Chapter 11
Regulating Complexity: Policies for the Governance of Non-timber Forest Products

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Abstract Products from the wild, also known as non-timber forest products (NTFPs), are used as medicines, foods, spices, fibers, and fuel and for a multitude of other purposes. They contribute substantially to rural livelihoods and generate revenue for companies and governments, and their use has a range of impacts on biodiversity conservation. However, throughout the world, NTFPs have been both overlooked and poorly regulated by governments. Inappropriate policies have not only led to over-exploitation but also generated new forms of inequity. Drawing upon cases from around the world, this chapter reviews these experiences and provides information to support new policy approaches toward NTFP regulation and the broader issues of governance associated with these products.

11.1 Introduction

Policies and laws play a central role in regulating trade in non-timber forest products (NTFPs), determining ecological sustainability, and influencing if and how communities benefit from use of these products. However, because NTFPs 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) they are difficult to regulate even when great care is taken. Over the past few decades, pressure on policymakers to more effectively regulate NTFPs has increased the attention given to these products, but this new visibility has not

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S. Shackleton et al. (eds.), *Non-Timber Forest Products in the Global Context*,
Tropical Forestry 7, DOI 10.1007/978-3-642-17983-9_11,

always been a good thing. As this chapter describes, regulatory measures instituted around NTFPs in recent decades were often tagged onto timber-centric forestry laws, were poorly informed, and had inadequate resources allocated for oversight and implementation. Consequently, in the end, they created new opportunities for corruption and exploitation and often, in conjunction with other bodies of law like agriculture and land tenure, provided perverse incentives to overharvest NTFPs. In many cases, policy interventions also criminalised NTFP extraction, further marginalising harvesters while generating new forms of inequity (Alexiades and Shanley 2005). Customary law and local institutions better suited to regulating NTFPs were also often undermined by efforts to establish statutory control over NTFPs (Arnold and Ruiz Pérez 2001; Michon 2005).

Numerous works have been published about NTFPs over the past two decades, including descriptions of their use, harvest and conservation, analyses of the factors influencing successful commercialisation (e.g., Neumann and Hirsch 2000; Sunderland and Ndoye 2004; Alexiades and Shanley 2005; Kusters et al. 2006; Marshall et al. 2006) and "how-to" manuals for inventorying and monitoring NTFPs or measuring their economic value (e.g., Peters 1996; Cunningham 2001; Shanley and Medina 2005; Stockdale 2005). While many of these works touch on policy issues, NTFP policy is not their primary focus. Other publications have a strong focus on policy (Dewees and Scherr 1996; Jones et al. 2002; Shanley et al. 2002; Michon 2005; McManis 2007; Wynberg and Laird 2007; Cunningham et al. 2009), but tend to be either geographically or topically narrow, i.e., dealing with a single or few species or types of products.

This chapter draws upon case studies from more than a dozen countries and complements the existing NTFP literature by providing a comparative analysis of a broad spectrum of experiences with NTFP policy and law from around the world. By including cases from postindustrial societies as well as the more commonly studied context of developing economies, it emphasises the truly global importance of these products, and highlights similarities in issues and lessons that emerge with NTFP regulation.

11.2 Why and How NTFP Laws and Policies are Developed

NTFP policies and laws are usually a complex, and often confusing, mix of measures developed over time, with poor coherence or coordination. They rarely resemble an overall policy framework. Many policy instruments are enacted as ad hoc responses to a crisis (e.g., perceived over-exploitation of a species) or an overly optimistic view of potential tax revenue should informal activities be made more formal. Rarely does regulatory activity follow from a careful and systematic assessment of the range of opportunities and threats associated with species, ecosystems and livelihoods and a strategic approach to regulating the NTFP sector as a whole is uncommon.

11.2.1 Reactive Policymaking

Reactive policymaking is often an inevitability associated with the NTFP commercial production cycle. The tendency for NTFP laws to be drafted in response to a real or perceived overharvesting crisis is widespread, especially when use of a species changes from local trade and subsistence use to large-scale commercial trade. Booms and busts in NTFP commercial cycles also result from consumer fads, scientific research that supports or undermines markets, and health concerns (Chap. 2). In the botanical and herb industry, for example, griffonia (*Griffonia simplicifolia*), kava (*Piper methysticum*), ephedra (*Ephedra sinica*), and cat's claw (*Uncaria tomentosa*) are just a few examples of species that have experienced increased sales in recent decades, followed by market crashes after media reports raised concerns about safety and efficacy (Alexiades 2002; Nalvarte Armas and de Jong 2005; Pierce and Burgener 2010). Health concerns associated with raw material supplies in the food sector often trigger reactive policy responses, as in the case of aflatoxins found in Brazil nuts sold in Europe and North America (Cronkleton and Pacheco 2010), with Chinese matsutake mushrooms harvested in Yunnan and sold in Japan (Menzies and Li 2010), and with palm hearts in Brazil and Bolivia (Fantini et al. 2005; Stoian 2005a).

Despite the risks associated with reactive and iterative NTFP policymaking, such interventions can also have strengths. For example, the succulent plant *Hoodia*'s entry into the weight-control market in 2001 led to a surge in demand for raw material that required southern African governments to respond rapidly by introducing a stringent permit system and, in some cases, prohibiting wild harvesting. A few years later, an increase in the availability of cultivated material reduced pressure on wild populations, and governments responded in turn with a less severe permitting system (Wynberg 2010) (Fig. 11.1).

Fig. 11.1 Wild-harvested *Hoodia gordonii*, Western Cape, South Africa (photo: David Newton)

11.2.2 Opportunistic Policymaking

Government action is often triggered when politically powerful groups lobby for regulation to increase their control over NTFP production and trade. For example, the Rooibos Tea Control Scheme established by the apartheid state of South Africa in 1954 was promoted by and benefited the "white" farming elite, rather than the mostly "coloured" farmers who had traditionally gathered rooibos tea from the wild. The scheme was a statutory, one-channel marketing system set up to regulate the production and marketing of indigenous rooibos (*Aspalathus linearis*) tea and to support the sector, including subsidies for affiliated producers, research, and the provision of extension services (Hayes 2000; Wynberg 2006).

