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Biodiversity, ownership, and indigenous knowledge: Exploring legal frameworks for community, farmers, and intellectual property rights in Africa[☆]

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Abstract

Drafted between 1996 and 2000, the African Union's Model Legislation for the Protection of Indigenous Knowledge, attempts to redress the contradictory obligations of the international instruments affecting biodiversity, namely the Trade Related Intellectual Property Rights Agreement and the Convention on Biological Diversity, by establishing a new philosophical justification for farmers', breeders', and community rights. By approaching the question of property rights and farmers' rights from the perspective of the community, the African Model Law is able to establish a legal framework for access to biodiversity, benefit sharing, and intellectual property that satisfies the needs and requirements of African states by balancing the monopoly rights of breeders against the rights of indigenous communities.
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Whatever the historical period, whatever the mode of production, plants and their products have been the necessary components of the material base on which the complex structures of human societies have been raised.—Jack Kloppenburg, First the Seed (1988).

1. Introduction

Human beings depend on the natural world for their survival. For more than 10,000 years, plants have provided not just food for subsistence, but most of the

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raw materials to produce the goods which maintain and improve human life. While the twin processes of industrialization and urbanization have obfuscated our traditional dependence on natural production processes for survival–popularizing the belief in humanity's mastery over its natural surroundings–modern society continues to rely extensively on the products of nature. In some fields, recent developments highlight this dependence more clearly than ever before. Perhaps nowhere is this tendency more dramatic than in biotechnology, where recent advances have sparked a renewal of interest in the local biodiversity and indigenous knowledge of the Third World.

Advances in biotechnology build both on the technical achievements of Northern scientists *and* the genetic diversity of Southern communities. The breeding of new seed lines in agriculture and the development of new pharmaceuticals in health care have traditionally depended on the availability of genetically diverse populations. The emergence of modern biotechnological methods, which allow the transfer of genetic material across species barriers, has only increased the potential value of biodiversity. Approximately one-quarter of all currently available prescription drugs are derived from plants, and more than half are developed from natural compounds. Yet less than one percent of all plants have been tested for medicinal properties (Bryant, 2002, np). Many scientists believe that cures for a wide-range of conditions could be found in the genetic diversity of tropical and semi-tropical plants. Research on the rosy periwinkle (*Catharanthus roseus*) plant, for example, once native to Madagascar but no longer found in situ because of deforestation, led to the development of extremely effective treatments for childhood leukemia and Hodgkin's disease.[1] Scientists hope that similar "miracle drugs" may yet be found in the unexplored biodiversity of the Global South.

As genetic resources have assumed increasing scientific and (especially) commercial value, debates over access to and ownership of biodiversity have intensified. Indeed, as the raw materials necessary to realize the promises of the "biotech revolution", control over genetic resources is increasingly contested. Traditional knowledge, historically dismissed as 'uninformed' or 'unscientific', has simultaneously attracted increased attention, as academic and corporate researchers increasingly rely on the knowledge of local communities about the genetic diversity under their stewardship.

The new interest in plant and animal genomes (and the tensions generated by the increased attention) is reflected in the key international instruments governing the debate: the FAO's International Undertaking (IU) on Plant Genetic Resources, the Trade-Related Intellectual Property Rights (TRIPs) Agreement and the Convention on Biological Diversity (CBD). In the context of international governance, the concepts of farmers' rights and community rights have been particularly contested, as the Third World attempts to develop alternative intellectual property regimes that balance the private rights of the innovator with the public rights of the community. Regional approaches have proven particularly popular, and countries in Latin America, Africa, South East Asia, and the South Pacific have collectively attempted to draft legislation to deal with the emerging issues and debates surrounding biodiversity and biotechnology.[2] The African Model Law[3] is perhaps the most ambitious of these efforts. It seeks to develop a comprehensive regional framework governing all aspects of biodiversity management,

[1] Vinblastine, developed from Madagascar's rosy periwinkle plant by Eli Lily to treat Hodgkin's disease, boasts a 90 percent success rate. Vincristine, also developed by Eli Lily from the same plant, is 60 percent effective in the treatment of some types of leukaemia. Collectively, the two drugs have generated annual sales of approximately US$200 million (of which an estimated 88 percent is profit) since their introduction in the 1960s. Critics point out that none of the revenues has been shared with Madagascar (Farnsworth, 1988, p. 95; Stone, 1992; RAFI, 1999, 2000).

[2] With the adoption of Decision 391 in 1996, the Andean Community (Bolivia, Columbia, Ecuador, Peru, and Venezuela) was the first regional organization to adopt legislation governing access and benefit sharing. Since then, the Association of Southeast Asian Nations (ASEAN), the South Pacific Regional Environmental Program (SPREP), and the Organization of African Unity (OAU) have undertaken similar efforts (Diaz, 2000).

[3] The formal title of the Model Legislation is the OAU Model Law for the Recognition and Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources. In this paper I use the terms "Model Legislation" and "Model Law" interchangeably to refer to the document.

intellectual property rights, and protection of indigenous knowledge.

