



## 1.6 Governance of biological and genetic resources

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### Introduction

The governance<sup>1</sup> of biological resources and genetic resources has become increasingly complex over the past twenty years, in large part due to the adoption of the Convention on Biological Diversity (CBD) in 1992. As a result of the CBD, companies and researchers who wish to obtain access to biological material and associated traditional knowledge are now required to show how the providers of this material and knowledge will benefit. Moreover, access is conditional on benefits being fair and equitable and on the prior informed consent of providers. The CBD put in place an access and benefit-sharing (ABS) framework to address decades of inequitable exchange between rich and poor nations, but the activities it sought to regulate, and its objectives, are diverse. In many countries they have proved difficult to implement in simple and effective ways.



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ALTHOUGH NOT IMPOSSIBLE — TO  
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A SINGLE POLICY FRAMEWORK.

Although the ABS framework has been embedded in international law for almost twenty years, it has largely been confined to genetic resources, and to traditional bioprospecting activities such as the collection and screening of biological samples to identify novel compounds for drug development, new crops varieties, cosmetics, or biotechnology products. Increasingly, however, the wider trade in biodiversity beyond genetic resources, which includes biological resources — commonly referred to as “biotrade” — is being incorporated into ABS regulatory frameworks. This is done in an effort to bring the equity and sustainability concerns of ABS to commodity raw material trade for herbal medicines, cosmetics, and food products. The result is an added layer of complexity in an already unwieldy ABS policy process. Care must be taken to ensure that this expansion of the scope of ABS improves — rather than impairs — livelihoods and sustainability.

At the same time, the industries that use biodiversity have changed considerably as a result of changes in markets and business practices as well as dramatic scientific and

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technological advances (Laird and Wynberg 2008). As a result of these changes, and of the expansion of the scope of ABS measures to include biological resources, there is confusion about which activities and products are regulated under ABS measures.

This was reflected in the intense negotiations leading up to the 2010 adoption of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity. The scope of the protocol and the lack of definitional clarity between genetic resources, biological resources and so-called “derivatives” were some of the most contentious issues. An innovative solution focused on the use of genetic resources, linking it to research and development involving genetic resources rather than biological resources, but questions remain about the definitions of research and development.

Today, governments seeking to implement the protocol must address a wider range of resources and activities than previously included under the ABS provisions of the CBD. On the traditional genetic resources front, governments face dramatically changed science, technology and market conditions; many are therefore in danger of regulating outdated scenarios. The addition of biological resources draws into the ABS process a range of existing measures in forestry, agriculture and other bodies of law that already suffer from poor design and implementation (Laird, McLain and Wynberg 2010).

### **The entangling of biotrade and bioprospecting policies**

More than 30 countries have enacted ABS laws, but the laws typically regulate bio-prospecting and research activities. As the definitional questions become more complex, countries will increasingly look toward a broader suite of policies and laws to regulate the movement of genetic and biological resources. These policies must address intellectual property rights, trade, species conservation, science and technology, bioethics, health, poverty alleviation, taxation and a range of standards linked to fair trade, corporate social responsibility and organic certification.

Existing policies and laws that regulate biotrade are a complex and often confusing mix of measures that have been developed over time with little coherence or coordination (Laird, McLain and Wynberg 2010; Laird, Wynberg and McLain 2011). Most policies are enacted as ad hoc responses to a crisis (e.g., perceived over-exploitation of a species) or as an overly optimistic view of potential tax revenue if “informal” activities are formalized.

The non-timber forest products (NTFPs) used in biotrade are harvested, used and traded by a wide range of groups in very different ways and contexts (geographical, ecological, economic, political and cultural, among others). Because of this, they are difficult to regulate even when great care is taken.

Over the past few decades, pressure on policy-makers to regulate NTFPs more effectively has increased the attention given to these products, but this new visibility has not always been a good thing. Regulatory measures instituted around NTFPs in recent decades were often tacked onto timber-centric forestry laws, were not evidence based, and had inadequate resources allocated for oversight and implementation.

In the end, these measures created new opportunities for corruption and exploitation. Often, used in conjunction with laws in other fields, such as agriculture and land tenure, they also provided perverse incentives to overharvest NTFPs. In many cases, policy interventions also criminalized NTFP extraction, further marginalizing harvesters and generating new forms of inequity (Alexiades and Shanley 2005). Customary law and local institutions that were better suited to regulating NTFPs were also often undermined by efforts to establish statutory control over NTFPs (Arnold and Ruiz-Pérez 2001; Michon 2005).

