BIOPIRACY AND ITS GROWING THREAT TO BIODIVERSITY IN INDIA: A BIRD'S EYE VIEW

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ABSTRACT

In this paper, an attempt has been made by the author to provide an overview of the concept of biopiracy and its modern day significance in the world of IPR, especially in context with biodiversity in India. Biopiracy is a very new concept and so it has been a sincere attempt of the author to familiarize the readers about the importance of biodiversity, the issues relating to it e.g. benefit sharing, the correlation between biodiversity and biopiracy and how grave the consequences of biopiracy can be to the nation and to some other sections of the society, especially the traditional communities. The paper stresses on the importance of the issue at the international level and the efforts that have been taken at the national as well as international level to combat biopiracy. The paper also explains some of the other important concepts, closely associated with biopiracy, such as traditional knowledge, TKDL etc. The author has also stressed on the legal angle of the entire issue i.e. Indian legislations to combat the menace as well as the various international agreements and

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conventions, which have been enacted or entered into by the world community to make biopiracy legally impossible. For a better understanding of the concept, in context of the current scenario, and the procedure to combat it, the author has discussed real world cases where such attempts have been foiled by the government of India or where the government failed to prevent such a traditional knowledge from being patented. In conclusion, the author has proposed certain novel efforts which, if adopted and executed effectively, might go a long way in protecting the "Green Gold" (i.e. bio-resources).

I. INTRODUCTION

India is home to infinite number of, including some of the very rare species, of plants and animals. Nature has gifted the sub-continent with a rich biodiversity. Coupled with this, India is also home to well-developed indigenous systems for gainful utilization of these biological resources. For centuries, the people of India have applied these various gifts of nature for several purposes, for example, traditional medicines made from animal and plant resources- 'neem', 'pudina' etc. and till date they are using them for their various needs. Unfortunately, the rich biodiversity of India and the traditional knowledge of the indigenous people and the local communities is under threat owing to the global economic and social development coupled with the development of science and technology ('biotechnology'). The term coined to refer to this threat to the biodiversity and traditional knowledge is **"Biopiracy"**.

'Biopiracy' is the term that is becoming extremely common nowadays, in the field of intellectual property laws. As the term

suggests it involves some illegal activity (due to the term 'piracy'). Now let us make an attempt to understand its meaning.

Biopiracy means obtaining patent (or other IPRs) on resources which are originally found in various species of plants and animals for exploiting them commercially and maintaining a monopoly control over the same.

Biopiracy can include either (or both) of the following:

a) Obtaining IPRs (usually patents or PBRs) to gain monopoly control over biological resources, related traditional knowledge, or commercial products based on these resources or knowledge, without the consent of, or any benefits going to, the original holders of the resources/knowledge.
b) Commercially exploiting biological resources or related traditional knowledge without the consent of, or any benefits going to, the original holders of the resources/knowledge.[1]

So, in a nutshell, biopiracy involves theft of biological resources (resources from species of plants and animals) and depriving the traditional communities from using such resources and related knowledge. Biopiracy takes place when biological resources or knowledge is commercially used without the consent of the 'traditional communities' or when IPRs and exclusive rights are claimed over such resources/knowledge.

II. IMPORTANT TERMS ASSOCIATED WITH BIOPIRACY

For a better understanding of the term of biopiracy and getting a clear picture of its consequences, we need to first understand the meaning of some of the terms which are closely associated with biopiracy.

A. *Traditional Knowledge*[2]

[1] T. Apte, A Simple Guide to Intellectual Property Rights, Biodiversity and Traditional Knowledge, Kalpavriksh, Grain & IIED. Pune/New Delhi.
[2] Id.

This refers to the knowledge which is held by the communities and cultures over generations, and has a deep cultural and economic significance. It includes a diversity of knowledge such as literary, artistic and scientific works, medical practices, agricultural techniques, handicrafts, songs and dances. Traditional knowledge about biodiversity can include the healing, agricultural and sacred properties of plants and animals, as well as conditions of cultivation and processing methods. Traditional knowledge is found in ancient texts, traditional sciences, folklore and in continuing practices and beliefs of communities. Most often it is transmitted from generation to generation as oral knowledge. It is important to note that traditional knowledge is not static, but dynamic, constantly being shaped and changed by the innovations and practices of each generation. The social process of learning, sharing and shaping the knowledge is a core aspect of the knowledge tradition.

B. *Traditional Communities*[3]

This refers to the communities whose way of life is largely shaped by generations of their ancestors. They are distinct from urban or fast changing societies and lifestyles, maintaining a shared body of cultural, environmental, economic and familial customs that are based on traditional occupations, knowledge, values and social hierarchies. Traditional communities may include farming and fishing communities, forest-dwelling communities, indigenous people, nomadic communities etc.

C. Original Holders of Traditional Knowledge

'Original holders of traditional knowledge' are those traditional communities to whom the origin of the knowledge can be traced back to, and who have been making application of the knowledge handed down from time immemorial.