Governments are also quick to act when a species or set of products appear to show great economic promise, part of which they might capture through royalties, taxes, or other means. In Cameroon, the government instituted new taxes on medicinal plants in the 1990s in response to a widespread belief that these NTFPs were "green gold" (Laird et al. 2010). In India, tendu (*Diospyros melanoxylon*), which provides as much as 74% of Orissa state's total earnings from forests, was nationalised in several states in the 1960s and 1970s due to its high value and the interest of government bodies in benefiting from its trade (Lele et al. 2010).

11.2.3 Information Requirements for Drafting Effective Policies

A common problem with NTFP law and policy is limited understanding on the part of policymakers about the products, people, and activities they seek to regulate. Unlike timber or agricultural crops, NTFPs include a broad range of species with extremely different ecologies and cultural and livelihood roles, and equally diverse market chains, end products, and consumers (Arnold and Ruiz Pérez 2001; Arnold and Ruiz Perez 1996; Peters 1996; Shanley et al. 2002; Alexiades and Shanley 2005). For most species, there remain enormous gaps in understanding, including those widely used such as Brazil nuts, devil's claw (*Harpagophytum* spp.), and eru (*Gnetum* spp.) (Chap. 7).

Solid background information is critical to policy formulation. For example, because NTFPs are an extremely diverse array of species, with a wide range of ecological niches, policymakers cannot assume that intensification of harvesting will have similar impacts in all cases (Chap. 7). Marula (*Sclerocarya birrea* subsp. *caffra*) is widespread and common, fruits abundantly, is planted in homesteads, is retained in fields, and is usually well managed in the southern African region. These circumstances suggest a resilience that does not require immediate government intervention, but rather calls for monitoring of populations in areas with heavy harvesting rates (Shackleton et al. 2003; Wynberg and Laird 2007) (Fig. 11.2). Vesi (*Instsia bijuga*) in Fiji, on the other hand, is slow growing, occurs in low densities, is scattered in distribution, and does not disperse well, all of which are characteristics that make it vulnerable to overharvesting. In addition, *Intsia bijuga* is

Fig. 11.2 Workers for a local NGO project squeezing juice from *Sclerocray birrea* (marula) fruits for sale, Limpopo Province, South Africa (photo: Myles Mander)

experiencing commercial pressure from the tourist trade, new technology has increased harvesting rates, and cultural changes have eroded customary laws and beliefs that hold *Intsia bijuga* to be a sacred species. This combination of factors has led to a sustainability crisis that, unlike the case of marula, requires legislative and policy attention (Areki and Cunningham 2010).

11.2.4 Consultations Associated with Laws and Policies

Consultations with stakeholders are probably the most important way to gather information and to set priorities and objectives for policy. However, in most countries, NTFP harvesters and producers are drawn from the least powerful members of society and typically have little say in policymaking (Hecht et al. 1988; Shanley et al. 2002; Shackleton and Shackleton 2004; Alexiades and Shanley 2005; Wynberg and Laird 2007). Because such groups are rarely consulted during policy design, their needs seldom drive the policymaking process. Technical experts and even nongovernmental organisations (NGOs) (which may not be representative of producers and harvesters, but can provide important assistance) often have more significant input into the design and drafting process than those directly involved in the harvest or trade of products. The consultations that do take place for NTFP law and policy are often with larger and more powerful business interests.

One reason for the limited involvement of harvesters in the policy process is the dearth of producer organisations or institutional vehicles through which their views and concerns can be expressed, and a lack of organisational capacity to do so. Even in recent decades, Brazil nut measures were drafted and passed in Bolivia without public consultation. It was only in the late 1990s that small Brazil nut producers finally forced their views into the public arena, in part by being better organised (Cronkleton and Pacheco 2010). In the United States, Canada, and the United Kingdom, some effort has recently gone into including harvesters, buyers, and

processors in proposed regulatory reforms, either through the formation of industry-specific task forces or through public hearings (Dyke and Emery 2010; McLain and Lynch 2010; Mitchell et al. 2010). In southern Africa, the nonprofit trade association PhytoTrade Africa plays an important role in enabling the voice of marginalised producers to be heard (PhytoTrade Africa 2006) (Chap. 4).

11.2.5 The Few Strategic Exceptions

A few governments have developed NTFP law and policy in a more strategic manner. This includes undertaking research and building ecological, economic, social, and cultural understanding of species, incorporating comprehensive consultations with stakeholders and developing a strategy for the resulting legal framework.

In the past decade, for example, Namibia has taken a proactive and progressive approach toward NTFP policy and regulation, recognising that these products provide vital income and livelihoods for communities in an environment characterised by extreme aridity and few economic opportunities (Bennett 2006; Cole and Nakamhela 2008; Nott and Wynberg 2008; Wynberg 2010). Much of this has been done through the multistakeholder Namibian Indigenous Plant Task Team, which promotes collaborative approaches and effective regulation and facilitates development of the local natural products industry (Nott and Wynberg 2008).

Finland is also a notable exception to the rule of government neglect of NTFPs. The Finnish government has supported scientific research on wild berries for decades, including studies of their cultural and economic importance, as well as biological and ecological research (Kanga 1999). At the same time, it has actively promoted berry and mushroom harvesting as an economic activity and cultural practice. Indeed, rather than discouraging harvesting as many countries have done, the government has developed programs to promote harvesting and related industries. These include a berry crop forecasting system and income-tax relief favourable to harvesters, providing them with the information and incentives they need to participate more effectively in NTFP industries (Richards and Saastamoinen 2010).

