

Protection of Traditional Knowledge: Issues and Concerns

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ABSTRACT: The importance of traditional knowledge (TK) cannot be undermined, TK is protected under different laws related IPRs, the Biological Diversity Act, 2002 and the Forest Rights Act, 2006. Several international conventions have also been put in place for the protection of TK. They include the Universal Declaration of Human Rights, the Convention on Biological Diversity, the draft United Nations Declaration on the Rights of Indigenous Peoples, the International Labour Organization Convention No. 168 and the International Covenant on Economic, Social and Cultural Rights. The Convention on Biological Diversity 1992 and TRIPS 1995 led to intense discussions on the position of TK in intellectual property protection. Issues relating to protection of TK are very wide; a single solution can hardly be expected to meet such a wide range of concerns and objectives. Efforts should be taken for the protection of TK as many of indigenous communities depend on TK for their survival. The existing forms of intellectual property or a combination of various forms of intellectual property can be used to protect traditional knowledge till the development of a comprehensive sui generis legislative regime.

Keywords: IPR; biological diversity; traditional knowledge; cultural right

INTRODUCTION

The relationship between indigenous/ traditional knowledge (TK) and intellectual property (IP) has emerged as an issue, which calls for immediate elucidation. The Convention on Biological Diversity 1992 and TRIPS 1995 led to intense discussions on the position of TK in intellectual property protection. From this debate came three strands of thinking; the first laid emphasis on protection of TK within the framework of IP laws covered by TRIPS; the second laid stress on adjustments in non-IP laws including biodiversity conservation to secure TK protection; and the third perspective argued for setting up a *sui generis* system for TK protection that was based on the amalgam of modern IP and non-IP laws and regulations, including customary laws.¹The unprecedented growth in the demands of bio-products has led to intense commercialization of TK-based resources. The countries are now realizing the importance of traditional knowledge and are promoting the conservation and sustainable use of biological resources. Article 31 of The United Nations Declaration on the Rights of Indigenous Peoples, 2007 states that, "*Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions... They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions...*"

Traditional knowledge based practices are mainly associated with agriculture, medicines, art and architecture, music and folklore etc. It accounts for a valuable attribute of the indigenous and local communities, which are completely dependent on it for their

health, livelihood and well-being. Protecting such an important component of heritage of a country is imperative. This paper focuses on how intellectual property could be a tool to protect traditional knowledge, which is an essential attribute of biodiversity. It also examines as to what extent existing IPRs afford protection to traditional knowledge systems and what gaps need to be filled.

TRADITIONAL KNOWLEDGE

Meaning and Definition: The complexity of global and local social, economic, political and environmental sustainability challenges has caused scholars, political leaders and theologians on every continent to search for sources of knowledge that will provide the best solutions to problems that affect everyone and all things on the planet. Knowledge originates within human cultures, stimulating societies and their relationship to the other cultures, nature, and the cosmos. The knowledge of the indigenous people collaborated with urban civil societies in the late 1960s, as there was a large-scale commencement of globalization and socio-economic development. Both worlds decided to meet to solve complex issues in different fields of both human and natural phenomena. TK has been widely accepted to be comprised of aesthetic and useful elements and further as literary, scientific or artistic elements. It means knowledge, innovations, and practices of indigenous and local communities embodying traditional life-styles; the wisdom of generations which may be regarded as traditional scientific ways to use natural resources. Article 3 of the WIPO's Revised Draft Provisions for the Protection of Traditional Knowledge: Policy and Objectives and Core Principles, defines TK as the 'content

or substance of knowledge resulting from intellectual activity in a traditional context, and includes know-how, skills, innovations, practices and learning that form part of traditional knowledge systems, and knowledge embodying traditional lifestyles of indigenous and local communities, or contained in codified knowledge systems passed between generation'. The definition conveys the complex yet diverse nature of TK in terms of its technology, knowledge base and cultural contents. It is either passed on orally or through written records which may either be available publically or restricted within individuals of a sect, society, or community

Article 8 (j) of Convention on Biological Diversity 1992 defines TK as "knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity".

Thus in broader sense the term refers to knowledge possessed by indigenous people in one or more society and in one or more forms including but not limited to art, dance and music, medicines, expressions of culture, biodiversity knowledge and protection of plant varieties, handicrafts, designs and literature. It also embraces the information on the use of biological and other materials for medical treatment and agriculture, production processes and other techniques. TK is an encompassing notion which covers several, if not many areas of human creativity.

