Traditional Knowledge and Patent Strategy

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For centuries, practices have been invented and passed on from generation to generation among various communities. Such practices cover areas such as music, dance, science and technology, medicine, etc. As innovations evolved across centuries, the same practice as it stands today is collective knowledge accumulated across generations restricted to certain groups of people and passed on as traditional knowledge. These practices, forming an essential cultural attachment to a community, intend to promote community ownership over such knowledge. Many of these practices have recently picked up a trend of being the basis for novel inventions. While the nature of traditional knowledge is to promote community interests, the nature of patent law is to promote personal monopoly and profit. With the current commercial dynamics that dominate the world, there are many growing instances where traditional knowledge meets patent law. This article intends to find a solution/strategy by way of which, a mean path can be constructed between the world of traditional knowledge and the world of patents.

Keywords: Traditional knowledge, patent, TKDL, intellectual property

For centuries, people have enjoyed folk music, not only dancing to its tunes but also appreciating its soothing effect. Even in today’s super advanced medical and healthcare world turmeric retains its place in the common household to heal wounds and increase immunity. Millions of people across the world continue to refer back to such practices in spite of the tremendous advancement in science, technology and medicine.

Since this article deals with traditional knowledge (TK) from an intellectual property law perspective, it is important to understand if such creative practices are protected by current legislatures and assuming they are valuable, how they can be capitalized upon to benefit the society.

Man has always been an opportunist and in the current economic scenario, anything that can be converted into money is never ignored. Even the spirit of intellectual property laws rests on providing means of appropriating what one has rightfully put ‘sweat and labour’ into or developed that can benefit the society as a whole. This is also based on the notion that in order to advance practices that help people evolve, it is important to encourage people to create novel practices/products by providing them with incentives. It is human nature to look for incentives whenever the question of putting effort is placed in front of them. Incentives could be in various forms, for instance, economic benefits, social benefits or even just plain recognition for ones’ efforts. The very objective of patent laws across the world is to provide these incentives to people who invent something novel that can be used to benefit the world.

This article will first explore whether or rather when TK qualifies as intellectual property. Secondly, if it qualifies as intellectual property then, what kind of rights are available to protect/develop such TK and thirdly, the ways in which such TK can be capitalized upon without infringing the rights (if any) that subsist in TK, especially from a patent law perspective.

What is Traditional Knowledge?

Since time immemorial, people have always been curious about their environment. They have experimented, explored and in the process adapted themselves to survive through ages. When hungry, people hunted; when ill, they found ways to cure or when injured, they found a way to heal. Whenever bored, people found ways to entertain themselves, and in the process invented singing, dancing and music. Before, the environment and requirements were looked at from a scientific perspective, i.e. before the discovery of elements and chemical components; people always relied on natural resources and their

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combinations. It has taken a great number of years and effort to understand and attain this sort of knowledge.

For instance, healing an injury in pre-science age would mean finding a natural resource or a combination of natural resources that would help heal the injury as quickly as possible. Various extracts from plants were tested, various materials available in nature were used in combination with such extracts to find the best possible way to provide a solution to the question: what would be the best treatment for an injury from the available environment? One community came up with turmeric in the process. This continued process that led to a conclusion that turmeric can be used for healing purposes, is knowledge. But it is not limited to that, the people who came up with this knowledge looked into the method of making it, the method of using it and also looked for ways to better it. Thus, the improved process (if any) that is currently used for healing, but based on the fact that turmeric has healing properties, is a result of continuous development over the initial knowledge by further generations to whom such knowledge has been transmitted/imparted. As such, the current generation uses a more refined and modified process to conduct the practice of healing injuries using turmeric as the base source. Thus, the knowledge that is possessed by current generations by virtue of tradition, qualifies as TK.

