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Research paper

Traditional Knowledge and challenges of its protection in the era of biotechnology

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Abstract

Traditional knowledge is an open-ended way to refer to tradition-based literary, artistic or scientific works; performances; inventions; scientific discoveries; designs; marks, names and symbols; undisclosed information; and all other tradition-based innovations and creations resulting from intellectual activity. It is integral to the cultural identity of the social group in which it operates and is preserved. The broad development underlying this issue is that, as the reach of the intellectual property system in the global information society extends to new stakeholders, such as indigenous and local communities, their knowledge base, including in particular their traditional knowledge, constitutes an increasingly relevant body of prior art, the effective identification of which is of increasing importance for the functioning of the intellectual property system. Therefore it has become necessary to identify the laws which could protect the gifted knowledge. This research will identify various challenges in the protection of traditional knowledge and right of livelihood of certain communities and tribes dependent upon it. It will also highlight new initiatives of the Indian government to protect them in the era of biotechnology.

Introduction

Throughout the ages, people have worked together in communities for their survival. In the process, they have invented many survival mechanisms, expanded our knowledge of the world, and developed systems for the management of resources. Such knowledge systems are developed from experience gained over centuries and adapted to the local culture and environment. This traditional knowledge is transmitted from generation to generation. Traditional knowledge is mainly of a practical nature, relating to medicines, health care, biodiversity, conservation,

environment, foundry and agriculture, fisheries. It also includes music, dance textiles, plastics, arts and crafts etc. It has become difficult to protect this traditional knowledge due to the pressure on government and even judicial system. It is systematic information that remains in the informal sector, normally they are in unwritten and preserved in oral tradition rather than in the form of document. Traditional knowledge is not confined to any specific field. It reflects the aesthetics, beliefs, history, ethics, and traditions of a particular group of people.

Basic feature of traditional knowledge

- 1- It is not created or produced systematically
- 2- It is created or produced collectively or individually in relation to one's cultural and traditional environment.
- 3- It represents cultural values of particular group
- 4- It is not documented but transfer from generation to generation
- 5- It is vested knowledge in traditional people

Moreover traditional knowledge associated with plants like-medicinal as well as harvesting, so there is need to patent right for its protection from misuse without the permission of the owner. But in reality it is very difficult to identify that to whom the traditional knowledge belongs.

There is one important convention on biological diversity at international level which talks about the traditional knowledge which includes – knowledge, innovations and practices of indigenous and local communities conferred traditional lifestyle important for conservation and sustainable use of biodiversity and promote the wider application with the approval and involvement of holders of such knowledge, innovations and practices and encourage the equitable sharing of benefits arising from utilization of such knowledge etc.

Few examples of traditional knowledge- spirituality, spiritual knowledge, ethics and moral values Games, sports, music dances, ceremonies, ritual performances and practices All material objects, movable cultural property The delineated forms parts and details of visual compositions

Cultural environmental resources, traditional resources Documented aspects of traditional indigenous cultures in all forms.

Definitions

Generally there is no particular definition of traditional knowledge

Art. 8 (j) does not define but it only provides an indication of how the concept of traditional knowledge must be understood in the CBD framework, namely as such “knowledge, innovations and practices that embody traditional lifestyles relevant for the conservation and sustainable use of biological diversity¹

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 and clues for development of useful practices and processes for the benefits of mankind.

Importance of traditional knowledge

There is a growing appreciation of the value of traditional knowledge. Traditional knowledge is valuable not only to those who depend on it in their daily lives but also to modern industry and agriculture, some medicinal, health and certain other purposes with the passage of time. Traditional knowledge about land and species conservation and management and revitalization of biological resources conservation is grounded in the daily lives and practices of indigenous peoples and their close understanding of their environments cultivated over thousands of years. It has the potential to play a crucial role in sustainable development and for addressing the most pressing global

problems, such as climate change, land management, land conservation, and to strengthen scientific, technological and medical research, as evidenced in among pharmaceuticals. Moreover traditional knowledge can offer promising avenues for achieving food security for not only indigenous peoples but for inhabitants around the globe. Many indigenous land and environmental management practices have been proven to enhance and promote biodiversity at the local level and aid in maintaining healthy ecosystems. Educational practices that combine indigenous traditional knowledge and languages are a significant way to maintain and preserve indigenous cultures, identities, reduce illiteracy and school dropout rates, enhance learning, protect the environment, and promote wellbeing. Now a day it has plays an important role in the economic growth and also allows a tourism environment. In the era of biotechnology it has become difficult to protect such hidden traditional knowledge.ⁱⁱ

