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Integrating African Perspectives and Priorities into Genetic Resource Regulations: A Resource Guide for Policymakers

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SEAPRI Southern Environmental and Agricultural Policy Research Institute
ENVIRONMENTAL LAW INSTITUTE
ICTSD International Centre for Trade and Sustainable Development
IUCN The World Conservation Union

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1. INTRODUCTION

Genetic resources have been vital and are of increasing importance to many sectors of society, including the agricultural, pharmaceutical, chemical, and industrial sectors. The acquisition and study of new genetic materials plays a key role in developing new varieties of crops, drugs, and technologies that can help alleviate hunger, disease, and poverty. The issue of access to genetic resources is of critical importance to a number of fields, including agriculture, and of major significance to public health, particularly with the increasing interest in and reliance on traditional medicine.

Without doubt, Africa's biological wealth is critical in alleviating poverty, ensuring food security, fostering industrial innovation, and developing new medicines. African peoples and communities depend on these resources for their economic, social, and cultural well-being. Despite this fact and current international commitments to regulate access, most African nations lack effective legal and regulatory frameworks governing genetic resources. However, the nature of genetic resources and the activities that depend upon them are so unique and cross-cutting as to defy simple solutions to the inherent challenges. The regulation of genetic resources touches on intellectual property rights (IPRs), economic development, poverty alleviation, agriculture, pharmaceuticals, biotechnology, indigenous peoples' and local community rights, habitat conservation, industrial development, international research efforts, and even climate change. In addition, each of these topics, on its own, touches upon numerous collateral issues such as food security, seed collection and reuse, and benefit sharing.

Regulating genetic resources – who has access to them, and where the benefits of any new products, technologies, or crops should accrue – is a complicated process that has been evolving for nearly three decades with many unanswered questions. This has been particularly challenging for developing countries, especially those in Africa, that also have to contend with major resource and capacity shortages. These challenges tend to hamper legitimate access and leave the interests of African nations and their resources open to inequitable exploitation.[2] Capacity limitations also place African nations at a disadvantage in negotiating and implementing international commitments regarding access and benefit sharing. However, they are starting to move toward a more unified approach with regards to governing genetic resources. The African Model Law and other regional initiatives indicate that African nations increasingly recognise the practical, political, and legal benefits of developing common African positions and approaches regarding genetic resources. Such measures are similar to other regional initiatives articulating a particularly African voice on environmental matters.[3]

This article seeks to contribute to current research efforts examining existing policy and legal regimes in Africa in order to enrich the ongoing debate as well as enhance regional capacity to understand the current and emerging issues in respect of access to genetic

[2] For example, an enzyme discovered in a saline lake in Kenya is being used to make blue jeans, yet there is no record of any valid request for and formal grant of access to the resource and certainly none of the benefits are accruing to Kenya.

[3] One example is the Bamako Convention, which contextualises and extends the Basel Convention to the African socio-political context of hazardous waste management. Another example is the recently revised African Convention on the Conservation of Nature and Natural Resources, which was re-adopted in Maputo in July 2003.

resources and benefit sharing. It is meant to serve as a brief reference material and a quick resource for African policymakers developing regimes governing genetic resources by providing a succinct picture of how African governments in general are approaching the issue.

It is also intended to serve as a further basis for seeking viable approaches in assisting African governments, researchers, communities, and nongovernmental organisations (NGOs) in identifying options for enabling access to genetic resources and weighing the potential benefits and costs of the various options; and strengthening implementation of the national commitments in respect of access to genetic resources and benefit sharing under the Convention on Biological Diversity (CBD), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR), and the Trade Related Aspects of Intellectual Property Rights (TRIPs)Agreement.

The section immediately following looks at the challenges that face a policymaker in defining what genetic resources mean in practice while subsequent sections look at the roles of genetic resources in Africa; traditional concepts of access and benefit sharing in Africa; existing legal and policy frameworks including their policy rationale and the intellectual property aspects of genetic resources; and finally, conclusions and some recommendations.

2. WHAT IS A GENETIC RESOURCE?

Perhaps one of the most important and most overlooked questions in dealing with the issue of access and benefit sharing is what “genetic resources” really means in practice. The Convention on Biological Diversity (CBD) both defines genetic resources separately from, and a as a part of “biological resources.” CBD parties are required to regulate, facilitate access to and share the benefits accruing from the utilisation of these resources. The term and concept has also become commonplace in international agricultural, environmental, intellectual property, and trade policy circles and has become the subject of negotiations in fora as diverse as, *inter alia*, the Food and Agricultural Organization of the United Nations (FAO), the World Intellectual Property Organization (WIPO), the World Trade Organization (WTO), the World Health Organisation, the International Labour Organization and several regional and sub-regional processes. But at a closer look, it is apparent that, in practice, the term “genetic resources” means different things to different parties at different times and in different places. Making sense and arriving at a common understanding of the concept has certainly become one of the most intractable challenges in the implementation of the CBD, especially the access and benefit sharing aspects under its article 15 and related provisions. Also a major point of debate is the meaning or interpretation of Article 12 .3 (d) of the International Treaty on Plant Genetic Resources for Food and Agriculture which prohibits recipients of materials from the Multilateral System from claiming any intellectual property or other rights “that limit the facilitated access to the plant genetic resources for food and agriculture, or ***their genetic parts or components***, ***in the form received***…” (emphasis supplied).