From a legal perspective, there is no agreed definition of TK and it is a term with many facets. It is a wide umbrella, which brings within its purview, practices ranging from artistic expressions, like traditional songs, dances, clothing to traditional medicine and healing knowledge, which have survived and benefited communities over the ages. Thus, the vastness, the dynamicity and diversity that forms the very nature of TK has made it very difficult for many to crystallize a definition for TK. However, WIPO, in its fact-finding mission report, uses the term TK to refer to:

‘all tradition based intellectual creations and innovations, in the very broadest sense, which are constantly evolving in response to a changing environment and are generally regarded as pertaining to a particular people or territory.’

What qualifies as Tradition Knowledge?

Traditional knowledge fundamentally covers knowledge that has been accumulated through generations by virtue of tradition. Further, it also includes developments/adaptations of the creation from time to time depending on the changing needs of society. These developments act as an addition to existing knowledge and form part of knowledge passed on to the next generation, thereby collectively shaping the nature of TK for the next generation.

From the above, it can be seen that the essential elements of TK are:

1 Creation of a novel process/method to meet a need
2 Transmission of the process/method through generations by virtue of tradition
3 Development/adaptation of the process/method by future generations
4 Limited to within a certain group/community by virtue of its value to the group/community

An ideal illustration of what constitutes TK is the ‘neem’ instance where in India the neem tree was considered to have a wide range of applications. The same was mentioned in Indian texts written over 2000 years ago and has been applied for centuries as an insect and pest repellent in agriculture, in human and veterinary medicine, toiletries and cosmetics etc.

Significance of Traditional Knowledge

Scientists of the current generation have often been awestruck by the amazing nature of practices that has been in existence for generations among various communities as TK. Often, in spite of the advances in science and technology, natural remedies have prevailed and have often surprised scientists and provided them with insights that otherwise eluded them. Also, it has been a predominant practice that as new chemical entities become hard to find, scientists across the world, often go back to earlier substances to find novel properties. ‘Natural products play a dominant role in the discovery of leads for the development of drugs for the treatment of human diseases’.2

In yet another definition by WIPO, TK has been referred to as:
Further, TK has a strong practical component, since it is often developed in part as an intellectual response to the necessities of life: this means that it can be of direct and indirect benefit to society. There are many examples of important technologies being derived directly from TK.

Some of the examples that bring out the significance of TK are:

(a) Traditional healers in Samoa and their knowledge of the mamala tree that is being explored for the possibility of a drug for the treatment of AIDS.

(b) The Kani tribe of South India and their knowledge of the medicinal plant arogyapaacha that treats many conditions including hair loss, malaria, etc.

(c) Traditional Chinese Medicine which has provided numerous answers to illnesses which modern science has been unable to address.

(d) Thai traditional healers’ use of plao-noi to treat ulcers.

(e) The use of hoodia cactus by the San people to stave off hunger.

(f) The use of the Ayahuasca vine by indigenous healers in the western Amazon to prepare various medicines, imbued with sacred properties.

In addition to the above, numerous practices that have been propagated over the years exist as TK today whether as potential contributions to science and technology, folklore, or other forms. TK is significant because, firstly, the implementation of TK in day to day life has benefited communities over years. Thus, if TK is not restricted to just communities but transmitted worldwide to all sections of society, it has the potential to benefit society as a whole rendering a significant societal impact. Secondly, if TK is not made available to the world, someone would have to make it possible. Now, since no effort is made for free, someone who looks for economic incentives could take up the initiative to make TK available to the world, whether it is the TK holders themselves or a commercial entity. Further, the contribution that TK could provide towards the research and development for medical/technological solutions could reduce the costs dedicated towards the same tremendously. Further, in the current scenario, TK serves health needs of 80 per cent of population in developing countries. Also, there is an increasing rise in demand for ‘natural medicine’ in western countries, which puts TK in high demand in the scientific and medicine industry. In other words, TK also has huge economic significance.

Thus, where TK promotes community ownership and benefit-sharing practices, and patents promote personal profits and monopolization, the commercial dynamics of the world being such, there is bound to be an imminent clash between the TK world and the world of patents. This idea has been captured under Article 27 of the TRIPS Agreement which reads: ‘... available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced’.