Protection of traditional knowledge

Vidya dadati vinayam, vinaya dadati paatrataam, anamaapnoti, dhanaat tatak sukham

This shloka in Sanskrit means true and complete knowledge gives discipline, from discipline comes worthiness, from worthiness one gets wealth, from wealth one does good deeds, from that comes joy. Since this ancient proverb resonates of the power and value of knowledge. It also echoes the needs for the protection of traditional knowledge, a branch under IPR that spurt on the global platform with the finalization of CBD, 1992. Protecting and promoting

traditional knowledge is an amalgamation of various ideas like – human rights, conservation of resources, sustainable development, intellectual property rights and benefit sharing mechanism.ⁱⁱⁱ

In terms of IP protection for traditional knowledge- two things are being sought

- 1- Defensive protection- which aims to stop people outside the community from acquiring intellectual property rights over traditional knowledge.
- 2- Positive protections – which aim to granting of rights that empower communities to promote their traditional knowledge, control its uses and benefit from its commercial exploitation.^{iv}

India is a mega diverse country with only 2.4% of the world's land area and about 7-8% of all recorded species, including over 45,000 species of plants and 91,000 species of animals. About 34 global biodiversity hotspots among them four are present in India like – Himalaya, Western Ghats, the north-east and the Nicobar Island. India is largest producer of medicinal plants and traditional medicinal systems found under Ayurveda, Siddha and Unani etc.

According to All India Coordinated Research Project on Ethno botany, the indigenous communities are acquainted with the use of over 9000 species of plants and specifically for the purpose of healing they know the use of over 7500 species of plants.^v

Many countries in the south feel that granting patent rights over products that are based on genetic resources and traditional knowledge violates the sovereign rights of provider countries over genetic resource

rights that are accorded by international law. We can also say that indigenous knowledge is community, site and role-specific epistemology governing the structures and development of cognitive life, values and practices shared by a particular community often demarcated by its language and its members, in relation to a specific life world. In India, TK in its various forms fulfils the human needs of the local and indigenous people in different ways. TK has also contributed much to the forest conservation, soil conservation, seed conservation and crop biodiversity.^{vi}

This has led to the sustained food production, crop yields and health care. Pharmaceutical companies have been making use of the TK of tribal people to identify plants and their ingredients for developing new medicines.

Researchers screening plants for useful substances can cut down the time taken by getting specific information from tribal healers on the variety of plants used for treating different ailments. International agricultural research centers have been using plant genetic resources drawn from crops of local farming communities in developing countries to enhance agricultural biodiversity and to produce higher-yielding varieties. In the recent decades, there has been an increased demand for the Traditional Medicines (TM) all over the world. Over 80% of people from developing countries depend on TM for health needs.

Now it has become compulsory on the government to amend the act and to specify definition regarding the traditional knowledge. The word traditional knowledge

should be included within the framework of the basic structure so that it has got a better protection.

It is the responsibility of the contracting parties of CBD to enact their own legislation for protection of the traditional knowledge and also try to provide a statutory definition of this knowledge.