By and large, it has become obvious that the CBD definition of genetic resources is rather vague and certainly most unhelpful in guiding implementation and now depends ultimately on the parties to give the concept a meaning in practice. Consequently, in the formulation of policies and development of regulations to govern genetic resources, the policy/law maker must be clear and definite about what is meant or intended to be covered in the law or policy. Such clarity, or lack of it, will ultimately affect the scope of application and how effective a particular policy instrument or law is in fulfilling its stated objectives during implementation. A wrong or unclear or lack of definition of both the nature and scope of genetic resources could also lead to unintended repercussions. For instance, a very broad definition may have the effect of including household uses of genetic resources as well as cover traditional processes of seed exchange between small rural farmers – areas impossible to regulate in practice and which would most certainly be counter-productive to regulate.

In general terms no country in Africa has as yet made any formal distinction between genetic and biological resources or genetic material. To some degree the recognition of a formal distinction is precluded by the absence of specific regulatory or policy frameworks regulating access and benefit-sharing (ABS). Similarly, the absence of regulatory frameworks also tends to mean that there has not been significant conceptual or policy debate regarding the distinction, or relationship, between biological resources, genetic resources and genetic material.

Just as the CBD leaves the approach to defining genetic resources to national discretion, this paper does not provide a solution for this particular problem. Rather, it is intended to highlight what is an often overlooked, but significant, issue. However, in crafting policy or regulation, a government need not come up with a crisp and unambiguous definition – this has proven difficult in practice. But it must, at the minimum, define the scope of the subject matter to which it is referring. If a government implementing article 15 of the CBD does not clearly delineate what is and what is not a genetic resource for the purposes of its policy or a particular legislative instrument, then it will not have clearly identified what it is regulating, potentially with unintended consequences. In any case, critical to making policy decisions on the definition of genetic resources is an understanding of their role and significance in a range of fields.

3. ROLE AND SIGNIFICANCE OF GENETIC RESOURCES

3.1. Agriculture and Food Security

Genetic resources play a critical role in the lives of all Africans at the local, national, regional and international levels. The most obvious aspect of this is food. African farmers face an unenviable array of pests and in recent years have suffered devastating climatic events in several sub-regions of the continent. The ability to mitigate the impacts of these challenges in agriculture is fundamentally dependent on access to a broad diversity of germplasm from which pest and disease resistance, adaptability to climatic events, and other desirable characteristics, such as yield and quality, can be incorporated into existing varieties.

The activities of innumerable smallholder farmers over the centuries have made Africa a significant centre of diversity for many crops. This diverse genepool and smallholder system play a variety of important roles in African agriculture, apart from providing the genepool that is the basis of formal agricultural research and development. The diversity of this farming system also acts as an insurance policy in that it mitigates the risks presented to predominantly rain-fed, low-input agriculture by adverse weather conditions or pests. While Africa has a considerable capacity to use its domestic crop diversity in these activities, it is still, in common with all regions of the world, substantially dependent on access to international collections due to the fact that the majority of its staple crops originated in other continents.

Genetic resources are also fundamental to improving the food security of Africans, an issue of vital importance in many parts of the continent. In addition, the importance of these resources to the agricultural economy, the basis of most African economies and source of livelihood for most of the continent's people, as well as the basis of the source of substantial amounts of foreign exchange, cannot be underrated.

3.2. Medicines and Public Health

Medicinal uses of genetic resources are the next most obvious aspect of their role in everyday African lives. The fact that some 80% of Africans do not have reliable access to Western style healthcare systems, and thus rely on traditional healthcare, means that they depend directly on genetic resources for medicines. When one also considers that a significant proportion of medicines in Western healthcare systems are derived from genetic resources, this dependency increases. As with agriculture, the dependence is not simply contemporaneous: genetic resources are likely to provide many of the solutions for healthcare problems as yet unresolved and unforeseen. Connected to this aspect is the role of traditional knowledge in facilitating the identification of useful genetic resources for application and use in contemporary medical and pharmaceutical sector. The uses of genetic resources in the fields of medicine and public health are probably the highest profile examples of their use, and the biggest influence in the concept of "green gold."[4] Without doubt, the health sector provides a comprehensive example of the various contributions that genetic resources can make, including export potential and domestic development and application.

3.3 Industrial Development and Research & Development Applications

While the level of technological complexity involved in developing genetic resources varies widely, technological capacity is becoming increasingly important. Countries with a significant scientific infrastructure have a distinct comparative advantage. Accordingly, technological and financial capacity has both domestic and export related consequences with regards to developing genetic resources. The more a developing nation can refine

[4] Many of the pharmaceuticals that are household names, such as aspirin or quinine-based antimalarials, are plant based. From within Africa, a famous example is the development of the products vinblastine and vincristine from the Malagasy Rosy Periwinkle for the treatment of leukaemia. Penicillin, derived from a fungus, is one of the most famous naturally derived products and a number of other products also have been developed from various sources such as insect and other venoms. Marine organisms are also increasingly being studied for their medical potential.

or develop raw materials before exporting them, the greater the value of those materials when exported. Evidence from a number of countries strongly suggests that access to genetic resources can be used to leverage technical cooperation, training, and the provision of capital equipment. In many cases, it seems that it is actually easier to negotiate for such benefits than it is to seek high royalty or milestone payments.