11.3 The Policies

11.3.1 Policies and Laws that Directly Address NTFPs

A number of laws and policies directly address NTFPs, often to conserve or sustainably manage resources, and in some cases to improve rural livelihoods or promote broader economic growth in a region. These measures tend to focus on

species in commercial trade, or form part of national efforts to protect endangered or indigenous species or regulate international trade under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The majority of measures directly addressing NTFPs, however, are found in natural resource law, in particular forestry laws. A range of other measures explicitly regulate specific aspects of NTFP trade and use, including quality control, safety and efficacy standards, transportation, taxation, and trade (Pierce and Burgener 2010).

11.3.1.1 The Inclusion of NTFPs in Forestry Laws of the 1990s

In most countries, forestry laws historically focused almost exclusively on timber resources and paid limited or no attention to NTFPs. Moreover, the subsistence and commercial value of NTFPs was totally disregarded when timber management plans were designed and logging operations undertaken. In recent decades, however, NTFPs have been incorporated into forestry laws as a response to changing international policy trends. In many cases, this resulted from the direct pressure of international agencies, such as large conservation organisations and finance institutions, including the World Bank, to diversify forest management and make it more sustainable (Laird et al. 2010). As a result, in the 1980s and 1990s, many countries integrated a wider range of objectives into forest policies, including forest health and biodiversity conservation, ecosystem functions, and long-term sustainability, as well as broader economic values such as tourism, recreation, and NTFPs.

However, initial efforts to address NTFPs in these new forestry laws were poorly formulated and rarely implemented. The scope and definition of the products covered remained unclear, and few specific actions were stipulated (e.g., Fiji Islands 1992; Republic of Cameroon 1994; República de Bolivia 1996a). When actions were prescribed, they usually focused on permits, quotas (often set in arbitrary ways), management plans, and royalties or taxes – an approach lifted directly from the timber sector, and one that proved entirely inappropriate for the diverse, complex, and perhaps less lucrative NTFP sector.

More usefully, some forestry laws of this time included NTFPs in timber norms, requiring their consideration in management plans and logging operations in order to minimise negative impacts on locally valuable products (Chap. 8). In many countries, the logging of high-value NTFP species for timber has proved their greatest threat. In Brazil in recent years, national and state governments have passed laws prohibiting the logging of high-value NTFP species (Kluppel et al. 2010), and in Bolivia prohibitions on felling Brazil nut trees arrived in 2004 as part of a decree addressing property conflicts (Cronkleton and Pacheco 2010). But the track record for implementing such policies is often poor (e.g., Ortiz 2002; Pierce and Burgener 2010).

In the past 10–15 years, a number of countries have begun to fine-tune well-intentioned forest policies passed in the 1990s to reflect the socioeconomic, ecological, and cultural realities of NTFP use. This has resulted in a number of specific improvements in the ways these products are regulated, including rethinking the use

of costly and complex inventories and management plans for NTFPs and revising quota and permitting systems (Areki and Cunningham 2010; Cronkleton and Pacheco 2010; Kluppel et al. 2010; Laird et al. 2010). There is still a long way to go, and NTFPs continue to have low priority in most forestry departments and curricula, but the trend in several countries is toward greater understanding and better-elaborated regulatory frameworks.

11.3.1.2 Quality Control, Safety, and Efficacy

Quality control and proof of safety and efficacy are increasingly important in developed country markets. This means that NTFP producers may be required to institute sophisticated procedures for tracking materials that end up as botanicals, personal care and cosmetic products, and food and beverages. Food safety legislation has often proved a formidable obstacle to international trade of NTFPs (Iqbal 1993; Brown 2005; Burgener 2007; Pierce and Burgener 2010). However, governments tend to act quickly when these obstacles arise; unlike environmental and social justice concerns, health concerns often get their attention, and pressure from influential commercial players involved in the trade can be great. For example, in the 1990s, when the EU and the USA set maximum acceptable levels of aflatoxins that threatened the Brazil nut trade, the Bolivian government jumped into action, passing a series of measures that created norms for Brazil nut classification, sanitation practices, and aflatoxin sampling, drawing upon the Food and Agriculture Organisation's Codex Alimentarius (Soldán 2003, in Cronkleton and Pacheco 2010). These steps allowed Bolivian Brazil nuts to maintain access to international markets.

11.3.1.3 Transportation

Transportation laws can have direct and indirect impacts on NTFPs. Most significant for all natural resources, including NTFPs, is the opening of previously remote forest areas following road building. More specific to the case of NTFPs is the use of transportation law to monitor trade. The State of Washington in the USA relies heavily on transportation permits as a mechanism for monitoring and tracking the harvesting of floral greens and other NTFPs; these permits also play an important role in identifying thefts of products from state and private land (McLain and Lynch 2010). In Brazil, a 1993 regulation required a license to transport any forest product. This included essential oils, medicinal plants, and the seedlings, roots, bulbs, vines, and leaves of native plants, many of which were not regulated in any other way. Because the law was so broad, and local harvesters and traders could not easily acquire the necessary license, they either could not participate in commercial trade or did so illegally. This measure was amended in 2006, in response to these problems (Kluppel et al. 2010).

11.3.1.4 Taxation, Including "Unofficial Taxation"

Governments sometimes tax the NTFP trade to gain revenue from what is perceived as a lucrative business, but this often negatively impacts the sector. In Cameroon, new taxes instituted in the 1990s on the medicinal plant export business resulted in the near collapse of that sector, and a blossoming of bureaucracy and opportunities for corruption (Laird et al. 2010; Ndoye and Awono 2010). In Bushbuckridge, South Africa, the government charges kiaat (*Pterocarpus angolensis* – African or wild teak) harvesters and craftsmen a fee per running meter of wood to promote responsible use of this valuable material. In reality, however, reports of harassment and corruption (e.g., government rangers taking wood or issuing incorrect receipts) are common. As a result, craftsmen and harvesters usually choose to bypass the system (Shackleton 2010) (Fig. 11.3). Some governments, however, use tax structures as a way of providing incentives to the NTFP sector. In Finland, for example, to encourage and support harvesters, and to offer the sector an incentive, the government makes picking income exempt from tax (Richards and Saastamoinen 2010).