This non-discrimination clause very distinctly prohibits the general exclusion of TK-related inventions from patentability. As such, it is necessary to analyse the world of TK through the lens of patent law and consequent repercussions.

**TK-based Inventions: Patent Law Applicability**

From a patent law perspective, TK per se refers to documented/undocumented information of indigenous communities that is already in existence. In the following scenario, TK that is documented attains the character of prior art under patent law. Since such information is available to public, a patent cannot be granted over it but at the same time, there is no restraint in the use of such TK for commercial purposes, as it is not affecting the right of any individual/group. Since intellectual property laws are aimed at protecting rights of inventors/creators, law cannot prevent commercial entities that use TK present in public domain, to manufacture and sell them as they are.

In India, Section 3(p) of the Indian Patents Act, 1970, clearly provides that ‘an invention which, in effect, is traditional knowledge....’ is not considered as an invention, for the purposes of patenting.

To avoid instances of patent grants to Indian TK, the CSIR has taken the initiative to document and publish Indian TK in the form of a digital library called the Traditional Knowledge Digital Library (TKDL). The TKDL contains details relating to traditional scientific knowledge arranged in an organized manner in consonance with the international patent classification. Copies of TKDL are made available to all patent offices in order to aid them during patent searches. The US and EU patent offices have started using the TKDL as a part of their
regular patent searches. The initiative will definitely go a long way in preventing foreign nationals from getting IP protection over Indian TK. However, with respect to TK that is undocumented and held by indigenous groups, the fact that many commercial entities want to attain this TK and claim ownership over it so as to put it to commercial use, attracts the provisions of patent law. When TK is undocumented, for the purposes of law, it can be proved to be novel in nature. To address this situation, the Indian Patent Office, has recently come up with a circular wherein, pending patent applications classified under TK domain have been provided online and an opportunity for challenging any discrepancies regarding the same has been made available by reporting the same to the patent office.

The following are instances where patents were not successful by virtue of their qualifying as TK:

(a) The Enola Beans case, where primarily the patent initially granted was revoked as it affected the economic right of Mexican farmers
(b) The Turmeric case, where the patent, initially granted was revoked when challenged by the Indian Government which managed to prove knowledge relating to use of turmeric as known under TK
(c) The Neem case, where the patent was revoked as it was considered as TK

**Can Patents be Granted for Inventions Derived from or based on TK?**

Under patent law, the considerations for any innovation to be considered for patent protection status are: (i) novelty, (ii) inventive step and (iii) industrial application

From the above-mentioned criteria, the most important requirement in patent law to be considered in light of TK-based inventions is sufficient inventive step. The grant of patent status to TK-derived inventions is very much dependant on how ‘sufficient inventive step’ can be established by an individual/commercial entity. Thus, what can be said in general is that while patent law seems more or less capable of appropriately protecting TK-derived inventions, it is normally not applicable to the TK stock itself, including the TK systems because it is limited to inventions adding an inventive step to a free knowledge stock, thus deliberately – and for good philosophical and economic reasons so far – not protecting the public domain stock itself, but only derived products. Therefore, with respect to TK in the world of patents, the first question that arises is, can derivations based on TK be depicted as prior art?

**Traditional Knowledge as Prior Art**

‘Prior art or the state of the art usually refers to the complete body of knowledge which is available to the public before a patent application is filed.’

‘The identification of prior art constitutes a cornerstone for the substantive examination of applications for these titles, since requirements such as novelty and inventive step are established by comparing the claimed subject matter with the relevant prior art.’

Although the term ‘prior art’ has not been defined under the Indian Patents Act, it is determined by the provisions of Section 13 read with the provisions of Sections 29 to 34 of the Act. The following has been indicated as ‘prior art’ vide the Act:

(a) anticipation by publication before the date of the filing of the application in any of the specification filed in pursuance of application for patent in India on or after the 1st day of January 1912;
(b) anticipation by publication made before the date of filing of the application in any of the documents in any country;
(c) claim in any claim of any other complete specification filed in India which is filed before the application but published after said application; and
(d) anticipation having regard to the knowledge, oral or otherwise, available within any local or indigenous community in India or elsewhere.