However, the potential for external collaborations based on agreements granting access to genetic resources has perhaps the highest public profile of any use of genetic resources. This profile is largely due to the highlighting of instances of "biopiracy" and resulting concerns regarding inequity in agreements governing access and benefit sharing. There is little evidence to date of major benefits being derived in the form of royalties and milestone payments, and it seems that in-kind benefits such as research capacity and building scientific infrastructure will have the most potential both now and in the future.

3.4. Conservation

As one of the pillars of the CBD, conservation is a recurrent theme in the majority of policy debates on access to genetic resources. Genetic resources are integral to biodiversity. Without genetic resources there is no biodiversity, and loss of biodiversity entails a loss of genetic resources. This is not to suggest that the two are synonymous, but rather that any consideration of the conservation of biodiversity must, even if indirectly, allow for the conservation of genetic resources, especially genetic diversity. Further, an increase in understanding regarding the utility of genetic resources is inevitably intertwined with an increase in understanding of their role in ecosystem balance and, thus, their importance to conservation. The relationship between access to genetic resources and conservation has several central themes, including the intrinsic value of diversity, the commercial potential of genetic resources, and the question of alien invasive species.

In agriculture, genetic resources are the raw materials used in the production of new cultivars either through traditional plant breeding or biotechnology. Whether used directly by farmers as raw materials or by plant breeders, these resources are a reservoir of genetic adaptability that acts as a buffer against potentially harmful environmental and economic change. The erosion of genetic resources, however, poses a severe threat to Africa's food security and sustainable development in the long term. Although often under-valued, the role of genetic resources as a safeguard against an unpredictable future is clear.

3.5 Poverty Reduction and Development

While genetic resources are enormously important to Africans in a direct manner, they also play numerous indirect roles. As the building blocks of biodiversity, genetic resources are crucial to environmental conservation. As the understanding of microorganisms and arthropods increases, this role becomes ever more apparent. Conservation is not, of course, a purely aesthetic exercise, and maintenance of the environment has broad implications for poverty reduction and development goals throughout Africa. In reality, almost all aspects of genetic resources have potential

implications for poverty reduction and development. Increased productivity in agriculture has been frequently heralded as a means of addressing rural poverty, while the labour productivity implications of the effective harnessing of genetic resources for medicinal purposes are also significant. The situation of rural communities in Africa, the majority of which are poor and marginalized, has been central to many debates over access to genetic resources. It is now generally acknowledged that these communities hold the key to the survival of many species. At the same time, they are the focus of many national and international development strategies, the most frequently stated goals of such projects being the eradication of poverty and the creation of security and opportunity for all.

The possibilities for regimes governing genetic resources to contribute to poverty reduction and development strategies are as varied as the uses of genetic resources themselves. Agricultural development, if appropriately directed, can help to increase the productivity and profits of the smallholder farmers that make up the majority of rural African populations. In a more indirect form, effective genetic resource regimes may contribute to poverty reduction through the general stimulation of research activities due to enhanced ability to leverage access to capacity building and technology. The concept of enhanced research activity contributing to economic activity provides a link between poverty reduction and development strategies. Augmenting research activity has obvious implications for long-term development due to its impacts on education and industrial development. However, more immediate impacts on development and poverty reduction can be seen in the potential of genetic resource activities to provide alternative sources of income for rural communities. This may be in the form of payments, financial or in-kind, for providing or facilitating access, but it may also entail more substantial involvement by communities.

3.6. Policy Development

These examples demonstrate the importance to African countries of genetic resources, from both within and outside of the region. This situation leads to some conclusions. One is that Africa's potential to use its genetic resource heritage to leverage access to technology and other benefits highlights the need for effective policies governing access to genetic resources and benefit sharing. The range of fields in which genetic resources play a significant role reinforces the need for effective policies: access to genetic resources does not exist in isolation; rather it has the potential to provide support to key economic and social interests. For example, while seeds are the foundation of crop-based agriculture, an agricultural system that focused on seeds alone and not strategies for protecting crops would surely fail. A country needs to develop clear goals and priorities and then formulate strategies for national programme on ABS & related issues in order to achieve wider policy coherence. This calls for an integration of access to genetic resources policy, particularly with regards to benefit sharing, with wider national priorities. What this also means is that international obligations need to be balanced with the real domestic needs for economic and technological improvement. Moreover, despite their significant genetic resource heritage, African countries still need access to the genetic resources of others, especially in agriculture, whether from within the continent or beyond. A genetic resource policy that focuses on a country's role as a

provider of genetic resources to the exclusion of its role as a consumer can only ever address half of the picture.

