single sequence be calculated?

Industrialised nations argue that open access to DSI is conducive to scientific progress and the attainment of the global biodiversity targets set by the CBD. DSI is a vital tool for taxonomical studies, allowing researchers to identify, describe and compare species in order to better understand genetic variation in populations, the role of genes in the development of organisms and the factors determining resilience to climate change, all useful knowledge for the purposes of biodiversity conservation and management (CETAF, 2017; LAIRD & WYNBERG, 2018). The availability of DSI in open access mode, for both users and providers, is thus consistent with the first two CBD objectives – conservation and sustainable utilisation – and also corresponds to Aichi Target No. 19: “By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.” Restricting access to DSI would thus be counter-productive with regard to the stated aims of the CBD.

The free availability of digital sequence information is the result of international scientific policy, with the financial backing of those countries who created the gene banks and ensure their

continued availability. The position papers submitted by these industrialised nations maintain that open access is justified by the need to democratise science by making it available to all, and that this is itself a form of benefit-sharing. This argument has been largely rejected in the Global South, by countries who would prefer to retain control over their genetic heritage and obtain more monetary compensation.

## Options up for debate

The Convention on Biological Diversity was signed during a phase of rapid globalisation, dominated by market dynamics but also increasingly aware of the urgent need to address global environmental issues through international cooperation. At a time when globalisation is being called into question and national egos are coming to the fore, it is hard to envisage a renegotiation of the CBD without undermining the existing text, let alone the Nagoya Protocol, which is still not fully operational.

In order for a new agreement to be reached, a sharing mechanism needs to be imagined which does not undermine the ease of access expected by “user” nations, while also ensuring remuneration for the “provider” countries of the natural resource from which genetic sequences are extracted.

Inspiration might be sought in the multilateral sharing mechanism introduced by the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, see Chap. 1), which replaces prior consent with easier access and which, in return, requires users to pay into a benefit-sharing fund destined primarily for farmers in developing nations who conserve and use plant genetic resources in a sustainable manner. This would represent a paradigm shift from the bilateral arrangements promoted in the Nagoya Protocol towards a binding multilateral system. Some of the scenarios envisaged at the 1<sup>st</sup> Global Dialogue on DSI (Pretoria, November 2019) involve the creation of a multilateral benefit-sharing fund for DSI, an option also explored in a recent report which claims to offer a “scientific perspective.” (WiLDSI, 2020).

Identifying contributors, users and the provenance of genetic sequences does not appear to be an insurmountable task, as long as computing tools are developed so as to ensure the traceability of resources. It would be possible to connect digital sequences to the physical origins of the material from which they were derived by improving the data passport system, including the information already connected with sequences in databases, linking DSI publications to the genetic resources held in *ex situ* collections and indicating the country of origin of genetic resources in all patent applications. The Chinese and Brazilian patent offices already require patent applications to specify the origin of the genetic resources which provided the raw material for the discovery, while the French Law on Biodiversity of 2016 requires patent applicants to register information on their original resources with the National Institute for Intellectual Property (INPI).

The Nagoya Protocol contains tools (PIC and MAT) which could be used to take DSI into consideration when accessing biological resources: will the resource be sequenced or not? Will the sequence be registered with an open access database? How will any benefits be shared? etc. Specific training and special authorisations enabling providers to access these databases could form part of benefit-sharing arrangements. Research partnerships benefiting researchers from the Global South could also be agreed at the forthcoming COP meeting, as part of the “resource mobilisation” component of the Post-2020 Global Biodiversity Framework (LAIRD et al., 2020).

How might these two systems of benefit-sharing coexist? Genetic resources could remain subject to the Nagoya Protocol, while DSI could be subject to an open access system which ensures that they remain findable, accessible, interoperable and reusable (FAIR). Handling DSI differently – with a more flexible approach stripped of the “formalism” associated with the system for genetic resources, which would remain subject to the Nagoya Protocol – could have the effect of making genetic resources even less desirable for the purposes of research and bioprospecting.

