

“Regulation and Control of Biopiracy to Protect Traditional Knowledge as IPR”

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Abstract

The protection and enforcement of intellectual property rights envisages to promote the technological innovation and to ensure the transfer and dissemination of technology. This technological innovation should ensure the mutual advantage of producers and users of technological knowledge and in such a manner, which promote social and economic welfare, and to a balance of rights and obligations. In addition, these scientific and technological innovations contribute to providing quality life and better experience for all. Therefore, international community have incorporated certain principles in treaties and conventions related to intellectual property rights and their trading between the countries. These treaties and conventions are serving twofold purpose, first to facilitate advancement of technology by ensuring global access and promoting IP rights and second to regulate the misuse and misappropriation of knowledge by taking undue advantage of IP rights.

In this regard, Trade Related Aspects of Intellectual Property Rights (TRIPS) and 1992 Convention on Biological Diversity (CBD along with other international agreement are playing significant role. However, in practice this balance and equality for which these treaties are meant for is missing. Pertaining to this gap, this chapter deals with the issue of traditional knowledge and concerns to regulate biopiracy to sustain biodiversity on the principle of equal benefit sharing without compromising with the technological advancement. This paper presents the international landscape on protection of traditional knowledge, which includes the detailed critical analysis of relevant provisions of international treaties and agreements related to the issues traditional knowledge and challenges of biopiracy in the globally connected world.

Keywords: Traditional knowledge (TK), CBD; Bio-piracy, TRIPS, IP Rights.

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1. Introduction

Advancement of science and technology and extended regime of intellectual property rights have converted the bio resources into valuable property with huge commercial potential. Biopiracy and traditional knowledge are closely connected and traditional knowledge cannot be protected unless and until challenges in the form of bio-piracy could be regulated. Regulation of bio-piracy and protection of traditional knowledge is in the limelight because of the growing importance of biological diversity. Traditional knowledge and its protection is emerging as a key to sustain and strengthen biodiversity. Conventionally Biodiversity and natural wealth were considered as universal possessions, which derive from generations of accumulated conventional information. Therefore, no solitary innovator could be recorded for this wealth to protect intellectual property rights over the inherited and bio-resources found in the environment. This was considered as the gift of nature for the advantage of every one.

However, in the advance regime of intellectual property rights inventions with the use of bio resources could be a proper subject matter to claim intellectual property rights and therefore now these resources are no more gift of nature available to everyone but someone is there to claim intellectual rights over it as per the prescribed conditions. This is the results of changed regime of proprietary rights and particularly patent rights over biotechnology. These inventions using biological resources and traditional knowledge requires being equitable in terms of benefit sharing. However, in reality Multinational Corporations (MNC) are using traditional knowledge without proper recognition and credit to the concerned community, which ultimately leads to biopiracy.

To regulate biopiracy international laws and policy has been evolved and at domestic level, *sui generis* system has been developed. However, the question is that the existing global and domestic regime to protect the traditional rights of the community are adequate or not. This paper firstly unfolds the meaning of traditional knowledge and biopiracy. Secondly, analyze the existing international legal framework to regulate biopiracy and to protect the traditional rights of the community, which includes many international treaties and conventions but TRIPs and CBD will be discussed in detail. Finally, it explores the possible solution to fill the existing gap in terms of protection of traditional rights through IPR as a tool.

2. Meaning of Traditional Knowledge and Biopiracy

2.1 Traditional Knowledge and its Significance

Indigenous communities have contributed in conservation of biological diversity and in this process of conservation developed knowledge, innovations and practices, which they sustained by passing on the same from generation to generation. This indigenous knowledge and practices was termed as Traditional Knowledge (TK). World Intellectual Property Organization (WIPO)

defined TK as knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity³.

Therefore, ‘traditional Knowledge’ has its own historical and cultural importance and is a valuable heritage for the indigenous communities that have developed and maintained it and is still contributing and for the whole world. Therefore, the traditional knowledge is not static but dynamic in nature, which is growing and flourishing with the society. Traditional Knowledge has gained special recognition in the new phase of development where industrial pattern emerged for exploitation of biological resources. Industrial pattern has huge commercial potential but at the same time in long run, it causes loss to the biodiversity at alarming rate and additional economic benefit is also not as per the principles of economic justice.