4. TRADITIONAL AFRICAN CONCEPTS OF ACCESS TO GENETIC RESOURCES AND BENEFIT SHARING

There are hundreds of distinct ethnic groups and languages in Africa, with more than 250 groups in Nigeria alone, each with its unique culture and traditional practices matched by a correspondingly great diversity in genetic resources and ecosystems. One quarter of the world's languages is spoken in Africa alone and no other continent approaches this cultural, geographical and human diversity. Humans have lived in Africa far longer than anywhere else.[5] Africa's people resulted from its diverse geography and its long prehistory. Africa is the only continent to extend from the northern to the southern temperate zone, while also encompassing some of the world's driest deserts, largest tropical rainforests, extensive wetlands and highest equatorial mountains.[6]

Despite this staggering diversity, one of the most common attributes of all the peoples of Africa is the almost total dependence on, or rather interdependence with, nature and natural resources for survival and existence.[7] Resulting from this is a continuous evolution and dynamic development of norms and rules governing the interaction with nature, individually, collectively, and amongst members of the society. Throughout generations, traditional peoples of Africa have sustainably managed and developed, protected their environment, and shared the associated knowledge, ranging from medicinal plants, deliberate selection and storage of seeds to complex cropping systems and practices. Invariably, certain protocols and norms have arisen from these systems and practices. Some of these norms, over time, crystallised into indigenous legal systems and become embedded into the customary laws existing within the communities.

Generally, the idea of private ownership of natural resources or even knowledge is alien to local communities in Africa as there is a continuous sharing, transmittal, and exchange of resources and information. Indeed, according to Tewolde, "[t]he communal approach to discoveries and inventions was strengthened by social values which saw communal action as essential for survival. For this reason, no systematic record, oral or written, is kept of who innovated, and who else used the innovation."[8] Traditional livelihood systems though constantly changing and adapting to new social, economic, and environmental conditions embrace principles of sustainability and emphasize certain general, but not necessarily universal, values including co-operation; family bonding and cross-generational linkages; concern for the well being of future generations; reliance on

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[5] *See* JARED DIAMOND, GUNS, GERMS AND STEEL: THE FATES OF HUMAN SOCIETIES 376, 377 (1997).
[6] *Id.*
[7] It is estimated that over 70% of the continent's population resides in rural communities and derives subsistence and income principally from agriculture and biological resources.
[8] Tewolde, Tewolde Berhan Gebre Egizabher, *The Convention on Biological Diversity, Intellectual Property Rights and the Interest of the South*, *in* S. TILAHUN & SUE EDWARDS, THE MOVEMENT FOR COLLECTIVE INTELLECTUAL RIGHTS (1996), p. 16.

locally available natural resources; and restraint in resource exploitation and respect for nature. [9]

One of the defining characteristics of local African societies is the predominantly communal nature of genetic (and biological) resources use and management. Communities largely organised themselves to produce for and cater to their members, as well as for interacting communities. Sharing and exchange is well-established as the norm and a necessity for survival. Accordingly, innovations generally have resulted from the accretion of the discoveries and inventions of the members of communities over time. By and large, generosity and reciprocity are core values of most local cultures, and people generally shared knowledge and resources. Access to genetic resources in most cases is not personalised or controlled by an individual, since the resources are communally owned and managed.[10] Generally, "ownership" is not absolute but is usually linked to usage and resource management with attendant rights to benefit from knowledge and innovation based on needs and equity.

A further general characteristic is the core belief that life, i.e. existence and being, is a continuum from generation to generation. The old Native American saying that "we do not inherit the earth from our parents, we only borrow it from our children" is an apt description of this belief and underscores the basic worldview to which most traditional African societies subscribe.

Another defining characteristic of local African societies is that spirituality is an integral aspect of the relationships between people, earth, and nature and the defining linkage among them. Deeply rooted in this concept is the belief that humanity is part of nature and cannot, therefore, own it or any part of it. The profound respect for the sacredness of life is core to all known African traditions and customs. As a result, the concept of ownership as understood in the contemporary Western sense is alien to African communities. Accordingly, the notion that one can exercise ownership over life or life forms is one of the major controversies of TRIPs from the African perspective. This belief is at the heart of the strong opposition of the African Group to the patenting of life or life-forms as according to traditional views they cannot be "owned" or otherwise be susceptible to individual control to the exclusion of others. This position has been consistently been held by the African Group in all the relevant WTO, ITPGR, WIPO and CBD negotiations.

However, these African traditional concepts are currently facing major challenges and fundamentally altering interactions with contemporary concepts. Led by the CBD, current

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[9] Darrel A. Posey, *Introduction: Culture and Nature – The Inextricable Link*, *in* UNEP, CULTURAL AND SPIRITUAL VALUES OF BIODIVERSITY 3, 4 (1999).

[10] Although knowledge and resources are by and large shared, there are cases where very conscious and overt efforts are made to safeguard them or prevent others from undue or abusive access. This is particularly so with knowledge relating to medicinal and healing knowledge, which often entail magical powers and are associated with some level of political authority or significance. However, even in cases where knowledge resides in or is held by particular individuals, for instance a medicine man, such knowledge is acquired by virtue of his membership of the community. He is, therefore, seen as a custodian and, even though he makes a living from it, holds the knowledge on behalf of and for the benefit of the entire community.

and emerging global trends are redefining how access to genetic resources is obtained, as well as the rules for sharing the benefits that arise from their utilisation. Currently on the table is the negotiation of an international regime on ABS under the CBD, which like the TRIPS in the intellectual property sphere, is expected to set international standards and rules for ABS. The direction or ultimate outcome of the ensuing debate cannot be predicted.