In the case of the traditional knowledge that is widely known or in common use (i.e., in the public domain), where the origins of the

[3]Apte, supra note 2.

knowledge cannot be traced to a particular local community, the 'original holder' of the knowledge would be the country of origin of the knowledge, with the government holding it on behalf of its people.

D. Biodiversity[4]

Biodiversity is short for 'biological diversity'. It includes;

- Wild species and varieties of plants, animals and micro-organisms.
- Domesticated species and varieties like crops, livestock and poultry.
- Natural ecosystems like forests, deserts and coasts.
- Agricultural ecosystems like farmlands.

Simply put, it means the diversity of life in all its forms. Biodiversity encompasses diversity and variety between species and within species of plants, animals and micro-organisms. It also includes diversity of eco-systems, such as marine, wild or agricultural ecosystems.

E. Biological Resources[5]

Biological resources are any living organism or biological component which is of use or value to humans. This includes almost all kinds and parts of plants, micro-organisms and animals (including animal products like milk).

"*Biological resources*" includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.[6]

F. Bioprospecting[7]

Bioprospecting is the exploration of biodiversity for commercially valuable biological and genetic resources. It refers to the investigation of biological resources for new commercial uses.

[4]Apte, supra note 2.
[5]Apte, supra note 2.
[6]Convention on Biological Diversity, art. 2, 1992.
[7]Apte, supra note 2.

The term bioprospecting has acquired strong negative connotations for the reason that bioprospecting often leads to biopiracy or environmentally unsuitable practices (such as collecting large number of samples from an area). Traditional knowledge has, for decades, been exploited and misappropriated in the name of bioprospecting.

G. Benefit Sharing[8]

Benefit sharing refers to: (a) the process of an outsider accessing and using a country's/community's biological resources or related traditional knowledge, and (b) subsequently sharing any resulting commercial proceeds with the concerned community. For example, a national government may grant access to a company to collect samples of medicinal plants in a forest. The local forest community may collaborate with the company in locating plants and explaining their traditional medicinal uses. The company may use the research in making a commercial drug. In return, the company would share financial benefits with the local forest community, on terms that are mutually acceptable to both. Benefits can also be non-monetary, for example training and collaboration for making the drug within the source country thus generating employment or leading to infrastructure development.

III. IMPORTANCE OF TRADITIONAL KNOWLEDGE

Traditional knowledge plays an important role in the conservation of biodiversity and its traditional uses as follows:

1. **Healthcare & Pharmaceuticals:** Indian systems of medicine (Ayurveda, Unani, Siddha) are part of the official healthcare system in India, and depend on a diversity of biological resources and traditional knowledge. For decades, new drugs have been found in various species and sub-species of plants and animals. Traditional knowledge has also been the source for the manufacture of various cosmetics.

[8]Apte, supra note 2.

2. **Agriculture:** Farmers and livestock keepers have improved and nurtured diverse varieties of crops and domesticated animals over generations. This has been invaluable to food security and in providing clothing, healthcare and shelter.
3. **Wild biodiversity:** All over India the local communities have independently conserved wild areas, including natural ecosystems, sometimes deemed to be sacred and inviolate (eg. 'Sacred groves', some thousands of years old, dedicated to a local deity).[9]

IV. IMPLICATIONS OF BIOPIRACY

The exploration and investigation of biological resources for new commercial uses (i.e. 'bioprospecting') has been an inherent part of global economic and social development. The problem arises when bioprospecting leads to biopiracy. Biopiracy is a violation of the rights of traditional communities over their biological resources and traditional knowledge. The implications of biopiracy are economic as well as ethical.[10] They can be summarized as follows:

A. *Deprivation of the traditional communities from the Profits*

When the biological resources are commercially exploited by the corporations through obtaining of IPRs (or other related rights), the original holders of biological resources and traditional knowledge i.e. the traditional communities, do not get any share in the profits made from commercializing the products based on their resources/knowledge. Due to their low levels of awareness and literacy, they also do not get any recognition for nurturing and developing the resources/knowledge in the first place.

[9]Prof. S Kannaiyan, Biological Diversity and Traditional Knowledge, (September 5, 2010), http://www.nbaindia.org/docs/traditionalknowledge_190707.pdf.
[10]Id.

B. *Preventing the traditional communities from commercially using the biological resources:*

Business corporations want to stop anyone else from commercially exploiting the findings of their bioprospecting and research activities. Huge sums of money is invested on research and development of a new product, and an effective way to ensure that the money is recouped is to have exclusive use, production, marketing and sales control over the research findings and the resulting product. For this purpose, the business corporations find it necessary to assert IPRs over biological resources and traditional knowledge. Once an IPR is acquired by a 'biopirate' (the business organization which has acquired the IPR over the resources) on any of the biological resources, the original holders of a biological resource or related traditional knowledge are barred from making any commercial use of the IPR-protected knowledge or resource despite the fact that they have preserved and used such resources for generations and have nurtured and developed the natural resources and related knowledge over generations to its present form. There also lies a threat that in future the traditional communities may have to buy the products of these companies (holding the patents) at a high price.

