INTRODUCTION

Knowledge has, since the evolution of mankind, been treated as the most cherished possession of humanity. In the ancient times, knowledge was purely a subject matter of fame and reputation which has been disseminated with no returns. However, various developments taken place in the evolution of societies recognized knowledge as a property and many rights were attached to the knowledge holder.

The industrial boom created by the industrial revolution highlighted the importance of technology and innovations. It resulted in the realization that certain types of knowledge require protection for the benefit of the greater good of the society, thus leading to the concept of intellectual property (IP) creating rights over certain sets of knowledge. When the society transformed from a pre-industrial society into an industrial one, developed countries moved towards a technological orientation leaving behind traditional practices and knowledge and embraced newer practices and ideas having much commercial potentiality.

However, it was evidenced in the past decades that the traditional knowledge (TK) and practices possess answers for many problems even where modern science and technology fail. Thus, knowledge that was no longer part of the developed societies, but retained by the traditional indigenous societies gained attention and became the topic for debate in the international fora.

TK has never been, until recently, a topic for discussion under intellectual property rights (IPRs) law. However, the progress made in the research, development and commercialization of TK based products in the past decades has necessitated adequate
protection of TK from misappropriation. The issues relating to intellectual property protection of TK emerged when multinational companies and foreign entities obtained commercial benefits from knowledge that was predominantly within local control for multiple generations, and was long presumed to be in the public domain of the respective indigenous and local communities.

The demand for the system of TK, practices and innovation arises out of its unique characteristics. One of the significant characteristics of TK is its indissoluble relation with the nature. Equally important is its collective holding by the communities. Biodiversity and biogenetic resources were traditionally considered as global common property derived from generations of accumulated traditional knowledge for which no single innovator could easily be identified. It was considered as common goods provided by nature for the benefit of all and as such ownership could not be assigned to any individual implying that no one could secure intellectual property rights over the genetic and bio materials found in the Mother Nature. As a result, much genetic research was undertaken in the public sector and distributed as a public good.

During the last few decades, due to public-sector deficits and debts, many governments withdrew from public research and the governments promoted private R&D companies to undertake the research. This coincided with the advent of modern biotechnology. Since the governments were not directly involved in R&D, much leeway was given to private companies and MNC’s and they were willing to fill the void only if

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they could approximate the commercial value of their research through IPRs. The increased use of IPRs in genetic research was a major departure from how genetic material was managed prior to the advent of modern biotechnology.

The modern biotechnology based on genetic research and bioprospecting departed from the historical trajectory since it made the identification of so called ‘inventor’ much easier. The broadening of the scope for IPRs in the modern era based on the criteria of novelty and inventive step, has however, totally ignored the TK involved in the inventions despite the fact that TK has been and is the essential part of many inventions. Though there exists a strong interrelation between TK and IP, the current intellectual property right regime neither protects traditional knowledge nor confers any sort of proprietary right on its holders. Rather, developing worlds are using IPRs are a tool to exploit TK of indigenous and local people to the disadvantage of its traditional holders.

However, all international treaties including Trade Related Aspects of Intellectual Property Rights (TRIPS) are silent on protection of TK. There is no legal recognition for TK at international level. Adding to this, lack of proper legal and policy frameworks for the protection of TK in many of the developing countries provides a vacuum for the developed and industrialized nations to exploit TK and resources of indigenous local communities.

Study reveals that the developing countries are the source of 90 per cent of the world’s biological resources. To India, protection of traditional knowledge is very

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4 See, Surender Singh Chauhan, Biodiversity, Biopiracy and Biopolitics: The Global Perspectives, Kalinga publications, Delhi, 2001.
important for many reasons. India is predominantly a biodiversity-based economy. India is rich in biological and cultural diversity. India is home to 400 unique ethnic groups who possess various TK. India also houses over 47,000 species of plants and around 89,000 species of animals. People in India have a very valuable collection of knowledge about trees and plants and their medicinal qualities. India is rich with many traditional health care practices including Ayurveda and Unani. The Knowledge Commission of India has emphasized the importance of TK by stating that 70% people living in the Indian village depend on traditional medicines for their health care.

