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Traditional knowledge: Much more than what meets the eyes

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***Abstract*---**Traditional Knowledge (TK) as the name suggests refers to the long-standing traditions and various practices of the indigenous communities. Traditional knowledge embodies culture and the knowledge of the community which is passed (mostly orally) from one generation to another. Traditional knowledge is not static; it evolves with these communities. India is a store house of abundant knowledge about the traditional value of forest products. Because of factors like loss of habitat, environmental degradation coupled with unendurable ways of cultivation and harvesting, it is estimated that around 12 % of 6000 species of potential medicinal plants is under threat. The various suggestions that have been forwarded in India to protect traditional knowledge are documentation of traditional knowledge, innovative patent system and a sui generis system of protecting traditional knowledge. It is also hinted that documentation of traditional knowledge can help combat bio piracy. If traditional knowledge is documented, then information of art of inventions based on such knowledge will be available to patent examiners all over the world. Not only this, through documentation it is possible to trace the local communities with whom there can be a benefit sharing from exploitation of such traditional knowledge.

***Keywords*---**Intellectual Property, Traditional Knowledge, Bio piracy, Patents.

Introduction

Intellectual Property Rights (IPR) is not a new concept. It is defined as the rights which are bestowed upon a person over the creation of his/her mind. It confers the creator with an exclusive right over the said creation.[1]According to *World Intellectual property Organization* (WIPO), Intellectual Property broadly means the legal rights, which results from intellectual activity in the industrial, scientific, literary, and artistic fields. It is the intangible and incorporeal property[2]. The creation under Intellectual Property must be innovative and new. The history and origin of IPR can be traced back to 4th century. During that time the individuals were given due credits to their inventions. Thus, the concept of recognizing and rewarding a creation of an individual is not a recent development but is an ancient one. The significance of IPR was acknowledged for the first time in the World Intellectual Property Organization (WIPO) administered Paris Convention for the Protection of Industrial Property in the year 1883. The foremost question that was arose was regarding the need for the protection and promotion of Intellectual Property at national and international level. It was felt that IP protection will encourage more inventions consequently leading to the path of progressiveness. Also, IP protection will foster economic growth at both national and international level and benefit the social and cultural well-being of the people. Thus, the system of IPR strikes a balance between the interest of both- the public and the creator's interest.[3]

Along with other forms of Intellectual Property, Traditional knowledge is one of the most vital forms that has been recognized under the forms of IP. "Traditional knowledge refers to the knowledge, innovations, and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation."[4]The origin of the Traditional Knowledge can be traced back to 2 million years ago.[5] However, over time, indigenous peoples around the world have preserved distinctive understandings, rooted in cultural experience, that guide relations among human, non-human, and other-than human beings in specific ecosystems. These understandings and relations constitute a system broadly identified as indigenous knowledge, also called traditional knowledge.[6]

Traditional knowledge and intellectual property issues had always been in the topmost parley. The relationship between intellectual property standards and the practices of indigenous groups has become a major item of work in international forum such as the World Intellectual Property Organization (WIPO), the World Trade Organization (WTO), the Food and Agriculture Organization (FAO) and the Conference of the Parties (COP), to the Convention on Biological Diversity (CBD).[7]The main concern of the third world and fourth world countries was that their resources were prone to bio-piracy. To curb this problem, they felt a need to come up with provisions and mechanisms for the protection of the TK. For the first time, the need to protect TK was felt in the year 1978 after which WIPO and UNESCO came together with a joint initiative for the protection of TK which led to the adoption of WIPO-UNESCO Model Provisions for National Laws on the

Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions in 1982.[8] The guidelines to WIPO members directed them to protect the folklore in their jurisdictions. Since then, the aim has been to entrust legal protection to the knowledge of the indigenous communities.

This article is limited to a brief analysis of the linkages between Traditional Knowledge and Intellectual Property Rights. Accordingly, the paper discusses briefly about Traditional Knowledge and its significance along with example of *ferulaasafoetida*. Furthermore, the paper examines the relationship between Traditional Knowledge and Patents. The paper also discusses aspects of Traditional Knowledge in Indian Society. The last part of the paper aims to briefly explore bio piracy and the sui generis legislation to combat bio piracy in India along with laws protecting TK and the inadequacy of legal mechanism.