C. *Loss of control and access of the traditional communities of their resources/knowledge*

Once an IPR is acquired over a particular resource or a knowledge, the IPR holder may dictate the terms of use of the IPR-protected resource/knowledge which might lead to preventing of the traditional communities (who are the 'original holders') from having any control over or access to their resources/knowledge.

V. EFFORTS TO PREVENT BIOPIRACY

A. The Convention on Biological Diversity, 1992

The Convention on Biological Diversity (CBD), 1992 was one of the first measures taken by the international community towards prevention of biopiracy and safeguarding the interests of the traditional communities and of the States over their natural resources. The CBD was one of the key agreements adopted by world leaders at the 1992 United Nations Conference on Environment and Development (also known as the 'Earth Summit') in Rio de Janeiro. The CBD came into force in December 1993 and till date has been ratified by 176 countries.

The main goals of the CBD are the conservation of biodiversity, sustainable use of biological resources, and the equitable sharing of benefits arising from the use of biological resources. This is a *sui generis* agreement as it focuses on biodiversity as a whole.

The most important IPR related provisions of the CBD are:

a) **Sovereign control:** It was agreed by each contracting party (country) in the CBD that states have sovereign rights over their own biological resources. 'Recognizing the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the governments and is subject to national legislation.'[11]

b) **Equitable benefit sharing:** One of the main objectives embodied in the CBD is sharing equitably, the benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components, with the indigenous and local communities who are the traditional holders of the resources. Their dependence on the biological resources was also recognized.

[11]Convention on Biological Diversity, art. 15(1), 1992.

c) **Consent of governments and local communities:** In the CBD, it was agreed that each contracting party shall facilitate access to genetic resources for environmentally sound uses by other contracting parties.[12] Access to genetic resources shall be subject to 'prior informed consent' of the contracting party providing such resources.[13] Access shall be granted on mutually agreed terms.[14]

d) **Access to biotechnological results:** It was agreed that each contracting parties shall share the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the contracting party providing such resources, on mutually agreed terms.[15] This would facilitate the access to biotechnological results to those countries which are lagging behind in the field of biotechnology, especially the developing and the underdeveloped countries with a rich biodiversity.

e) **IPRs should not run counter to CBD objectives:** The CBD recognizes that every contracting party shall ensure that rights with regard to patents and other IPRs related to biological resources and related traditional knowledge should be supportive of and do not run counter to the CBD objectives.[16]

Furthermore, the CBD was an attempt to bridge the gap between the technologically developed nations and the developing nations and LDCs. This was done by incorporating provisions regarding exchange

[12]Convention on Biological Diversity, art. 15(2), 1992.

[13]Convention on Biological Diversity, art. 15(5), 1992 -'Prior informed consent' is permission taken from the traditional holders of biological resources/knowledge, to access and commercially exploit the resources/knowledge. Taking the prior informed consent of the traditional holders must be based on providing them with information such as the reasons, risks and implications of accessing and using the resources/knowledge (including the implications of obtaining IPRs on resulting products or innovations). It is assumed that prior informed consent would lead to mutually agreed terms of benefit sharing.

[14]Convention on Biological Diversity, art. 15(4), 1992.

[15]Convention on Biological Diversity, art. 15(7), 1992.

[16]Convention on Biological Diversity, art. 16(5), 1992.

and transfer of technologies and information relevant to the conservation and sustainable use of biological diversity or making use of genetic resources in a manner not causing significant damage to the environment, taking into account the special needs of the developing countries. [17] The contracting parties further agreed towards the promotion of international scientific and technical cooperation in the field of conservation and sustainable use of biological diversity advancing fair and equitable access of the results and benefits arising from biotechnologies, to the developing countries.[18]

All these provisions aim towards one objective i.e. to prevent biopiracy. This was sought to be achieved by facilitating the transfer of technologies and exchange of information whereby the nations with a rich biodiversity and which have entered into 'benefit sharing agreement' would come to know whereby any of the contracting parties have committed biopiracy or whether they are receiving equitable share of the benefit which is being derived by the corporation by using the biological resources and/or related traditional knowledge.

B. Bonn Guidelines, 2002

The Bonn Guidelines were officially adopted at the 6th Conference of Parties in 2002. The Bonn Guidelines was another initiative made at the international level with the objective of controlling biopiracy. The Bonn Guidelines are voluntary and not binding. Like the CBD, the object of Bonn Guidelines is also to facilitate equitable benefit sharing thus providing recognition to the knowledge and practices of traditional communities.

