

The Convention on Biological Diversity:

**The emergence of IPRs in the field
of access to genetic resources and
benefit sharing**

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1. CURRENT GLOBAL TRENDS

Issues surrounding biological diversity conservation and sustainable use are currently at the centre-stage of the global debate. Central to this sometimes polarized and multi-faceted debate is how the issues emerging out of the World Trade Organisation (WTO) and other fora impact on the objectives of the Convention on Biological Diversity (CBD). The circumstances in the global scene in this context are, however, characterized by certain discernible trends.

1. There is an increasing convergence of Trade, Food & Agriculture, Health, Technology Transfer and Poverty Alleviation issues. This is attributable in part to recent advances in science and technology as well as the role which biological resources now play in economic terms and in food and health security issues.
2. International policy developments increasingly determine National Policy and research activities. National and even local laws are more and more being informed and determined by international agreements as these agreements set standards, criteria and even limits to the legislative capacities of nations.
3. There is a continuous dwindling in funding and resources of Public Sector and, by necessary extension, Public good research. This is especially critical in developing countries.
4. The above situation is marched by a more than corresponding increase in Private Sector involvement and clout and, subsequently, influence in and over international agenda setting and decision-making. There is a significant concentration of economic power in the hands of the private sector, so much so that some firms have an annual turnover that is more than the cumulative GDP of a group African countries.

And in these current trends and debate, amongst others, the subject of intellectual property rights (IPRs) are either indicated or central, and is in most cases actually driving them.

2. GENETIC RESOURCES: FROM ROLES TO RIGHTS

There is a direct link between the roles which biological resources play in the society and the rights which have arisen or been claimed with respect to them. There is no doubt that genetic resources play important role in human society, in fact its existence depends on these resources. It is from the roles they play in food security, health and income that their value emanate and since there is value, the issue of access to the direct value or the extraction of the inherent value arises. This leads to the question of the control of this access. Even in the animal kingdom, there is competition and certain species are known to stake out feeding territories, which they defend ferociously against unauthorised access even unto death. In human society, one of the means of this control is ownership – either through physical possession or endowed by law. Given the rapid pace of technological advancements in genetics and biology, it is not surprising that biological subject matter

challenges us to examine legal parameters of ownership and control even as we identify the role-value-access-control-ownership nexus with respect to genetic resources. Perhaps, mirroring larger trends in globalization and consolidation of world markets, many private sector interests, national governments and intergovernmental organizations are making concerted efforts to "harmonize" IP – to gain some semblance of cohesion in a field that is in flux (Bragdon &Downes, 1998).

There is no doubt that the application of modern biotechnologies to biomaterials has brought new economic opportunities and the growth and subsequent consolidation of industry concerned with bio-industrial products. It has also brought new challenges to existing IP regimes. Driven by the private sector, the trend in industrialized countries has been towards the expansion of the scope and/or application of patents and plant breeders' rights to biomaterials. Yet, there is a noticeable lack of empirical evidence about the potential impacts of IP regimes on biodiversity, food security and development (Bragdon &Downes, 1998).

3. EVOLUTION OF LAW & POLICY

“Behind the politics and profits is a history which begins with the hunters and gatherers of 12,000 years ago and runs to the gene-splicers of today” (Fowler & Mooney).

Critical Factors

In considering the development and evolution of IPR law and policy in the field of genetic resources, certain determinant and critical factors, as gleaned from existing literature, must be noted.

- The first is that legal regimes evolve over time in response to changing situations and needs.
- Second, changes in this field are often catalysed by scientific breakthroughs and technological advances.
- Third, legal regimes are often a reflection in time of the power of various actors.
- Finally, there is a close relationship between the economic and commercial value of a resource and the attribution and allocation of legal entitlements.

Phases of evolution

In reality, there is no strictly delineable phases of the development of IPR legal regimes with respect to genetic resources even though there are certain key landmarks and milestones from pre-historical times to date. However, for the purpose of elaboration, certain broad phases are here demarcated.¹

(a) Pre-historic times – Age of exchange.