Nature and Characteristics: TK is based on experience of past years. What is traditional about TK is not the antiquity but the way it is acquired and used. Some important characteristics of TK can be as follows:

1. It is transmitted from generation to generations.
2. It is considered as gift of nature by the communities.
3. Such knowledge distinguishes one community from other.
4. It is not generally possible to identify the original creator of the knowledge or information.
5. It is usually associated with the biological resources.
6. Traditional Knowledge is not limited to any particular field of technology or arts.
7. It is owned by a community and its use is often confined to certain members of that community.

TK, in its various forms, though initially developed in ancestral times got modified, improved and adapted owing to the contemporary demands of the ever changing society and it still continues to develop. Thus, TK is in effect of non-contemporary nature. It has been used for generations and in many cases collected and published by anthropologists, historians, botanists or other researchers and observers.²

Kinds of TK: As per UNTP, TK is acquired by past experiences and observations. It is usually a collective property of society. Many members of the society contribute to it over time and it is modified and enlarged as it is used. This knowledge is transmitted from generation to generations.³

Following may be the components of TK:

- Cultural Knowledge
- Artistic Knowledge
- Medicinal Knowledge
- Biodiversity/ Natural resources Knowledge
- Agricultural Knowledge
- Sacred Knowledge
- Ecological Knowledge
- Scientific Knowledge
- Technological Knowledge

With respect to its nature and holders TK can broadly be classified as Community traditional knowledge, Publically known TK, Individual TK, Documented TK, Vocal TK, Sacred TK, Secular TK, Indigenous Knowledge.⁴

IMPORTANCE OF TK

The preservation of TK is not only a key component of the right to self-identification and a condition for the continuous existence of the indigenous and traditional people; it is also a central element of cultural heritage of humanity.⁵

There is a need to preserve TK for the following:

- conservation of biodiversity
- Preservation of traditional practices and cultures
- Conservation of environment
- Safeguarding the interests of indigenous people

PROTECTION OF TK

While the policy issues concerning TK are broad and diverse, the IP issues break down into two key themes: Defensive protection and Positive Protection. Defensive protection refers to a set of strategies to ensure that third parties do not gain illegitimate or unfounded IP rights over TK. Positive protection has two aspects namely: preventing unauthorized use, and active exploitation of TK by the originating community itself.⁶

1. International Efforts for the Protection of TK:

The importance of protecting and preserving indigenous traditional knowledge has been recognized in several international instruments. They include the Universal Declaration of Human Rights, the Convention on Biological Diversity, the draft United Nations Declaration on the Rights of Indigenous Peoples, the International Labour Organization Convention No. 168 and the International Covenant on Economic,

Social and Cultural Rights.

a. Convention on Biodiversity: The CBD is an international agreement signed at the 1992 Rio Earth Summit by 150 members including India. It entered into force on 29th December 1993. The convention has dedicated itself to promote sustainable development and ensuring optimum and fair utilization of the benefits come out of genetic resources. It recognizes that biological diversity is not just about flora, fauna and micro-organisms along with their ecosystems but also about people and their need for food security, medicines, water, a clean and healthy environment, that is to say the basic needs for sustainable development. These are also guidelines of the United Nations Guidelines for Consumer Protection, 1985.

There are 3 main objectives of CBD. These are as follows:

- conserve biological diversity;
- use the components of biological diversity in a sustainable manner; and
- provide fair and equitable sharing of benefits arising out of the world's genetic resources.

Article 2 of the CBD⁷ defines 'biological diversity' as "the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems". Further, it defines 'Biological resources' which includes "genetic resources, organisms or parts thereof, populations or any other biotic component of ecosystems with actual or potential use or value for humanity". The definition above includes both *human* and *non-human* biological materials. But the current focus is not biological resources (human) but rather *non-human* biological materials (NHBM) and their natural habitats. NHBM is the most useful measure of biodiversity. As we know that species and varieties exist in many different types of habitats but they are not evenly distributed. The countries rich in biodiversity are called the Mega diversity countries. It is essential to note that most of them are developing countries like Mexico, Columbia, Ecuador, Peru, Brazil, Zaire, Madagascar, China, India, Malaysia, Indonesia and Australia. They constitute nearly 70% of the world's species diversity. India is home to nearly 10% of the species. It is also the home of many socio-cultural practices that are related to biodiversity. These practices have been passed on from generation to generation.