Traditional Knowledge: Meaning

Traditional knowledge is referred to as "traditional knowledge, traditional ecological knowledge, local knowledge, and folk knowledge that has been developed by the indigenous communities or the local communities in response to their specific local environment."[9]World Intellectual Property Organization (WIPO) defines Traditional Knowledge as "a 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 identity.".[10] Thus, TK can be defined as organization beliefs, knowledge, communication, and traditions which are intended to preserve and contextualize by Indigenous relationships with landscapes and culture over times. Such relationship with the community makes it traditional.[11] TK is part of a collective, ancestral, territorial, spiritual cultural, intellectual, and material heritage.[12] It is one which is not produced in a systematic way but with respect to a creator or creators' interaction with their cultural environment.[13] However, none of the definitions that has been mentioned above are universally adopted definition of TK. Although, attempts have been made to universally define traditional knowledge, indigenous knowledge, and indigenous peoples but that has been so far not very successful.

TK has been used in a lots of manufacturing industries, such as food & beverages, agriculture, pharmaceuticals, horticulture, and personal care such as cosmetics, etc. as well as they are also used in biodiversity related knowledge of the indigenous community.[14] In these industries, TKhas been used as a starting point for new products, however, it has remained a major resource for many commercial research and development programs.[15]

The origin and history of the TKdates tothe ancient times. It can be traced back to 2 million years ago when Homo Habilis[16] began making their tools and started interacting with the environment.[17] It is essentially a long-established tradition and practice that has been followed by the indigenous communities for centuries. These are passed to the progeny and get evolved with the environment of the said

generation.[18] Thus, TK does not mean that it is an ancient knowledge but is a knowledge which is at its core traditional to the community and develops with the passage of time making it dynamic.[19] In this regard it can be said that the TK is organic and vital and is created each day. Its responses to the current needs of the community and molds and sustain itself accordingly.[20]

Thus, TK is also referred to as Indigenous Knowledge, Local Knowledge, Indigenous Technical Knowledge, or Indigenous Knowledge System.[21]As TK is a representation of the cultural values of the community, usually, it is held collectively by the respective community. Most of such knowledge is transmitted orally from one generation to another and remains undocumented.[22]

Significance of Traditional Knowledge

Traditional knowledge is a part of the very cultural identities that indigenous and local people carry with them. Apart from this, TK also carries within a holistic world-view, i.e., it is social, cultural, economic development, and it is inseparable from the ways of life and cultural values of the indigenous communities and local people.[23] Protection and maintenance of distinct knowledge of traditional knowledge system is a must for the future well-being and sustainable growth and development of people of such communities as their spiritual belief, customary legal system and cultural vitality is highly interconnected with it.[24]

Looking into the broader ambit of TK, it plays a major role in the growth and development of agricultural and heath care needs of people. As far as traditional knowledge in terms of 'traditional medicine' is concerned, it has originated and evolved and has confide a long history of its use by indigenous communities. Wellness and healing are the challenges that have been traditional addressed by indigenous and local communities using'traditional medicine'. These medicines are developed by indigenous cultures and incorporate within its plant, animal and mineral-based medicines, spiritual therapies and manual techniques designed to treat illness or maintain wellbeing. According to statistics, India consumes about 70% traditional medicine and Ethiopia consumes 90% of traditional medicines on primary healthcare.

Traditional knowledge has not been very much prevalent in western countries initially. However, with passage of time they have realized its importance and usability. Now they have become more interested in learning the know-how of TK of the indigenous communities. Reason being that they have perceived that coupled with modern science and technology the TK can lead to the exploration of unexplored paths be it medicine or biodiversity.

Ferula asafoetida

Ferula asafoetidais herbaceous plant of the umbelliferae family. It is a very common spices especially used in India households and is commonly referred to as 'Hing'. This plant was traditionally found in central Asia, eastern Iran to

Afghanistanalthough; today it is chiefly grown and exported worldwide from Iran and Afghanistan. Ferula asafoetida is not native to India, but it has been used in Indian households for medicines and in cooking for ages.

Ferula asafoetida is mostly known for its traditional medicinal usages. It is an effective remedy available for various stomach diseases and is considered the best remedy available for digestive problems. Apart from this, it also used in the treatment of cancer. This herb is also known for its effectiveness in curing various ailments relating to women such as sterility, unwanted abortion, pre-mature labor, unusually painful, difficult and excessive menstruation and leucorrhea.Thus, it can be said that Ferula asafoetida is traditionally used by indigenous people for various medicinal purposes for ages such as such as asthma, epilepsy, stomach-ache, flatulence, intestinal parasites, weak digestion and influenza. Recent studies including pharmacological and biological have also shown that asafoetida possess several activities, such as antioxidant, antiviral, antifungal, cancer chemo preventive, antidiabetic, antispasmodic, hypotensive and molluscicide. Apart from the traditional medicine purposes, this herb is also prominently used as flavoring spice in a variety of foods worldwide.