"Unofficial taxation" (i.e., bribery) is a very real cost of doing business in many countries. Bribes are tolerated, and even encouraged, by some governments, and they work like any other policy stick to change behavior. In a number of countries, roadblocks are set up by government officials to "control" the transport of goods from rural to urban areas, check required documents, bleed profits from traders, and have knock-on effects for harvesters (Arquiza et al. 2010; Ndoye and Awono 2010; Sunderland et al. 2010). In The Philippines, one study showed that unofficial payments, or "standard operating procedures" (SOPS), significantly impact the already meager NTFP livelihoods of indigenous peoples (Arquiza et al. 2010).

Bribery can be a good indicator not only of problems with broader governance, but also with NTFP policies and laws. Bureaucratic and confusing NTFP measures can leave communities and government authorities unclear about proper procedures, providing government officials an opportunity to request additional "unofficial payments" (Arquiza et al. 2010; Laird et al. 2010; Ndoye and Awono 2010).

Fig. 11.3 Locally produced Kiaat (*Pterocarpus angolensis*) carvings for sale at a popular tourist destination (viewpoint) in Mpumalanga Province, South Africa (photo: Sheona Shackleton)

Inappropriate and burdensome measures can also make unofficial payments or bribes preferable to following regulations.

11.3.2 Policies and Laws that Indirectly Impact NTFPs

In addition to laws that explicitly address NTFPs, there are a myriad of measures that may not mention the term, and yet impact their use, management, and trade as much as, or more than, those that do (Dewees and Scherr 1996). The high impact of these measures is largely because the role of NTFPs in subsistence and local livelihoods is often poorly understood and rarely considered when drafting other measures. Laws tend to be drafted along sectoral lines that do not take into account other land uses and the complex and interconnected nature of activities.

Laws and policies with an indirect impact on NTFPs include agricultural policies, land tenure and resource rights, intellectual property, and labour law. In addition, a range of natural resource laws have a significant impact on NTFPs, including the forestry laws discussed above, mining (Novellino 2010) and protected area and conservation laws that discourage or forbid NTFP harvesting (e.g., Baird and Dearden 2003; Jaireth and Smyth 2003; Dowie 2005).

11.3.2.1 Agricultural Policies

Agricultural policies can impact NTFPs in a range of ways. They might discourage or promote farming practices that are linked to NTFP harvests and associated livelihoods. For example, in the 1990s, an international policy movement identified swidden (slash and burn) agriculture as a major cause of tropical deforestation. Although this was unproven and controversial, the impact of restricting practices associated with swidden agriculture was significant, including on NTFPs. In the case of the Batak in Palawan, these policy restrictions led to a surge in NTFP harvesting and trade to buy food to supplement low agricultural production (Novellino 2010). Agricultural policies can also include subsidies and other incentives to cultivate NTFPs, with both positive and negative impacts on rural livelihoods and species. The cultivation of rooibos tea in South Africa, for example, is promoted by a regulatory framework that encourages the clearing of natural biodiversity for rooibos plantations, and discourages wild collection of this species (Wynberg 2006).

Agricultural policies can also be a vehicle for land and resource rights reform, with significant consequences for NTFPs. For example, the 1996 Agrarian Reform Law (República de Bolivia 1996b) in Bolivia initially appeared to have little relevance for the Brazil nut economy, but its impact was dramatic because it sought to resolve the complex and contradictory property rights system of the country (Cronkleton and Pacheco 2010). Agricultural policies can also impact NTFPs through their effect on the supply of labour available to harvest products. In Finland,

the loss of domestic price supports for agricultural products following the country's accession to the EU in 1995 accelerated rural economic restructuring and the out-migration of many rural residents to urban areas. To overcome the resulting labour shortage during the berry season, Finnish berry companies have increasingly turned to the use of immigrant labour, thereby creating further changes in the NTFP economy (Richards and Saastamoinen 2010).

11.3.2.2 Land Tenure and Resource Rights

NTFPs are harvested under a wide range of landownership systems, including communal, private, and various tiers of state control, and under different access regimes, from strict prohibitions on use through to open access. Four basic kinds of rights typically underpin such systems: use, transfer, exclusion, and enforcement (Neumann and Hirsch 2000). The many combinations of rights and forms of ownership mean that NTFP tenure systems are complex. However, clear land tenure and resource rights are fundamental to the success of any NTFP policy measure seeking equity and sustainability (Chaps. 9 and 12). These rights do not necessarily take the form of government titles, something often not possible in vast rural areas, but there must be a working understanding between stakeholders. When such understanding is not in place, conflicts over NTFP resources are common (e.g., Arquiza et al. 2010; Cronkleton and Pacheco 2010; Laird et al. 2010; Novellino 2010).

In some cases, land tenure may be secure, but resource rights are not. In Mexico, most forests are collectively owned, and while local communities have some autonomy in the management of their natural resources, the state sporadically exerts control over their use. For example, agave extraction has been regulated for hundreds of years through local institutions within the *ejido* and indigenous community structure. These have been responsible for regulating access, management practices, and the distribution of benefits based on history and traditional knowledge of the species. Norms and agreements are established by general assembly and are continually modified or replaced in a dynamic process that responds to new situations and to tensions of environmental, socioeconomic, cultural, or technological origin. Even with such a dynamic and sophisticated system, however, the Environmental Protection Agency now often fines local harvesters when they do not present a legal harvesting permit (Granich et al. 2010).

In Yunnan, China, changing land and resource rights have created opportunities for greater local control and a more effective policy framework for matsutake mushroom harvests. During most of the latter half of the twentieth century, China's forests were under state ownership. In the 1980s, however, forests were divided into state, collective, and household holdings. In Yunnan, forests under the new tenure arrangements continued to be managed largely for timber until 1998, when logging was banned as a flood prevention measure. These developments coincided with expansion in demand for the region's matsutake, a product that previously had little

value and for which rights of tenure and usufruct were in flux. This state of flux and the resulting flexibility in tenure arrangements left space for villages to develop codes of conduct for access to local matsutake grounds and the monitoring of harvest practices. Local regulation has had the added benefit of fostering adaptive management, since villages can adjust to new conditions more quickly and easily than higher levels of government (Menzies and Li 2010).