The purpose of this paper is to explore the regional response in Africa to the challenges posed by the increasing economic importance of biodiversity. I begin by outlining the key components of the Model Law itself. My intention here, however, is not necessarily to provide a comprehensive review of the instrument—that has been accomplished elsewhere.[4] Rather, I seek to understand the process by which the Model Legislation–as an alternative to the system of intellectual property rights and benefit sharing envisioned by the TRIPs and CBD Agreements–was articulated. How do the assumptions and worldviews on which the Model Legislation is constructed differ from those of TRIPs and CBD? And what are the implications of the Model Legislation for the construction of other regional and alternative regimes for promoting breeders' rights, community rights, and farmers' rights?

2. Development of the OAU model legislation

Given the complex and often contradictory relationship between the TRIPs Agreement and the Convention on Biological Diversity, the Africa Model Law has often been presented as a *sui generis* system of property rights that addresses both the IP requirements of TRIPs and the benefit sharing regime established under the CBD.[5] Indeed, J.A. Ekpere, Executive Secretary of the Organization of African Unity's (OAU) Scientific, Technical and Research Commission (STRC) at the time of the development of the Model Legislation,[6] presents the Model Law in the following terms:

> Perhaps one of the most significant problems in [current international trade] discussions is the contradiction between the Convention on Biological Diversity which recognized the sovereign rights of states (and local communities) over their biological diversity and TRIPs which confers monopoly rights through IPRs. The definitional construct of [Article 27.3b] precludes recognition of technologies, innovations and practices of local communities and their collective ownership for common social good. The obvious implication is that the creativity of local communities as represented by indigenous peoples cannot be protected and rewarded. It is this anomaly inherent in the new concept of the world, in trade terms and the intellectual property rights system, that the OAU Model Legislation attempts to address (Ekpere, 2000, p. 1–2).

The initial impetus for the development of the Model Law resulted a recognition of the value of indigenous knowledge and a perception among OAU members that the system of intellectual property rights envisioned under the TRIPs regime was insufficient to protect it. Following the conclusion of the CBD negotiations, several high-profile incidents involving the uncompensated export of indigenous biodiversity, called biopiracy by its critics, attracted regional attention. While "biopiracy" was not yet on the political agenda, traditional healers in Africa were increasingly concerned with the practice. To address their concerns, the OAU's Scientific, Technical and Research Commission (STRC) organized a Meeting of Experts and Symposium of Traditional African Medicine and Medicinal Plants in Kampala, Uganda in 1996. Although confined to the consideration of medicinal plants, the meeting marked the first recognition of the emerging problem of ownership, conservation, and utilization of plant genetic resources and indigenous knowledge in Africa.

The Kampala meeting signaled an emerging concern among African policymakers regarding the protection and utilization of medicinal plant genetic

[4] See, for example, Ekpere (2000, 2002a,b).

[5] Although rhetorically justified in such terms, the African Model Law could more accurately be described as an alternative to the TRIPs Agreement rather than an attempt by member states to satisfy their TRIPs obligations. While it is generally TRIPs-compatible, it does not satisfy requirements for patents on microorganisms but rejects patents on life altogether. The status of this challenge, justified philosophically in terms of public morality (an exemption permitted under TRIPs Article 27), reflects the internal contradictions of the TRIPs regime itself, while debates over the use of farmers' and community rights (established under the CBD) as a counterbalance to the rights of plant breeders highlight the tensions between the two agreements.

[6] The Organization of African Unity was replaced by the African Union in 1999. The African Model law thus began as an effort of the OAU but transferred to the AU after its creation.

resources. Traditional healers had succeeded in drawing attention to the protection of their indigenous knowledge. Following the Kampala meeting, a second workshop was scheduled to further develop the key issues and themes under consideration by the STRC. Held in April 1997, the Nairobi workshop recommended that the OAU:

1. Initiate and coordinate the development of a model law for the protection of indigenous knowledge and medicinal plants;
2. Establish a working group of experts to harmonize national policies for the protection of medicinal plants and develop a common policy for their sustainable use;
3. Assist member states in the development of appropriate legislation governing ownership, access, utilization, and conservation of medicinal plants; and
4. Encourage member states to study the implications of TRIPs on pharmaceutical production and the protection of medicinal plants and traditional knowledge (Mshana et al., 1997).

The follow-up work undertaken pursuant to the Nairobi workshop by the STRC, however, did not take place in a vacuum. Indeed, three events converged with their work which rapidly accelerated the pace and expanded the scope of the STRC's program. First, the STRC discovered that the Environmental Protection Authority and the Institute of Biodiversity Conservation and Research in Ethiopia had been developing a system of community rights in collaboration with the Third World Network (Johnson, 1999, p. 7). By partnering with the Ethiopian institutions, the STRC was able to expand the scope of its undertaking beyond medicinal plants and herbs to cover all plant genetic resources. The collaboration between the STRC and Ethiopian authorities provided each with additional capacities to make the new project manageable. Furthermore, the partnership had the added value of conferring on the new Model Law strong support and sponsorship within the OAU by the Ethiopian government.