Relationship between Traditional Knowledge and Patent

Traditional knowledge can be defined as something that is collectively held and is passed on from generation to generation. However, under patent there should be a true and first inventor; there is a need for an inventive step. To examine the relationship between traditional knowledge and patent one should try to examine the relationship between the IP based Agreement i.e., TRIPS and the Bio-Diversity base Agreement i.e., the CBD. Regarding this relationship there are different arguments and opinions. A group of countries are of the view that there is no conflict between the Convention of Biological Diversity and TRIPS agreement. Some says that it can be made mutually supportive by making appropriate measures in the national legislations while some others are of the opinion that there is a need of an international action to make both the agreements mutually supportive. Another group of countries opines that there is inherent conflict between the two agreements, and they need the TRIPS to be amended to remove such conflicts.[25]

One reason to link patents with traditional knowledge is certainly to gain profitability from such inventions based on traditional knowledge. The field of biotechnology witnesses many inventions that are based on TK. Regardingthe protection of the traditional knowledge using patents, one can observe that there is inherent difference between the concepts of patent and that of traditional knowledge.

Indian Scenario

There are around 100 million forests dwellers in India. The forests give them means of sustenance. These forest dwellers have in turn gathered knowledge from the natural environment. Insulated from the modern man these communities

have carried on the traditions of their communities. TK cannot be protected in the intellectual property rights regime. It cannot be patented because of the lack of novelty or inventive character.

The TRIPS Agreement also has some provisions having limited application to the protection of TK. The obligation to protect geographical indications can be used to protect traditional knowledge if associated with the indication used for production and sale of goods. It is made clear that a given quality, reputation or other characteristics of the goods essentially attributable to its geographical origin are to be considered in identifying the geographical indications for protection. Thus, it may be possible for protection through geographical indication the traditional knowledge associated with goods. Disclosing traditional knowledge which forms part of an invention and of the state of the art or prior art will promote the progress of science by creating an incentive for the maintenance of traditional knowledge systems. This will happen by traditional knowledge being widely and universally accepted within “western” or “modern‖ innovation protection systems and becoming a reference point within the regular operations of the international patent system.

Challenges

Among the various challenges being faced by the indigenous communities, one is that the cultural values and knowledge of these communities are being threatened by the rapid globalization wherein the modern way of living is encroaching every corner of the world. The National Knowledge Commission India opines that around 12% of 6000 potential medicinal plants are currently under threat due to loss of habitat and unsustainable ways of cultivation and harvesting. The people are migrating from one place to another and settling down in absolutely new cultural and social environment. These settlements are disrupting the traditional lifestyle of the communities and intermixing of different cultures are weakening the traditional ways of the natives of the region. There is also the concern of more counterfeit products being marketed due to the growing scarcity of such medicinal plants. Sustainable harvesting methods must be adopted so as to conserve these plant resources. The wild gene pool of India's medicinal plants should be secured, via establishment of a nationwide network of 300 'Forest Gene Banks' across the 10 bio-geographic regions of the country.

The western societies have started recognizing the importance and usability of the TK, but the problem arises that they regard the knowledge to be in public domain which is freely available and accessible to all. This notion has led to appropriation of the TK by the researchers without giving due credit and acknowledgment to the indigenous people. Thus, the lack of appreciation and respect towards the TK is shown by such acts.

Bio piracy

Bio piracy or encroachment has been one of the greatest threats to the biodiversity or related traditional knowledge. Current legal systems are inadequate. The interface “between traditional knowledge and innovations in the realms of pharmaceuticals, cosmetics, agriculture, chemicals and environmental

conservation, which constitute the core of the 'biopiracy' phenomenon, provide pivotal sites in which IP, specifically the patent regime, directly engages traditional knowledge in contestation over the utilization of Genetic Resources (GRs) across different knowledge frameworks."Biopiracy happens when researchers or research organisations take biological resources without official sanction, largely from less affluent countries or marginalised people. Biopiracy is not limited to drug development. It also occurs in agricultural and industrial contexts. Indian products such as the neem tree, tamarind, turmeric, and Darjeeling tea have all been patented by foreign firms for different lucrative purposes. A very famous case in this respect is the Turmeric case, a United States patent number 5,401,504 was granted to the University of Mississippi Medical Centre in the year 1995 for their claimed invention of 'use of turmeric powder in wound healing'. Subsequently, the patent was challenged by the Council of Scientific and Industrial Research (CSIR). CSIR claimed that in India turmeric has been used for healing rashes and wounds for thousands of years. Therefore, the medicinal use of turmeric powder was not an invention. CSIR supported their claim by producing documentary evidence including ancient Sanskrit texts which revealed that the claimed invention by the University of Mississippi Medical Centre was in fact a traditional knowledge of the Indian community.