2.2 Meaning and instances of Biopiracy

From its inception, intellectual property protection within the framework of TRIPS agreement triggered the debate about the issue of misappropriation of proprietary rights over biological materials between the developed and developing countries. Developing countries rich in terms of biodiversity but lagging behind in terms of economic and technological infrastructure to get benefit from this emerging proprietary rights regime expect loss or threat to their biodiversity. In this context, the conception of the term ‘bio-piracy’ emerged.

The term is in use for explaining the situation, where indigenous knowledge of the community supported by nature is being utilized by others without giving due acknowledgment to the holders of the same. This concept has its association with intellectual property rights and is concerned with traditional knowledge or expertise of the local communities surrounded by the biodiversity.

Biopiracy is the act of financial appropriation of biochemical or hereditary processes occurring naturally, by claiming IP rights and subsequent licenses, which ultimately, limit its future use while neglecting equitable compensation to the communities from whom it originates.

Another meaning of ‘Bio-piracy’ is, “that describes the means by which corporations from the industrialized nations claim ownership of, free ride on, or otherwise take unfair advantage of, the genetic resources and traditional knowledge and technologies of developing countries”⁴.

Biopiracy is a repercussion of the recognition of bio resources as an intellectual property. Earlier living things or bio resources were not treated as a subject matter of the invention. Therefore, these resources were available to all but with the expansion of the IP regime where bioresources

³ Traditional Knowledge, <https://www.wipo.int/tk/en/tk/>, (Last visited on June 28, 2021)

⁴ L. Bautista, ‘*Bioprospecting or Biopiracy: Does the TRIPS Agreement Undermine the Interests of Developing Countries?*’ 82 (1) Philippine Law Journal 14-33 (2007)

could be converted into the subject matter to claim IP protection. Its illegal trading and unauthorised use started for commercial gain, which ultimately resulted into exploitation of community rights in the form of traditional knowledge. There is an apprehension that patenting of organisms encourages ‘biopiracy’⁵.

There are many instances of bio-piracy, which necessitated the regulation of bio-piracy and raised the question about the new proprietary regime under the TRIPS framework. Few examples of Bio-piracy are follows:

2.2.1 TURMERIC CASE STUDY

Turmeric is an aromatic plant for which humid climate of East India is suitable. Since long, it is utilized in India for multiple purpose, including food products, as a medicinal plant, for beauty purposes, for religious purposes etc. However, in the mid of 1990’s, U.S patent of turmeric (No: 5,401,504) was given to a “University of Mississippi Medical Centre in 1995”, for the utilization of “wound healing”.⁶

This patent was granted not for innovation but for falsification, therefore, Indian Council of Scientific and Industrial Research has filed a complaint by challenging U.S patent on the ground of ‘novelty’ because novelty is one of the main factors of procuring patent right over a product. On complaint, US patent authorities investigated the case and found that the challenged invention was not new but was in use in India from many decades and its medicinal property was very well known and used by almost every Indian. Thus, this patent was revoked and Indian claim has been established.

2.2.2 NEEM CASE STUDY

Neem tree is very significant in India and used for manifold purposes. Indian people use neem in agriculture as an insect repellent, in medicinal industry, in cosmetics, toiletries, food products, toothpastes etc. Every part of this tree including the root, stem, leaves etc. has been used by the people for its medicinal properties. Other uses of this tree are to cure illness, as neem oil. It is also considered significant for religious values. Traditional people in South Asian countries for their advantage have used neem and this resource was available for the world. However, various international medicinal companies filed for the patent procedure of neem for example Rohm and Haas. Almost 90 patents have been granted over neem plant. The first patent claim was for neem-based insecticide. The second patent was again claimed for producing a neem-based

⁵ Jonathan Galloway, Daithi Sithigh, Andrew Griffiths,., *Modern Intellectual Property Law*, Routledge Publication. p.147(2010)

⁶ R.V. Anuradha “*Biopiracy and Traditional Knowledge*” “The Hindu”, 20 May 2001.

insecticide that has high concentration of azadirachtin, which is used on food crops in agricultural industry⁷.