5. LEGAL FRAMEWORKS FOR ACCESS TO GENETIC RESOURCES IN AFRICA

5.1 Legal Structures

The situation regarding existing legal frameworks for access to genetic resources and associated benefit sharing in Africa is at once remarkably harmonious and chaotic. Harmonious in the sense that the majority of countries have very similar approaches in almost all aspects of their regimes. Chaotic in the sense that these approaches almost exclusively consist of sectoral, *ad hoc*, responses with the occasional overlaying of broader measures that are non-ABS specific.

The most common approach to ABS regulation and policy in many countries consists of the adaptation of existing structures and legal frameworks on an *ad hoc*, sectoral basis. Several sectors are particularly important in this respect, namely protected areas, forestry, science and technology. Protected areas and forestry legislation, and associated regulatory provisions, do not tend to specifically address genetic resources. However, they do normally assign exclusive management authority of legally recognised areas to an individual institution. This management authority almost invariably includes the requirement that the institution authorise any removal of any material whatsoever from the area under its jurisdiction and, in many cases, also includes a similarly blanket provision requiring authorization for any research to be conducted, or even any presence, in such areas. This type of authority could, and often is, adapted to regulate genetic resource research in these areas. In most African countries, science and technology mandates have, for a number of years, been used to regulate research, of whatever nature, by both foreign and domestic researchers. The processes for obtaining authorisation are not tailored to ABS concerns but they do require background information about the proposed research and often the involvement or endorsement of local institutions. The key point to note about these ‘generic’ processes is that they are not tied to particular geographic areas or technical fields, instead they essentially apply to anything that doesn’t fall within the mandate of other regimes, such as protected areas, forestry or, in almost all countries, the activities of national research institutions.

5.2 Institutional Structures

The institutional structure for regulating to access to genetic resources in most African countries is also largely fragmented along sectoral and geographical lines. Sectoral fragmentation usually follows pre-independence patterns, with the institutions responsible for forestry, agriculture, marine resources and protected areas, and more recently the environment, all having mandates that are interpreted as providing some limited form of authority over access to genetic resources. In most countries in Africa, there is little or no formal coordination between these various sectoral authorities.

Sectoral fragmentation almost invariably creates problems regarding the overlap of mandates and frequently results in weak to non-existent enforcement capacity, "turf mentality" and sometimes contradictory policy goals.

5.3 Application processes

The pattern of application processes in African countries for access to genetic resources almost exactly matches the features of institutional structures - fragmentary and sectoral. Requests and permits, where made and granted, are usually informal. Requests are usually not required to be made using a prescribed form while the authorization and related terms and conditions, are at the discretion of the management of the relevant office/establishment handling it. Benefit sharing, and often even an administrative fee, is rarely a requirement in these situations, nor are any other conditions for access, because technical agencies are usually more concerned with promoting scientific activity than they are with regulation. Where terms and conditions are imposed these are invariably *ad hoc*, based on the particular concerns and interests of the institution or officer involved. This means that the consequences for failing to obtain permission, or breaching any conditions that may be imposed, cannot be fully assessed.

Historically, the vague application processes for access to genetic resources under these fragmented and sectoral systems have meant that access has been virtually free, both in a bureaucratic and economic sense. However, this situation has been reversed in many countries over the recent past as awareness of 'biopiracy' has grown. In the absence of clear rules and mandate, institutions and their senior officers are now often reluctant to grant permission for even the most bona fide requests for fear that there may be something they will miss or be criticised for. Although it is not yet fully clear, the emerging initiatives indicate a trend towards specific ABS legislation and regulations focus on contractual approaches. However, despite the maintenance of basically contractual systems, these laws frequently include detailed requirements for the information to be provided in applications and for the terms and conditions of ABS permits.

5.4 Policy rationales underlying current access regulatory regimes

A range of policy rationales can be identified in the existing African regulatory frameworks and the new initiatives underway in many countries. At one end of the spectrum are countries where there is no coherent government policy. Significantly, the absence of a coherent government policy does not necessarily mean the lack of any policy at all; frequently it may mean a cacophony of policies. Lead agencies with interests in access frequently base these policies on similar principles to those used by governments. At the other end of the spectrum are situations, such as that of Ethiopia, where government activities are informed by a relatively focused policy rationale.

There is a common theme amongst the countries in Africa in that they all consider the elements of poverty alleviation, development, and conservation in their policy rationales even when not coherently articulated. However, as a policy rationale in access to genetic resources, poverty alleviation generally does not appear to be supported by significant detailed planning. In many countries it consists, so far, of little more than a belief that ABS is likely to generate alternative incomes and that if these are channelled directly to communities they will contribute to poverty alleviation and reduce vulnerability. Although

the lack of detail could be a cause for concern in some instances, most countries are probably able to build poverty alleviation policy rationales on past experiences in other sectors and areas of activity, for instance small scale enterprises and rural development programmes.