Modalities and possible ways to protect TK beyond IP regime

Now a days apart from the use of conventional IP law mechanism four other dimensions as follows- first is use of access and benefit sharing with prior informed consent of sui generis (of its own kind) laws, and digital library and last one- contractual agreements.^{vii}

Role of access and benefit sharing scheme

It is enshrined in Convention on Biological Diversity that fair and equitable benefit sharing is third objective of this convention. Therefore it has imposed an obligation on the parties of the convention that they should enact the laws to achieve the end of this objective. Countries like India and Bangladesh have enacted the laws to implement the objective of the CBD.^{viii}

Indian law is- **Indian Biodiversity Act 2002**- which has made certain provisions with regard the protection of the traditional knowledge. These aspects of the ABS regime should be prioritized and included in the respective regional and national ABS legislation. Recently, Bangladesh has enacted the **Bangladesh Biological Diversity Act- 2017**-which introduces the ABS mechanism with an aim to confer fair and equitable benefit- sharing by preventing the misappropriation and unapproved use of genetic resources. The Act provides a

framework about when the transfer of research results based on biodiversity or biological resources will not be prohibited, and how a person can apply for a patent or any other form of IPRs for an invention relating to biological resources found. **Nagoya Protocol- 2010** it mandates the access and benefit sharing scheme to regulate the conditions for the access and benefit sharing of genetic resources and associated traditional knowledge.^{ix}

Art- 5 of Nagoya Protocol mandates to obtain the prior informed consent of the holders of traditional knowledge and share benefits with them.

TK digital library models

It is a protective anti-appropriation device and also considered a non-legal mechanism. It actually made a compilation of traditional knowledge in digital format so that it can be accessed by the patent examiners in the future patent claims. It is kind of advertisement or kept such significant knowledge in the public domain so that it has become easier to prevent illegal access and obtaining a patent. Therefore person cannot claim the novelty related to particular disclosed information. It is notable here that where there are benefits of any initiative there are certain problems-^x

That is information in searchable database

Individuals with such information may claim a patent on the modified invention.

Example- a local community of Bangladesh provides a piece of information to the traditional knowledge digital library regarding a medicinal plant for its healing abilities. Not let us say outsider with available information produces an entirely new drug and if it fulfills the required levels

of novelty and inventiveness then the drug is patentable. So we can say that it is to be regarded as double-edged which can actually worsen the problem of unauthorized use of traditional knowledge.^{xi}

As regard Indian system, it is using this device format as the defensive protection to protect its traditional medicinal knowledge.

So using this device India is capable of winning almost 105 claims on the international patents like the patent on use of turmeric and another patent on the use of Neem. Certain other countries like in Korea the (KIPO) Korean Intellectual Property Office for the documentation of ancient Korean medicines. Moreover- China, there is (CTM) that is Chinese Traditional Medicine i.e. patent database system. Therefore it seems that this device of traditional knowledge in digital form has gained prominence in the various in their fight against the bio-piracy cases.

Sui generis modality

Literal meaning of it (its own kind), the main benefit of this system is a well protection of the rights and interest of traditional knowledge holders, it is also necessary for the improvement of the livelihoods of the traditional knowledge holders and communalities. It also helps in growing of the national economy; it conserves the environment and prevents bio-piracy.

Normally sui generis laws are not entirely different from intellectual property laws. A sui generis law may be combination of intellectual property laws, customary laws, benefit sharing provisions and contractual agreement. Sui generis model is mainly

referred like a defensive community patent model.

Many countries like – India, Brazil, Portugal, Peru, and Philippines have adopted sui generis measures of Traditional Knowledge protection. In order to avoid the conflict between a sui generis model law and the current national laws a sui- generis modality requires amend relevant existing national legislation that governs intellectual property rights, protect areas and natural resources , land occupation and protection of the environment.

Number of the sui-genres model exists around the world such as the Model provisions for national laws on the protection of expression of the Folklore against Illicit Exploitation and other prejudicial actions.^{xii}

Essential elements of Sui-generis Laws^{xiii}

- 1- Sui-generis laws include elements of benefit sharing.
- 2- Sui-generis laws include provisions of prior informed consent (PIC).
- 3- Sui-generis laws include elements of disclosure of the country of origin of genetic resources and biological resources.
- 4- Sui-generis system includes elements of co ownership of the patents where applicable.
- 5- Sui-generis system includes disclosure of traditional knowledge.
- 6- Sui-generis system includes provisions for contractual agreements.
- 7- Sui-generis system may include provisions of customary law.
- 8- Sui-generis law including the provisions of, rights of farmers and breeders

9- A Sui-generis law may be a combination of intellectual property law and any one or more of the above provisions.