These grants of patents was challenged, jointly by Magma Velvet⁸, Vandana Shiva⁹ & Linda Bullard on the ground of novelty¹⁰. They based their challenge on the argument that Indian people have identified the functional use of hydrophobic extracts of neem seed. Which have been used in India for centuries both in Ayurvedic medicine to cure various skin allergies and to protect agricultural crops from fungal insects. They argued that the patent lacked two main traits for granting patent, which is 'novelty' and 'inventive steps'. They also debated that traditional people have monopoly rights because it is a part of Indian culture and have religious sentiments in people of India. The patent was challenged under Article 53(b) for single monopoly plant variety. They asked to revoke all the patents, which have been granted on the behalf of Indian people. The four member panel agreed to all the contentions of these three people after investigation and said that all the patents amounts to biopiracy as neem as a plant is used in India since thousands years. Thus, this battle was fought for ten long years by India and won as the patent was revoked and the case was won by India.

2.2.3 BASMATI RICE CASE STUDY

In India, farmers all over the country grow various varieties of rice whole year. Among all these varieties of rice, Basmati rice is known for its fragrance. The origin of this long grain rice of unique fragrance is associated with Punjab. For several years, farmers of Punjab in India as well as in Pakistan has been growing this variety. Basmati rice is an expensive rice in the whole world and has been used since the era of emperors and kings. However, in the modern age of economic liberalization, the U.S company Rice Tee claimed the patent right over basmati rice. The company claims around 20 patent rights and sell the rice in the name of Kasmati, Texmati etc. India challenged the claim through "Agricultural and Processed Food Exports Development Authority" on the 'grain quality' and not on variety of rice or methods of manufacturing etc. "U.S Patent and Trademark Office (USPTO)" found this patent lacks on the grounds of novelty, non-obviousness and usefulness and withdrew 15 claims out of 20, granted to US company. International community termed this violation of traditional rights as biopiracy¹¹.

⁷ Emily Marden, *The Neem Tree Patent: International Conflict Over the Commodification of Life*, *The National Agricultural Law Centre*, (1999)

http://nationalaglawcenter.org/wp-content/uploads/assets/bibarticles/marden_neem.pdf.

⁸ MEP, then President of the Green Group in the European Parliament Brussels.

⁹ She opposed the patents on behalf of the research Foundation for Science, Technology and Natural Resources Policy, New Delhi India.

¹⁰ She represented the International Federation of Organic Agriculture Movements (IFOAM) based in Germany

¹¹ Utsav Mukherjee, *'A Study of the Basmati Rice (India-US Basmati Rice Dispute): The Geographical Indication Perspective*, (2008) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1143209

2.2.4 AMAZONIAN AYAHUASCA PATENT CASE

Traditional and indigenous communities of the Amazon were using this plant for religious purposes and in sacred ceremonies. They processed this plant with other rainforest plants to produce ceremonial drinks. In addition, they also used it for medicinal purpose to treat illness among people. However, in 1986 Loren Miller, American scientist and businessperson got a U.S patent on 'ayahuasca vine'. His patent was based on the traditional knowledge of Shamans of indigenous tribes of Amazon's ayahuasca vine.¹² He named it 'Da Vine' and claimed that this vine has a distinct colour of flower petals. A council of more than 400 people from the indigenous tribes raised this concern and opposed the patent on the ground that it is a sacred symbol and represents religious sentiment of particular community. On behalf of them, 'Centre for International Environmental Law CIEL' (COICA), filed application for re-examination of the patent before USPTO. USPTO revoked this patent after a specific investigation on the ground of lack of novelty. Unexpectedly, after two years, USPTO reversed its decision and granted the patent for two years¹³.