One of the objects of the Bonn Guidelines is also to facilitate prior informed consent of local communities and national governments before local genetic resources and related traditional knowledge are accessed and exploited. It also suggests that while applying for IPR protection of an innovation, the applicant must disclose the

[17]Convention on Biological Diversity, art. 16 & 17, 1992.
[18]Convention on Biological Diversity, art. 18 & 19, 1992.

geographical resources and traditional knowledge used in formulating the innovation. Such a measure has direct bearing on controlling biopiracy as well as ensuring prior informed consent and benefit sharing.

But the biggest drawback of the Bonn Guidelines is that the suggestions contained herein are not binding on any nations.

C. Indian Legislations

In India also, there are various laws which relate to IPRs and which are especially concerned with the protection of biodiversity and traditional knowledge. The main laws which relate to IPRs, biological resources and traditional knowledge are:

a) the Biological Diversity Act (BDA), 2002
b) the Protection of Plant Varieties and Farmers' Rights Act, 2001
c) the Geographical Indication of Goods (Registrations and Protection) Act, 1999 (hereinafter referred to as the GI Act, 1999)
d) the Patents Act, 1970 (as amended in 1999, 2002, 2005)

The Biological Diversity Act, 2002 was enacted to implement the CBD in India, post ratification. Therefore, its aims and objectives are very similar to those of CBD. The BDA aims to set up decision making bodies at national, state and local levels. The National Biodiversity Authority (NBA) set up at the national level will have the right to grant approval to foreigners wanting to access biological resources and related traditional knowledge and to those who want to apply for patents or other IPRs on innovations based on biological resources and traditional knowledge obtained in India.[19] The NBA will also ensure that granting access to resources also includes equitable benefit-sharing with local communities.[20] The act also provides for various other kinds of benefit sharing with local

[19] The Biological Diversity Act, §19(1) r/w §§ 3 & 6 (2002).
[20] The Biological Diversity Act, § 6(2) (2002).

communities- transfer of technology, monetary compensation, joint research and development, venture capital funds and joint ownership of IPRs.[21] Biodiversity Funds will be set up at national, state and local levels which will receive money from individuals and organizations who access and utilize the biological resources and related traditional knowledge and this fund will be utilized for the benefit of the local communities.[22]

The Protection of Plant Varieties and Farmer's Rights Act, 2001 aims to establish an effective system for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants. Under this legislation, a plant breeder can acquire a plant breeders' right (PBR) on a new variety of plant or seed which it has bred, evolved or developed, if it is distinct, stable, uniform and novel. A plant breeder, after registering the new plant variety with the registrar of the Plant Varieties Registry,[23] gets the exclusive right to produce, sell, market, distribute, import or export the variety.[24] This prevents any other person or organization to sell protected variety of plants and seeds under any brand name thus protecting the rights of the original breeders. Since all new varieties are based on traditional varieties, the plant breeders have to pay money into a National Gene Fund,[25] from which a share will be paid to the farmers as a reward for their traditional knowledge. This ensures benefit sharing with the farming communities, through the National Gene Fund.

The Geographical Indications of Goods (Registrations and Protection) Act, 1999 covers agricultural, natural and manufactured goods, where the quality or reputation of the product depends on its geographical origin, i.e. the place where it is grown or manufactured

[21]The Biological Diversity Act, § 21(2) (2002).

[22]u/s. 27 of the Act, National Biodiversity Fund will be constituted; u/s. 32 the State Biodiversity Fund will be constituted; u/s. 43 the Local Biodiversity Fund will be constituted.

[23]Protection of Plant Varieties and Farmers' Rights Act, § 12 (2001).

[24]Protection of Plant Varieties and Farmers' Rights Act, § 28(1) (2001).

[25]Protection of Plant Varieties and Farmers' Rights Act, § 45(1) (2001).

(eg. Tirupati laddoos, Basmati rice, Darjeeling tea, Kashmiri shawls). The act allows a person or association to register a Geographical Indication (GI) at the Geographical Indications Registry. [26] Registration provides GI protection for a product against infringement of registered geographical indication by an 'unauthorised user'.[27] Like PBRs, GI is very useful for protecting products based on collectively held traditional knowledge. It protects authorised users by preventing unfair competition from a person, not an authorised user, who by wrongful representation and designations of the goods indicates or suggests that the goods originate in a geographical area other than the true place of origin of such goods, thus misleading consumers about the geographical origin of such goods.[28]

The Patents Act, 1970 (as amended in 1999, 2002, 2005) has excluded traditional knowledge and derived inventions from patentability. Apart from that, it states that the source and geographical origin of biological resources used in the invention must be declared in order to obtain a patent. Failure to provide correct information can lead to the patent being cancelled. Such a provision reduces the risk of biopiracy as it provides recognition to the source and origin of the resources and the traditional communities.[29]

D. Traditional Knowledge Digital Library (TKDL)

Traditional knowledge, as we have earlier discussed, can be utilized for varied and diversified purposes and be put to use in different fields (especially healthcare and agriculture). Traditional knowledge in India has for long been susceptible to biopiracy, the chief reason being, in most of cases the information relating to the traditional knowledge is non-codified (i.e. not available in documented form, which are generally transmitted orally for generations). Documentation of such traditional knowledge is especially important