## The horse-trading continues

The ongoing negotiations over DSI represent a continuation of pre-existing geopolitical conflicts which, above and beyond the tensions between competing worldviews, reflect the difficulties inherent to reconciling environmental policy and economic development within the restrictive framework of multilateral agreements. Since the first UN Conference on the Environment, held in Stockholm in 1972, commitments to protecting biodiversity proposed by countries from the Global North have run up against the demands of the Global South, keen to see more support for sustainable development and more benefit-sharing. These demands for compensation inspired the third stated objective of the CBD, set out in Rio in 1992 : “fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.” At the 2010 Nagoya Conference, the eponymous Protocol was then signed by the parties in return for the acceptance by the Global South of the strategic plan for 2011-2020, also known as the Aichi Targets. In the near future, the possibility of expanding the Protocol to encompass DSI looks likely to be used as a bargaining chip to encourage countries from the Global South to sign up to the post-2020 strategy backed by Europe at COP15. COP15 is supposed to adopt a new global strategy for biodiversity, since the strategic plan for 2011-2020 has now expired, albeit without fulfilling any of the 20 Aichi Targets (6 of the targets were judged to have been “partially” attained, see SCBD, 2020). Without some sort of benefit-sharing mechanism for DSI, it will be very difficult to reach a consensus on a Post-2020 Global Biodiversity Framework.<sup>8</sup>

Demands focusing on digital sequence information held in gene banks are primarily concerned with the potential loss of economic opportunities, a far cry from the initial definition of the biopiracy which the Nagoya Protocol was intended to combat.

<sup>8</sup> See the Open-Ended Working Group note on the Post-2020 Global Biodiversity Framework: CBD/WG2020/3/4 - 5 July 2021

The Nagoya Protocol is at risk of being perceived as an instrument of economic warfare, rather than a tool for the protection of biodiversity and traditional populations.

It should thus come as no surprise that tensions over DSI have become apparent in the UN's negotiating structures: at the FAO committee in charge of genetic resources for food and agriculture, and particularly with regard to the ITPGRFA and the revision of its multilateral ABS system; at the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ), where the issue of sharing the benefits derived from the exploitation of marine genetic resources is the first item on the agenda; at the working group for Article 8(j) of the CBD relative to indigenous peoples and local communities; at the World Health Organisation in discussions of access to human pathogens (PIP framework for influenza pandemics), as well as related debates over animal health at the OIE and plant health at the FAO, of particular relevance in an era of epidemics and pandemics; and of course at the World Intellectual Property Organisation. All of these instances, the arenas in which North-South confrontations play out, appear to be waiting on a decision from the CBD in order to continue their work.

We might well question the strategic importance afforded to the issue of DSI, described in some quarters as a deal-breaker for international negotiations, but which would appear to be of secondary importance compared to the climate emergency and the need to act rapidly to stem the collapse of biodiversity.

But we could also argue that the negotiations over the CBD are also tackling issues of vital importance: value grabbing, the appropriation and manipulation of the living world, and the governance of digitised biodiversity. Issues of governance are also at the heart of negotiations over the Cartagena Protocol, including demands for a moratorium on synthetic biology and new techniques of gene editing, another source of tensions within the CBD.

The collateral effects of the Nagoya Protocol, such as the development of more open and balanced research partnerships, may well prove to be more significant than its stated intentions in terms of biodiversity conservation.



## References

AUBERTIN C., 2018 – « Le Protocole de Nagoya à l'épreuve de la recherche sur la biodiversité. » In Pomade A.(dir.): *Hommes-Milieux : vers un croisement des savoirs pour une méthodologie de l'interdisciplinarité*, Rennes, Presses universitaires de Rennes: 99-111.

CETAF, 2017 – *Submission on the potential implications of the use of Digital Sequence Information*. ABS Core Group, 8 septembre 2017, multigr., 10 p.

DEPLAZES-ZEMP A. et al., 2018 – The Nagoya Protocol could backfire on the Global South. *Nature Ecology & Evolution*, published on line:14 May 2018.

DIVAKARAN P. et al., 2018 – When the cure kills - CBD limits biodiversity research. *Science*, 360 (6396): 1405-1406.