There have often been instances where, patents based on or derived from TK have been granted without considering adequate requirements with respect to novelty and inventive step. This has happened mainly due to the absence of thorough research by patent examiners or because of the inadequacy of information available for the purposes of searching for prior art.

The problem is partly practical and partly judicial. The judicial problem is if and how the notion of prior art adopted in national, regional and international patent laws have been adapted to fulfil the needs of the TK stakeholders. The practical aspect is how to guarantee an effective identification of pre-existing TK, keeping in mind the large amounts of TK that are undocumented and when existing databases are largely
insufficient for a proper prior art search and moreover not incorporated in existing procedures followed in intellectual property offices across the globe.

**Patenting Inventions Derived from TK**

Based on this understanding of TK as a prior art, the applicability of TK based derivatives is a complicated yet practically plausible process. It is important to keep in mind that since patent law in general, only protects ‘derived’ inventions, it is more important to devise a way to protect the TK development processes underlying these inventions.

It is essential to understand that the word ‘derived’ refers to inventions made by understanding TK acquired and not simply making a slight modification to an existing method/product that already exists in public domain. Thereby, the standard rules of patentability with reference to what can and cannot be considered an invention still apply in the present scenario. However, the difference lies in the fact that TK often exists in undocumented form in which case, proving novelty is less complicated while aimed at short-term commercialization and that which exists in documented form falls within the purview of public domain thereby requiring sufficient inventive step.

In spite of the issue of documentation availability, one of the practical factors that has a positive impact on patents derived from TK is the non-consideration of orally transmitted TK when considering an invention for grant of patent. Prior art under Rule 33(1)(a) of the Regulations under Patent Cooperation Treaty (PCT) reads ‘…. everything which has been made available to the public anywhere in the world by means of written disclosure (including drawings and other illustrations) and which is capable of being of assistance in determining that the claimed inventions is or is not new and that it does or does not involve an inventive step provided that the making available to the public occurred prior to the international filing date’ while Rule 33(1)(b) provides ‘…. when any written disclosure refers to an oral disclosure, use, exhibition, or other means whereby the contents of the written disclosure were made available to the public, and such making available to the public occurred on a date prior to the international filing date, the international search report shall separately mention that fact and the date on which it occurred if the making available to the public of the written disclosure occurred on a date which is the same as, or later than, the international filing date’ and further ‘…. the date on which the written disclosure was made available to the public may have been after the filing date of the international application’.

It is thus clear that a simple oral disclosure of TK will not subsist as prior art for an invention derived from a TK.

Keeping in view, the non-patentability of TK per se, inventions derived from TK generally have a high underlying qualification towards showing sufficient inventive step. The non-obviousness factor plays an important role especially for individuals/entities who intend to patent inventions derived from TK. While novelty is relative to existing TK, as long as an invention can be shown to be differing from the actual method used in a TK and involves an evident inventive step, it can be patented. The Indian Supreme Court in *Bishwanath Prasad Radhey Shyam v Hindustan Metal Industries* has held that:

‘It is important to bear in mind that in order to be patentable, an improvement on something known before or a combination of different matters already known, should be something more than a mere workshop improvement; and must independently satisfy the test of invention or an ‘inventive step’. To be patentable the improvement or the combination must produce a new result, a new article, or a better or cheaper article than before. The combination of old known integers may be so combined that by their working inter-relation they produce a new process or improved result. Mere collection of more than one integers or things, not involving the exercise of any inventive faculty, does not qualify for the grant of a patent’.

This was reiterated in the case of *Dhanpath Seth & ors v Nil Kamal Plastic Crates Ltd*, which partly recognized the importance of inventive step when applied to a TK-derived invention.

