



IPR AND BIODIVERSITY: AN AMALGAMATION”

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Introduction

The objective of this paper is to develop a rudimentary understanding of the concept and significance of biodiversity and its relation with biotechnology and intellectual property rights and also explain the extension of intellectual property protection to biological resources and its implications on biodiversity.

Concept of Biodiversity and Biotechnology

The word biodiversity is a portmanteau of the phrase biological diversity. As defined in the Convention on Biological diversity, the Biodiversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which the area part- this include diversity within species, between species and of ecosystem. Though the study of environment and ecology is quite old, the term biodiversity was first coined by Walter Rosen in 1986.

The term biotechnology is an abridgement of the term biological technology. It implies both biochemical engineering and biomedical engineering. It is defined as the application of scientific and engineering

principles to the production of biological organisms and to the processing of materials by biological agents to provide goods and services for the benefit of man.

According to Convention on biodiversity Biotechnology" means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.¹ However, it does not include the traditional cross breeding of plants to improve their yields, taste, or quantity and increase their activity to withstand pests, diseases, and inhospitable environments.

Biotechnologies are both old and new and have been used for many generations now and can be classified on the basis of generation. Thus the first generation includes traditional technologies like beer brewing and bread making. These go back at least to the Sumerians of ancient Mesopotamia. The second begins with the microbiological applications developed by Pasteur and continues with the mass production by fermentation of the antibiotics. Tissue culture and modern plant and animal breeding also fall within this generation. The third generation includes techniques like recombinant DNA, monoclonal antibodies, polymerase chain reaction (PCR), and animal cloning whose emergence was triggered by post Second World War advances in molecular biology²

Technological Value of Biodiversity in Biotechnology

¹<https://www.cbd.int/convention/articles/default.shtml?a=cbd-02>

²<https://books.google.co.in/books?id=TYlpDQAAQB AJ&pg=PA158&lpg=PA158&dq=%22First+generation+includes+traditional+technologies+like+beer+brewing+and+bread+making.%22&source=bl&ots=5Of>

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Biodiversity constitutes the very raw material in the biotechnology industry and the modern science of biotechnology is relevant to various areas of agriculture including crops, animals, fisheries, agro forestry and agro processing.

Undiscovered biogenetic resources in the richly endowed developing world have massive economic potential and biotechnology uses biological organism or their constituents to transform inputs into commercial outputs and provides prospect to convert biological resources into economic wealth.

Biological products are genetically manipulated in order to develop new commercial products, optimizing production and ensuring the integrity of the product. The application of biotechnology can result in new ways of producing existing products, the use of new inputs, and also in the production of new products. In the former category falls gasoline which is produced from ethanol, which is in turn produced from sugar. In the latter category, mention may be made of insulin, produced using recombinant DNA technology.

Impact of IPR on Biodiversity

Intellectual Property rights, as the term suggests, are rights over ideas and information, which are used in new inventions, processes, literary works, compositions etc. These rights empower the holder to eliminate clones from the market for a definite time. The stated purpose of IPRs is to stimulate innovation, by offering monopoly over use of product in the market and the economic gains received by its use.

IPRs such as copyrights, patents, and trademarks are many generations old, but with the onset, development and economic growth in this sphere, the provisions of IPRs have extended to the living organisms and knowledge/technologies related to them.

This topic is of immense debate among various countries; although reliable data and information has been produced regarding the social and economic impacts and importance of IPRs in developing countries, there is limited information that actually exists regarding impacts of IPRs on conservation and sustainable use of biodiversity per se. But on the other hand a few negative impacts of IPR (Patent) can be verified for example on the principle of sovereign rights of countries over their genetic resources, such as direct and indirect misappropriation of biological and genetic resources and traditional knowledge or what has been called "biopiracy".

The term biopiracy can also be defined as the practice of commercially misusing naturally occurring biochemical or genetic material, especially by obtaining patents that restrict its future use, avoiding equitable distribution and failing to pay fair compensation to the community from which it originates. Over the years there have been many cases of biopiracy such as:-

- **Patenting of Neem (*Azadirachta indica*)-** The people of India in a variety of ways have used neem, since time immemorial. Indians have shared the knowledge of the properties of the neem with the entire world. Pirating this knowledge, the USDA and an American multinational company W.R. Grace in the early 90s sought a patent (No. 0426257 B) from the European Patent Office (EPO) on the "method for controlling on plants by the



aid of hydrophobic extracted neem oil.” The patenting of the fungicidal properties of Neem was an example of biopiracy.³