In all above-mentioned cases of bio-piracy, through legislative efforts unwarranted patents have been revoked. Nevertheless, the question is whether challenging patent in foreign countries, which involves difficulty and cost, is an appropriate avenue to deal with the Bio-piracy. In addition, why not instead of these times taking curative measures, preventive measures could be evolved to meet out the situation and ensure economic justice and traditional and cultural rights¹⁴. This issue is global in nature, which cannot be resolved without the collective and consensus efforts of all the nations of the world. Therefore, it is necessary to analyze the existing international legal framework including two landmark conventions, TRIPS and CBD and subsequent development to combat the challenges of bio-piracy and protection of traditional knowledge.

3. International Regime

3.1 Protection of Traditional Knowledge as IPR: Global debate

Expanded intellectual property regime and its impact on traditional knowledge is not certain and worldwide there is difference in opinion. Supporters of strong indigenous property are of the opinion that existing intellectual property regime is inadequate to protect indigenous people's traditional knowledge and cultural practices.¹⁵ Other critics are of the opinion that existing IPR regime oriented towards the private ownership and individual invention and in this system

¹² M. Fecteau Leanne, "The Ayahuasca Patent Revocation: Raising Question about Current U.S. Patent-

¹³ *Legal Elements of the Ayahuasca Patent Case*, Centre for International Environmental Law, (1999) <https://grain.org/en/article/1979-legal-elements-of-the-ayahuasca-patent-case>

¹⁴ J.S. Verma, *Access to Biological and Genetic Resources and their Protection*, Vol. 43, No. 1, Journal of the Indian Law Institute, 1-24 (January- March 2001)

¹⁵ David R. Downes, 'How Intellectual Property Could Be a Tool to Protect Traditional Knowledge', Vol-25, Journal of Environmental Law, 253 (2000)

indigenous and traditional knowledge, which is a product of collective knowledge and invention is not fit to get the same IPR protection. Indeed existing system encourages the appropriation of traditional knowledge for commercial purpose without acknowledging their contribution and sharing benefit from commercial exploitation equally with them.

Therefore, indigenous peoples are at loss and asserting their claims to control their intangible heritage over bio-resources, indigenous technologies and knowhow. This conflict of interest, on the one hand, assertion of private rights over bio-resources by IP rights and on the other hand, Indigenous community's claims for their 'Traditional Rights' and their security concerns about their biological resources necessitated a global solution. This conflict of interest and particularly the problem of bio-piracy has broadened international implications. That has made it an urgent issue for all countries to regulate Bio-piracy, which is emerging as a threat to biodiversity and resolve the conflicting interests of different stakeholders i.e., Transnational companies and natural diversity; developed and developing countries.

3.2 International Agreements and Conventions

3.2.1 Indigenous and Tribal Peoples Convention, 1989

The ILO is known for its role in strengthening labour rights, among indigenous people worldwide. ILO's convention 169 adopted in 1989, covers major areas of indigenous and tribal people rights and it is a binding international treaty. This convention advocates indigenous peoples' control over their resources and their own development. The C 169 emphasizes on equality, inclusion and mainstreaming and on the other hand, it advocates collective rights.¹⁶

Under Article 5, is very significant, which covers cultural land rights and traditional rights. Likewise, Article 13 imposes obligation on the states to promote their social, economic and cultural rights in its full potential.

3.2.2 Rio Declaration on Environment and Development (1992)

The UN Conference on environment and development was held in Rio de Janeiro, Brazil from 3 to 14 June 1992. Although this conference does not talk about the problem of intellectual protection of TK, but addressed the issues in concern with sustainable development and environmental issues. The Rio conference acknowledged the contributions of local communities and therefore, advocated that the local communities through which the traditional or old people connect and conduct various political, social, economic activities should be given more

¹⁶ Peter Bille Larsen & Jérémie Gilbert 'Indigenous rights and ILO Convention 169: learning from the past and challenging the future', V.24 Issue 2-3, 'The International Journal of Human Rights', 83-93 (2020) <https://www.tandfonline.com/doi/full/10.1080/13642987.2019.1677615>

importance¹⁷. Principle 22 of Rio Declaration is of great significance, “Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development”.