The immense potential and continued importance of TK and techniques in meeting basic needs of people in India were highlighted in the following words at the Traditional Science and Technologies Congress of India:

In spite of remarkable progress in many fields, we have still not been able to feed, clothe, shelter, educate or employ all our people. While the size of our population has been held out as the main reason for scarcity of all resources, it appears that there is another very important dimension to this phenomenon. This has something to do with the very image we have of what constitutes resources for development in our context. If houses can be built only with cement and steel, then it is quite possible that there may be no way in which we can think of housing for all. The picture changes substantially if we include in the list the

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7 Three Congresses on Traditional Science and Technologies of India were organized by Patriotic People Oriented Science and Technology (PPST) at Indian Institute of Technology, Bombay in 1993, Anna University, Madras (1995), and in the Gandhian Institute, Varanasi in 1997. The Congresses were the culmination of several years of campaign for recognizing the importance of traditional knowledge.
wide variety of materials and techniques traditionally employed by our people in different parts of our land in making houses for themselves. If we include in our plans the wide variety of proven medicines, practices and principles that have been indigenously evolved for health care in our society, then the resource position on the health care front may not appear as bleak as it now seems to. If the wide range of materials and techniques that our farmers have traditionally employed to ensure land fertility, pest control, high yield, etc. are included in the list of resources at our command, then the prospect of enhancing food production in an ecologically and economically sound manner may not appear as daunting as it seems to be now. There is a wide variety of skills and knowledge that our people possess, which if properly understood and recognized, can make substantial contributions to all our productive efforts and endeavour.

However, it is disheartening to note that India has taken very less proactive steps to protect its rich TK. Though some legislations such as Biological Diversity Act, 2002; Protection of Plant Varieties and Farmers’ Rights Act, 2001; Patent Amendment Acts, 2002 and 2005, etc. exemplify some attempts to prevent misappropriation of TK, India has not enacted any positive legal mechanism to protect TK and recognize property rights over TK.

At international level too TK has not received adequate legal recognition so far. Though TK has been the subject matter of a series of discourses and debates in international arena no effective measure is devised to oblige international community to recognize TK as a protectable property and to respect the rights of TK holders.
Preservation of TK by way of positive legal protection is more important than mere restriction on its exploitation. But, TK is not a subject matter of protection within the current IPR framework. Under the current rules, by denying protection to TK, IPRs increase income and power disparity between the developed and developing world and within countries between rich and poor. This inequality is unfair and threatens social stability. The post TRIPS regime, by opening more of the world to privatization, globalization and propertization allows greater exploitation of TK and associated biogenic resources and increasing inequity. By recognizing private property rights on intellectual creations of individuals on the one hand and by denying collective intellectual property rights of the community on their collective intellectual labour on the other hand, the current system of IPR fosters disparity. Under the present IPR regime traditional knowledge and intellectual property are thus irreconcilable. The disparity in wealth and status between the TK holders and those who benefited from the misappropriation of TK further highlights the need to prevent the misuse of TK and vest rights on the TK holders.

STATEMENT OF THE PROBLEM

Traditional knowledge is a valuable source of knowledge developed over generations by indigenous and local communities in various parts of the globe. The indigenous and local people who are the custodians of the TK preserve and conserve the knowledge over thousands of years. India is immensely rich in traditional knowledge and biodiversity crucial to health, medicines, agriculture and biotechnology. However, TK is

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under constant threat with the ever increasing relevance IP has gained in the global market. The misappropriation of TK by biopiracy and bioprospecting has become a common phenomenon. The biopiracy and bioprospecting usually result in the ‘invention’ of new products protectable under the regime of IPRs. The developed nations involved in these activities obtain IPRs on goods so produced by the misappropriation of TK with no return to the indigenous community which has nurtured and preserved it for centuries. There is a large array of reported cases of misappropriation by developed nations of traditional knowledge of the developing countries including India. Many foreign corporations obtained patents based on biological materials without acknowledging the source of their knowledge or sharing the benefits. India has been the victim of biopiracy in several cases. Biopiracy has been a big threat to India during the last decades. Patents on natural products such as Indian *neem* (more than 90 patents have been granted worldwide in respect of several claims on *neem* including the method for controlling fungi on plants by the aid of a hydrophobic extracted *neem* oil), Indian turmeric, Indian Basmati rice, Amazonian ayahuasca, Bolivian Quinoa, South African Hoodia Gordonii, Mexican Enola Beans, Brazzein berries are a few to mention.