Article 15(5) of the Convention states that "Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party". It requires the Contracting Party to take legislative,

administrative or policy measures with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed term.

b. TRIPS Agreement: TRIPS agreement provides limited protection of traditional knowledge. Article 1 the Agreement provides that members may but shall not be obliged to implement in their domestic laws more extensive protection than that is required by the agreement, provided that such protection does not contravene the provisions of this agreement. But under TRIPS it is not possible to protect TK under patent law.

TRIPS require member state to grant patent only to that inventions which are new, and are capable of industrial application. But these attributes cannot be applied to TK, as it is not new and is not capable of industrial application.

Article 27 of the TRIPS agreement states that the members may exclude from patentability inventions so as to protect order public or morality. The inventions that cause injury to environment as well as plant or animal life can be excluded. Thus states can use this provision for the protection of biological diversity associated with the indigenous communities. Article 27.3(b) of the TRIPS states that the members shall provide for protection of plant varieties either by way of patents or by an effective *sui generis* system.

The intellectual property laws under the TRIPS does not consider TK as intellectual property worth protection though patentability of products or process using traditional knowledge poses a number of questions.

c. The International Convention for Protection of New Varieties of Plants (UPOV Convention): The UPOV convention is an international convention exclusively dealing with protection of new plant varieties and is silent on the subject of traditional knowledge and genetic resources. However it does not forbid granting or creation of rights in respect of TK⁸. The International Union for the Protection of New Varieties of Plants (UPOV), established by the International Convention for the Protection of New Varieties of Plants, is an independent intergovernmental organization having legal personality. Pursuant to an agreement concluded between the World Intellectual Property Organization (WIPO) and UPOV, the Director General of WIPO is the Secretary-General of UPOV and WIPO provides administrative and financial services to UPOV.⁹

Article 7 of the 1991 Act of the UPOV provides that "the variety shall be deemed to be distinct if it is clearly distinguishable from any other variety whose

existence is a matter of common knowledge at the time of filing of the application". Thus IP rights are granted to plant breeders only if they are distinct, novel and stable. These conditions can be considered as similar to the criteria for patenting. These provisions can be invoked as a defensive strategy for the knowledge of indigenous communities relating to plant varieties as to grant IP protection the convention specifically provides it to be distinct and novel¹⁰.

UPOV system can be used as a tool for protecting plant varietal innovation of indigenous communities because the process of applying for plant variety protection is relatively simple and can be done even without legal help. Under the UPOV Convention, a farmer who produces a protected variety from saved seeds are guilty of infringement unless national law provides so, these provisions tends to weaken the economic position of indigenous communities.

d. UN Declaration on Rights of Indigenous persons: UN declaration on Rights of Indigenous persons was adopted by UN general assembly on 13th September 2007. The declaration emphasizes on the rights of indigenous persons to maintain and strengthen their own institutions, cultures and tradition so as to foster their development. Art 24 recognizes the right to their traditional medicines and provides for conservation of their vital medicinal plants animals and minerals. Art 31 asks the states to take all effective measure to recognize and protect the cultural heritage, traditional knowledge, traditional cultural expression as well as the manifestations of their sciences, technology and cultures. This declaration necessitates the need for an international treaty for protection of TK

e. Nagoya Protocol on Access to genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization: The main objective of this protocol is to ensure fair and equitable sharing of benefits arising out of genetic resources and to provide for appropriate access to genetic resources and transfer of technology for protection of biodiversity. Article 5 of the protocol asks the parties to the protocol to take legislative and administrative efforts to ensure that the benefit arising from the use of TK associated with genetic resources are shared in a fair and equitable way with indigenous and local communities. Before granting right to access to resources prior consent of indigenous people should be obtained. The protocol emphasizes on the need for development of a global multilateral benefit sharing mechanism providing for fair and equitable benefit sharing associated with TK. Protocol asks it parties to ensure that their national legislations provide for support and development of those indigenous communities.

A number of United Nations agencies are also in-

involved in protecting the traditional knowledge .The World Intellectual Property Organization (WIPO) is responsible for promoting the protection of indigenous intellectual property worldwide. It has conducted a number of studies on the role of the intellectual property system in protecting traditional knowledge.

Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore popularly known as IGC was set up in 2000 by member states of WIPO. IGC acts as an international forum for debate and dialogue concerning the interplay between intellectual property and traditional knowledge, genetic resources and traditional cultural expressions.