At the same time, the question of intellectual property rights was becoming increasingly contentious within the World Trade Organization. The Third World countries in particular were more and more vocal in their opposition to TRIPs. Given the potentially wide impact of the TRIPs Agreement, influencing health care (through drug prices), agriculture (through seed patents), technology transfer, and economic development more generally, many developing countries felt that the TRIPs Agreement, adopted as a package deal in the Uruguay Round without any real input from or consultation with them, was not in their interest. African governments and their trade representatives were, in the run up to the 1999 TRIPs review, working to develop a common African position on intellectual property rights, biodiversity, and international trade (Ekpere, 2000, p. 4). The Africa Group's decision to reject patents on life and instead offer only limited intellectual property protections for new plant varieties was thus reflected in the STRC's work.

With respect to the protection of intellectual property rights under the TRIPs regime more generally, the common African position, which came to be known as the Africa Group in the Seattle WTO talks, centered on three main elements. First, they called for a complete prohibition of patents on all microorganisms, plants, and animals through a renegotiation of the TRIPs Agreement and a reworking of Article 27.3b in particular. Second, they called for the harmonization of TRIPs, the CBD, and the FAO's International Undertaking on Plant Genetic Resources which they argued provided contradictory policy requirements vis-à-vis indigenous knowledge and biodiversity. Finally, they called for the establishment of a system to protect the holders of traditional indigenous knowledge and benefit sharing.

The establishment and development of the Africa Group's challenge to TRIPs (and the drafting of the OAU Model Legislation) coincided with the emergence of a global campaign around questions of biopiracy, biodiversity and intellectual property. An increasing number of non-governmental organizations, which viewed the question not merely as a strategy to secure the sustainable use of biodiversity but as an issue of social justice reflecting the fundamental unfairness of the global trade regime, were launching campaigns to promote benefit sharing and community rights. The Third World Network, which had been working on the development of a regional access and benefit sharing regime for Africa since the conclusion of the CBD in 1992, was thus joined by other progressive NGOs, including Action Aid, the Rural Foundation Advance-

ment International (RAFI), and Genetic Resources International (GRAIN). The OAU Model Legislation, still very much a draft document, was held up by the NGOs as an example for other regional undertakings.

Given the strong international support, the interest of African governments and trade representatives in the text, and the assistance of the Ethiopian authorities, the STRC working group established in Nairobi in 1997 succeeded in developing three draft texts within one year: the Model Legislation on Community Rights and Access to Biological Resources, based on the Ethiopian system of community rights and access; the Declaration on Community Rights and Access to Biological Resources; and the Convention for the Protection, Conservation, and Sustainable Use of African Biological Diversity, Genetic Resources, and Related Knowledge. The documents dealt not just with the conservation and protection of medicinal plants but collectively addressed broader questions of plant genetic resources, farmers' rights, and community rights. Because of the overlapping concern of the three documents, they were soon combined into one draft text under the title "OAU Model Law for the Recognition and Protection of the Rights of Local Communities, Farmers, and Breeders, and for the Regulation of Access to Biological Resources," later renamed the African Model Law.

The STRC's draft text was sponsored by the Government of Ethiopia and considered by the OAU at the Summit of Heads of State and Government in Ouagadougou, Burkina Faso, in June 1998. At the meeting, the ministers accepted the STRC's draft proposal as presented, but called for member states to initiate consultative meetings at the regional, national, and sub-national levels to further expand and clarify the draft text. A regional meeting of experts from Eastern and Southern Africa held in Lusaka, Zambia, in June 1999 was the most important of these. It served to clarify and expand the draft document particularly with respect to the question of compatibility with TRIPs, CBD, and the FAO's International Undertaking. A meeting in Algiers, Algeria was hosted in June 2000 with the purpose of developing and updating the French version of the Model Legislation. At this workshop, the structure of the Legislation was reorganized and proposals regarding farmers' rights and benefit sharing were strengthened. These changes were also adopted into the English version of the Model Legislation, so that the two language drafts were again identical. A series of three regional workshops was organized by the Southern African Development Community (SADC) to adapt the Model Legislation to local conditions in the region. Based on the final draft of the proposed text, countries across Africa could develop national access and benefit sharing regimes tailored to their local conditions.

The Ouagadougou summit was also significant because it highlighted the growing concern for the protection of indigenous knowledge and biodiversity on the Continent. Biodiversity and intellectual property rights were no longer specialist issues of concern only to a handful of lawyers and environmentalists. Rather, the questions at the heart of the Model Law were increasingly considered by a diverse cross-section of civil society in Africa: farmers groups, development and aid organizations, seed suppliers, health care advocates, and consumer rights organizations. Even trade, environment and agricultural ministries, and the corporate sector were beginning to weigh in on the question. At the same time, African governments were developing the Africa Group common position for the TRIPs review process.

3. Scope of the model legislation

For the twenty-five countries involved in the development of the African Model Law, the initiative was more than simply an effort to articulate a *sui generis* framework for intellectual property protection that would satisfy the conflicting obligations embodied under the TRIPs and CBD regimes. For them, the scope of the project was much broader, namely

> to give reasoned attention to agricultural development (food crops and medicinal plants), indigenous knowledge systems, conservation and sustainable use of biological resources (natural forest products, fish, animals, micro organisms, etc.), community rights, equitable sharing of benefits and national sovereignty consistent with the provisions of the Convention on Biological Diversity (Ekpere, 2000, p. 5).