3.2.3 Agenda 21

Agenda 21 is a non-binding agreement and concluded at Earth Summit 1992; Chapter 26 of Agenda 21 is relevant in relation to indigenous peoples’ rights. It laid down various principles to empower the indigenous people and their communities in the society. This chapter discusses that the indigenous people acquire the major part of the population globally and an important group of people as they have close tie with the environment. Over a period, indigenous people have developed the knowledge of science as well with traditional knowledge, which will help in future productions. This chapter also recommends government to adopt and establish provisions that protect, conserve and regulate their intellectual property as well as their cultural property¹⁸.

3.2.4 The Convention on Biological Diversity (CBD)

Biological diversity and its importance to sustain environment and to restore ecology. United Nations Environment Programme (UNEP) strategy towards sustainable development has triggered the global concern to protect and sustain biodiversity. This initiated the discussion at the Rio de Janeiro 1992 United Nations Conference on Environment and Development (Earth Summit). This discussion of earth summit resulted into The Convention on Biological Diversity (CBD), concluded 5 June 1992.

The CBD, administered by UNEP had laid down three goals based on the principles for the protection of environment without hampering the economic development. These goals are as follows- conservations of biodiversity, sustainable use of biological resources and fair and equitable benefit sharing from the products using genetic resources. In Oder to advance these goals, signatory countries are required to evolve a system to protect habitat and species; ensure access to biological resources for developmental purpose, to share revenues between the source countries and developers, and to take the responsibility for biotechnological development along with associated risk and liability.

The CBD is very important international instrument in the protection of the rights of indigenous community and traditional and cultural resources. It supports control of localized communities over their biological resources and therefore aims to provide for equitable benefit sharing. It

¹⁷ *Report of the United Nations Conference on Environment and Development A/CONF.151/26 (Vol. I), (1992)* https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf

¹⁸ *Agenda 21*, <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

invoked the basic ideas of national sovereignty with respect to biological and intellectual resources.

In particular, Article 8(j) of the CBD establishes a general requirement on the part of the member parties to the Convention to respect, preserve, and maintain such traditional knowledge; to promote its wider application with the prior approval and involvement of its holders; and encourages the equitable sharing of the benefits from its use. However, this convention has given discretion to the nations to take appropriate steps gradually in order to implement their obligation¹⁹.

Article 15 of the CBD, imposed an obligation on the member countries to ensure access to the genetic resources based on equal benefit sharing. However, in practice this provision has been misused for the economic development and scientific advancement on unfair and unequal terms. Article 16 of CBD promotes access to and transfer of technology derived from the research and development of genetic material. In addition, Article 19 imposed obligation on the participating countries to pass legislation guaranteeing that biotech companies share the results and benefits of their research and development with genetic resource provider countries²⁰.

3.2.5 Trade Related Aspects of Intellectual Property Rights (TRIPS)

Growing importance of intellectual property rights raised concerns of international trade in the Uruguay Round of GATT, in which World Trade Organization (WTO) was established and international community concluded the Trade Related Aspects of Intellectual Property Rights (TRIPS)²¹. Now onward, for any nation, which wishes to be a member of WTO, acceptance of basic provisions of TRIPS is mandatory.

Thus, in WTO trade rounds, intellectual property rights and their enforcement became important part. In addition, TRIPS effectively controls intellectual property rights distribution globally by international trade. However, developing countries have shown their disagreement in subsequent rounds of WTO particularly in the context of bio-piracy. TRIPS agreement is not directly dealing with the traditional knowledge. However, TRIPS agreement is having very wide implication on the indigenous community's traditional rights while recognizing proprietary rights over biological resources.

The general protection of intellectual property rights through patents is contained in Article 27 of the TRIPS agreement, which provides, "patents shall be available for any inventions, whether

¹⁹ David R. Downes, *How Intellectual Property Could Be a Tool to Protect Traditional Knowledge*, 25 COLUM. J. ENVTL. L. 253 (2000).