The struggle over issues of sovereignty, control and ownership of genetic resources dates back to pre-historic times, in fact since the existence of mankind playing out the role-

¹ Source, unpublished material from Cary Fowler, 2002.

value-access-control-ownership nexus. This phase will span the prehistoric times to the colonial period. In the ancient Egyptian Kingdom there is the story of the Pharaoh, Queen Hatshepsut circ. 1500 B.C. that sent out a military expedition to collect unique seed varieties to enrich her kingdom's stocks. The symbolic fact is that the expedition was military in nature being either an indication that there was an expected resistance to such collection or the outright attempt at exerting control. During this phase, access to genetic resources is largely a question of might or for those who have the ability or resources to do so.

During the age of exploration, when there was a tremendous quest for knowledge, scientists embarked on large collection expeditions and there was a practice of sharing and the belief that access should be free and unfettered. Great exchanges took place during this era and helped define the dietary staples of certain countries even up till today. The most remarkable of these exchanges is what is known as the Great Columbian exchange, which took tomato to Italy, brought maize to Africa, introduced wheat to Latin America and launched and entrenched Potato in Ireland.

Also incorporated in this period is the colonial era, where a totally different logic and paradigm ruled from trade to domination and the desire to control the sources of genetic resources that formed the raw materials that were needed by the European countries. Means of this control included the outright prohibition by law of the cultivation of certain classes of plants and crops and this is often enforced physically through restriction to access and the movement of necessary propagating materials. Up till this time, control and ownership had been restricted to the ownership rights to the physical materials harvested and not to the information contained in the sense of IPRs obtainable in respect of machines or other physical inventions. However, Colonial authorities in certain cases claimed exclusive rights to the production or supply of particular species/varieties – wheat, sugar, indigo, opium etc. However, there was no recourse where materials are either smuggled out of the jurisdiction of the authorities or obtained some in other way.

(b) The 1960s and early 1970's (Famine & Green Revolution).

During this period, Research Facilitation and conservation goals catalyzed collection and evaluation efforts. It was also the period when green revolution was being implemented, instigated by public sector and involved the utilisation of high-yielding varieties, mostly hybrids without use of IPR. The dominant paradigm was that genetic resources were a Common Heritage of mankind. However, the widespread use of the high-yielding varieties became a tremendous threat to the diversity which sustained food production and development as the traditional landraces were abandoned and, in some cases, began to disappear. As a response to this trend, it led to the establishment of Global network of genebanks under the auspices of the United Nations Food and Agriculture Organisation (FAO) and subsequently to the setting up of the international Agricultural Research Centres under the auspices of the Consultative Group on International Agricultural Research (CGIAR) which initiated very aggressive collection programmes. Currently, these centres have between them about 600,000 accession from different parts of the world, mostly the developing countries. In fact the International Understanding on Plant

Genetic Resources for Food and Agriculture that was then reached explicitly declared the these resources were a common heritage of mankind.

(c) The 1970s – 1990s: Ownership, Rights and Equity.

With the tremendous technological advances, especially in the field of biotechnology and the appreciation of monetary value of genetic resources, there were attempts to extend IPRs over “improved” varieties and information contained in genetic resources. The response of developing world to apparent inequity of “common heritage” concept was strong. They protested the situation where the materials which they are custodians of and have nurtured over millennia are freely available while those developed from them are restricted and the benefits accruing from such developments are not shared equitably. This led to the negotiation and establishment of CBD. Running concurrently, however, are events and negotiation in other fora, which were resulting in the extension of IP over issues hitherto not covered by them.