Thus it contained some slandered practices of intellectual property protections along with the friction of some other practices of protection of genetic resources. Example- a country can offer protection for inventions with patent law, and it also protect the plant varieties, further it can nullify the inappropriate patents. This system establishes a working relationship between the intellectual property office and local communities. Therefore it seems that a new sui generis mechanism can only be effective if it is based on the customary laws of the indigenous people.

Contractual agreements^{xiv}

Contractual agreements indicates specific restrictions on the use of the traditional knowledge, these are the legally binding documents which regulate relationship inter alia in the society, inventor, indigenous communities. Therefore contract based on the agreements can be utilized as an additional apparatus to protect traditional knowledge agreements are also regarded as voluntary mechanism between the parties. It is significant to note that these agreements include the time period of agreement relating to patent specification, intellectual ownership, confidentiality and benefit sharing. If we take certain other countries like – Australia, New Zealand and South Africa have protection Traditional Knowledge through interpretations of contracts many cases.

Some common agreements are as follows-

- 1- Confidentiality or non-disclosure agreements
- 2- Exclusive license agreements
- 3- Non-licensing agreements
- 4- Agreements for the material transfer

However there are some major deterrents in this mechanism like- high transaction costs, disparity in bargaining powers between contacting parties and lack of legal expertise. Moreover the question, whether the contract modality is an equitable one or not, still remains unanswered? Furthermore, though the contract could be very flexible instrument to protect traditional knowledge.

Thus it is clear that there is a general agreement within the international community that there is a need to recognize the traditional knowledge. The concern is to recognize it, take measures to ensure that communities are involved in the preservation and development of it and proper benefits return to them in case of commercial exploitation by others. But the method of achieving it is left to individual nations. But there are no uniform norms regarding the protection of different types of traditional knowledge owned by local communities. The reasons are the international community never had an occasion to look at the protection of traditional knowledge in its entirety.^{xv}

Customary practices to protect traditional knowledge

Customary law is a set of customs, practices and beliefs that are accepted as obligatory rules of conduct by indigenous peoples and local communities. Customary law forms an intrinsic part of their social and economic systems and way of life. What characterizes

customary law is precisely that it consists of a group of customs that are recognized and shared collectively by a community, people, and tribe, ethnic or religious group. This contrasts with written law emanating from a constituted political authority, the application of which is in the hands of that authority, generally the State.

What makes **knowledge traditional** may be the very fact that it is developed, maintained and disseminated in a customary, intergenerational context, and often that context will be defined and shaped by customary law. So even the basic question in discussing protection of traditional knowledge – what does this term refer to? – may require an understanding of customary law. This is one reason why indigenous peoples and local communities have consistently argued that measures for the protection of traditional knowledge against misuse and misappropriation should be based upon and support enforcement of their customary laws.

Customary law is thus one potential element of a holistic approach that may include customary and indigenous laws and protocols as part of a wider set of tools for protecting traditional knowledge.

These tools may encompass existing intellectual property systems, adapted intellectual property systems with sui generis elements, and new stand-alone sui generis systems, as well as non-intellectual property options such as trade practices and labeling laws, liability rules, use of contracts, regulation of access to genetic resources, and remedies based on such torts as unjust enrichment, rights of publicity and blasphemy. Amongst the principal attributes

of customary law may, depending on context, be its legitimacy, flexibility and adaptability.

In some countries it is recognized as a source of law, in others its role is limited to the exercise of internal autonomy or self-government by indigenous peoples and local communities, while many countries have yet to give formal recognition to customary law.