KEIPER F., ATANASSOVA A., 2020 – Regulation of Synthetic Biology: Developments Under the Convention on Biological Diversity and Its Protocols. *Front Bioeng. Biotechnol.*, 8: 310. Published 2020 Apr 9. doi:10.3389/fbioe.2020.00310

LAIRD S., WYNBERG R-P, 2018 – Fact-finding and scoping study on DSI on genetic resources in the context of the Convention on Biological Diversity and the Nagoya Protocol. *CBD/AHTEG/DSI/2018/1/3*

LAIRD S. et al., 2020 – Rethink the expansion of access and benefit sharing. *Science*, 367 (6483): 1200-1202.

NOTHIAS Y., 2020 – *L'état des négociations sur la réglementation des Digital Sequence Information à la veille de la COP-15 de la Convention sur la diversité biologique*. Mémoire de master Biologie, Écologie, Évolution, MNHN, 36 p.

ROURKE M., 2018 – Access and benefit-sharing in practice: non-commercial research scientists face legal obstacles to accessing genetic resources. *JSPG*, 13 (1), October 2018.

SCBD - Secretariat of the Convention on Biological Diversity, 2020 – *Global Biodiversity Outlook 5*. Montreal. [www.cbd.int/GBO5](http://www.cbd.int/GBO5).

WiLDSI, 2020 – *Finding compromise on ABS & DSI in the CBD: Requirements & policy ideas from a scientific perspective*. [https://www.dsmz.de/fileadmin/user\\_upload/Collection\\_allg/Final\\_WiLDSI\\_White\\_Paper\\_Oct7\\_2020.pdf](https://www.dsmz.de/fileadmin/user_upload/Collection_allg/Final_WiLDSI_White_Paper_Oct7_2020.pdf)



# Conclusion

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**Catherine AUBERTIN**

**Jean-Louis PHAM**

In the lead-up to the Conference of the Parties (COP 15) to the Convention on Biological Diversity (CBD), reports were coming out one after another, sounding the alarm about accelerating loss of biodiversity in every respect: genetic diversity, diversity of species, ecosystem services. For the IPBES,<sup>1</sup> the facts are clear: continuing on the current course, it will be impossible to achieve our objectives for the conservation and sustainable utilisation of nature. The objectives for 2030 and beyond can only be achieved through “transformative changes,” i.e., by “A fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values.”

The same conclusions were reached by the GBO5 report,<sup>2</sup> which was heavily influenced by the rise of the Covid-19 pandemic. This report insisted on the fact that the transition challenges facing the world are interdependent, and that each interface between nature and society (land use, cities and infrastructure, health, etc.) contributes to and is dependent on the others. This theme was

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<sup>1</sup> IPBES (2019): *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. <https://ipbes.net/global-assessment>

<sup>2</sup> Secretariat of the Convention on Biological Diversity (2020): *Global Biodiversity Outlook 5*. Montreal. [www.cbd.int/GBO5](http://www.cbd.int/GBO5).

continued in the latest IPBES report,<sup>3</sup> which makes the connection between the decline in living organisms and the increase in pandemics. The report highlights the “One Health” initiative, which takes the position that human health, animal health and ecosystem health are interdependent, thus involving the protection of the environment and the fight against global warming.

In order to respond to these unprecedented challenges, which reveal the vulnerability of our societies both in terms of ecosystem collapse and widening inequalities, these reports place health and solidarity at the centre of a societal project for the “sustainability” of the natural world, which would involve nothing less than a radical change in our lifestyles and a reimagination of the place of humans within nature.

The articles in this book back up these conclusions. At a time when biodiversity collapse driven by human activities should have led us to rethink our relationship with nature, an economic logic was instead being extended to each and every component of the living world, distributing property rights to ecosystem resources, ecosystem knowledge and ecosystem services, transformed into commodities. The Nagoya Protocol is therefore based on an “economy of promises”, which postulates that by means of commercial transactions, the discovery of the active principles underlying a few genes can itself ensure both the protection of biodiversity and the recognition of the rights of indigenous people to their resources, and correct inequalities in development and economic power. This vision, dating from the 1990s and based on the ideal of the regulatory power of the free market, is no longer tenable. The revenues drawn from the access and benefit-sharing (ABS) mechanism are still negligible compared to the profits expected from “green gold” mining.