[26] Apte, supra note 2.
[27] Any person not registered as an authorised user u/s. 17 of the GI Act, (1999).
[28] GI Act, § 22(1)(1999).
[29] Apte, supra note 2.

as oral knowledge is not accepted as evidence of prior art. Those which are codified are available in regional languages due to which the patent offices, across the world, are unable to search this information as prior art, before granting patents to inventions and many a times patents are granted to such inventions which do not satisfy the novelty clause. In 2000, a TKDL (Traditional Knowledge Digital Library) expert group estimated that about 2,000 wrong patents concerning Indian systems of medicine were being granted every year at the international level, mainly due to the fact that India's traditional medicinal knowledge existed in languages such as Sanskrit, Hindi, Arabic, Urdu, Tamil etc.[30] Another issue is that as the traditional knowledge is in public domain, the persons or corporations who claim patents on an invention based on such knowledge are under the impression that the traditional communities have given up all their rights over them. The problem arose when patents were granted to those inventions which were based on traditional knowledge or the utilities of which were already known to the traditional communities of the developing countries (in this case India). The need to create a database which will record, in electronic form, the utilities of various plant species and which would be made available to the patent offices worldwide was given utmost priority. Thus, the Traditional Knowledge Digital Library (TKDL) came to be considered as the solution to this problem.

The need for the Traditional Knowledge Digital Library (TKDL) was also felt post 'turmeric case' where two US based Indians obtained a patent[31] from the USPTO (US Patent and Trademark Office) for the wound healing properties of turmeric. In this case, CSIR (Centre for Scientific and Industrial Research), which had challenged the novelty of the invention, had to search 32 findings from different scriptures written in Hindi, Urdu and Sanskrit which revealed that the wound

[30]Kounteya Sinha, India foils Chinese bid to patent 'pudina' for bird flu treatment, TOI, June 24, 2010 [hereinafter Kounteya Sinha].

[31] Patent No. 5-401-504.

healing properties of turmeric (*Haldi*) have been known in India for hundreds of years. Subsequently, the patent granted, was revoked by the USPTO. Thus, the need was felt for a database where the details of the medicinal properties of the plant species would be recorded so as to make aware the other patent offices worldwide about those inventions which lacked novelty.

The Traditional Knowledge Digital Library (TKDL) is a Government of India initiative to create a digital database of traditional knowledge related to medicinal plants. The TKDL is a collaborative project between CSIR (Council for Scientific and Industrial Research) and the health ministry's department of 'Ayush'. TKDL is a database which will record, digitally, the details of the medicinal plants, alongwith their uses and properties, in a searchable and easily accessible manner available on DVD and on the internet. The information is compiled and classified using a software programme that makes it compatible with International Patent Classification. The information will be available in five international languages *viz.* English, German, French, Japanese and Spanish; in addition to Hindi. By 2002, a team of 40 experts had compiled about 8,000 formulations from a total of 35,000 'slokas' that relate to the Ayurvedic medicinal system.[32] Only plants and knowledge that are already in the public domain will be included in the database. Such information made available to the patent offices worldwide, would help them in verifying the novelty of the inventions or whether such inventions are based on traditional knowledge for eg. a minor value addition or modification to the knowledge, which was known to the traditional communities. The aim is to prevent biopiracy by making the database available to patent offices worldwide, and to alert them to existing knowledge of the plants and their medicinal uses. It is hoped that TKDL will save the enormous costs as well as time involved in legally challenging a patent that has already been granted. TKDL is

[32]Apte, supra note 2

being considered as one of the most significant initiatives which the Government of India has taken to prevent biopiracy.

Dr. Raghunath Mashelkar, former director-general of the Council of Scientific and Industrial Research (CSIR), who is heading the initiative, says that such databases are essential for India to avoid expensive legal battles over patent applications in this field.[33]

VI. CONTRIBUTION OF TKDL

The recent contributions of TKDL towards prevention of biopiracy can be summarized through various instances as stated below:

(i) India foiled a major Chinese biopiracy bid to patent the use of medicinal plants *'pudina'* (mint) and *'kalamegha'* (andrographis) for the treatment of avian influenza or bird flu. The European Patent Office (EPO) decided to grant patent to Livzon, a major Chinese pharmaceutical company, on February 25, 2010, on the medicinal properties of 'pudina' and 'kalamegha' for treating bird flu. In this case, the Council of Scientific and Industrial Research (CSIR), with the help of India's TKDL, dug out formulations from ancient Ayurveda and Unani texts, like 'Cakradattah', 'Bhaisajya Ratnabali', 'Kitaab-al-Haawi-fil-Tibb' and 'Qaraabaadeen Azam wa Akmal' dating back to the 9th century, to show that both 'pudina' and 'kalamegha' have been widely used in India for ages for influenza and epidemic fevers and have been long known in the Indian systems of traditional medicine. In the TKDL, there have been several references where andrographis and mint are used for the treatment of influenza and epidemic fever. Hence, there was no novelty or inventive step involved in the patent application. On June 10, 2010, a three-member