Case Study
AzadirachtaIndica

AzadirachtaIndica, popularly known as neem, is a very common tree species of India with medicinal value, has been the subject of numerous patents. All the inventions that relate to neem virtually used public domain traditional knowledge as their basis. This led to a huge uproar amongst the Indian users who refused to accept this and leading to a challenge of two patents (1) "to a European Patent Office (EPO) patent for the fungicidal effects of neem oil (Patent No. 436 257 B1) owned by W. R. Grace & Co., and (2) to the US patent for a storage-stable azadirachtin formulation (Patent No. 5124349) also owned by W. R. Grace." In the year 2000, the patent described above was revoked by EPO due to the lack of novelty and invented step. It was also observed that patenting Neem, name of every household, had a substantial socio-economic impact. Almost all rural and semi-urban communities are aware of neem as having a plethora of health benefits. Indian heterogeneous communities were equivocal in opposing the patenting of neem by an American company. They feared the tyranny that looms large which the patent holder may unravel once obtained from the IP rights.

Rosy Periwinkle

The case of Rosy Periwinkle is another well-known instance where biopiracy was exposed against an American company Eli Lilly, a pharma-giant in Arizona established in 1876. Rosy Periwinkle is a naturally grown plant found in abundance in Madagascar. During the 1950s, the researchers of the company heard about the medicinal value of the plant Rosy Periwinkle and collected samples from India as well as Madagascar. They isolated the samples and tested the two components, vincristine, and vinblastine as unearthed from the indigenous experts of the region. During the process of testing, they identified alkaloids which later became very effective in treating childhood leukemia with a

success rate of over 90 per cent. During the late 1950s, the company started marketing it and especially vincristine earned a substantial profit for Eli Lilly. The natives of Madagascar, who originally identified the medicinal qualities and values involved in Rosy Periwinkle, never got any share of profit gained by Eli Lilly because of the absence of benefit-sharing laws, both internationally and locally.

Sui generis Legislation to Combat Biopiracy: Position in India

Sui generis means something unique and exclusive to a specific jurisdiction. *Sui generis* legislation is passed with specific objectives in mind. To achieve certain protection for traditional knowledge within the IPR domain, some *sui generis* legislation came into force to address the issue.
Traditional knowledge and its incorporation in IPR were not simple. To make this happen, two concepts evolved:

- Amending the existing laws of IPR and making necessary changes to accommodate traditional knowledge and its derivatives, and
- To make comprehensive legislation to promote and protect traditional knowledge within IPR.

Many jurisdictions within WTO have made necessary changes in their legal system to accommodate traditional knowledge within IPR. India accommodated traditional knowledge both by amending existing IPR statutes and creating new ones. As a matter of practice, the onus for protection of TK/TCEs globally vests upon WIPO of WTO who are responsible for TRIPS to make a strategic alteration to accommodate TK and TCE. Some of the recent legislation that came up to protect traditional knowledge in India is “The Biological Diversity Act, 2002”, the “Protection of Plant Varieties and Farmer's Rights Act, 2001” and the “Geographical Indications of Goods (Registration and Protection) Act, 1999”. There has been significant development in various existing IPR legislations in India like the Patent Act, Copyright Act, and the Trademark Act.

Protection of Traditional Knowledge

Protection of traditional knowledge is paramount as it plays an integral part in the cultural, social, environmental, and economic development of the indigenous communities. As discussed earlier, around their traditional knowledge these communities form their own identities. The other reason was unauthorized use of traditional knowledge of indigenous communities was rapidly increasing and they were neither acknowledged nor any benefits were shared with them. Apart from identification given to them by traditional knowledge, its usage fosters affordability in terms of healthcare, it enhances sustainable agriculture and helps them in the conservation of their biodiversity among the others.The possessors of the traditional knowledge also pointed that the system should be made such that it could comprehend the customary practices and laws of their communities and not develop an unworkable system.

The discussion regarding protection of traditional knowledge started due to the activity of granting of patents or other IPRs covering traditional knowledge to those who were not the holders of the knowledge or have not been the innovators and possessors of it. At the international level it was realized that there was an

emergent need to protect and conserve the cultural practices of the indigenous communities since protection of traditional knowledge at national level alone will not serve the purpose. Thus, any unauthorized usage of traditional knowledge leads not only to the misuse of such knowledge, but such encroachment also leads to dissolution of the identity of the indigenous communities.