The Model Law was thus developed to serve multiple purposes. Its primary goal is "to ensure the conservation, evaluation and sustainable use of biological resources, including agricultural genetic resources,

and knowledge and technologies in order to maintain and improve their diversity as a means of sustaining all life support systems" (OAU, 2000: Article 1). But the Legislation goes on to outline a series of additional goals which move well beyond promoting the conservation and sustainable use of biodiversity. Indeed, the African Model Law includes provisions establishing the principle of community rights over genetic resources and indigenous knowledge, protections of the right of farmers to save, exchange and breed seed, and general guidelines governing plant breeders' rights. To accomplish its broad objectives, the Model Law outlines a participatory vision of governance of genetic resources under which local communities, the central state, and foreign parties work as partners in the utilization of biodiversity.

The OAU Model Legislation is thus not merely a benefit sharing agreement or a *sui generis* system of intellectual property protection. It is intended to assist member states in the development of *sui generis* IP systems that would move beyond TRIPs requirements without undermining the effectiveness of the CBD benefit sharing regime.[7] The scope of the Model Legislation is consequently broad, applying not just to in situ resources (like the CBD), but also to ex situ collections, derivatives from biological resources, community knowledge, innovations, technologies and practices, local and indigenous communities, and plant breeders (OAU, 2000: Article 2.1). The Model Law defines the scope of access to biological resources (Articles 3–15), the nature and scope of community rights (Articles 16–24), farmers' rights (Articles 24–27), and plant breeders' rights (Articles 28–56), and lays out the institutional arrangements (Articles 57–66) and enabling provisions (Articles 67–68) necessary to realize its objectives.[8]

The recognition of the central role of small holder farmers in the provision of food security in Africa is one of the key underlying principles of the African Model Law, and it is this recognition that sets the Model Law apart from the CBD and other instruments governing access and benefit sharing in the context of biodiversity. Across Africa, small holder farmers rely extensively on informal exchange mechanisms to secure seed. Indeed, an estimated 60–70 percent of all seed used by small holder farmers in Africa is saved on-farm, with 30–40 percent acquired from relatives, neighbors and other informal community sources. Overall, less than 10 percent of seed sown by small-scale farmers is obtained from the formal sector (Cromwell, 1996, p. 20). Informal, community-based seed networks thus constitute the primary source of seed for most farmers.[9] For such farmers, who account for the vast majority of food production on the continent, cultivation is predicated upon the availability of informal networks of seed exchange. Food production–and thus food security–depends on the smooth functioning of informal seed networks.

By linking the issues of food security, intellectual property rights, and seed production and exchange, the African Model Law moves beyond the Convention on Biological Diversity and the FAO's International Undertaking in its recognition of the nature, scope, and source of farmers' rights. While the IU recognizes farmers' rights primarily as a reward for historical service in the development and maintenance of biodiversity, and the CBD conceives of farmers' rights (as a subset of community rights) as an incentive mechanism to encourage in situ conservation, the Model Law articulates farmers' rights as a central component of food production and food security. While it does not deny the important role of small holder farmers in the historical development and present maintenance of genetic diversity, the Model Law's provisions for farmers' rights are founded not on moral claims of reward or economic calls for incentives, but instead build on the material need for food security and the practical recognition of

[7] It should be noted, however, that while the plant breeders' rights regime envisioned under the African Model Law may satisfy TRIPs' requirements for the protection of new plant varieties, the rejection of patents on life violates the current draft of the TRIPs Agreement, which mandates that states provide patents on microorganisms and microbiological processes (Article 27.3). The Africa Group is currently lobbying for a reformulation of Article 27 which would permit states to prohibit patents on life.

[8] These aspects of the Model Legislation have been explored in greater detail elsewhere. See, for example, OAU (1999), Seiler and Dutfield (2001), Tweolde (2002), and Ekpere (2002a, 2002b) and (2001).

[9] Zerbe (2001) provides an overview of the importance of informal seed networks in Southern Africa, as well as an analysis of the impact of structural adjustment and TRIPs on such networks.

informal seed exchange in securing that objective. From this perspective, then, farmers' rights are articulated in the Model Law as a counterbalance to plant breeders' rights, which, if based on the strong industrial patent system of the United States or the Union for the Protection of New Plant Varieties (UPOV) system found in Europe, may undermine informal seed exchange networks and thus food security in Africa. While appropriate for the farming practices of the United States and Europe, the prohibitions on the traditional practices of saving and informally exchanging seed under both the UPOV 91 system and the TRIPs Agreement represents a fundamental challenge to small holder agricultural production in Africa.

The importance of small holder production in achieving local and regional food security (and the failure of international legal instruments to address the centrality of informal practices of saving and exchanging seed) provided an incentive for the OAU to include a fairly broad conception of farmers' rights in the African Model Law. The Law thus outlines the rights of farmers as including the right to:

a) The protection of their traditional knowledge relevant to plant and animal genetic resources;
b) Obtain an equitable share of benefits arising from the use of such resources;
c) Participate in decision making at the local and national level on matters related to the conservation and sustainable use of plant and animal genetic resources;
d) Save, use, exchange, and sell farm-saved seed/propagating material of farmers' varieties;
e) Use a breeders' variety protected under this law to develop farmers' varieties; and
f) Collectively save, use, multiply and process farm-saved seed of protected varieties (OAU, 2000, Article 26.1).