In some of the countries, the second but significant policy rationale is 'development'. In this context the first approach is the emphasis on using access to genetic resources as leverage to develop the country of origin's capacity and infrastructure to independently move up the products 'value-added' chain. This leads to the another aspect of development, in that improvements in technical skills and infrastructure have the potential to contribute to broader national development objectives by enhancing scientific research and development capacity. The Ethiopian Institute of Biodiversity Conservation and Research seems to be focusing on this area, at least as far as the results of capacity building activities can be made to serve the broader goals of poverty alleviation and community development. South Africa also appears to attach considerable importance to this rationale. However, the countries have not, as yet, developed any comprehensive strategies regarding development objectives for access to genetic resources and thus the rationale is more opportunistic than proactive.

Of the three basic policy rationales for access to genetic resources identified here conservation is, for several reasons, probably the most sophisticated. Perhaps because of its central role in the CBD, and the participation of environmental authorities in the development of access to genetic resources regimes, conservation tends to be a policy rationale that features in all countries to some degree and that is often developed at a more detailed level than other rationales.

In several countries, including Zambia, Ethiopia and Senegal, the main policy emphasis is on poverty alleviation. This is primarily seen in terms of activities directly affecting rural communities and in some of its aspects includes elements of conservation and, to a lesser degree, development. Conservation and development are identified as independent rationales, but with less importance attached. The Seychelles places the primary emphasis on conservation, although development, particularly in the agricultural sector is also a major issue. South Africa iterates its primary objectives as relating to conservation, but in practice seems to place stronger emphasis on development, primarily in the form of commercial activities. The relative weighting of priorities seems, predictably, to be conditioned by the particular situation of a country. Ethiopia is deeply concerned about the vulnerability of its population to climatic catastrophes, largely due to poverty, and thus poverty alleviation becomes the major priority. The Seychelles is a small island state with a fragile environment and derives a significant proportion of its national income from tourism, and thus conservation is a top priority. As a country with a significantly larger economy than others in sub-Saharan Africa, South Africa can afford to concentrate on longer-term development strategies and address its poverty alleviation concerns from other sources. In some cases, although not usually coherently iterated, trade and income generation is major policy rationale and it is presumed that commercial success could provide funding for conservation activities. This is reflected in the trend amongst some environmental policy-makers and analysts that effective conservation should be based upon market incentives.

In the final analysis, the significance of a pattern between policy objectives and national situation is that it suggests that access to genetic resources policy and regimes should be based on well thought out priorities, strategies and incentives if they are to have significant impact in what are complex fields of major national importance.

5.5 Laws, regulations, and policies addressing the rights of local communities regarding access to genetic resources

In the absence of established access to genetic resources regimes, most countries in Africa do not have legal provisions specifically addressing the rights of indigenous people or local communities in this context. However, a number of countries are considering initiatives that would provide some iteration of such rights while others already have legal provisions that may recognize them to some degree through implication. Ethiopia is the closest to recognising some form of customary rights in its development of the concept of community rights. However, as Ethiopia has yet to iterate the exact meaning and nature of community rights it is not clear to what extent the concept will actually follow customary systems.

Despite this situation of only limited or ambiguous recognition of customary rights, the majority of the ongoing initiatives for the development of access to genetic resources regimes do consider the incorporation of some recognition of community rights, at least in the form of prior informed consent and the right to benefits, suggesting that this field may well expand. To date, several African countries are in the process of enacting access laws that specifically incorporate the recognition of traditional practices and systems of conservation and utilisation of natural resources. There is also a growing trend by the donor and development community to incorporate elements of traditional practices and concepts in their programmes and projects. Such incorporation recognises the inherent value of traditional approaches, as well as their appropriateness to the success of community-oriented (and even national and regional-level) programmes and projects on conservation and sustainable utilisation of natural resources. These trends will most likely influence emerging regimes and frameworks for access and benefit sharing in the region. The nature, extent, and form of their incorporation, though, are likely to remain a matter of national policy and legislation in the individual countries. The recognition of community rights forms one of the pillars of the African Model Law, which is expected to influence the direction or form the basis of legislation in many countries when they finally get around to instituting or finalising the necessary regulatory regimes on ABS.

5.6 Regional initiatives and approaches

The CBD mandates countries to regulate access to biodiversity and respect the rights of local communities, while the TRIPS agreement requires all members to protect intellectual property rights (IPRs) in all fields of technology and also provide protection for plant varieties either through patents or a sui generis system or a combination of both. As stated, Africa faces significant shortages in many areas including legal, legislative and policy making capacity. In recognition of this shortcoming, efforts were made to adopt a regional approach in addressing some the problems. The Organisation of African Unity (OAU) (now African Union) initiative to develop a “Model Legislation on the Protection of the Rights of Local Communities, Farmers and Breeders and for the

Regulation of Access to Biological Resources" started in 1997, when the Organisation through its Scientific, Technical and Research Commission embarked on a process to assist African countries in fulfilling their obligations under both the CBD and the TRIPS Agreement.