Laws Protecting Traditional Knowledge

National and regional laws protect traditional knowledge within a limited space, but the impact of this knowledge system is global. Traditional knowledge, irrespective of its local applicability generally limited to a clan or at times only within a family in a community, traditional knowledge across the globe has been found to be based on certain ethical and moral precepts. This homogenous behavior of traditional knowledge renders an impact that is beyond national boundaries. Practices like prohibition to the fishing of certain species during their breeding season could be seen as a standard practice amongst all indigenous fishing communities. Same could be found in protecting coral reefs by indigenous communities by application of similar techniques in different parts of the world. International customary law has been flouted in almost all jurisdictions, and the impact is quite visible today.

Indigenous communities represent the social and unified ethos of our country. The sheer expansive nature of the existing TK has been inadequately represented in the prevailing laws and legislations. Some jurisdiction has succeeded in incorporating protective laws for their fading TK while some others are losing their valuable knowledge at a very fast rate due to non-protective or inadequate measures. However, a *sui generis* system to promote the TK has been proposed. This development owes greatly to the Nagoya Protocol, where India is a signatory.
The major limitations that are inherent in the Indian legal system are multidimensional. Primarily, the government do not recognize the term indigenous per se, irrespective of using the word aboriginal once, in a document before the international community. This position of India in the international forum reinstated that tribals survive but not as indigenous communities. However, this distinction took place at a later stage as India was a party to the ILO Convention of 1957 on Indigenous and Tribal Population. India supported the document at the early stages when it only used the term Indigenous. In several Government publications, the term Adivasis and aboriginal have been used interchangeably. The current rejection of the term indigenous was developed in the context of the Working Group in 1984 and later in 1992. Secondly, India still follows ILO 107, which has already been replaced by ILO. There are innumerable issues to be depicted at this juncture. ILO was discarded and was replaced with ILO. Thirdly, there are no positive protection parameters of these peoples towards their land and culture. As a matter of fact, there are many indigenous communities in India which are not recognized under the purview of Scheduled Tribes, making the process 'more of politics than of law'. In submitting the Universal Periodic Review reports, India has suppressed the atrocities that these peoples have undergone in the hand of non-tribal peoples and the state. Millions of these peoples have been ousted from their habitat, forcing them to change their way of life and contributed to the loss of traditional knowledge, their ancestral

cultural expressions, language and traditional indigenous farming practices amongst others.

Inadequacy of Legal Mechanism

There are two main flaws in the present legal mechanism: -
1. General Issues: Devolution, lack of appropriate legal system, bio prospecting makes all traditional knowledge highly vulnerable to biopiracy. Traditional Plants and related traditional knowledge have been allegedly falsely patented by the US Patent Office including Neem, Haldi,Jamun, Pepper, Mustard, Basmati Rice etc. Traditional knowledge is generally associated with biological resources and is invariably an intangible component of such a biological resource. Traditional knowledge has the potential of being translated into commercial benefits by providing leads/clues for development of useful practices and processes for the benefit of mankind. As of now, India does not have a specific *sui generis* legislation to protect such TK and folklore but is in the process of developing such legislation.

2. Granting of Patent to Traditional Knowledge: Granting of patent to traditional knowledge already in the public domain or without the consent of the indigenous people or the local communities' amount to unjust appropriation. This occurs in cases where members do not appropriate definition of the criteria for penetrability or appropriate procedure. Two area it has been said that the patent system is not working well enough in connection with the granting of patent covering traditional knowledge have been referred to definition of prior artused to determine whether a claimed invitation meets the novelty stranded for patentability. The second concern the adequacy of the information on prior art available to patent examiners.
3. Consent and Benefit Sharing: Traditional knowledge is being used without the consent of the indigenous people and local communities and without sharing of the benefit with the ones who have legitimate control over it. It may be suggested that the existing IPR system should be used for protecting this traditional knowledge.

Conclusion

Over the years, the commercial or technical value of Traditional Knowledge has been realised. This has led to the pressing need to recognise the contribution of indigenous communities in developing such knowledge. The challenge is to terminate the misrepresentation, tampering and unauthorised use of TK. The current IP laws are ineffective and insufficient to meet the requirements of the indigenous people. The essence of TK cannot be justified by the current laws. For instance, the IP laws are moulded in such a manner wherein an individual enjoys the rights and remedies that are bestowed upon him through such laws. Such law is quintessentially insignificant in terms of TK which is collectively possessed by a community. Moreover, the current laws provide protection for barely a few years whereas TK needs to be protected for posterity. Otherwise, after the expiry of the term of protection, anyone may easily access the TK and use it legitimately and the hold of indigenous people over their own knowledge shall stand abandoned.

Thus, there is an emergent requirement for formulating traditional knowledge systems or *sui generis* systems answering the requisite of protecting TK.

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