The broad rights extended to farmers to save, exchange and develop new varieties of seed are not, however, absolute. The Model Legislation specifically restricts farmers from producing or exchanging protected varieties on a commercial scale (Article 26.2). Interestingly, despite strong protests from various international intellectual property rights bodies and Western governments, the system of plant breeders' rights deployed under the Model Legislation is generally compatible with the 1978 version of the UPOV text. The nature, scope and duration of breeders' rights closely follow the UPOV convention. Until revised in 1991, the UPOV agreement permitted farmers to save seed produced on-farm, even when the saved variety was protected under a plant breeder's certificate. Furthermore, the UPOV 78 text permitted plant breeders use protected varieties in the development of new varieties, and even allowed breeders to receive their own certificate for such new varieties. Both the farmer's exemption and the breeder's exemption were removed from the UPOV agreement in 1991. While such exemptions may now be superfluous for agricultural production in the developed world, they continue to represent an important component of farming practices and agricultural innovation across Africa. Their importance is reflected in the maintenance of limitations on the monopoly rights of breeders enshrined in the Model Law and ensured, until recently, even under the intellectual property systems of the developed world.

Following the precedent set by the Convention on Biological Diversity, the African Model Law also specifically recognizes the concept of community rights and the central role played by indigenous communities in the maintenance of local biodiversity. Under both the CBD and the African Model Law, the right of local communities to benefit from innovations based on the genetic diversity under their stewardship is established as an incentive mechanism to ensure the in situ conservation of biodiversity. Community rights are thus envisioned as a check on the capacity of private actors to monopolize the rewards from innovation based on the traditional knowledge and practices of indigenous communities. In this respect, community rights under both instruments represent a moral claim over the results of innovation based on the historical contribution of local communities in maintaining biological diversity, as well as providing material incentives for the continuance of such practices.

While the CBD and OAU texts extend a similar (but not identical) system of rights to indigenous communities, the source of those rights rests on fundamentally different foundations. The Convention on Biological Diversity is premised on classical

economic assumptions regarding the nature of conservation and the preferability of private property regimes to systems of common property. Thus the CBD outlines community rights as an incentive (read: market) mechanism to encourage the local preservation of biodiversity. Indeed,

> Through the rights it promotes, the Convention explicitly favors a contractual bilateral market form of regulation to achieve its dual purpose of efficiency and equity in the management of biodiversity. The legal regime propounded is presented as the necessary prelude to the introduction of bilateral market-like contracts between the holders of biological resources (States, public organizations or indigenous communities) and their users (firms of the life industry). These contracts would allegedly enable the optimal use of genetic resources and contribute to ensure the fair and equitable sharing of the income derived from their sustainable use (Boisvert and Caron, 2000, p. 2).

Unlike the CBD, however, the OAU Model Law is premised not on the expansion of private property rights (or more accurately on the privatization of community rights), but on the rejection of private property rights over communal resources. The Model Law thus challenges both the vision of "community" outlined in the CBD and the nature of property rights formulated under TRIPs (see Table 1).

The central emphasis placed both on participatory decision making based through local consultation and the emphasis on community rights in the African Model Legislation reflects the historical centrality of the community in African societies. While the historical transition to capitalism in Europe resulted in the privatization of economic (and in many cases

Table 1
Summary areas of conflict between TRIPs, CBD, and the OAU model law

Issue area	TRIPs	CBD	OAU Model Law
Patent requirements	Twenty-year patents or *sui generis* protection of all products and processes in all fields of innovation. Limited exemptions for *ordre public* (matters of public health or morality).	Technology transfer subject to effective IP protection, but the principle of national sovereignty implies discretion in the drafting of legislation, including the right to prohibit protection of biological resources.	Recognizes plant breeders' rights, but balances them against the rights of farmers and communities. Specifically excludes patents on life.
Benefit sharing	No mandated benefit sharing.	Benefit sharing mandated, with the exact terms to be negotiated between the national government and interested parties.	Benefit sharing mandated, with the exact terms to be negotiated between the national government, local communities and interested parties.
Protection of local knowledge	Narrow understanding of innovation associated only with commercial utility. No protection of local knowledge.	Recognizes the importance of indigenous knowledge, but the exact nature of protections afforded is left to the discretion of the national government.	Recognizes the importance of indigenous knowledge and outlines specific guidelines for its protection.
Protection of farmers' and community rights	Outlines only market-based private property rights. No provisions for farmers' or community rights.	Recognizes community rights as a fundamental component of efforts to preserve biodiversity. No specific recognition of farmers' rights.	Recognizes both farmers' and community rights as a counterbalance to the rights afforded plant breeders.
Role of the State	To protect private property.	To govern access to biodiversity subject to the principle of prior informed consent.	To govern access to biodiversity subject to the principle of prior informed consent and based on the participation of local communities and specific groups (e.g. women, farmers, healers, etc).