The security of resource rights may also depend on the commercial value of an NTFP. This is illustrated in India, where the state owns all NTFPs and grants usufruct rights for collection, as well as transport and sale. In theory, the state is involved in resource rights to protect and benefit collectors, but in practice the distribution of income from these resources is considered highly inequitable, and government is interested only in those species with high commercial value like tendu (*Diospyros melanoxylon*). Political devolution has recently transferred rights over many NTFPs to local communities, but these are primarily products of low commercial value. The state retains control over more lucrative NTFPs (Lele et al. 2010).

Resource rights are undergoing change alongside broader views of property rights in many developed countries of the North. In Sweden and Finland, for example, the centuries-old principle of "everyman's right" (see Box 5.1) to harvest wild berries and mushrooms is being tested by the seasonal in-migration of large numbers of non-Nordic pickers, raising public concerns about immigration and tax policies, labour practices, and benefit sharing (Richards and Saastamoinen 2010); in England and Scotland, tension exists between customary rights to roam and the codified versions of those rights (Dyke and Emery 2010); and in Canada, in a reversal of trends in many other countries, as part of asserting aboriginal rights and title, First Nations are demanding the return of their right to regulate access to NTFPs (Mitchell et al. 2010).

When intact, customary law can play an important role in ensuring sustainable and equitable use of NTFPs. Arquiza et al. (2010) describe landownership vested in Philippine communities, each with its own rattan territory and many with strong customary laws that promote sustainable rattan management. Communities with a poorly defined sense of collective ownership and no traditional institutions tend to have weaker enforcement and manage resources less sustainably. Similarly, in the case of marula (*Sclerocarya birrea* subsp. *caffra*) in southern Africa, Wynberg and Laird (2007) found that where tenure is secure, customary laws are strong, and local capacity exists to manage the resource base and deal with the pressures of commercialisation, customary law achieves a balance between sustainable resource use and livelihood needs. However, when customary laws are weak and insecurities persist with land tenure and resource rights, significant conflicts arise around resource management, and government intervention is often necessary. In Fiji, 83% of the total land area is under customary tenure (native lands) as a result of British colonial policy that prohibited the sale of land to colonial settlers. However, even with secure land tenure and resource rights, dramatic social, cultural, technological, economic, and other changes have strained customary and

local laws and have led to significant sustainability problems for *Intsia bijuga* (Areki and Cunningham 2010).

In many countries, customary and statutory laws play complementary roles, but it is common for new statutory laws to weaken effective customary systems. For example, in Bolivia, small producers maintained strong de facto control over the resource base for decades through a customary system of tree tenure. Access rights were based on rubber trails and later, when Brazil nuts became important, on access to Brazil nut trees and related infrastructure. All these activities operated in a statutory policy vacuum until 1995. At that time the government superimposed another layer of rights over the region's forests by allocating timber concessions. Conflicts were further exacerbated when well-intentioned efforts to modify the 1996 Agrarian Reform Law to expand the size of land grants to communities instead undermined customary tree tenure arrangements. Land reform gave smallholders formal recognition of their tenure rights, but by basing it on control of contiguous territory (allocating each family 500 ha), it undermined effective traditional tenure arrangements and access rights based on key resources (once rubber, and now Brazil nut trees) (Stoian 2005b; Cronkleton and Pacheco 2010).

11.3.2.3 Intellectual Property Rights

Policies relating to intellectual property rights (IPRs) can also have a significant impact on NTFP harvest and trade. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organisation has created a global regime for IPRs, the result of which is that many NTFPs are increasingly included in patents and other forms of IPRs (Dutfield 2002). This has important implications for the broader trade in and use of these products, since IPRs can create barriers against nonaffiliated companies entering the market (Gebhardt 1998). If narrowly applied, IPRs need not restrict the trade or commercialisation of products by other companies or groups, but there are a number of cases where this has occurred. For example, the 1997 patenting of active components of *Hoodia* and the specification of a particular extraction technique have directly inhibited trade in *Hoodia* extracts over the past decade (Wynberg et al. 2009; Wynberg 2010).

The pharmaceutical, crop protection, and seed industries, in particular, use patents to protect innovations, and plant breeders' rights (or plant patents in the USA) serve the same function in the horticultural industry. To a lesser extent, patents and other IPRs are also used in industries that rely on whole-plant material, such as the botanical medicine and personal care and cosmetic industries. These products contain multiple compounds and therefore do not lend themselves easily to patent protection, but other areas of product development, such as manufacturing and processing techniques, formulations, dosage forms, and unique release characteristics, enable IPRs to be secured. IPRs are clearly a complex, difficult, and expensive way for small-scale producers to ensure benefits from NTFPs, although trade organisations such as PhytoTrade Africa (see Chap. 4) are increasingly

looking toward using intellectual property tools to protect small producers and enhance their competitiveness.

Increasingly, geographical indications, or appellations of origin, are used as an intellectual property mechanism to protect regional products and the communities associated with them. This is done through labels on products identifying the country, region, or locality from which they originate, and that yields the particular qualities or reputation associated with the products (Commission on Intellectual Property Rights 2002). Because geographical indications are anchored to a region and are a means to identify and market products easily, they can play a role in protecting traditional and cultural practices, as well as local economies associated with non-timber and other products. However, if poorly applied, geographical indications can also result in the disenfranchisement of local groups (Granich et al. 2010).