Generally speaking, customary law can serve as

- The fundamental legal basis or source of law for a community's legal rights over traditional knowledge
- A factual element in establishing a community's collective rights over traditional knowledge
- One element of the definition of traditional knowledge, or can otherwise establish the relationship between the knowledge and a community that is central to the concept of 'traditional knowledge
- a means of determining or guiding the procedures to be followed in securing a community's free prior informed consent for access to or use of traditional knowledge
- the basis of specific user rights or exceptions, exempting a community's continuing customary uses and practices from legal restrictions on the use of traditional knowledge
- A guide for the assessment of cultural or spiritual offence or damage caused by inappropriate use of traditional knowledge

- A determinant of or guide to how benefits from the use of traditional knowledge should be shared equitably within a community
- A means of determining appropriate remedies, sanctions or restitution following a breach of rights over traditional knowledge
- An avenue for resolving disputes over ownership or other forms of custodianship over traditional knowledge
- It guides for the transmission of rights over traditional knowledge from generation to generation.

Challenges^{xvi}

The development of new technology and the new use of traditional knowledge based products today is the major threat to the survival of many of these communities.

The modern cultural industries as well as the manufacturing industries now commercially exploit the traditional knowledge based products using new technology without the permission and sharing of profits with the communities.

It is possible today to bring out new products or find out new use of existing products based on traditional knowledge utilizing the technological developments in the field of biotechnology. This is proved beyond doubt particularly in the field of medicines, agriculture etc. The development of new products or new use of existing products enables the industries to get protection for these products through the formal intellectual property laws.

As for as our past is concerned to the ongoing colonialism, racism, exploitation and dispossession of indigenous peoples

have led to structural inequalities and societal exclusion and vulnerability.

So such process are also undermined and undervalued to the traditional knowledge. Indigenous languages are encompasses tremendous traditional knowledge relating to conservation and ecological systems and offer opportunities for preserving biodiversity and also maintaining cultural diversity but they are also under threat. Designating 2019 as the International Year of Indigenous Languages is the United Nations General Assembly's effort to protect and preserve indigenous languages, and thereby, protect traditional knowledge.

There are also some practical but true challenges to protect traditional knowledge. Mostly it passed down orally from one generation to another, so without written material it becomes difficult to trace the origin of traditional knowledge.

The major challenge in India to protect traditional knowledge is due to diversity in the language system.

Example- in the absence of the written evidence the origin of YOGA is not known. It is also difficult to provide the time period like- in case of patent and copyrights granted for a period of ten years or twenty years.

In case of traditional knowledge, the period of protection is a bone of contention.

Current initiative for protection of the TK^{xvii}

In recent years concern has been expressed in relation to the recognition of traditional knowledge as prior art.

Patents have been granted for traditional knowledge related inventions which did not fulfill the requirements of novelty and inventive step when compared with the

relevant prior art. This prior art consisted of traditional knowledge that could not be identified by the patent-granting authority during the examination of the patent application.

The term **prior art** generally refers to the entire body of knowledge which is available to the public before the filing date of an application for certain industrial property titles, principally patents, utility models and industrial designs.

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.

International efforts

Patent examiners of the United States patent and Trademark Office are now able to access the database of the traditional knowledge thanks to the Indian Government according its permission in November 2009.

The development of the traditional knowledge digital library, which is a thirty million page searchable database of traditional knowledge translated from numerous languages.

The EPO was allowed the use of the TKDL in February- 2009.

MOU between USPTO and India on Bilateral Intellectual Property Rights Cooperation

The Indian department of industrial Policy and Promotion and USPTO announced on the 23rd of November- 2009 that they have entered into a MOU on comprehensive bilateral cooperation for IPR protection and enforcement^{xviii}.

USPTO and DIPP will cooperate on a range of IPR issues, focusing on capacity building, human resource development, and raising public awareness of the importance of intellectual property rights.

The UN draft declaration on rights of indigenous peoples

In **Art- 29** states that indigenous peoples are entitled to the recognition of the full ownership, control and protection of their cultural and intellectual rights.

Rights to special measures to control develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge related to properties of fauna and flora, oral traditions, literatures, designs and performing.