While IPRs such as copyrights, patents, and trademarks are centuries old, the extension of IPRs to living entities and attendant knowledge/technologies occurred only relatively recently. In 1930, the US Plant Patent Act was passed, which accorded IPRs to asexually reproduced plant varieties. Several other countries subsequently extended some form of protection to plant varieties, until in 1961, an International Convention for the Protection of New Varieties of Plants was signed. Most signatories were industrialised countries, who had also formed a Union for the Protection of New Varieties of Plants (UPOV). This treaty came into force in 1968. Plant varieties or breeders' rights (PVRs/PBRs) give the holder of the right limited regulatory powers over the marketing of 'their' varieties. Until recently, most countries allowed farmers and other breeders to be exempted from such rights, as long as they did not indulge in branded commercial transactions. However, a 1991 amendment to the UPOV has tightened the monopolistic nature of PVRs/PBRs, and some countries have virtually eliminated the exemptions for farmers and breeders. (Kothari & Anuradha, 1999)

Historically, plant varieties had been exempted from the international patent regime in deference to farmers' traditional practices of saving and exchanging seeds. Industrialised countries, however, have been debating the merits of PBRs as a form of monopoly that may encourage plant-breeding activity. (Kothari & Anuradha, 1999)

However, the TRIPs Agreement now extends the requirement to protect plant variety property rights to all WTO Member States. In addition, in many countries, patents with full monopolistic restrictions are now applicable to plant varieties, microorganisms, and genetically modified animals. In 1972, the US Supreme Court recognized microbiologist Ananda Chakrabarty's patent claim for a genetically engineered bacterial strain. This legitimized the view that anything made by humans and not found in nature was patentable. Genetically altered animals, such as the infamous 'onco-mouse' of Harvard University (bred for cancer research), were also soon accorded patents. Finally, several patent claims have been made, and some granted, on human genetic material, including material that has hardly been altered from its natural state. Until very recently, these plant rights were only recognized in some countries, and they could not enforce these rights in

other nations. However, this has changed with the signing of the TRIPs Agreement. TRIPs requires that all signatory countries accord: Patents to micro-organisms and "microbiological processes;" and Some "effective" form of IPRs for plant varieties, either patents or some *sui generis* (new) version. (Kothari & Anuradha, 1999).

4. THE CBD AND IPRs

The main objectives of CBD threefold: conservation and sustainable use of biodiversity and benefit-sharing arising from its use. One of the most significant provisions of the convention is the affirmation of national sovereignty over the genetic resources in each country party and the stipulation that National laws are to determine access to genetic resources. Also significant is the recognition and call for the protection on Indigenous and Local Communities knowledge and practices. Noteworthy also is the exclusion of certain categories of genetic resources, namely those that has been collected prior to the coming into force of the convention.

Emerging almost concurrently with the adoption of the CBD was the conclusion of the WTO agreements under the Uruguay rounds with the agreement on Trade related aspects of Intellectual Property Rights (TRIPs) as one of the most significant and controversial. Because of its provisions, TRIPs had a direct bearing of biological resources and was seen by many as being actually in conflict with the CBD in certain respects. On the other hand, the CBD has two interesting provisions relating to IPRs. Article 16.5 states that Contracting Parties shall cooperate to ensure that IPRs are "supportive of and do not run counter to the CBD's objectives." However, this is "subject to national legislation and international law." Article 22 states that the CBD's provisions will not affect rights and obligations of countries under "existing international agreements, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity." Read together and in the spirit of the CBD, many people have concluded there is a basis for countering the seemingly inexorable march of the IPR regimes described above. (Kothari & Anuradha, 1999).

The CBD requires parties to safeguard biodiversity and the traditions and knowledge of those indigenous and other local communities associated with this biodiversity, and lays down the basic elements for access to biodiversity resources and associated knowledge systems. The TRIPs Agreement obliges party states to modify their national IPR regimes to meet much-enhanced international standards, which could have significant implications for biodiversity and the associated knowledge systems. However, the singular advantage that the WTO process has for ensuring compliance arises from the fact that it can use the instrument of trade sanctions against an erring member, while the CBD has no enforcement mechanisms. (Kothari & Anuradha, 1999).