Now, 30 years after the signature of the CBD, we can no longer maintain that the logic of property and the market alone can organise access by human communities to the shared resources on which they depend in a viable manner, and thus increase the

<sup>3</sup> IPBES (2020): *Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services*. <https://ipbes.net/pandemics>

resilience of ecosystems. Monetised, contract-based access to genetic resources and traditional knowledge has not in fact made it possible to protect the biodiversity of the territories where they originate. Above all, biodiversity research cannot be reduced to the exploitation of genetic resources by pharmaceutical industries, detached from their cultural, social and ecological values.

In this book, we have highlighted the positive contribution of indigenous peoples to maintaining biodiversity. Their demand is that they should no longer be kept under the guardianship of others. The legislative texts governing access to their resources and knowledge must be negotiated in consideration of their aspirations in order to give them decision-making power, and to preserve their relationship with the environment and their political, social and spiritual organisations. Fair and equitable sharing is not reducible to commercial transactions.

In a context where multilateralism is under threat, the question remains as to how to use the Nagoya Protocol in support of the first two objectives of the CBD – i.e., the conservation and sustainable use of biodiversity – rather than as fuel for rhetorical discourse about the North-South conflict, likely to jeopardise future negotiations on the post-2020 global biodiversity framework.

Lessons may be drawn from the observed limitations of the CBD's access and benefit-sharing mechanism, which is nevertheless the environmental convention that most integrates objectives of justice and equity at the highest level. An objective of solidarity should be added to it as well, and supplementary approaches must be explored, such as the development of an international system focused on the “commons.”

Since the Stockholm conference in 1972, the legitimacy of development as the foundation of the North-South social relationship and as a factor in the degradation of nature has been challenged. Certain choices are required between economic development and safeguarding biodiversity. GBO5 stresses that a large part of the Sustainable Development Goals (SDGs) conflict with the Aichi Targets, either because they are unachievable due to their links with maintaining healthy biodiversity, or because they contribute directly to its degradation. Choices need to be made between the overexploitation of ecosystem supply services, now under threat

from current modes of agricultural production, and the preservation of ecological functions that ensure the maintenance and regulation of ecosystems.

Solidarity implies the allocation of international financial aid to enable the least developed countries to ensure the conservation of biodiversity as a global ecosystem service, both for their own benefit and for the benefit of humanity as a whole, in particular by providing support to strengthen these countries' capacities in the biodiversity sciences. But this funding cannot be based solely on ABS and on research activities, as proposed by the Nagoya Protocol, while those responsible for the damage to biodiversity remain uninvolved.

In all these challenges, so fundamental for our societies, and in light of the lessons learned from the Covid-19 pandemic, the development of genuine environmental justice should make it possible to distribute the costs and benefits of protecting biodiversity more effectively among humans. Research in environmental ethics and in the construction of the value to be accorded to non-humans and to the evolving and functional processes that bind them together must continue. The road is long, but the Covid crisis has made us aware that humans are just one of many species, both dependent on and in competition with other species within ecosystems, but one that is aware of its specific characteristics (including the ability to care about the fate of species other than itself), and that humanity must be wary of itself and its destructive abilities. Even the least idealistic could benefit from considering that the defence of their "clearly defined interests" requires cooperation with other parties. Because Covid-19 should remind us that the health of each depends on the health of all - both human and non-human. Darwin pointed out long ago that altruism could be a factor in the survival of species.

To have been a milestone on such a path would not be the least of the Nagoya Protocol's merits. Critics of its economic effectiveness should not overlook its role as a stimulus for the development of more equitable research practices. Indeed, this is probably one of the protocol's successes in terms of promoting a more balanced relationship between providers and users of genetic resources and

associated traditional knowledge. Thanks to the protocol, a wind of self-reflection is blowing through life sciences research communities, including those historically less familiar with the notion of prior informed consent, or the fair and equitable sharing of benefits. All scientists working on or with biodiversity must now face those concepts. The challenge will lead them to consider how they can work on developing their projects jointly with the stakeholders concerned, and to think of ways their research can give back to the suppliers of genetic resources and the associated traditional knowledge. This kind of thinking certainly did not wait for the protocol to emerge, but it is now gaining momentum, and converging in certain aspects with the movement to open up research through citizen science. This is evidenced by the ethics charters and innovation promotion charters developed by higher education and research establishments, which explicitly incorporate the principle of fair and equitable sharing.