- **Patenting of Basmati-** Basmati is a long-grained, aromatic variety of rice indigenous to the Indian subcontinent. In 1997 the US Patent and Trademark Office (USPTO) granted a patent (No. 5663484) to a Texas based American company Rice Tec Inc. for “Basmati rice line and grains”. The patent application was based on 20 very broad claims on having “invented” the said rice. Due to people’s movement against Rice Tec in March 2001 the UPSTO has rejected all but three of the claims.⁴

With increase in such cases, many international accords such as Convention on biodiversity, Nagoya Protocol etc. have been signed by various states to keep such a problem in check but another problem that appears from such an action is that states who are signatories to various International accords and not all provisions of these said accords can work in coherence with each other as sustainability / protection of biodiversity and economic prosperity rarely go hand in hand. One such major example of such a conflict is that between Convention on biodiversity and TRIPS agreement.

There is conflict of objective as Convention on biodiversity intends to strengthen developing countries capacities to conserve, use and enjoy their resource base through equitable benefit sharing and informed consent whereas agenda of TRIPS revolves around promoting trade and securing rights over intellectual property which leads to

bioprospecting and even biopiracy. There is also conflict of system of rights as IPR under TRIPS is recognized on the basis of novelty whereas rights under Convention on Biodiversity are founded on preexisting right of the community. By not considering the traditional knowledge and rights of the community, TRIPS will systematically negate wider historical contribution made by the communities and undermine their rights.

Both the treaties are legally binding for the signatories but obligations pulls the countries polls apart, CBD recognizes that states have sovereignty over their biological resources whereas TRIPS tries to introduce private rights over them.

Though mostly favoring IPR regimes and their further expansion, there are some provisions under TRIPS that can be used by countries for protecting their interests. Article 27(2) of the TRIPS agreement allows for exclusion, from patentability, inventions whose commercial use needs to be prevented to safeguard against "serious prejudice" to the environment.⁵ With the help of this provision it would get tougher to get private rights over biological resources and the ecosystem can be kept away from catastrophic exploitation and degradation. Article 27(3) allows countries to exclude plants and animals from patentability, and also plant varieties, so long as there is some other "effective" form of IPR to such varieties.⁶ As the word “effective” is open to interpretation in this article, strong arguments can be made by the countries by

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<http://www.simplydecoded.com/2013/07/14/biopiracy-related-issues/>

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<http://www.simplydecoded.com/2013/07/14/biopiracy-related-issues/>

⁵ <https://enb.iisd.org/journal/kothari.html>

⁶ <https://enb.iisd.org/journal/kothari.html>



coming up with completely different sui generis systems to avoid patentability of biological resources. Article 22 of TRIPS enumerates that a member shall, ex officio if its legislation so permits or at the request of an interested party, refuse or invalidate the registration of a trademark which contains or consists of a geographical indication with respect to goods not originating in the territory indicated, if use of the indication in the trademark for such goods in that Member is of such a nature as to mislead the public as to the true place of origin.⁷ With the help of this article communities of such countries under whose territory the geographical location actually exist can safeguard their economic gains by selling products sold on the USP of their geographical indication.

Apart from all these loopholes, Convention on biodiversity has many other provisions that help promote economic gains out of biological raw material while conserving biodiversity and preexisting community rights. Article 8(j) places obligation on the contracting parties to respect, preserve, maintain knowledge of indigenous people and embody their traditional systems relevant for conservation of biodiversity and it also encourages equitable sharing of benefits arising from utilization of such resources and wider application of such resources with approval of the holder of the resources. Article 15 talks about access to genetic resources, and recognizes sovereign rights of state over their natural resources. As per this article contracting parties shall develop and carryout scientific research based on genetic resources provided by one of the countries and in return the other country is obligated to

share the research & development and the benefits arising from its commercial use. Article 16 talks about transfer of technology, under this parties to the convention are required to facilitate access and transfer of technology and such access is on the terms which recognizes and considers adequate and effective. The term “technology” under this article is not exhaustive in its meaning but such tech should be relevant to the conservation of biodiversity.