Adapted from Zerbe (2003a) and GRAIN (1998).

social) organization,[10] economic production in rural Africa remains firmly rooted in the social networks of the community. The informal practices of seed exchange through community relationships represents one example of the centrality of social relations across rural Africa. Control over land represents another. Indeed, in the case of land,

> Access has always been specific to function, for example cultivation or grazing. Thus in any given community a number of persons could each hold a right, or bundle of rights, expressing a specific range of functions. In a typical case therefore a village could claim grazing rights over a parcel of land subject to the hunting rights of another, the transit rights of a third and the cultivation rights of a fourth. Each one of these categories carries with it varying degrees of social organization. For example while cultivation rights were generally allocated and controlled at the extended family level, grazing rights were a matter of much wider segment. The *raison d'être* of control was to guarantee these rights and allocate them among members of the community should this be necessary (Okoth-Ogendo cited in Kiriro and Juma, 1991, p. 43–44).

Even where colonial policies undermined the traditional functions of the community, social networks continued to play a vital role in economic organization.[11] Indeed, the mal-development of capitalism across Africa has only increased the importance of social ties within the community. Links between extended family members working in the city and those living in the rural countryside remain vital survival mechanisms, as remittances from urban employment provide rural families with the money necessary to purchase farm inputs, while the family production of foodstuffs in the countryside supplements poor urban wages and provides an important (if informal) safety net for urban workers.

In such a context, it is hardly surprising that calls for the institutionalization of (almost) unchecked private property rights under the TRIPs Agreement, and even the more limited call for the privatization of community rights under the CBD, would be rebuked by the OAU. The regime of breeders rights established under TRIPs and UPOV 91 are based not on a complex system of informal checks and balances of African communities, but on Anglo-Saxon property law which vests private property rights exclusively with the individual. The ability of African countries to reconcile Western notions of individual intellectual property rights and African notions of collective property based on community rights thus remains the focus of contention. Nevertheless, it is precisely this attempt to balance the (often conflicting) rights of communities, farmers, and breeders that defines the Model Law.

4. Status of the model legislation

While the African Model Law represents perhaps the most comprehensive attempt to articulate a regime

[10] The development of capitalism in Europe was predicated on the reformulation of property rights in general and on the removal of limitations placed on the use and disposal of property by the community in particular. Indeed, "Peasants have since time immemorial employed various means of regulating land use in the interest of the village community. They have restricted certain practices and granted certain rights, not in order to enhance the wealth of landlords or states but in order to preserve the peasant community itself, perhaps to conserve the land or to distribute its fruits more equitably, and often to provide for the community's less fortunate members. Even private ownership of property has been typically conditioned by such customary practices, giving non-owners certain use rights to property owned by someone else-... From the standpoint of improving landlords and capitalist farmers, land had to be liberated from any such obstruction to their productive and profitable use of property. [In England] between the sixteenth and eighteenth centuries, there was growing pressure to extinguish customary rights that interfered with capitalist accumulation. This could mean various things: disputing communal rights to common lands by claiming exclusive private ownership; eliminating various use rights on private land; or challenging the customary tenures that gave many smallholders rights of possession without unambiguous legal title. In all these cases, traditional conceptions of property had to be replaced by new, capitalist conceptions of property—not only as "private" but as *exclusive*" (Wood, 1999, p. 82–83). By way of comparison, Comniniel (1987) notes the limitations on such dispossession in France.

[11] A full discussion of the historical role of community in Africa and the impact of colonialism falls outside the scope of this paper. Zerbe (2003a,b) provides an analysis of the impact of the institutionalization of private property over land in Zimbabwe. Ostrom's (1990) pioneering work in the study of common pool resources provides a more general analysis of similar phenomena in other Third World contexts.

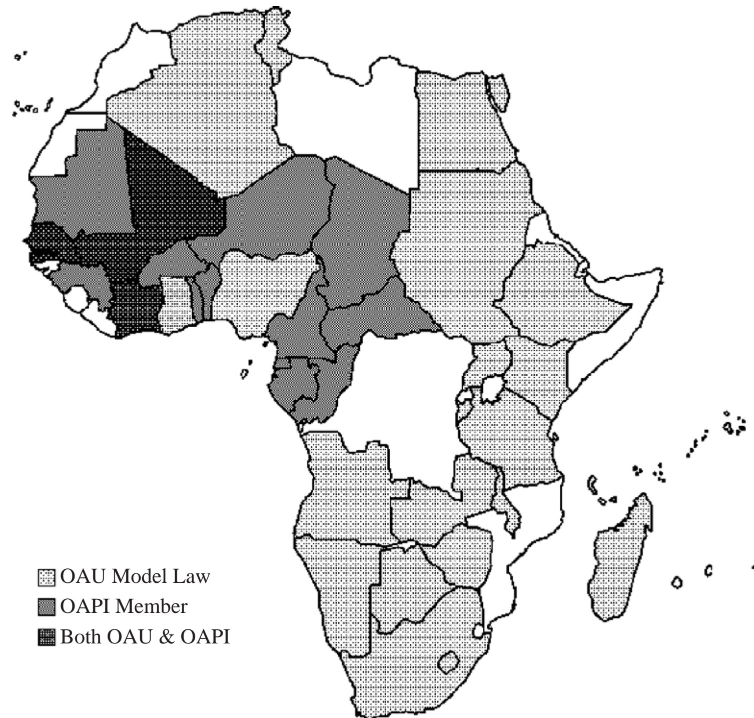

Fig. 1. Implementation of the OAU Model Law and the OAPI Framework in Africa.

capable of addressing the conflicting demands of intellectual property and benefit sharing with respect to biodiversity, it has not yet been widely adopted across Africa. The Model Law is intended to provide a general set of guidelines for national governments to consider in developing access and benefit sharing regimes. It is not a finalized piece of legislation, and it is not compulsory for African Union members to adopt either the Model Law or national frameworks based on it.