Following this initiative, the African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources was prepared by a Task Force constituted for that purpose. Subsequently, the OAU Ministerial Session, followed by the OAU Summit of Heads of State and Government, adopted this Model Law in Ouagadougou in 1998, and recommended that member states use it as a basis for developing national laws on the relevant issues. [11]

The Model Law was conceived in recognition of the fact, amongst others, that those OAU member states which are also members of the WTO need a sui generis law for protecting plant varieties but many lack the capacity and resources to embark upon the relevant processes. That made it necessary to develop the chapter on Breeders' Rights in the Model Law along with sections dealing with ABS and community rights.[12] Generally, the Model Law aims to balance the rights of farmers, plant breeders and local communities based on the explicit recognition that in Africa all parties have an important role to play in the conservation, improvement and sustainable use of biodiversity.[13] As a central principle, the OAU Model Law holds that patents on life are immoral and go against the basic values of African citizens and should therefore be outlawed. This has, incidentally been a consistent position of the African group in the international negotiations in different fora relating to that issue. Subsequent to its adoption, several countries have been looking at the provisions of the Model Law in drafting their national legislation on the relevant issues. Nigeria and Ghana, for instance, took it into account in the preparation of their respective Plant Variety Protection Bills which are in the process of being passed into law.

5.7 Intellectual Property Rights

Intellectual property rights issues have become inextricably linked with, and are a major source of controversy in, the field of access to genetic resources with the issue occupying substantial quantities of time and resources in a number of international fora. Practically all the African countries are currently members of the WTO, and are thus obligated to implement minimum standards for IPRs under the TRIPs Agreement. In terms of implementation, the majority of countries are broadly complying with their obligations and several are actually exceeding them in that they have IPR provisions applicable to genetic resources even though they are not required to do so prior to 2005.

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[11] Ekpere J.A. (2000), The OAU's Model Law: The Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources; An Explanatory Booklet; Organisation of African Unity, Lagos.

[12] Tewolde Berhan Gebre Egziabher (2002), "The African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resource In Relation to International Law and Institutions" ISD, Addis Ababa.

[13] Ekpere, J.A. id note 24.

Most African members that are required to implement, or have voluntarily implemented, Article 27.3(b) of the TRIPs Agreement have all taken maximum advantage of its permitted exclusions from patentability. In most cases they have actually incorporated the first sentence of the sub-paragraph directly into their patent laws. However, as is clearly stated in the African Group position in the TRIPs Council, they are unhappy with the requirement that they must allow for the patentability of microorganisms and microbiological processes. In fulfilment of Article 27.3 (b), many countries have taken the *sui generis* option for the protection of plant varieties. In implementing the *sui generis* option, Kenya and South Africa are parties to the 1978 text of the UPOV Convention. South Africa has signed, but not ratified, the 1991 text but has already largely amended its legislation to be 1991 compliant. Sixteen francophone countries as signatories to the Bangui Accord and members of the African Intellectual Property Organization (OAPI), are also committed to implementing UPOV compliant plant variety protection as and when the revised Accord enters into force.

However, in the other countries where plant variety protection legislation are under consideration it is usually based, at least in principle, on the pattern of the African Model Law, which requires greater consideration of Farmers' Rights than is found in the UPOV model. Unfortunately, this concept has yet to be developed to the degree that the nature of these rights can be fully articulated. In any case, the consideration of Farmers' Rights anticipates and prepares for the entry into force of the International Treaty on Plant Genetic Resources, which African countries have supported very strongly. It may well be that the entry into force of the Treaty will prompt a new round of legislative initiatives aimed at its effective implementation. Indeed, the draft ABS legislation in Seychelles as well as the draft ABS regulations of Ethiopia specifically take the Treaty into consideration.

5.8 Major Policy Challenges

The main challenges in access and benefit sharing policy and practice in Africa revolve around several key points:

- **Absence of, or weak, legal frameworks and institutions**

The absence or weakness of the legal framework is a major drawback to existing approaches to ABS in Africa. This situation is characterized by the absence of coordination and harmony in approaches to ABS, resulting in opportunities for abuse and, probably more importantly, a failure to optimise the use of the capacity and resources of national institutions. Enforcement capacity is weak or non-existent and sanctions ineffective. Moreover, the absence of coordination with broader national policies often leads to an incoherent policy environment and contradictory positions on similar issues in different fora.

- **Lack of capacity and resources**

Lack of capacity is an issue common, albeit to varying degrees, to all African countries. However, in countries such as South Africa the problem is isolated to particular skills, such as taxonomy. Nonetheless, the most common needs relate to administrative, legal and policy capacity, including the need for scientists with sufficient understanding and

knowledge of ABS to be able to accurately assess bioprospecting applicants and their applications.

Another major capacity issue relates to the ability to participate effectively in, and influence, international negotiation processes. International legal regimes/processes are increasingly shaping – or even determining – the direction of national law and policy regarding the use and conservation of genetic resources. With this growing trend, there is a need to address the problem of lack of capacity of African countries to participate meaningfully in international negotiations in order to ensure that matters of special concern to them are taken into consideration and that their domestic priorities are reflected in resultant international regimes.