In many countries, less is more when it comes to biological resource regulation (Wynberg and Laird 2007; Laird, McLain and Wynberg 2010). Without sufficient assessment, the imposition of ABS regulations could well be yet another inappropriate intervention that has negative impacts on livelihoods, species and ecosystems, instead of addressing the equity concerns it set out to achieve.

Experiences with integrating ABS into the wider use and trade of biological resources are not encouraging. In Cameroon, for example, the government enacted ABS regulations as part of its review of forestry legislation in the 1990s. ABS laws were also developed because of post-CBD discovery in the country of potential anti-HIV compounds in *Ancistrocladus korpuensis* by the U.S. National Cancer Institute. These regulations were never fully elaborated, however. This created confusion and made research difficult or impossible. In addition, with the idea of “green gold” in mind, taxation was applied to all medicinal plants in the export trade, even those sold as raw material “biological resources.” This had the immediate effect of driving the export trade underground and forcing many companies out of business (Laird et al. 2010).

In South Africa, ABS legislation enacted in 2004 has proved extremely difficult to implement, largely due to its wide scope of including all indigenous biological resources. In the case of *Pelargonium sidoides*, a plant used in a multi-million-dollar remedy to treat bronchitis, requirements for benefit-sharing agreements with resource and knowledge holders have led to conflict. Exclusive rights have been negotiated with a single community, despite the fact that resources and knowledge were held more widely (van Niekerk and Wynberg 2012).

A bewildering complexity of laws has emerged to regulate *Hoodia*, a succulent plant sold as an appetite suppressant, the use of which is based on traditional knowledge of the indigenous San peoples. This is indicative of what lies ahead as genetic and biological resource use become increasingly entangled (Wynberg 2009). These well-known cases highlight the difficulties — and the negative social and environmental impacts — of governing resources that are both wild-gathered for commodity trade and used in research-intensive industries.

### **Biotope and bioprospecting**

It is extremely difficult — although not impossible — to integrate policies on genetic and biological resources into a single policy framework. Variation and diversity must be built

into the framework (Laird and Wynberg 2012). Biotrade and bioprospecting activities differ substantially, for example, in the type of material sought. Bioprospecting seeks active compounds and useful genes; biotrade is based on sourcing raw materials.

In addition, the financial returns of product development in these industries are vastly different. Bioprospecting has potentially huge returns but there are low odds of product development from any one sample. Biotrade companies have small to medium returns, and higher odds of product development.

Research activities are also different. Bioprospecting typically includes a phase of intensive research; in contrast, biotrade is based on commodity trade of raw materials, with limited innovative research. In addition, research and development budgets at pharmaceutical, seed, and biotechnology companies are substantially larger than those at botanicals, most cosmetic and personal care companies, and horticulture companies.

The scope and nature of benefits are also significantly different. Bioprospecting benefits — at their most effective — include capacity-building in laboratories, technology transfer and royalties. Benefits from biotrade are more commonly connected to income received from the supply of raw materials for the production of final products; they include fair wages for producers and earnings for those lower on the value chain. Biotrade benefits are often much more tangible for rural communities, and are more easily realized at a local level than the benefits associated with high-tech industries, which are more often shared with universities and local companies (Laird and Wynberg 2008; Laird and Wynberg 2012).

Bioprospecting and biotrade also differ substantially in terms of their environmental impacts. Typically, the collection of samples for bioprospecting has a negligible conservation impact, although if it is done on a large scale it can lead to the overharvest of promising species. For biological resources, sustainability is a real and pressing issue (e.g., Cunningham, Cunningham and Schippmann 1997), as are questions of who benefits when the collection of species changes from wild-harvest to cultivation (Arnold and Ruiz-Pérez 2001).

One factor is common to both bioprospecting and biotrade and is responsible in part for international ABS efforts: traditional knowledge (TK) may be used without consent and without benefiting providers. However, a declining interest in traditional knowledge on the part of the pharmaceutical and agricultural sectors has meant that the use of TK is more common in biotrade industries such as the cosmetics and herbal sectors, where claims based on traditional knowledge are common on labels.