11.3.2.4 Labour

Labour policies, and those like immigration that directly affect labour supplies, can have significant impacts on NTFPs and those whose livelihoods depend on them. These impacts are particularly evident in the case studies from the global North, where many countries have experienced significant rural restructuring over the past two decades. In the north-western USA in the 1990s, for example, floral greens harvesters were transformed from self-employed sole proprietors or microfirms with relatively independent access to floral greens harvesting sites to predominantly de facto wage labourers heavily dependent on the floral greens companies not only for access to harvesting sites but also for the transport needed to get to those sites (McLain and Lynch 2010). In the UK and Finland, rural restructuring has also been accompanied by an influx of immigrants to harvest NTFPs, but most of these have legal authorisation to be in those countries and wage laborer conditions analogous to those in the USA have not developed.

Insider–outsider conflicts about accessing, harvesting, and trading NTFPs are significant and occur consistently around the world. NTFPs are an important, and sometimes the most easily accessed, source of cash for rural communities. "Outsiders" often enter communities' lands to harvest products without permission, use destructive methods, and take more than wild populations can support, disregarding local and customary laws and controls (Lynch and Alcorn 1994; Michon 2005; Wynberg and Laird 2007; Laird et al. 2010; Novellino 2010). This dynamic is played out from northern Europe to South Africa, and from Palawan to Canada to Bolivia. Migrants might harvest for their own use, but most often they exploit an available commercial opportunity, sometimes under contract with companies. The government of Sweden sought to ease tensions between local and migrant harvesters of wild berries by eliminating tax advantages for migrants (Richards and Saastamoinen 2010). In some cases, so-called "outsiders" have resided in a region for generations (e.g., Cronkleton and Pacheco 2010). Policymakers must tread carefully when dealing with this potential

minefield. Both insiders and outsiders require support, but in very different ways, and measures should take into account, and guard against inflaming, this common form of conflict.

It is also important for policymakers to consider the many different types of labour involved in the harvest, trade, and processing of NTFPs. Harvesters and producers typically receive a small fraction of the final value of NTFPs (e.g., Padoch 1988; Hersch-Martinez 1995; King et al. 1999; Biswas and Potts 2003; Schreckenberg 2004; Arquiza et al. 2010). In general, profits from NTFPs increase with greater processing and as the value chain progresses, as does political power (Southgate et al. 1996; Neumann and Hirsch 2000; Schreckenberg 2004; Alexiades and Shanley 2005; Cronkleton and Pacheco 2010). Existing inequities and power imbalances in the value chain should be understood by policymakers in order to create laws that benefit all stakeholders, and do not set them against each other.

11.4 Common Features of NTFP Policy and Legal Frameworks

11.4.1 The Tension Between Broad Policy Prescriptions and the Need to Limit the Scope of Laws

Measures regulating NTFPs must carefully balance a wide range of objectives. These might include the protection of species under threat, the promotion of sustainability, the distribution of greater benefits to harvesters and producers, quality control, the generation of government revenues through taxation, and support for local businesses. A law heavily weighted to serve a single goal and one category of products (e.g., commercially traded medicinal plants and increased tax revenues) might create obstacles for achieving objectives associated with different kinds of NTFPs or stakeholders (e.g., improved livelihoods from local trading or subsistence use of the same species).

As described, the majority of laws that specifically regulate NTFPs do so in response to perceived threats to a species, and the result is often a narrow scope: species-based measures or those regulating a category of products, rather than umbrella measures for a wide range of NTFPs. In some cases, this may be the most effective response. However, this type of measure runs the risk of producing unintended consequences if it lumps locally traded and subsistence NTFPs into a regulatory framework designed for commercially traded species.

There is an inherent tension in the objectives and scope of NTFP laws: on the one hand, there exists a need for broad measures that address a range of species and, on the other, measures must be focused to be effective and meaningful, and avoid unintended consequences. How to focus and narrow the scope of laws is a challenge, however, and requires significant understanding.

11.4.2 The Tendency Toward Overwhelming Bureaucracy and Reporting Requirements Inappropriate for Small-Scale Producers

NTFP regulations are often unnecessarily bureaucratic. Regulations lifted from industrial timber production that include permitting, fees and management plans have proven unworkable. Even regulations tailored to NTFPs can be cumbersome, and often favour large-scale commercial exploitation over small-scale NTFP harvesters or producers. In one area of Mexico, for example, it is easier to obtain authorisation to log timber than to extract mushrooms (Granich et al. 2010). In the Philippines, the Department of Environment and Natural Resources established community-based forest management agreements to allow communities to manage forests for NTFPs, but the bureaucratic obligations that came with these agreements proved insurmountable for most indigenous communities (Arquiza et al. 2010; Novellino 2010). In Cameroon, complex bureaucratic requirements create obstacles for both large- and small-scale traders, and have driven much of the commercial trade in medicinal plants underground (Laird et al. 2010).

Most policies assume that communities are literate, have technical skills or funds to pay experts, and can easily find cash to pay for permits. This is rarely the case. Additionally, the logic underlying elaborate regulations eludes most harvesters and producers because they offer little or no benefit in return for increased cost and effort, sometimes criminalise NTFP extraction, and open the door to corruption and exploitation at the hands of government officials. Ill-conceived and bureaucratic requirements associated with government interventions are unlikely to change, however, and this is an important reason why "less is often more" when it comes to NTFP regulation (Wynberg and Laird 2007).

11.4.3 Poor Coordination of Laws and Policies Resulting in Inconsistency, Conflicting Mandates, and Confusion About Jurisdiction

NTFP laws and policies tend to be poorly integrated with existing federal, provincial, or state laws and are rarely coordinated with customary law. A comprehensive policy framework for NTFPs that addresses laws and policies acting at different levels requires time, funds, research, and comprehensive consultations with stakeholders. This level of investment in NTFP law and policy is extremely rare. The result is legal frameworks that are inconsistent and confusing, and a lack of clarity about which laws and government departments have jurisdiction over these products and activities.

For example, the NTFP policy environment in South Africa is characterised by a plethora of inefficient and sometimes contradictory national and provincial laws. These laws are only sporadically implemented, are often incompatible with each

other, and are largely unknown by local communities. The laws then interface with customary systems that have eroded to varying degrees as a result of colonial and apartheid administration, but often offer the most effective regulation for NTFPs (Wynberg and Laird 2007; Shackleton 2010).