Although twenty-five African countries[12] have taken steps towards the adoption of legislation based on the Model Law, few countries have yet enacted the necessary legal framework (see Fig. 1). Some, like Ethiopia, Gambia, and Zambia, have legislation pending before parliament but face difficulties financing the establishment of the bureaucratic framework to support and enforce the legislation. Others, like Algeria, Botswana, Madagascar, and Zimbabwe, are still undertaking the consultative process leading to the development of appropriate enacting legislation. Only Namibia has drafted and adopted the necessary legislation and been able to create the necessary supporting institutional regime based on the Model Law.

In developing the necessary legal and institutional framework, African states face considerable challenges. In many countries, no legal framework for intellectual property rights over plant varieties existed before 1995. Indeed, only Kenya, South Africa, and Zimbabwe offered IP protections for plant varieties before the conclusion of the TRIPs Agreement. Most African countries offered no such protections, and some, like Tanzania, actually prohibited protections for plant varieties. In adopting the Model Law, then, many African countries are not merely reforming existing institutions, but developing new institutions and legislation from scratch. They must establish not

[12] The following countries have participated in the development of the OAU Model Law and/or have taken steps towards the adoption of the Model Legislation to local conditions: Algeria, Angola, Botswana, Burundi, Côte d'Ivoire, Egypt, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Namibia, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Uganda, Zambia, and Zimbabwe.

only the legal framework to protect community rights, but the entire set of institutions and laws for the protection of intellectual property, community, and farmers' rights. And such institutions are being created under conditions where the necessary technical and financial capacities are frequently in short supply.

The problem of weak capacity was highlighted in the development of the African Model Legislation itself. At the November 1999 workshop in Addis Ababa, it was pointed out that the French translation of the Model Law was not well developed and did not correspond to the English draft in a number of important ways. Hindered by a lack of financial and technical capacity, the Organization of African Unity was not able to develop a suitable French translation until June 2000. By this time, the members of the Organisation Africaine de la Propriété Intellectuelle (OAPI) in Francophone Africa had been persuaded by UPOV to accede to the 1991 convention to satisfy their TRIPs obligations.[13] Revised in 1999 to satisfy the requirements of the TRIPs Agreement, the Bangui Agreement provides strong protection of new plant varieties through certificates based on the UPOV model. It makes no provisions for the farmers' and breeders' exemptions that were included under the UPOV 78 framework and the African Model Law. Furthermore, it makes no provisions to establish a comprehensive access and benefit sharing regime to protect local biodiversity and indigenous knowledge.

The uneven implementation of the African Model Law is also a reflection of the capacity problem faced by African governments and ministries. Indeed, although the Model Law has been adopted by the African Union as a general framework for the establishment of a legal system governing access and benefit sharing at the national level, few African governments have taken the necessary steps to translate the general principles of the Model Law into functioning national law. Even Namibia, generally recognized as the African country with the most well-developed access and benefit sharing regime founded on the Model Law, has faced problems implementing the its legal regime on the ground, due primarily to funding and material shortfalls.

Apart from the resource and capacity problem faced by the Model Law, there was also a problem of general awareness of the Law at the national and local levels. As Ekpere recalls,

> When we finished the Model Law, we started on the need to create a better understanding of the document and what it would achieve...What is required now beyond the adoption of the Model Law [is] a popularization program to ensure that as many politicians, scientists, social scientists, agriculturalists, etc. read and process it. But this period coincided with a time when the OAU was restructuring—perfect timing to destroy a good piece of work. And so none of that follow-up promotion has happened—except in an individual, ad hoc way (Ekpere, 2003, p. 30).

Advocacy of the Model Law has thus fallen primarily to local non-governmental organizations like the African Biodiversity Network, whose objective is to popularize the Model Law and promote the its adoption and implementation at the national level. To accomplish this objective the Network has focused on the question of capacity building by hosting a number of regional and national workshops while simultaneously lobbying for the its adoption through lobbying at the national level (Yohannes, personal interview, 2004).