2. Indian Law: IPR laws play an important role in the protection of TK. The protection of TK under Indian law is as follows:

a. Indian Copyright Act: Indian Copyright Law impliedly provides for protection traditional knowledge of indigenous people under Section 31A² of the Indian Copyright law, which protects the unpublished Indian work. However there are major drawbacks in protecting traditional knowledge with copyright. They are:¹¹

1. **Authorship:** Under the Indian Copyright Law, protection is given to the author or owner of the work. Traditional Knowledge is community owned knowledge and is generally developed and evolved through generations to generation. In such case tracing the author of the traditional knowledge is not only difficult but almost impossible.
2. **Protection for Limited Time:** Indian copyright protection is time confined as in it is granted for a particular term of 60 years. Traditional Knowledge is imperative and it should have perpetual protection rather than limited protection.
3. **Fixed form:** To protect any work with Copyright under the Indian Copyright Law it is required that the work must be present in a tangible form. Fixed form of traditional knowledge is hard to find. In most of the cases, traditional knowledge is passed over generations in a community in form of stories. These stories are rarely available in fixed form.

b. The Patent (Amendment) Act, 2005: In India, patents are given to an individual for his invention. Traditional Knowledge is community owned knowledge and not by an individual. Moreover, critics are of the view that traditional knowledge is naturally owned knowledge and not an invention, therefore no patent protection can be granted to it. Patents are granted to invention that is invented by a single act of invention whereas traditional knowledge is evolved

and developed over generations. Indian patents are cost bound and their registration and maintenance cost a lot, which is an impossible take on the part of indigenous people as they lack financial assets.¹² Moreover, it is quite difficult on the part of indigenous people to engage themselves in the legality and technicality of patents. The Patent (Amendment) Act, 2005 introduced into Indian IP system certain new measures for protection of TK. The new amended Act in the area of specification of inventions which are not patentable made an addition that 'an invention which is mere new use for a known substance' and 'an invention which, in effect, is traditional knowledge or which is and aggregation or duplication or known properties of traditionally known substances' will not be an invention.¹³ Another provision provides after publication of patent application any person in writing can make an opposition to the controller on the ground of lack of novelty or inventive step, or non-disclosure or wrongful disclosure of source or geographical origin used in the invention and anticipation of invention by the knowledge, oral or otherwise available within any local or indigenous groups in the complete specification.¹⁴

3. Trademark: Trademarks are a way of protecting the use of marks, words, phrases, symbols, designs, or any combination of these associated with goods or service. Once a trademark is established, it can be used to identify and differentiate similar goods and services. There are countries which provide collective trademarks and certification trademarks, the use of which allows for control of the quality of goods sold by members of the collective community. Such use is frequently recommended and actually followed in practice. Indigenous groups can get registration of trademarks and sell their products using this symbol to distinguish their brand and ensure its unique quality. Thus traditional knowledge can be safeguarded to a certain extent by trademark system though it will not protect the substance of such knowledge. It will assure defensive protection against acts of passing off non-genuine products or services. Such use of mark can certainly establish product fidelity and protect against loss of reputation resulting from the use of the designation of traditional knowledge for derivatives products. It is very much like the use of trademarks even after the expiration of patents, particularly in case of pharmaceutical patents, to prolong product fidelity. In the event, if a patent prohibits the indigenous community from selling the product, they could register the trademark and subsequently license out the use of the trademark in order to allow companies to ensure authenticity. Existing procedures could be performed on products and approved by a community as a method of adding value to a product with the potential to col-

lect royalties on the products sold.

4. Geographical Indication: A geographical indication identifies goods as originating in a territory or region, or locality in a territory, where a given quality, reputation, or other characteristic of the goods are attributable to its geographical origin. When associated with a product, it attributes a known quality to the product that is associated with a specific geographical location. The use of geographical indication is not permitted in respect of goods produced in region other than that specific geographical area. A geographical indication does not require any element of novelty, originality or inventiveness. It can be used by a particular tribe or indigenous group to identify the tribe or group to the consumers and can be registered in the name of any association or group of people. A number of products that come from various regions are the result of traditional processes and knowledge implemented by communities in a given region. Geographical indications enhance the commercial value of natural, traditional and craft products of all kinds. Better exploitation and promotion of traditional geographical indications makes it possible to afford better protection to the economic interests of the communities and regions of origin of the products.