Even with the mounting tensions and debates over the provisions of CBD and TRIPs and there is a continuing expansion of intellectual property rights discussion at the WTO forum, the World Intellectual Property Organisation (WIPO) and, in addition, other international institutions are becoming increasingly active on the subject of the genetic resources-IPR nexus and their effects on each other. As a result, what we have today is a confounding

global IPR maze with discussions going on concurrently in respect of different components of the interface at many different fora. These include FAO, UPOV, UNCTAD, CSD, WHO, Regional and Sub-regional bodies, etc.

The most critical provisions of the TRIPs agreement from the perspective of genetic resources are contained in Article 27. Paragraph 1 provides in part that “patents shall be available for any inventions, whether products or processes, in all fields of technology.”² In response, developing countries in particular have had to make significant changes to their laws, removing exceptions from patentability for certain categories of products such as pharmaceuticals or agricultural technologies (Bragdon & Downes, 1998). Most important, Article 27.3(b) provides that Members may exclude from patentability plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. A lot of concern has been expressed especially by developing countries in respect of these provisions and they are among the most contentious currently under debate at WTO meetings. Principal among the concerns are; the fact that it requires or allows the patenting of live-forms. Second, there is no requirement for protection of the knowledge or the recognition of the contribution of indigenous people, local communities and farmers who often provide the basic materials and information for the development of new varieties or products. Third, there is no mechanism for sharing equitably the benefits arising from the utilization or exploitation of local materials or knowledge in the development of new varieties or novel products. Fourth, there is no criteria or guidance for determining what “an effective *sui generis* system entails. This provision was to have come up for review in 1999 but could not be reviewed because the now infamous Seattle WTO meeting at which it was to be discussed was botched. It will perhaps be taken along with rest of the agreement’s other provisions, which are now due for a general review.

TRIPs under Article 27.3 (b) allows countries to exclude animals and plants *per se* from patentability. However, the above provisions have serious implications in themselves, for no longer are countries allowed to wholly proscribe the patenting of life forms. Nor is there likely to be a great amount of flexibility in evolving *sui generis* systems of plant variety protection, for the term “effective” may well be interpreted by industrial countries to mandate a UPOV-like regime. Indeed, a series of events in 1999, including meetings in Africa (February 1999) and Asia (March 1999) hosted by UPOV, WTO, and other agencies, have demonstrated that this interpretation is already being imposed on developing countries (Kothari & Anuradha, 1999). For example, the African Intellectual Property Organization (OAPI), representing 15 Francophone countries, has decided to join the UPOV 1991 under what is now known as the **Bangui Accord**. Interestingly,

² Members do, however, retain the power to “exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.” The scope of this power, and the meaning of terms such as “morality” are, however, not defined.

practically all the members of OAPI are not even required to immediately adopt a plant variety protection law – they have until 2006 to do so. Further, the TRIPs allows for the establishment of a *sui generis* system of plant variety protection, the scope and extent of which has not been adequately explored. Therefore, the haste with which the Accord and its annexes have been adopted attests to the influence of certain interest, most probably foreign – both official and private.

5. ROLE OF IPRs

Perhaps no other subject has in recent times generated as much literature and controversy as the interface of CBD and TRIPs with the numerous components in practically all fields of human activity, be it in culture, health, food and agriculture, or trade and development. But while considering the emerging contradictions and rising profile of IPRs in the field of genetic resources, it would be necessary to look briefly on what roles IPRs are supposed to play in society. Historically, IPRs have been granted by the state as a means of encouraging innovation while ensuring the society's need to have access to the knowledge and information related to such innovation. Starting as a privilege in earlier times, it graduated into full-fledged rights (limited in time and scope usually) and more recently became internationalized.

However, at all times and at the different stages of development, protection of IPR has always been seen not an end in itself but taken as having a functional role to play in relation to the priority objectives in other areas of the State's activities, especially social and economic welfare its peoples. In other words, IPRs have been and are a Tool – an economic tool used by the state, in which case, the overall economic policy and goals should determine how they are used especially in the context of International obligations. It is in this regard that even TRIPs recognises the need to promote adequate and effective protection of IPR as part of a series of broader social and economic objectives. Article 8 states that:

Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.