- **Awareness and participation**

The issue of awareness and participation involves several discrete elements:

- The most prominent concern being that without greater awareness among, and participation by, the rural communities that are the custodians of much of the region's genetic resource heritage, it will be impossible to effectively implement an ABS strategy, even in the presence of a fully empowered and well-resourced institutional framework.
- Not only must rural communities be aware of ABS issues but other relevant governmental authorities should also be knowledgeable and concerned.
- In addition, recognising that poverty alleviation is one of the main policy rationales justifying most countries' interest in ABS, a lack of awareness among, and participation by, the intended beneficiaries may inhibit the efficient targeting any benefits received and to encourage support for the ABS regime.

6. CONCLUSIONS

The manner in which policies relating to genetic resources evolve can significantly affect the economies of most African countries and the livelihoods of their peoples. However, the connected issues are numerous and varied, while the multiplicity of the fora where the issues are being discussed further complicates the situation. Furthermore, genetic resources research and prospecting is taking place amid rapid technological change, increasing globalisation, complex scientific and economic activity, and considerable legal uncertainty.

One of the main lessons to be learned from the current situation in the region is that before a country seeks to implement an ABS regime it needs to carefully assess its objectives, situation, and means before rushing to institute policy or draft legislation. As is evident, genetic resources play a variety of roles in different sectors and, in many cases, the interests and perspectives of these sectors – as well as those of the government institutions regulating these sectors – must be taken into account when developing a regulatory system. There is, therefore, the need for detailed sectoral studies to clearly appreciate the circumstances of the relevant sectors/stakeholders in order to develop national priorities and then articulate national positions based on those priorities.

All considered, African countries need to expedite actions in putting in place coherent policies, structures and/or enacting into laws the various pieces of draft legislation which have already been prepared, although some of them may need to be re-evaluated to ensure that they are fully consistent with the respective national interests and compliant with their international obligations under the various relevant international agreements. However, much as there is a need to address this aspect, even the best of rules are futile if the institutional capacity, infrastructure and framework are not in place to see to their implementation, interpretation and enforcement.

As already noted, the issue of capacity for the formulation and implementation of policy in respect of ABS is a very critical one for African countries. At the national level, the creation, mobilisation, and utilisation of expertise to formulate and oversee the implementation of genetic resources policies and laws will require considerable support to many African countries. This support is not merely in terms of providing training or financial and material resources, but also in identifying the best in-country expertise and creating the appropriate institutional space in which to utilise it. This also involves capacity to negotiate in the relevant international fora. In this regard, the initial steps will necessarily involve a clear understanding of how the international system operates and then seek to take advantage of the opportunities it presents while avoiding the pitfalls. This can only happen through concerted efforts at preparing negotiators and enhancing their support systems including putting in place effective mechanisms for gathering and delivering information.

As has also been shown, current regimes governing access to genetic resources and benefit sharing in Africa are largely sectoral, multi-polar, and fragmented. However, considering that the challenges African countries face at the international levels are also numerous and complex, some elements may need to be addressed in the regional or sub-regional context. Sub-regional issues in ABS legislative and policy development are relatively straightforward in that they mirror issues at other levels. Four issues stand out as of particular concern: transboundary resources, technical cooperation, international negotiations and enforcement.

Because in many cases, genetic resources cut across political borders and geographical boundaries, there is an urgent need for increased cooperation among countries in the region. Fundamental to such cooperation is basic information sharing. This is to ensure, at a minimum, that countries are not duplicating each other's efforts and re-inventing the wheel in their research on genetic resources. In addition, coordination and various forms of institutional partnerships will need to be established among national institutions engaged in research and conservation to effectively extract, share, and utilise the latent and accumulated capabilities and capacities within these institutions. If countries are prepared to commit themselves to some form of regional or sub-regional cooperation for research and development in genetic resources and to support it with adequate funding, there is no reason why the existing skills and capacities of national research institutions cannot be tapped to move Africa beyond being purely a supplier of raw materials to other technologically advanced states into the realm of developing and producing its own products for both domestic use and export.

One critical reason for regional action is bargaining power – by acting regionally, African countries can express their priorities in a stronger way. It is almost certain, and even proven from experience, that a regional approach will improve the bargaining position of the countries. On the other hand, if they are operating independently, they risk being played off against each other both in the relevant international negotiations and by bioprospectors seeking access to shared resources. There is a critical need for continued dialogue among African countries to coordinate and harmonise positions during negotiations, as well as coordinate policies and approaches for implementing relevant international agreements.

There is also the related need to create a more structured cooperation among the countries in the region to reach a better understanding of how intergovernmental processes can contribute to national development. The aim is to provide a substantive basis for refocusing discussion and debate around the broad issue of how Africa's vast resources – genetic resources in particular – can best contribute to human development within the region. The ultimate challenge for Africa is making its wealth of genetic resources pay, and not only in the commercial sense. Genetic resources can make a decisive contribution to sustainable development in the region by promoting the equitable integration of the countries and the poor into the global economy. However, genetic resources will only provide maximum benefit when they are regulated, managed, conserved, and utilised within a sound supporting domestic and international policy framework that is pursued in tandem with sustainable human development, support sustainability of rural livelihoods, and environmental management.