[33] K.S. Jayaraman, Biopiracy fears cloud Indian Database, http://www.scidev.net/en/news/biopiracy- fears-cloud-indian-database.html.

panel set up by the European Patent Office (EPO), to study the evidences, decided to cancel the Chinese patent claim.[34]

(ii) India prevented a Danish company, Claras Aps, from acquiring a patent on its invention of the fat burning properties of ginger, jeera (cumin), onion and turmeric. Claras Aps had filed a patent application at the European Patent Office saying its invention of ginger, jeera (cumin), onion and turmeric as slimming agents was novel. Like the earlier case, even in this case the Council of Scientific and Industrial Research (CSIR), with the help of India's TKDL, dug out formulations from ancient Ayurveda texts like *'Astanga Samgraha'*, *'Yogaratnakarah','Yogatarangini' and 'Gandanigrahah'* dating back to the 5th century, which contained evidences regarding their use for ages in India, as fat burners. Director of TKDL, Dr. V. K. Gupta submitted a letter to the European Patent Office stating that all the four have long been known in Indian systems of traditional medicine for their use as slimming agents or fat burning agents and there references were made from the TKDL regarding these uses. The novelty of the invention was challenged and subsequently the Danish company was forced to withdraw its patent claims.[35]

VII. DRAWBACKS

In the preceding the paragraphs, we have discussed about the weapons, we have with us in our fight against biopiracy. But in this process, inspite of cooperation among the nations at the international level, we have also experienced certain drawbacks. Let us make an attempt to realize the drawbacks, which stand strong in the way of success.

[34]Kounteya Sinha, supra, note 31.

[35]Kounteya Sinha, India beats back Danish firm's biopiracy bid, TOI (Jul. 02, 2010).

A. Weaknesses of the Convention on Biological Diversity (CBD)[36]

As discussed earlier, CBD was one of the initiatives made at the international level to protect the traditional knowledge from biopiracy. But it suffers from certain weaknesses. Some of them can be enumerated as below:

(i) **Weak Enforcement:** Though the CBD is legally binding on all the member countries yet it has little power to ensure that its members comply with the CBD requirements.

(ii) **National Sovereignty over biological resources:** The CBD is based on the notion that member states have sovereign rights over their biological resources; however this means that the rights of local communities over their biological resources depend on their national government and are not spelled out in the CBD. It is an inherent weakness of international law in general, that it tends to be mainly national government-centered.

B. The controversy relating to the TKDL

There is no denial to the fact that the TKDL is a unique strategy to combat biopiracy. The contribution of the TKDL as discussed above stands testimony to the fact. However, we cannot afford to overlook certain drawbacks with respect to the TKDL because doing so might be disastrous. TKDL is supposedly to contain the details relating to the uses and properties of the plant species which have been used by the traditional communities in India for ages and which find their place in the traditional Indian medical system. Such information will be made available to the patent offices worldwide to ensure the novelty of the inventions before granting them patents. In this process there is a constant fear clouding the minds of the intellectuals that whether the TKDL would end up facilitating biopiracy.

[36]Apte, supra note 2.

One of the initiative's strongest critics is Devinder Sharma, president of New Delhi based 'Forum for Biotechnology and Food Security', who argues that the country's indigenous knowledge, which has so far been protected by language and cultural barriers, "is now being handed over officially to drug companies on a readily accessible digital platter."[37] Information about the medicinal properties of plants will be made available means that people outside the country would come to know about those plant species and their uses which they were not even aware of. This also means an easy way for the business corporations to discover about the traditional knowledge. Now, the important thing which we should understand here is that mere recording of the information about the various plant species in the TKDL does not ensure 100% protection from biopiracy. Many a times, corporations (biopirates) manipulate or modify the original medicinal remedy of the plant species and also modify its application so as to give a covering of novelty to the invention, though they are actually based on the traditional knowledge, and then go ahead to patent it and commercially exploit it. There have been similar instances in the past.

The USPTO (United States Patent and Trademark Office) had granted patent to the ailment 'dry eyes'. In the Indian literature, 'dry eyes' control has been spelled out through the use of leaves of Kumari plant (aloe vera). The remedy is to take few leaves of aloe vera, wash these in clean water and then crush the leaves. Put some drops of the solution that is extracted from the leaves into the eyes and the 'dry eyes' problem is taken care of. In the patent application that has been granted by the USPTO, the only difference is that clean water has been replaced with chlorinated water. Also, there was enough technical jargon, like temperature etc., and thus the condition of novelty was satisfied.[38]

[37] K.S. Jayaraman, Biopiracy fears cloud Indian Database(Aug. 30, 2010), http://www.scidev.net/en/news/biopiracy- fears-cloud-indian-database.html.