The young history of the ABS and the Nagoya Protocol also shows that a common pool of resources is a precious asset, and one that can be demolished more easily than it can be rebuilt. The fate of biological diversity – which has gone from being the common heritage of humanity to being an asset of State sovereignty, should put us on the alert. Thus, at the risk of making a painful return to a dog-eat-dog free for all, the enthusiastic development of the common data pool being promoted by Open Data policies must continue, but with unwavering attention to giving back to the territories and communities at hand. The opening up of the data must be effective and encouraged so that the scientific communities and citizens of the Global South can develop their capacity to make use of it through the lens of their own needs.

Though we do see a need to “tease the Nagoya Protocol,” this also reflects the extent to which the protocol provokes and challenges us. In order for the Nagoya Protocol to contribute to the emergence of the ecological civilisation the COP15 has prompted us to build, it will need to be based on solidarity and on the commons, so that it can participate in a new project of relating to nature and sharing it. This must be our ambition above all.





## Liste of acronyms

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ABS	Access and Benefit-Sharing
BRC	Biological Resource Centres
CBD	Convention on Biological Diversity
CCPAB	<i>Conseil consultatif des populations amérindiennes et bushinengues</i> – Council for Consultation with the Amerindian and Bushinenge Populations of French Guiana
CGIAR	Consultative Group for International Agricultural Research
CIRAD	<i>Centre de coopération internationale en recherche agronomique pour le développement</i> – French Agricultural Research Centre for International Development
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington Convention)
COP	Conference of the Parties
CTG	<i>Collectivité territoriale de Guyane</i> – Guiana Territorial Authority
DSI	Digital Sequence Information
FAO	Food and Agriculture Organization of the United Nations
GCCPAB	<i>Grand conseil coutumier des populations amérindiennes et bushinengues</i> - Grand Customary Council of Amerindian and Bushinenge Populations
ICOM	International Council of Museums

ILO	International Labour Organization
IPBES	Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services
IPGRI	International Plant Genetic Resources Institute
IRD	<i>Institut de recherche pour le développement</i> – French National Research Institute for Sustainable Development
MAT	Mutually Agreed Terms
MNHN	<i>Muséum national d'histoire naturelle</i> – French National Natural History Museum
MTA	Material Transfer Agreement
MTES	<i>Ministère de la Transition écologique et solidaire</i> – French Ministry for Ecological Transition
PAG	<i>Parc amazonien de Guyane</i> – French Guiana Amazonian Park
PIC	Prior Informed Consent
NP	Nagoya Protocol
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
UNESCO	United Nations Educational, Scientific and Cultural Organization

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**Alexis Tiouka** is a legal scholar and member of the Expert Group on Human Rights and the Rights of Indigenous People. He has spent decades studying the status of indigenous peoples in French Guiana, arguing for decolonisation and the reconstruction of a “living community” in Guiana based upon a “Foundation Pact” and the concept of “indigenous citizenship.”

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A landmark text in global biodiversity governance, the Nagoya Protocol was intended to put an end to the uncompensated exploitation of natural resources and knowledge originating in the Global South. Its stated objectives were to establish greater justice and equity between providers and users of genetic resources, to foreground the contributions and knowledge of indigenous peoples and local communities, and to decolonise research, all while promoting the conservation of biodiversity.

Thirty years on from the Convention on Biological Diversity from which it originated, the authors examine the legal and practical outcomes of this virtuous framework, which came into force in 2014. Although it has certainly fostered greater recognition of the plurality of knowledge and advanced the traceability of resources, the Protocol has also helped to impose a narrowly market-oriented understanding of nature and knowledge, exacerbating demands for recognition and ownership in the Global South, and effectively restricting access to biodiversity in an era of globalised research.

This book presents an interdisciplinary dialogue informed by the experiences of researchers and conservation stakeholders (local communities, managers of collections and natural parks). Looking beyond the Nagoya Protocol, it invites us to question the relationships between societies and nature in light of the ecological emergency. It is intended for anyone with an interest in the economics of biodiversity and environmental justice.



Environmental economist **Catherine Aubertin** and senior curator **Anne Nivart** were the driving force behind the creation of the ABS committee at the French National Research Institute for Sustainable Development (IRD) and the Nagoya Unit at the French National Natural History Museum (MNHN).

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