### **Towards an integrated and meaningful policy framework**

Significant resources are being invested in the ratification and implementation of the Nagoya Protocol. It is important to get it right. It must include releasing academic



research on rapidly disappearing biodiversity — information critical to public understanding and appreciation of what we are losing — from a regulatory stranglehold. And it must ensure that producers of raw materials do not face another wall of regulations that, despite the best intentions, undermine livelihoods and sustainability. In addition, developing countries that face pressing development problems — such as access to clean water and sanitation, and serious threats such as land grabs, logging, mining, and the trampling of the rights of indigenous communities — must be careful that with increased donor funding encouraging their attentions they are not swept up into a diversionary debate that does not address their real needs.

ABS guidelines and laws, and basic standards for equity and respect for national sovereignty, are critical. However, the emphasis must be on flexibility and simplicity in the face of rapid scientific and technological advances that change the circumstances, and on partnerships that can actually generate benefits for high-biodiversity countries. Countries must also consider whether genetic and biological resources belong within the same regulatory framework.

There is real movement towards implementation of the Nagoya Protocol, and yet questions that have plagued ABS from the start remain. These relate to the scope of activities and products regulated, how best to generate benefits, and how to ensure equity and sustainability. Careful analysis and thought is needed before countries embark on a new round of regulation. It is necessary to know what is being regulated and to what end, and to know that new measures will first do no harm.

### **Recommendations for appropriate regulatory frameworks<sup>2</sup>**

Regulations should be guided by the nature of commercialization. Laws should recognize the different types of resource use, including subsistence, local trade, discovery research, commercial bioprospecting, commercial trade and recreation. Subsistence use should not be regulated, except in cases where there are clear risks of overharvesting.

For both biotrade and bioprospecting, traditional knowledge holders should provide consent for and benefit from the commercial use of their knowledge. Measures should be instituted to achieve this.

Prior to drafting ABS regulations, policy-makers should understand the relationship between biotrade and bioprospecting and the range of laws that affect these activities. In so doing they should seek to mitigate the negative impacts of these seemingly unrelated laws. Governments must be careful to build on or complement traditional resource rights and customary law, minimize paperwork and avoid duplication of existing laws.

The capacity of local and indigenous people needs to be increased, so that communities can organize, navigate overly bureaucratic permitting procedures, and assert their rights against more powerful players. Policies should avoid criminalizing harvesting activities and further marginalizing producers. Governments should eliminate permits and procedures that are inappropriate and burdensome for small-scale producers and that bring no clear benefits to management or livelihoods.

Capacity-building, and broad research and data-collection efforts should be ongoing, but if governments have limited resources they should focus on threatened species, those that are intensively traded, and those associated with commercial bioprospecting activities.

Laws and policies should grow from extensive consultations with the full range of affected stakeholders, including harvesters and producers, traders, companies and government departments.

Producers, traders and their support organizations need greater capacity to engage with government on the development of effective laws and policies. Creative approaches should also be explored to involve producer communities and traders in monitoring resource use and assisting with policy implementation.

When governments develop policy frameworks they should attempt to integrate national, state and provincial policies regarding bioprospecting, biotrade and benefit sharing in order to avoid duplication of efforts and overlapping mandates.

Revenue generated by the state from royalties, taxes or the sale of biodiversity products should be channelled to conservation and the sustainable management of biodiversity, and to supporting the sector and building government capacity.

Governments should approach regulation with a light hand, and in ways that reflect the financial, ecological and social costs and benefits of such actions, the government's implementation capacity and the likelihood of compliance.

Where land tenure and resource rights are secure, customary laws are still strong, and local capacity exists to manage the resource base and deal with commercial pressures, customary laws often provide a more nuanced approach to regulation, integrating unique local cultural, ecological and economic conditions in ways that better suit the trade of biological resources.

In cases where customary law has broken down to a significant degree, or outside commercial pressure has intensified beyond the capacity of traditional measures, or bioprospecting activities — which have little connection to traditional practices — are undertaken, governments can offer important and necessary complementary levels of regulation. This is something often requested by local groups. However, interventions should be crafted to include local-level institutions and management systems, where these are effective.

## Endnotes

1. The term “governance” refers not only to government regulation and law enforcement, but also to the “political, institutional, and cultural frameworks through which diverse interests in natural and cultural resources are coordinated and controlled” (Cronkleton et al. 2008: 1).
2. These recommendations are adapted from Laird, McLain and Wynberg 2010.

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