Another important aspect of the Convention on Biodiversity is the Bonn Guidelines. They were adopted by the Conference of the Parties to the Convention on Biological Diversity (CBD) in 2002.⁸ It is comprehensive legal framework binding the signatories under its triple objective of conserving biodiversity, sustainable use of biological resources and fair and equitable benefit sharing. These guidelines are expected to assist parties and governments in developing overall access and benefit sharing strategies and in identifying the steps involved in the process namely establishing administrative and policy measures. These guidelines under section IV(c) and IV (d) identify steps which lay emphasis on obligation of contracting parties to seek prior informed consent of the providers and mutually agreed terms respectively. They also cover other elements such as incentives, accountability and means for dispute settlement.

The will and objectives of these guidelines were reinforced by the call of the World Summit on Sustainable Development in 2002 where countries negotiated within the

⁷ <http://www.cptech.org/ip/texts/trips/22.html>

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<https://www.cbd.int/abs/infokit/revised/web/factsheet-bonn-en.pdf>



framework of the convention, an international system to endorse and defend the fair and equitable sharing of benefits.

Nagoya Protocol

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) is a supplementary agreement to the Convention on Biological Diversity.⁹ It ABS was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014, after receiving its 50th instrument of ratification by Switzerland.

Protocol helps the governments to establish their own national framework which ensures that access and benefit sharing happens in a fair and equitable way. This protocol is also important as prior to this there were virtually no measures for benefit sharing from the countries utilizing the genetic resources.

The Protocol generate greater legal conviction and for both the parties by establishing more reliable conditions for accessing genetic resources. It also helps to ensure benefit-sharing for the country providing the genetic resources. By helping to ensure benefit-sharing, the Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being.¹⁰

The Protocol brings us a safeguard where the contracting Parties are required to provide for mutually agreed terms for the sharing of the

benefits arising out of the utilization of the genetic resources.

Indian Scenario

India accounts for about 7-8% of the world's recorded species and the copiousness of traditional knowledge, it is recognized as one of the mega diverse countries with a rich biologically diverse resource pool and hence International accords focusing on biotechnology and conservation of biodiversity such as CBD, Nagoya protocol etc. are very essential to make best use of available resources and avoid biopiracy.

To meet the criteria and obligations of CBD, India enacted Biodiversity Protection Act, 2002. The Act has provisions for regulated access to biological resources for various purposes including for scientific research, for commercial utilization for bio survey or for bio utilization. These conditions of access are put in place to ensure conservation of biological diversity and fair and equitable sharing of the benefits arising out of the commercial use of biological resources and associated traditional knowledge. Its objectives includes respecting and protecting knowledge of local communities and the traditional knowledge related to biodiversity, it also includes formation of national, state and local biodiversity funds for conservation of biodiversity.

The Biodiversity Act provides for the establishment of a three -tiered institutional framework for the implementation of the act. The National Biodiversity authority is the apex body and the rest are state boards and

⁹ <https://www.sprep.org/project/abs>

¹⁰ <https://www.worldseed.org/our-work/plant-breeding/genetic-resources/#nagoya-protocol>



local bodies. The National Biodiversity Authority was established in 2003 under the ministry of environment. It is a statutory body and that performs facilitative, regulatory and advisory function for Government of India on issue of Conservation, sustainable use of biological resource and fair equitable sharing of benefits of use.¹¹

Section 18 provides for functions and powers of the national biodiversity authority, its primary function is to regulate access to biological resources occurring in India and to ensure such access and to ensure fair and equitable sharing of benefits from use of such biological resources. Foreigners, non-resident Indians are required to seek prior approval of the NBA to obtain any biological resource and associated traditional knowledge from India for research, survey, commercial utilization. Further prior authorization of the NBA is required to transfer the results of research using biological resources occurring in India. NBA also issues access and benefit sharing guidelines which are to be followed by the State Biodiversity Boards while finalizing any agreement.

Conclusion

Over centuries man has given preference to his economic wellbeing at the cost of the very environment in which he lives and that has resulted in degradation of all forms of biodiversity. But in recent times conservation of environment is of mammoth importance and thus it is important to find a balance between economic wellbeing and

conservation of environment and biodiversity.

There is a need for sui generis systems and alternative regimes that priorities conservation of environment while still taking in consideration the scientific and economic aspect of it as innovations in biotechnology are very helpful for sustenance and wellbeing.

Corporations using biological resource pool as a raw material should be given guidelines by their respective governments regarding standards required not to undermine the efforts of the government to conserve nature and biodiversity. Incentives and punishment should be awarded for exceeding and deteriorating such standards.

¹¹<http://nbaindia.org/content/16/14/1/introduction.html>