The misappropriation of TK occurs mainly due to lack of legal protection of TK. There are inherent biases in protecting TK. The law as it stands today neither protects TK nor rewards the TK holders. There is no justification in denying protection to TK.

**HYPOTHESIS**

The fundamental assumption in the study is that though there is an interrelation between IPRs and TK, the existing IP regime is unable to accommodate and resolve issues pertaining to TK. Rather by recognizing patentability of genetically modified organisms the
current IPR regime has accelerated the misappropriation of TK and associated bio genetic resources. The prevailing IP regime is incapable of fitting the emerging issues of protection of TK within its mold.

The study also emanates from the following assumptions. TK, which is an invaluable asset of our country, is getting lost. Most of the TK forms are interlinked with nature and biological diversity. Hence, protection of TK has direct connection with protection of biogenetic resources of our country. The loss of biogenetic resources and associated TK will not only deprive the world of a unique knowledge-base but also threaten the very survival of local communities. Letting the biodiversity and the associated traditional knowledge disappear would be at the world’s own peril. The humanity would be paying a heavy price for not conserving and keeping the resources alive for future generations. Hence, protection of TK is essential in many aspects. The increasing demand in the research, development and commercialization of TK based products by MNCs and the subsequent harm to the TK holders necessitate adequate protection of TK from misappropriation.

SIGNIFICANCE OF THE STUDY

India is abundantly rich with biogenetic resources and associated TK. TK is capable of providing sustainable solutions to many modern day problems especially in health care, biotechnology and agricultural sectors. TK has the potential of being translated into commercial benefits by providing valuable leads for development of useful products and processes.
The commercialization of TK by others with no benefits to the holders is a blatant piracy. Biopiracy and patenting of TK is a double theft because first it allows theft of creativity and innovation of indigenous communities, and secondly, the exclusive rights established by patents on pirated knowledge steal economic options of everyday survival on the basis of preservation of biological diversity and associated traditional knowledge. The patents can be used to create monopolies and make everyday products of indigenous communities highly priced.

The local and traditional communities who have conserved and developed TK are not being given a share in the benefits arising out of use of such traditional knowledge, in particular where use takes place outside of the country of origin. The current global practice of obtaining IP protection on TK based products with sharing of no benefits to its original holders needs to be stopped urgently. The holders of TK need to be acknowledged and rewarded. They should also be encouraged to apply their knowledge in developmental activities. However, the indigenous communities who preserve the TK are generally belonging to economically backward areas and they have no formal education. Moreover, they are not well equipped to voice their rights. Their rights can be protected only through a legal mechanism. However, so far there is no comprehensive legislation in India to address these issues and protect TK. Lack of legal protection has led to patenting of many TK based products in foreign countries and India had to spend several years in fighting cases. India could not win all such cases though she could revoke certain patents. Protecting TK would be more appropriate than letting it go patented first and then challenging it with no certainty of winning. Hence, there is a need to protect TK not only
for the benefit of indigenous community but for the benefit of the whole nation since application of TK is important for developmental and economic activities too.

Since the current IPR regime often violates the rights of local and indigenous communities over their TK there is a need to study the parity and disparity existing between these two systems of knowledge. The systems of IP and TK need to be analyzed in the light of subject matter of protection, nature and contents of rights. The chances of protecting TK under the ambit of existing intellectual property regime need to be analyzed. If IP and TK are not commensurable, then the possibility for devising a *sui generis* system needs to be studied. Appropriate form of protection for TK is of great importance to countries like India which are rich in biodiversity and associated traditional knowledge.