11.4.4 Inconsistent and Often Underfunded Policy Implementation

It is difficult to interest governments in effective NTFP law and policy because NTFPs fall into institutional and sectoral cracks, and are usually part of informal or loosely organised trade, or are consumed for subsistence. Moreover, most producers are politically and economically marginalised and there is little political will to address their needs. When governments do engage with this sector and draft laws, it is common for implementation, monitoring, and compliance to be poor since resources and capacity are rarely allocated to what are perceived as minor products (Tomich 1996; Wynberg and Laird 2007; Areki and Cunningham 2010; Laird et al. 2010). In Fiji, for example, the government recently sought to regulate the NTFP sector more effectively through the 2007 National Forest Policy and the Endangered and Protected Species Act of 2002. Despite good intentions, however, implementation has been weak: few traders know of the laws, and monitoring and enforcement is nonexistent (Areki and Cunningham 2010).

Sometimes a lack of implementation results when government departments compete with each other or their mandates conflict or overlap. As a result, no institution delegates the resources or staff needed to implement NTFP regulations (Antypas et al. 2002). In Cameroon, the 1994 Forestry Law (Republic of Cameroon 1994) set up an NTFP Subdirectorate within the then Ministry of Environment and Forests. This new body was provided with a civil servant to oversee activities, but had no budget and extremely limited power compared to the timber interests residing in the same ministry. Financial returns from taxes and fees on NTFPs went to other departments and ministries (Laird et al. 2010). It is often the case that revenue streams, which could strengthen and build capacity within government to effectively regulate and manage NTFPs, are diverted to other, more powerful, entities in government. In the Western Ghats in India, for example, royalties collected on uppage (*Garcinia gummi-gutta*) went to the state treasury, with no allocation for conservation of the resource, and state efforts focused on policing the movement of material in order to collect royalties, rather than monitoring harvest and trade to ensure sustainability (Lele et al. 2010).

Unimplemented policy measures can be worse than no measures. In some cases, they weaken traditional structures that might better promote sustainable management or equity in trade; even cursory government regulation of NTFPs can undermine community institutions and control over resources (Arnold and Ruiz Pérez 2001; Michon 2005). Confusion, conflict, and corruption can also result when laws are unclear or unenforced, making the lives of producers, harvesters and traders more

difficult and encouraging unsustainable harvests of species (Arquiza et al. 2010; Laird et al. 2010; Ndoye and Awono 2010).

11.5 Conclusions and Recommendations

A few catchphrases emerge repeatedly in NTFP policy cases from around the world – "less is more", "carrots not sticks", "leave well enough alone", "the best-laid plans" – all suggesting a sector that has endured poorly directed and formulated policy. The need for better information, simplification, clarity, and consistency in NTFP policy frameworks is repeatedly stated. Although the state of NTFP law and policy is not encouraging at present, it is possible that recent interest in laws and policies regulating NTFPs will yield more strategic, better-informed, and effective policy frameworks. Following are some recommendations to help move in this direction.

(a) The extent of commercialisation and the heterogeneity of NTFP resources, markets, and stakeholders should be reflected in policies and laws.

- The extent of commercialisation should have a strong bearing on the nature of regulations. Laws should recognise the different types of NTFP use, including subsistence, local trade, commercial trade, and recreation. For example, subsistence use should not be regulated except in cases where there are clear risks of overharvesting, but government attention should be paid to internationally traded industrial-scale NTFPs.
- NTFP measures should be flexible and adaptive to accommodate shifts in market demand, safety concerns and other common disruptions to NTFP trade.
- Market access is as important as market prices for small-scale producers. Policies that support certification and other efforts to set producers apart from competitors are most effective when the administrative costs of such systems do not exceed their benefits.
- Processors and traders often control NTFP sectors, with small-scale producers having limited power over the commercial trade, including prices. Policymakers can help reduce monopolistic tendencies in NTFP markets, but should do this in a way that supports all stakeholders along the value chain and does not set them against each other.
- Although commercial uses of NTFPs are often based on traditional uses, the relationship between the two grows weaker as commercial demand increases and products move outside the original cultural and geographical context of their use. However, it remains important that traditional knowledge holders provide consent for and benefit from the commercial use of their knowledge, and measures should be instituted to achieve this.

(b) NTFPs are part of land-use systems that include a range of activities, many with significant impacts on NTFPs. NTFP regulations should reflect these inter-connected patterns of land and resource use.

- NTFP laws and policies must take into account the most pressing threats to species and the ecosystems within which they are found. It is often the case that forest degradation and destruction resulting from commercial agriculture, logging, mining, and other land uses cause far more damage to NTFPs than overharvesting.
- Governments should regulate timber and NTFPs in very different ways given the enormous differences in how they are harvested and used, and their role in local economies and cultures. However, timber regulations should minimise the negative impacts of logging on locally and commercially valuable NTFPs.
- Prior to drafting regulations, policymakers should understand the relationship between NTFPs and agriculture, the importance of NTFP harvest timing for subsistence and cash income and other critical features of these systems.
- Given current and future shifts in the geographic distribution of plant species, climate change mitigation and adaptation strategies and policies need to address NTFP harvesting and trade alongside other land-use activities.

(c) Power and other social relations must be factored into law and policy formation.

- The power dynamics between stakeholders should be understood prior to policy formulation and implementation. Policies should avoid criminalising harvesting activities, and further marginalising producers.
- The potential for tensions between "insiders" and "outsiders" to arise must be allowed for in policy measures and addressed in consultations with stakeholders. Where conflict exists, facilitators trained in conflict resolution are likely to be needed to help formulate equitable and viable policies.
- The capacity of local and indigenous people needs to be built so that communities can organise, navigate overly bureaucratic NTFP permitting procedures, and assert their rights against more powerful players.
- In many countries, entrenched corruption and abuse of power on the part of governments and their circle of patronage means that new measures will stall. Small producers, who lack political or economic power, can easily lose out if measures are drafted in a way that primarily promotes the interests of the elite.