Taken in this light Appropriate IP regimes as regards genetic resources could help a country achieve its development goals, tap its vast resources sustainably and also strengthen incentives for conservation. But recent developments hardly make this an easy task especially in the light of the recent global trends examined earlier in this paper. From these trends, certain facts and points are also deducible:

- As it is now, the complexity and multiplicity of issues and processes are befuddling at best and have, therefore, become extremely difficult to follow or keep track of, not to talk of unpacking the different components, especially for developing countries.

- There are currently, practical and conceptual gaps in current IP regimes in dealing with some of the issues of concern to developing countries. These include, Indigenous and local community knowledge, farmers' rights and the status of material in the collections of the Consultative Group on International Agricultural Research (CGIAR).
- There is a growing trend towards sanctification of IPRs as they are almost being elevated to status of fundamental rights and this has had tremendous influence on Research priorities especially in the public sector. In a lot of cases, research projects are chosen with IPRs in mind rather than focused on solving emergent problems in society. There seem to be now what could be termed a transition from theories of IPRs to the theology of IPRs.
- In this milieu, the integrity of Scientific Research as a credible system has consistently come under attack and seems to have suffered significantly as a result, because there is an apparent descent from the objective search for the truth to the subjective service of money. It has become a case of "Show me the money, and I will get the result you want".

While it is arguable that IPRs are but a tool, the question that arises is whether the tool is appropriate for all sectors and in all circumstances? Very recently, at Doha, it was agreed that strong IPRs are not appropriate for the health/Pharmaceutical sector because of its sensitivity to the welfare of the citizens of WTO member states. Similar arguments can also be advanced for the food and agricultural sector. But then, as stated earlier in the paper, one of the major determinants of legal regimes is the relative power and significance of the actors at play. Perhaps, there will be a similar shift in the future.

POLITICAL/POLICY CONTEXT

Even in the midst of the rapidly evolving global setting, most developing countries, especially in Africa are beset with very serious problems especially in respect of policy formulation and implementation. Others include:

- dearth of legal, institutional, and scientific capacity;
- lack of clarity as to the scope of mandates of different government agencies and departments;
- no effective mechanisms for handling complex issues that overlap jurisdictions;
- the issues and approaches are not sufficiently integrated or articulated;
- Total disconnect between global discussion and issues of concern at local or community level;
- Poor Participation in International processes.

Decision-makers trying to devise good, coherent, consistent policy on genetic resources are faced with a myriad of related, rapidly evolving issues being discussed in multiple national and intergovernmental fora. The task of discerning all the issues of relevance to

the conservation and management of genetic resources and then integrating them into consistent policy is extremely complex (Bradgon & Downes, 1998). In the light of these challenges, one way to make policy & regulatory efforts more expeditious and cost-effective is by using a regional cooperation framework to coordinate legislation & policy development (Nnadozie, 2002). There are a lot of arguments in support of taking a regional approach in addressing these issues. The modest successes achieved by developing countries during the negotiation and adoption of the Cartagena Protocol on Biosafety as well as the Doha declaration on TRIPs and Health are indicative of the sort of progress that can be made in integrating issues of concern to the developing countries into the international negotiation processes if common positions are adopted on issues under discussion.

Further, African countries can and should use IPR to address emergent problems – food security, health, trade & economic development and ensure that genetic resources issues are fully integrated into regional programmes – AU, NEPAD, AMCEN etc. There should be more efforts at Integrating of African Level concerns/issues into the global processes – ITPGR, WIPO, CBD, WTO, etc, where the relevant issues are being discussed.

6. Conclusions

As noted above, whether the subject is plant breeders' rights, plant and animal patenting, or monopoly claims on human genes, there is little consensus on the potential impacts of intellectual property on biodiversity, food security and development. Despite concerted efforts to achieve harmony and consistency across national and regional borders, intellectual property as it applies to biomaterials continues to be controversial and characterized by confusion and uncertainty (Bragdon & Downes, 1998). Countries in this region should first consider what their priorities are and work from that in the context of their international obligations. But at all times decision making process must integrate both short and long term considerations.

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