The essential inference is that as long as a TK-derived invention does not qualify as prior art; it safely sails through the process of a grant. This however, is quite dependent on the Patent Office examining such applications. When a TK is identified properly in the application process, the scope of patents becomes limited to specific derived inventions.

Instances where a TK-derived invention has been granted a patent are:

(a) The *Jeewani* drug, where, a group of scientists belonging to Tropical Botanical Gardens Research Institute observed Kani tribals residing in the Western Ghats eating some fruits and
leaves to avoid fatigue. In the process they discovered the energy and immunity enhancing properties of those plants and thereafter obtained patents in relation to these discoveries, which was granted by the Patent Office.

(b) The *Hoodia* drug, based in South Africa, where the plant supplements was used to manufacture dietary supplements. In this instance, the San people of South Africa used the plant as appetite suppressants.

In addition to the above instance, the Chinese patent office has granted many patents pertaining to the medicinal field, which ultimately result from TK.

**Patents and TK: Always at Loggerheads or is there a Mean Path?**

TK promotes community interests, while patent law promotes personal monopoly. When both worlds overlap with each other in the case of TK-derived inventions, there emerges a need to find a mean path that strikes a balance between the two.

This has best been brought out in India through the Biodiversity Act, 2002. The important provision of the Act is Section 2(a) read with Section 6(2) (ref. 14) which introduces the concept of ‘benefit-sharing’ in relation to commercialization of products obtained/derived from knowledge/resource that is conserved/protected by ‘benefit claimers’.

Under this Act, ‘benefit claimers’ have been defined as ‘conservers of biological resources, their byproducts, creators and holders of knowledge and information relating to the use of such biological resources, innovations and practices associated with such use and application’.

Traditional knowledge holders have been referred to as ‘benefit holders’ in the aforesaid provision and the National Biodiversity Authority has taken the responsibility to protect their interests by providing for benefit-sharing agreements that may be arranged between inventors who wish to commercialize their TK-derived inventions and the holders of the TK from which such invention was derived.

Further, arrangements having the nature of ‘disclosure agreements’, ‘equitable agreements’, etc., may be entered into between TK holders and patent holders so that while on one hand, TK holders’ rights are appreciated; on the other hand, the patent holders attain personal monopoly over commercialization of their TK-based inventions.

This model was adopted in both the *Jeewani* instance as well as the *Hoodia* instance. In the *Jeewani* instance, the patent holder shared 50 per cent of revenue with the TK holders, while in the *Hoodia* instance, 6 to 8 per cent of revenues were shared with the TK holders.

**Conclusion**

After analysing the various aspects of TK, it is found that, while on one hand TK is the cultural backbone of any country; it is also a valuable resource that needs to be harnessed to bring about economic prosperity. However, it is important that the delicate balance between protecting the rights of indigenous communities, and benefits arising out of commercialization of developments over such TK, not be disturbed in order to maintain socio-economic harmony.

In India, where enough measures have been taken towards protection of TK; the vast growing needs of the people of India and the limited investment opportunities have turned TK into a dormant gold mine that is just waiting to be harnessed.

Thus, without prejudice to the rights of indigenous people and with respect to the cultural heritage of India, commercial entities should slowly tap into the vast ocean of TK to meet the growing requirements of people of this country. Also, with current laws providing for promotion of both community rights as well as providing for a patent conducive environment, the benefit sharing arrangement should be strategically encouraged to maintain the balance between TK holders and inventors.

**References**

10 http://www.nipo.in/images/What are patents What are the requirements of patentability Can software be patented.doc (12 July 2012).
11 PCT International Search Guidelines, Chapter VI, part 1.3.
12 Bishwanath Prasad Radhey Shyam v Hindustan Metal Industries, AIR 1982 SC 1444.
14 The National Biodiversity Authority may, while granting the approval under this section, impose benefit sharing fee or royalty or both or impose conditions including the sharing of financial benefits arising out of the commercial utilization of such rights.