The capacity problem reflected in the slow development of the French draft of the Model Legislation created an opportunity for UPOV to pressure Francophone Africa to accede to the 1991 treaty. But the African Model Law faces additional challenges from UPOV and WIPO, both of whom have raised questions regarding its legality and appropriateness. Indeed, at a review of the adoption process in Addis Ababa in June 2002, the Organization of African Unity solicited the participation of both UPOV and WIPO. The OAU hoped that UPOV and WIPO would be able to provide technical assistance to further develop and enact the proposals embodied in the Model Law. However, at the meeting both offered scathing criticisms of the Model Legislation. In its brief, WIPO argued that the proposed Model Legislation's position calling for prohibitions on patents over life forms was a violation of TRIPs Article 27.3b, which specifically requires patents on microorgan-

[13] The members of OAPI and the Bangui Agreement are: Benin, Burkina Faso, Cameroon, the Central African Republic, Chad, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, and Togo.

isms. In responding to WIPO's criticisms, the Africa Group has argued that the requirements for patents on microorganisms under the WTO framework is mitigated by the *ordre public* exemptions afforded under Article 27.2. Indeed, the Africa Group's negotiating proposal for the Doha Round contends that,

> Patents on life forms are unethical and the TRIPs Agreement should prohibit them, through modifying the requirement to provide patents on mirco-organisms and on non-biological and microbiological processes for the production of plants and animals. Such patents are contrary to the moral and cultural norms of many societies in Members of the WTO. They make the exemption in Article 27.2 for protecting *ordre public* and morality, which Members that consider patents on life forms to be contrary to the fabric of their society and culture, and to be immoral, and which they would otherwise invoke, meaningless in this regard (Africa Group, 2003, p. 2).

According to the Africa Group, the contradictions between the patent requirements outlined in Article 27.1 and the exemptions afforded under Article 27.2 are not merely technical questions to be ironed out by the TRIPs Council or WIPO. Rather, the Africa Group contends that the debate over patents on life is fundamentally a political and ethical issue to be resolved through negotiations and discussions both inside and outside the World Trade Organization. Their position has received popular support from a number of non-governmental organizations, including the Institute for Agricultural and Trade Policy, Genetic Resources Action International (GRAIN), the Third World Network, ActionAid, and the South Centre, which generally oppose such patents on developmental grounds, as well as by a number of church-based NGOs opposed to patents on living organisms on moral and religious grounds.

WIPO also challenged the principle of community rights at the heart of the African Model Law. It argued that the protection of community rights was best secured not through the benefit sharing regime envisioned under the Model Law, but through the use of patents by indigenous communities to protect their heritage. Furthermore, echoing criticisms raised in bilateral negotiations by the United States, WIPO argued that the concept of community rights under the Model Legislation was insufficiently defined and operationalized, lacking the legal clarity of the patent system.

For its part, UPOV offered a revised draft of the African Model Law under which the majority of the text was rewritten to comply with the 1991 UPOV Convention. UPOV's position at the negotiations was condemned as arrogance by Tewolde Egziabher, head of Ethiopia's Environmental Protection Authority and one of the primary authors of the Model Law, who argued that UPOV and WIPO were not invited "to change the essence of the Model Law [but to participate in the furtherance of its development]." He went on to say that "While we are grateful to UPOV and WIPO for their friendly gestures, we reaffirm our obligation to the decisions of the OAU...We would, therefore, appreciate support within the context of those decisions and recognition of the OAU's right to lead Africa, especially on emerging critical issues" (Tewolde in GRAIN, 2002, p. 5). The essential principles of the Legislation, including the concepts of community and farmers' rights, had already been approved at by the OAU Heads of State and Government in 1998, and were at the heart of the Convention on Biological Diversity, but remain hotly contested in fora like WIPO, UPOV, and the WTO's TRIPs Council.

5. Conclusion

Debates over the African Model Law are likely to continue for the foreseeable future, as the competing interests in the developed and developing world square off over the appropriate weight to be afforded the rights of plant breeders, farmers, and local communities. However, while discussions continue, the process by which the Model Law was developed offers important insights into more general questions of governance. Whatever the final status of the Model Law itself, the process of its creation opened new social possibilities and positions unanticipated by either its advocates or opponents. Attempts by African governments, supported by international non-governmental organizations, to articulate an alternative framework for the protection of the rights of plant breeders, farmers, and communities have built on indigenous conceptions of property and community which were historically excluded from consideration

in international negotiating fora. In the process, non-state actors were mobilized in ways that expanded their role in international trade and environmental discussions. The close ties forged between African governments and domestic and international non-governmental organizations were critical in mobilizing the material and ideological capacity for drafting and instituting the Model Law. Although African governments were always at the center of the process (operating primarily through the OAU's Scientific, Technical and Research Commission), NGOs like the Third World Network and GRAIN played a critical role in mobilizing international support for the legislation. At the same time, private actors in the corporate sector mobilized to oppose the legislation through international institutions like WIPO and UPOV.

The central role played by non-state actors in the development (and in opposition) of the Model Legislation raises questions regarding the capacity of negotiators to account for the full scope of questions raised in discussions, particularly with respect to questions of international trade. The process of developing the Model Law was largely retrospective, focusing on the historical importance of local seed exchange and the cultural specificity of Africa in the world (e.g. the role of communities). This is, at once, the strength and the weakness of the Model Law. While it affords the Model Legislation a great deal of legitimacy among African constituencies, it simultaneously undermines its applicability to areas outside the continent. Relying primarily on a system of benefit sharing or capacity building founded on historical references to the role of the communities in African life might undermine the capacity of African states to develop new, innovative responses to emerging issues.

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