5. Protection of Plant varieties and Farmers Right Act, 2001: A variety has to be different from known varieties and uniform and stable in its essential characteristics, even after a number of reproduction cycles can be a protected variety. In this way the varieties developed by the possessors of TK could be protected. Improvements to varieties representing the natural state of plant diversity could also constitute new varieties eligible for protection.

Patenting of seeds, plant varieties and species are not allowed under TRIPS, but Article 27 (3) allows the member countries to make a sui generis system for protection of plant varieties. Accordingly India enacted a sui generis system in 2001 in the name of The Protection of Plant Varieties and Farmers rights Act. Though the Act is primarily based on International Convention for protection of new varieties of plants, it includes a number of provisions which are not included in the convention. This Act forms an independent sui generis form of protection to new varieties of plants.

The objectives of this Act as explicit from its title are IP protection of plant varieties and protection of rights of farmers. The farmer's rights here arise from their role in conserving, improving and making available plant genetic resources for the development of new plant varieties. The Act also intends to promote research for development of new plant varieties which in turn will pave way for accelerated agricultural growth.

6. Undisclosed Information or Trade Secrets: This branch of law protects undisclosed knowledge through secrecy and access agreements. It involves paying royalties to knowledge holders for access to and the use of their knowledge. The knowledge is said to be a trade secret if it has commercial value, it is not in the public domain, and is subject to reasonable efforts to maintain secrecy. A trade secret is only enforceable as long as it remains a secret. The object of trade secrets is to lawfully prevent information within the control of a person from being disclosed to, acquired by, or used by others without consent, in a manner contrary to honest commercial practices. This area of law is concerned with secrets of all kinds including personal, technical, commercial or industrial nature. It covers any pattern, device, compilation, method, and technique, recipes for food and beverages or process that gives a competitive advantage. It can be extended to protect potential ideas too. Trade secrets have no legal protection except in cases of “breach of confidence and other acts contrary to honest commercial practices.”¹⁵ Protecting traditional knowledge as trade secrets is quite possible for the indigenous people as it only requires a conscious effort on the part of the indigenous people to keep their knowledge as secret. Generally, traditional knowledge is intact with the community members only and therefore, can be protected as trade secret.¹⁶

7. Biological Diversity Act, 2002: Biodiversity plays an important role in the conservation of ecological stability and also involves protection of socio – ecological interests of people living close with nature. CBD recognizes the sovereign rights of states to use their own biological resources. The convention expects the parties to facilitate access to genetic resources by other parties subjected to a national legislation. Convention also asks the state parties to include within its legislation the right of indigenous communities for benefits accruing from the commercial use of their knowledge.

As a signatory to CBD India had committed to make a national legislation which provides for access to biological resources and benefit sharing. In order to fulfil this obligation Indian government has enacted the Biological Diversity Act in 2002. The Act provides for access to biological resources of the country with the purpose of securing equitable benefit sharing arising out of commercial use of those resources. The Act recognizes the Knowledge of local communities and emphasize on the need to protect them.

THREATS TO TK

1. Biodiversity and indigenous people: While discussing the protection of TK we need to discuss a bit

on the possible threats on TK as well. In India, there are around a hundred million forest dwellers that sustain their life on timber and non-timber produce. Further, significant parts of these forests are home to tribal communities that have been affected by commercial activities such as urbanization, cutting trees for wood, building roads, houses, dams, bridges or using the land for agricultural activities. This has disturbed the ecological balance as well as the framework upon which they built their TK. TK is a valuable treasure possesses by these people and only through them can there be optimum use of TK. TK is also considered a manifestation of cultures.¹⁷ Traditional low-input agricultural systems, based on extensive and applied knowledge about natural processes and local ecosystems have successfully enabled millions of people to subsist for thousands of years in some of the most hostile environments.¹⁸ But today, TK based agricultural practices have declined. It is an important element of the heritage, culture and tradition of India. And so, protecting and preserving TK is not only a prime component of the right to self-identification and reason for the continuous existence of indigenous people, it acts as a central element for the culture and heritage of humanity itself.