**AIMS AND OBJECTIVES OF THE STUDY**

The research has the following objectives:

- Identification of the relevance and importance of TK
- Identification of the significance of TK in the Indian scenario
- Identification of factors that threaten the maintenance, preservation and conservation of TK
- Identification of the interrelationship between TK and IP
- Identification of means for the prevention of bio-piracy and misappropriation of TK
- Examination of the adaptability of existing forms of IPRs as a way to protect TK
• Identification of best legal practices existing in different jurisdiction for protecting TK
• Identification of ways by which TK can effectively be protected both nationally and internationally, and
• Developing a model law for the protection of TK

RESEARCH METHODOLOGY

The methodology adopted is basically analytical in nature. The primary as well as secondary sources have been consulted to carry out the research. Doctrinal method is adopted to explore the objectives of the research. The study is primarily based on international treaties, national legislations and policy papers. The research apart from international treaties is also based on international conventions, other legal instruments, documents, and WIPO reports. The relevant legislations and statutory instruments which are in force in India and other jurisdictions have also been thoroughly examined. Adapting the method of doctrinal research legal concepts and principles have been examined and analyzed to reach the conclusion. The study of different legislations pertaining to the protection of TK in various countries is made in order to suggest a model law suitable for the protection of TK in India.

SCHEME OF THE STUDY

The study is divided into the following eight parts excluding the present introduction:

Chapter 1: Intellectual Property: A Conceptual Analysis
Chapter 2: Traditional Knowledge
Chapter 3: Cases of Misappropriation of Traditional Knowledge
Chapter 4: Protection of Traditional Knowledge under the Existing Modes of Intellectual Property Rights and the Surrounding Issues

Chapter 5: Protection of Traditional Knowledge in International Fora

Chapter 6: Legislative Efforts in India with Reference to the Protection of Traditional Knowledge

Chapter 7: Protection of Traditional Knowledge: Experience From Some Other Countries, and

Chapter 8: Conclusion

To determine whether protection of TK rests with the system of IPR, one need to examine what is intellectual property. Hence chapter 1 provides a conceptual analysis of intellectual property rights system. A brief analysis of the nature and categories of intellectual property is imperative to examine the extent to which the current intellectual property regime can accommodate traditional knowledge protection.

Chapter 2 analyses various definitions and categories of TK. This chapter also discusses the significance and characteristics of TK and the need for protecting TK. The difference between the knowledge in the modern formal system and knowledge in the traditional informal system is also highlighted in this chapter.

Chapter 3 explores the various cases of misappropriation of TK both from India and abroad. It also analyses biopiracy and bioprospecting. This chapter reveals how the current IPR regime fosters patenting of TK based products by third parties with no reward to original TK holders.
Chapter 4 examines in depth the protection of TK available under the current forms of IP. It analysis to what extent TK is commensurate with IP. This chapter seeks the possibility of accommodating TK in the existing IPR regime. In doing so, the chapter addresses the issues involved in attempting to protect, as intellectual property, the TK prevailing within traditional, indigenous and local communities. Legal protection of TK by a combination of the various IP laws is also examined. This chapter also describes the theoretical and practical difficulties in attempting to protect traditional knowledge within the prevailing systems of IPR or any combination thereof. There is very less judicial interference as far as this area of law is concerned. However, the responses of judiciary in other jurisdictions to traditional knowledge issues are captured and analyzed at appropriate places. Thus it explores the prospect of protection of TK through a sui generis model.

Chapter 5 examines the various developments and activities taking place globally for the protection TK. It analyses international treaties, conventions, declarations, guidelines, etc., so far developed to create an international legal framework for protecting TK. It also outlines the efforts made by international bodies like WIPO, WHO etc. and the activities of various indigenous communities world wide for recognizing and protecting TK. This chapter also includes various Declarations made by the indigenous people themselves to protect their knowledge.

Chapter 6 deals with various legislations and statutory provisions prevailing in India which have bearing on the protection of TK. This chapter narrates the legal and policy measures adopted by the central and state governments for preventing misappropriation of TK and biopiracy.
Chapter 7 highlights the efforts made by individual countries towards protecting traditional knowledge. This chapter explains some important legislations existing in various jurisdictions aiming at protecting TK and the collective rights of local and indigenous communities.

Chapter 8 pertains to the conclusion of the study. It captures the gray areas surrounding the protection of TK. Based on the study and analysis various inferences are drawn and suggestions are made to effectively protect traditional knowledge of indigenous and local communities not only for their benefit but also for the benefit of whole nation. A model law for the protection of TK and community rights is proposed as part of this study.