²⁰ *Convention on Biological diversity*, <https://www.cbd.int/doc/legal/cbd-en.pdf> (Last Visited June 26, 2021)

²¹ TRIPS, which became effective, January 1, 1995. TRIPS requires member nations to comply with international treaties and conventions protecting intellectual property, including the implementation of such provisions in national laws. While many of the provisions of TRIPS reflect the requirements of earlier agreements, such as the Paris and Berne Conventions, it imposes additional requirements particularly with respect to new technologies.

products or process, in all field of technology, provided that they are new, involve an inventive step and are capable of industrial application.” In particular, Article 70.8 deals with the patents related to the protection of pharmaceutical and agricultural chemical products. Article 27.2 gives discretion to the member countries to exclude those inventions from patentability if their commercial use jeopardizes public order or morality. In addition, it also excludes certain inventions from the category of patentability to protect human, animal or plant life or health or to avoid serious prejudice to the environment as a whole. Article 27.3 (b) allows member countries to exclude plants and animals other than microorganism from patentability. In addition, essentially it excludes biological process for the production of plants and animals other than non-biological process and microbiological process. However, the member states are held responsible to protect the plant varieties either by Patent or by *sui generis* system or by the combination of both. However, TRIPS agreement has not defined these terms namely microorganism, biological, non-biological process and microbiological process and thus meaning and scope of these terms are subject to the national interpretations. This leads to the creation of fertile ground among the many competing interests on the sensitive issues of the biotechnology and associated harm to the biodiversity and traditional knowledge²².

3.2.6 UN DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLE, 2007

The declaration talks about the standards for the survival, integrity and welfare of indigenous people and their rights around the world. Article 1 of the Declaration states that “indigenous people have the right to the full enjoyment of all human rights and fundamental freedom as recognized in the Charter of the United Nations, the Universal Declaration of Human Rights and international human rights law”. Article 3 of this convention states that it manages the right of self-determination of indigenous people. It also assures their right to use traditional medicines and maintain health practices, and to conserve their traditional plants, animals and minerals.

The declaration asks the states to cooperate with indigenous people and must not abstain them from their lands as per Article 8 (2) (b). Any relocation of them must be in compliance of prior approval and consent. Article 12 of the declaration focuses on “religious traditions, customs and ceremonies of indigenous peoples, and it acknowledges the right to manifest, practice, develop and teach their spiritual and religious traditions etc.” Under Article 31(1), the right of indigenous people’s over traditional knowledge is addressed. The same article also talks about their IP rights over cultural heritage, traditional knowledge, etc. Article 31 states that they also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions”. It provides them full control on

²² *TRIPS : Background and Current Situation*,
https://www.wto.org/english/tratop_e/trips_e/art27_3b_background_e.htm (Last Visited June 26, 2021)

biological resource and the associated traditional knowledge. The states are obliged to take measures to protect their exclusive rights²³.

4. Conclusions

Advancement of science and technology has huge potential for every society and nations in the globally connected world. To promote science and technology, intellectual property rights are playing significant role. Post TRIPS agreement scope of IP rights has widened and established minimum standard to follow in relation to intellectual property rights by the member countries. In addition to this CBD also plays a very significant role to ensure the scientific advancement and to sustain biological diversity. However, in practice there is a disagreement among the nations about the significance of these international developments in ensuring advance global economic order and high living standard based on the principles of equality and economic justice. In the advent of extended regime of intellectual property rights, indigenous communities are at great loss because they are not getting due recognition of their contribution in practice. Although in theory, international community has taken many efforts in the form of treaties and conventions. This necessitated strong global action to bring clarity in TRIPS agreement and its enforcement and to secure proper adherence by the member countries to the principles of convention on biodiversity. Concerns relating to bio-piracy requires global pledge and cooperation and there should be stringent action against the cases of bio-piracy in order to protect and sustain biodiversity Regulation of bio-piracy is significant from two perspectives, firstly to protect the traditional knowledge and to ensure the equal benefit sharing among the different stakeholders. Secondly, bio-resources in its natural form is a condition precedent for subsequent development by the integration of science and technology and associated proprietary rights. It will not be possible unless traditional knowledge is recognized as intellectual property rights of the indigenous community and efficient means evolved to enforce their rights.

²³ United Nations Declaration on the Rights of Indigenous People,(13 September 2007)
https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf (Last visited June 27, 2021)