2. Bio-piracy: This is the most intricate and complex problem being faced today. Biopiracy is the misappropriation of knowledge from traditional and indigenous communities or individuals. It occurs when patents are granted to innovations that are not original, as the knowledge already existed as TK in public domain. This usually occurs because prior informed consent (PIC) was not taken from the original community or individual or there was no provision for profit sharing. In the traditional system of India, there has not been a system of private ownership of knowledge in relation to the use of biodiversity such as farming, fishing, animal rearing, healing and the use of medicinal plants.¹⁹ There is however a sense of private ownership or demarcation between communities but they all share the knowledge in various fields. However, many corporates and bioprospectors today are stealing from such communities and earning huge profits. An American patent was granted to the University of Mississippi, Medical Center for the use of turmeric in wound healing. The Indian Government challenged the patent on the basis of ancient texts and research papers attesting the non-contemporary nature of the knowledge held in the public domain. The US patent, was rejected stating that patenting of TK by foreign corporations would pose as a cultural as well as economic threat to countries like India.

India holds a view that²⁰

Rampant bio-piracy deprives holders of TK of any benefits. Loss of biodiversity and associated TK will

not Only deprive the world of unique knowledge-base but also threaten the very survival of local communities. IPRs laws must benefit all holders of such IPRs equally – whether they are huge multinationals spending billions of dollars on research or traditional local communities where knowledge has simply been passed on from one generation to another.

With this we may conclude that protection of TK is not only to help in the survival of local communities but also to protect the benefits out of TK.

3. Patenting of Genetically Modified Organisms (GMOs): Using scientific methods including cloning and DNA technology produces GMOs. They can increase per capita crop yields and also remove any chemical insecticides. Despite the opposition from different sectors and corporations along with their stakeholders, India has established patenting of GMOs. There are many examples of countries patenting GMOs for agricultural crops. A GRAIN study covering the period 1982-1997 found 160 biotechnology patents on rice, most of them held by the US and Japanese companies. The top 13 rice patent holders had just over half the biotechnology rice patents. In 1998, farmer sin India and Thailand protested on the streets against patenting of basmati rice (India) and jasmine rice (Thailand) by a US company.²¹ Research laboratories have genetically engineered the Bt gene into crops (including maize, soybean, cotton, potato, rice) so that the plants produce their own insecticide. Due to mergers, the technology is heavily concentrated in few hands, and some companies have obtained very broad patents.²² The problem is that these broad patents lead to large-scale monopoly profits also increase the scope of biopiracy of the TKs.

4. Patenting of Traditional Medicines: This is suggested to be a form of bio-piracy that is the most significant threat posed to both TK as well as biodiversity today. A good example of bio-piracy was discussed earlier, which subjected turmeric to patents. The US Pat No 5,401, 504 was successfully challenged and invoked by The Government of India. Further, there were numerous patents that were granted for the use of traditional plants and methods, which were in public domain. One of the most spoken about patenting was that by Bikram Choudhury of yoga in the US.²³ Bikram Choudhury first filed his copyright application in 1979 for *Bikram's Beginning Yoga Class* and subsequently filed the same for many of his books, videos and tapes. In 2005, the United States District Court for the Northern District of California heard the case *Open Source Yoga Unity v. Bikram Choudhary*²⁴ where claims on skills and labour for specific asans making it an enforceable right were made. Both the parties however settled the case.

CONCLUSIONS

The limitations of existing IP laws in the protection of TK cannot be undermined, conventional IP mechanisms can be used to protect TK and related natural resources. We need to make a substantial base that there is a need for its protection. The main issues for protection are prevention of bio piracy, misappropriation of TK by bio-prospectors and encouraging the use of TK and its importance in development. Here IPRs may be a significant tool from a legal point of view but may fail to be effective in some circumstances. For the protection of TK under IPRs in India, different strategies may be adopted such as the development of sui generis regime or application of existing modes of protection. To conclude the paper the role of the Government of India in protection and conservation of TK through State Biodiversity Boards and Programs and through patent laws must be considered. Further the Biological Diversity Act, 2002 and the Forest Rights Act, 2006, which provide shield to tribal traditional knowledge need to be contemplated on. In research and development of new biotech, agricultural, and pharmaceutical products, two concepts, which are closely related, have been distinguished i.e., biological material (tangible) and traditional knowledge (intangible). The World Intellectual Property Organization (WIPO) takes the view that 'traditional knowledge' refers to both tangible and intangible components: the tangible knowledge mainly refers to genetic resources, whereas the intangible component mainly refers to knowledge (WIPO, 2001).

Issues relating to protection of TK are very wide; a single solution can hardly be expected to meet such a wide range of concerns and objectives. Efforts should be taken for the protection of TK as many of indigenous communities depend on TK for their survival. The existing forms of intellectual property or a combination of various forms of intellectual property can be used to protect traditional knowledge till the development of a comprehensive sui generis legislative regime.