Traditional knowledge and UN^{xix}

By considering to the value of traditional knowledge, the right of indigenous peoples to promote, maintain and safeguard their traditional knowledge is enshrined in several international normative and policy instruments.

The UN Declaration of the Rights of Indigenous Peoples UNDRIP emphasizes the protection of indigenous peoples' rights to their traditional knowledge under Art.31.

The Convention on Biological Diversity (CBD) also recognizes the close ties of indigenous peoples and local communities to biological resources, and the contributions that traditional knowledge can make to the Convention and sustainable biological diversity under article 8(j). The CBD has established a working group to address the implementation and protection of traditional knowledge to this end. Other UN entities

also have relevant policies and programmed that recognize the role of traditional knowledge in securing the rights of indigenous peoples as elaborated in the UN Declaration.

The Forum's 2019 session aims to contribute to the increasing recognition and respect for traditional knowledge of indigenous peoples, based on their right to self-determination and decide their own development priorities. This is important in the context of the 2030 Agenda for Sustainable Development, which calls for leaving no one behind

Indian government initiatives to protect traditional knowledge

The government has been successful in obtaining UNESCO recognition to Traditional Medicinal knowledge such as Ayurveda, Yoga, Sowa Rigpa, Unani etc. This has allowed India to establish link with the countries of origin and prevent patenting by multinational pharma companies.

Method of collecting traditional knowledge- **interviews, communications, observations, taking images, recordings** etc. from the communities themselves

The initiatives through which traditional knowledge are protected

- 1- Copyright and related rights
- 2- Geographical indications
- 3- Appellations of origin
- 4- Trademarks and certification marks
- 5- By organizational initiatives
- 6- Licensing agreements
- 7- Technical protection measures (TPM)

Even Indian Patent Office has also brought out guidelines for the processing patent applications relating to traditional

knowledge and biological material to help patent examiner to analyze what constitutes novelty and inventive step in the traditional knowledge related invention. (pib.gov.in) **Press information bureau govt of India Ayush**

Judicial approach

Although our judicial system is overburdened by criminal and civil cases it does not get time to move towards the protection of the traditional knowledge yet it has time to time taking part in the protection of the traditional knowledge. Therefore by this research paper, the researcher trying to highlight certain judgments of our judicial system

Divya pharmacy vs Union of India and others^{xx}

The local and indigenous communities in Uttarakhand, who reside in the high Himalayas and are mainly tribals, are the traditional knowledge pickers of this biological resource. Through ages, this knowledge is preserved and passed on to the next generation.

The knowledge as to when and in which season to find the herb its character, the distinct qualities, the smell, the colour, are all parts of this traditional knowledge

This traditional knowledge may not strictly qualify as intellectual property rights of these communities yet is a property right, now recognized for the first time by 2002 act. Moreover, biological resources are definitely the property of a nation where they are geographically located, but these are also the property, in the manner of speaking

of the indigenous and local communities who have conserved it through centuries.

Institute for Inner Studies and ors vs charlotte Anderson and ors^{xxi}

In this case the Supreme Court held that the term **Pranic Healing** is related with the YOGA which was used by our Sages and Sages from the Ancient time. Therefore it would be protected under the traditional knowledge and anyone is prohibited to get patent right on it without the permission of the state Biodiversity.

Environment Support Group and another v National Biodiversity Authority and others^{xxii}

A writ was filed by ESG in 2012 before the Karnataka High Court against the relevant officials responsible for the BD regime on the issue of access to brinjal germplasm. The petitioner NGO urged the Court to direct attention to the widespread practice of biopiracy by national and international corporate bodies. It alleged that the TNAU and UAS, involved in developing Bt brinjal, did not seek permission from the NBA before passing on local varieties of brinjal to a non-Indian seed company.