(d) Information requirements for effective laws and policies should be carefully considered before regulations are developed.

- Policymakers require a vast range of information about NTFPs when drafting laws, including: the ecology and management of species, harvesting

practices, key stakeholders, and the socioeconomic costs and benefits along the value chain. Capacity building, broad research, and data-collection efforts should be ongoing, but when governments have limited resources, they should focus on threatened species and those that are intensively traded.

- The greatest threats to NTFPs generally come from degradation or destruction of habitats, but the overharvesting of NTFPs can be a significant problem, as CITES and national endangered species lists make clear. Policymakers should, however, be cautious about concluding that overharvesting is the main threat to NTFPs or that concerns about unsustainable sourcing necessarily mean there is a crisis at hand.

(e) Policy development must incorporate comprehensive, ongoing, and iterative stakeholder consultations.

- Laws and policies should grow from extensive consultations with the full range of affected stakeholders, including harvesters and producers, traders, companies, and government departments. The participation of diverse groups is particularly important for species that are heavily traded and thus involve strong economic interests.
- Intermediary organisations such as producer and harvester groups, trade associations, and NGOs should be supported to help strengthen consultations, and ensure these voices are heard in policy processes.

(f) Capacity should be built in government, trader, and producer communities to enable the development and implementation of effective NTFP policies and laws.

- Government capacity to develop and implement NTFP laws and policies is notoriously underfunded and marginalised, due in part to the lack of importance given to these "minor" forest products. Capacity and technical skills should be developed in government departments.
- Producers, traders and their support organisations 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.

(g) Many seemingly unrelated areas of law can significantly affect NTFP management, use, and trade and should be considered while developing NTFP policy and legal frameworks.

- A range of laws directly and indirectly impact NTFPs. Governments should identify the socioeconomic and environmental effects of such laws on NTFPs when developing a policy framework, and should seek to mitigate the negative impacts of these seemingly unrelated bodies of law. Governments must be careful to build on or complement traditional resource rights, minimise paperwork, and avoid duplication of existing laws.

- It is vital that access and ownership rights to resources and land be clarified when developing regulatory frameworks for NTFPs. Governments should ensure that laws provide an enabling environment for traditional knowledge protection and local NTFP industries and producers.
- Laws governing labour relations, quality control, and food safety need to ensure that they do not exclude producers or products that may not qualify.

(h) The impact of regional and international policies on NTFPs must be examined as national, state, and provincial NTFP policy frameworks are developed.

- Policymakers need to consider how regional and international policies on NTFPs interact in order to minimise negative, unintended consequences for NTFP harvesting and trade.
- Countries that share commercially traded species should collaborate to develop regional policies for their management, use, and trade.
- International treaties such as CITES are important tools to regulate trade in endangered species but need to be used with caution to ensure that trade restrictions are appropriate, targeted, and effective and that the negative effects of regulation on livelihoods are minimised.
- National, state, and provincial policies regarding trade and benefit sharing from the commercial use of biodiversity are typically not coordinated. Governments should attempt to integrate these bodies of law when developing policy frameworks for NTFPs.

(i) Policy frameworks should be strategic, comprehensive, and coordinated across government departments.

- Care should be taken to consider the wide range of issues that converge upon and can distort the effects of NTFP policy and law. Most NTFP laws are built incrementally and lack an overall strategy or clear objectives.
- Governments should aim to synchronise laws affecting NTFPs, avoid duplication, and ensure the mandates of government departments do not overlap.
- Governments should examine NTFP laws with a view to eliminating permits and procedures that are inappropriate and burdensome for small-scale producers and bring no clear management or livelihood benefits.
- Unintended consequences often result from policies regulating NTFPs and from those found outside the sector. Policies based on theoretical frameworks and assumptions originating outside a region are particularly likely to lead to unanticipated outcomes when they interact with local political, cultural, economic, and ecological conditions.

(j) NTFP policies work best when based on incentives (“carrots”) rather than penalties (“sticks”).

- “Sticks”, such as permits, quotas, taxes, and restrictions on trade are often employed to regulate NTFPs, particularly in a perceived overharvesting

crisis. However, "carrots" in the form of incentives and supportive legal frameworks, such as government support for producer, trade, and processing groups; market access and premium prices via certification; tax breaks; and outreach and education on new policies and laws usually work best for this category of products. In some cases, particularly when there is sudden and high commercial demand, both approaches are necessary.

- Revenue generated by the state from royalties, taxes, or the sale of NTFPs should be channeled to conservation and sustainable management of NTFPs, supporting the sector, and building government capacity on NTFPs.

(k) Less is often more: NTFP regulation should be approached with a light hand.

- Governments should approach NTFP 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.

(l) Existing customary and local laws are often better suited to this diverse set of products and activities.

- 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 this category of products.
- In cases where customary law has broken down to a significant degree, or outside commercial pressure has intensified well beyond the carrying capacity of traditional measures, governments can offer important and necessary complementary levels of regulation, something often requested by local groups. Interventions should be crafted to include local-level institutions and management systems, where these are effective.
- Governments should explore NTFP policy frameworks that integrate and coordinate customary and statutory law and governance systems. This requires real commitments of time, money, research, and extensive stakeholder consultation.

Acknowledgments This chapter draws from an edited volume titled *Wild Product Governance: finding policies that work for non-timber forest products*, edited by Sarah A. Laird, Rebecca J. McLain and Rachel P. Wynberg, and published by Earthscan in 2010 (http://www.peopleandplants.org). We are grateful to the contributors of that book for providing rich material from which to develop a synthesis. Financial and institutional support was provided by People and Plants International, the Environmental Evaluation Unit (University of Cape Town), the Institute for Culture and Ecology, the United Nations University and the Center for International Forestry Research. The Christensen Fund also provided invaluable support to the research and writing process. Additional financial support was given to Rachel Wynberg by South Africa's National Research Foundation (NRF) although any opinion or findings expressed in this book are those of the authors alone.

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