[38] Devinder Sharma, Another Tool for Biopiracy, (Aug. 30, 2010)http://www.indiatogether.org/agriculture/opinions/ds_tkdl.htm.

C. Weaknesses in the Indian Legislations

Though the government of India has enacted laws in this respect yet there are certain weaknesses in the legislations (about which we have already discussed in the paper). They can be summarised as follows:

a) Biological Diversity Act, 2002

The main weaknesses in the BDA, 2002 are:

(i) Weak participation of traditional communities- the BDA has provisions relating to the constitution of National Biodiversity Authority (NBA) and State Biodiversity Board (SBB) which performs functions relating to decision making, granting of approvals and other advisory functions. But the members of the traditional communities are not members of the NBA or SBB. The act is also silent about the members in the Biodiversity Management Committees (BMCs)[39], which shall consult the NBAs and SBBs whenever their advice is sought, as to whether they should have representatives from the traditional communities. This defeats the object of 'prior informed consent', as has been stated in the Convention on Biological Diversity, 1992, as a result of the weak participation of the traditional communities in the process of granting approvals to foreigners or any citizen of India or a body corporate relating to accessing of biological resources or related traditional knowledge; transferring the results of any research relating to any biological resource occurring in India; or in case of any person wanting to apply for IPRs on innovations based on biological resources and traditional knowledge obtained from India.[40]

(ii) Ambiguity relating to Equitable Benefit Sharing- the actaims at equitable sharing of benefits arising out of the use of biological resources, knowledge and related matters. But it has not been stated as to what will be the proportion in which the benefits will be shared

[39]BMCs to be constituted u/s. 41 of The Biological Diversity Act, 2002.
[40]The Biological Diversity Act, §§ 3, 4 & 6, 2002.

between the corporations and the traditional communities. The act does not even define the word 'equitable', which leaves scope wide controversy and exploitation of the traditional communities.

b) *The Protection of Plant Varieties and Farmer's Rights Act, 2001*

The main problem with the PPVFR Act, 2001 is that under this act, the onus is on the farmer to register the plant or seed variety for securing protection for it. In India, due to lack of awareness among the farmers it is highly unlikely that an average farmer would be able to register his/her variety. Further, the level of literacy, time and money the process requires, a farmer would generally avoid making efforts to register his variety, leaving scope for some other player in the market to acquire the rights over the traditional variety thus culminating into biopiracy.

VIII. HOW CAN BIOPIRACY BE PREVENTED?

Biopiracy, as an act, has huge money potential in it. Obtaining patent for biological resources, related traditional knowledge and the commercial products based on these resources and knowledge means having the right of exclusive use of the resource, its production, marketing and sales in the global market. Such facts itself stand evidence to the fact that the corporations stand to gain huge revenues which can be generated through biopiracy and preventing an act which is backed by such enormous wealth potential will not be easy. Efforts have to be made for long term systemic change.

In order to combat biopiracy, the government should, first and foremost, take up initiatives to find out the various biological resources which have commercial value for human beings and which, traditional communities of India, have been using for centuries. For this purpose, an effective survey needs to be done state-wise, by committees which will have members from the village 'panchayats' and grassroot organizations, who have knowledge about the traditional uses of various resources and who have nurtured their utilities for ages. Prior to this initiative, awareness needs to be

generated about the immense commercial value which such traditional practices have for the country as well as the severity of the losses if the uses of such biological resources are patented by some foreign or private player. At the same time, the villagers must be made aware of IPRs on bio-resources which is a concept alien to the traditional communities. Information needs to be disseminated among the traditional communities regarding the efforts of the government relating to prevention of biopiracy- for e.g. TKDL. This is to secure their confidence so that the traditional communities take up the initiative to register with the government the traditional uses of resources, if any, being used for ages.

No doubt the Biological Diversity Rules, 2004 aims to achieve this by the preparation and maintenance of "People's Biodiversity Register"[41] by the Biodiversity Management Committee (BMC) in consultation with local people, the approach can be more comprehensive in order to combat biopiracy. This is because there are activists and groups who feel that putting traditional knowledge into the public domain (through PBR and other databases such as TKDL) who make it easy for commercial exploitation of the knowledge by Indians and foreign bodies alike. There are valid fears regarding who regulates the use of centralized databases and for whose benefit.[42] In order to gain their confidence, it is necessary to assure such groups of the measures which the government will take to prevent unfair exploitation of such resources and knowledge. This can be done more effectively by some people from their own community. So, such committees should consist of members of the village community and farmers/adivasi unions (when the survey is being is being done in a particular village) who can gain the confidence of the community at large on behalf of the government and through whom the Government can hold consultations with the traditional communities relating to benefit

[41]Biological Diversity Rules, § 22(6), 2004.
[42]Apte, supra note 2, at 56.

sharing prior to licensing the traditional knowledge to some private or foreign individual or corporation. The above discussed initiative cannot become successful without the cooperation of traditional communities at the grassroot level.