The bench headed by Chief Justice Vikramjit Sen listed the matter for further consideration in the last week of January 2013. The Court issued a notice to the NBA accusing the Authority of callousness towards protecting the country's biodiversity. On 2 December 2013, the High Court transferred the writ petition to the NGT's Southern Zone, Chennai. Thereafter

ESG appealed against the order of the High Court in through a special leave petition on 2014 before the Sup reme Court of India, arising out of the impugned final judgment and order passed by the Karnataka HC in 2012. The SLP is still pending before the Supreme Court of India; as per the Court's web site the matter is to be listed in January 2017.

Conclusion

Thus, by seeing the current legal framework of India, a single option or modality cannot comprehensively serve as an appropriate protection mechanism for the traditional knowledge. Since the existing intellectual property regime is unable to protect the interest of the traditional holders. Therefore a sui generis model must be adopted based on the international instrument to fulfill the purpose.

This research paper is showing that inter alia the conventional intellectual property instruments and patent can serve as a protective mechanism by utilizing the idea of the prior art. Moreover the traditional holders can collect royalties under the realm of the copyright.

However these instruments offer protection only for a certain period, so while taking the trademark and trade secrete can be termed as effective tools to protect traditional knowledge as they provide protection for an indefinite time. If we touch the geographical indication, it provides for a perpetual protection as long as the traditional quality is maintained.

As the developing countries are concerned that every possible effort should be taken in

the protection of the things which are economically sound, since traditional knowledge is one of those things, should also be protected properly.

Suggestions

- After all discussion what I observed that the present legal regime in the field of access and benefit sharing of genetic resources and traditional knowledge is inadequate and incomplete. The fact remains is that the tribal people are placed in the disadvantaged position and they are not in a position to enjoy the benefit derived out of their traditional knowledge.
- So there must be separate law at the international level and the national level which has protected the interest of the tribal people.
- The law must be strong regarding the benefit sharing of genetic resources and traditional knowledge.
- There should be an unambiguous mechanism to approach the concerned authority at the international level and the national level.
- There must be a separate amendment in the country's constitution which properly regulate the method of access and benefit sharing of genetic resources and traditional knowledge. The provisions should be added in such part of the constitution which makes the government, courts, companies, any industry or the citizen and non citizen accountable

for the protection of genetic resources and traditional knowledge.

- There must be separate appointment of the committees to hold the accountability to execute the laws relating to genetic resources and traditional knowledge. These committees make various camps in different of parts of their countries region.
- There must be awareness programmed regarding the protection of genetic resources and traditional knowledge.
- The subject on the genetic resources and traditional knowledge must be implemented in the police training so that they can understand the laws relating to the access and benefit sharing and genetic resources and traditional knowledge so it will help in the implementation of the laws on it.
- There must be an ombudsman who will have governance over the authority of the genetic resources so that the officers could remain within the control. This is the most important concept to the smooth functioning and a proper implementation of the laws relating to genetic resources.
- As we know there is no proper court system which has looked the matter and the decision of which to be binding on the parties. Since the matters of access and benefit sharing to genetic resources and traditional knowledge may ether international level or the national level so the

conflict regarding the jurisdiction arise, therefore to avoid such kind of conflict there must be a separate court system.

- For the speedy and proper implementation of the laws there must also be time limit criteria within which the committees have submitted their report to the ombudsman and not to the government but it does not mean that the ombudsman has merle body to look but there must be control of the court on the ombudsman.
- The provisions mentioned in various conventions must be properly implemented by the government and the government agencies.
- There must also be responsibility of the every political party to spread awareness regarding the laws relating to genetic resources in their political speeches.
- Thus the genetic resources are very important parts at the global level, since we are going to more modern day by day and due to these modernizations we forget about the ethics and justice and fairness although we are getting education which is very important tool yet we have become blind in the race of this modernization. If we saw, definitely we find that there are more laws and acts or the authorities' still we need more laws why? No one can give perfect answer of it as everyone wants to proceed further even I.
- Lots of the cases are pending in the courts but where is the justice, when

the justice will meet the person who has claimed he will absent to get justice so how can we say that there is justice. Everything is I if I will try to make a better place no need of all these arguments.

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