REFERENCES

1. 1A. Damodaran, "Traditional Knowledge, Intellectual Property Rights and Biodiversity Conservation: Critical Issues and Key Challenges" 13 *JIPR* 509-513 (2008).
2. 2Ong Chui Koon, Intellectual Property Protection of Traditional Medicine and Treatments in Malaysia in Michael Blakeney (ed), Perspectives on Intellectual Property Aspects of Ethno Biology. Vol.6, Sweet and Maxwell, London, 1999, p.270.
3. 3United Nations Environment Programme, Convention on Biological Diversity, available at <https://www.unenvironment.org/>(visited on February 23, 2018).
4. 4 Daniel J. Gervais, Spiritual but not Intellectual? "The protection of Sacred Intangible Traditional Knowledge" Vol.II, Summer 2003, p.474
5. 5 Carlos M Correa, *Traditional Knowledge and Intellectual Property, Issues and Options Surrounding the Protection of Traditional Knowledge*, Quaker United Nations Office, Geneva, 2001, p.7
6. ⁶<http://www.wipo.int/tk/en/tk/> (visited on February 23, 2018)
7. ⁷ Convention on Biological Diversity available at: <https://www.cbd.int/doc/legal/cbd-en.pdf> (Visited on February 16, 2018)
8. ⁸ Greengrass Barry, Plant variety protection and protection of traditional knowledge, available at www.unctad.org/trade/envi/docs/unpov.pdf (visited on January 4, 2016)
9. ⁹**International Convention for the Protection of New Varieties of Plants (UPOV) available at** http://www.wipo.int/wipolex/en/other_treaties/details.jsp?treaty_id=27(visited on February 21, 2018)
10. ¹⁰guidance for preparation of laws based on 1991 Act of the UPOV convention, available at http://www.upov.int/export/sites/upov/en/publications/pdf/upov_inf_6_1.pdf (visited on January 4, 2016)
11. ¹¹*Zoya Nafis, India: Protecting Indian Traditional Knowledge As Intellectual Property* available at <http://www.mondaq.com/> (Visited on January 21, 2018).
12. ¹² *ibid*
13. ¹³Section 3(d)and 3(p) of Patent(Amendment)Act,2005
14. ¹⁴Section 25(3)(d) of Patent (Amendment)Act,2005
15. ¹⁵ Trading Into the Future: The Introduction to the WTO, Intellectual Property Protection and Enforcement, available at www.wto.org (visited on January 21, 2018)
16. ¹⁶ Supra note 21
17. ¹⁷ K. Venkataraman, S Swarna Latha, "Intellectual Property Rights, Traditional Knowledge and Biodiversity of India" 13 *JIPR* 326-335 (2008)
18. ¹⁸ Duffield Graham (ed.), *Rights Resources and Response, Cultural and Spiritual Values of Biodiversity* (UNEP, 1999)
19. ¹⁹ Vandana Shiva, 'US Monopolists Continue BioPiracy Against India', available at: <http://www.progress.org/archive/patent03.htm> (Visited on January 19, 2016)
20. ²⁰ UNCTAD, A Positive Agenda for Developing Countries: Issues for Trade Negotiations, UNCTAD/ITCD/TSB/10 (UNCTAD, Geneva), 2001
21. ²¹ Assisi Foundation *et al*, 'Biopiracy, TRIPS and the Patenting of Asia's Rice Bowl: A Collective NGO Situationer on IPRs on Rice', available at: <https://www.grain.org/article/entries/27-biopiracy-trips-and-the-patenting-of-asia-s-rice-bowl> (Visited on January 19, 2018)
22. ²² GRAIN briefing, 'The end of farm-saved seed? Industry's wish list for the next revision of UPOV', available at: <https://www.grain.org/article/entries/582-bt-cotton-the-facts-behind-the-hype> (Visited on January 19, 2018)
23. ²³ Patenting Yoga, available at: <http://timesofindia.indiatimes.com/delhi-times/Patenting-yoga-The-issue-steam-up/articleshow/2067565.cms> (Visited on January 20, 2018)
24. ²⁴*Open Source Yoga University v. Choudhury*, 2005 U.S. Dist. LEXIS 10440, 2005 WL 756558, 74 U.S.P.Q.2d (BNA) 1434 (N.D. Cal. 2005)