The information gathered about traditional practices from these sources should be documented in the People's Biodiversity Register and measures must be taken by the government to ensure its secrecy i.e. until patent or a status of Geographical indication is obtained, no outsider should come to know about it. Undertaking such surveys, maintenance of People's Biodiversity Register and searching biological resources in various places can also help in determining whether Geographical Indication status can be granted to any of the products if they satisfy the required conditions as stated in the GI Act, 1999.

Another crucial issue which we need to take into consideration is that the litigation costs which the government of India has to bear while challenging the patents which are granted by the other nations on the bio-resources and traditional knowledge of India. Under such circumstances, government should undertake some other strategy to counter biopiracy as there are hundreds of such patents which have been granted by the other nations on utilities of bio-resources based on Indian traditional knowledge and countering all of them through litigation might put a heavy burden on the government.

For instance, let's take into consideration this recent issue. India has won the battle for 'Ponni Rice' in a Malaysian Court. 'Ponni' rice was produced along the Cauvery river in Tamil Nadu and Karnataka. A Malaysian firm 'Faiza Sdn Bhd' had attempted to register it as its own trademark for its rice products. This was objected by the Agricultural and Processed Food Products Export Development Authority (APEDA)[43] and four others who filed litigation against the firm in

[43]The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the 'Agricultural and Processed Food Products Export Development Authority Act', 1985.

Malaysian High Court in Kuala Lumpur. The Malaysian High Court in Kuala Lumpur ruled that Faiza Sdn Bhd should not use the 'Ponni' label for its rice products.[44] This costly litigation could have been avoided if the 'Ponni Rice' had been given the geographical indications status under The Geographical Indications of Goods (Registrations and Protection) Act, 1999.

While combating biopiracy, in order to keep it economical, the government of India should grant the status of GI on as many goods as possible (which are genuine). Such a step will help prevent costly litigations in case of international IPR related disputes as under such circumstances no outsider would be able to register the products of that particular region as its own trademark, for e.g. no outside tea manufacturer can claim trademark for selling its tea under the brand name- 'Darjeeling Tea'. Though the geographical indications statute, for conferring patent-like protection to an exclusive product of a particular region, was enacted in 1999,[45] no more than 120-odd products have so far been registered.[46] Such a statement is itself evidence to the fact that the government has not fully exploited the bio-resources and the associated traditional knowledge of the country. Taking into consideration, the enormous amount of time and money required to combat biopiracy efforts have to be made at the international level to make biopiracy legally impossible. A crucial step in this regard would be to amend the '**TRIPS Agreement**'. The TRIPS Agreement does not provide IPR protection for traditional knowledge which is mainly available in the developing countries. India and other developing countries have often argued that it should provisions (which are present in the CBD) whereby IPR applicants would be obliged to:

[44]G. Srinivasan, India wins 'Ponni' rice trademark row in Malaysia, THE HINDU, (Aug. 28, 2010), http://www.thehindubusinessline.com/2010/08/18/stories/2010081853880100.htm.

[45]Though it came into force with effect from 15th September 2003, (Aug. 30, 2010),http://www.patentoffice.nic.in/ipr/gi/geo_ind.htm.

[46]What is Indian is India's, BUSINESS STANDARD, Aug. 27, 2010.

(a) disclose the geographical origin of biological resources/traditional knowledge used in innovation;
(b) obtain the prior informed consent of local communities who are the customary holders of traditional knowledge;
(c) share the subsequent benefits with traditional communities.[47]

The absence of the above mentioned provisions in the TRIPS puts the developing countries like India (rich in traditional knowledge) on a highly disadvantaged ground making traditional knowledge of India vulnerable to biopiracy.

Also, TRIPS does not extend strong GI protection to products other than 'wines' and 'spirits'. This was the main reason for the American RiceTec company to be able to sell its American Kasmati brand as 'Indian-style Basmati'. Thus, amendment needs to be made in the TRIPS, introducing provisions, providing strong GI protection to products other than wines and spirits.

IX. CONCLUSION

After discussing so long about the concept of biopiracy, its implications and efforts at the national and international level to prevent it, I would like to come to the conclusion that legal battle against every act of biopiracy will not be a feasible solution to prevent it, taking into consideration the vast resources of time and money involved in the legal embargo. So, it is time we start thinking of certain other measures for preventing biopiracy.

There have been suggestions such as abolition of any monopoly rights on the use of biodiversity and related traditional knowledge, especially those which are socially or medicinally useful e.g. medicinal plants for the purpose of research and production of pharmaceuticals. Such a step is suggested, perhaps, to prevent

[47]Apte, supra note 2.

exploitation of the traditional communities. But we have to keep in mind that the bio-resources and the related traditional knowledge available with the traditional communities, if not exploited will never be available for the benefit of mankind, due to the lack of awareness of the outside world. Such a step, again, would not be justified from the point of view of humanity. Providing the business corporations, the licenses and rights to produce or distribute the products, which are the outcome of the traditional knowledge, is a necessary incentive for such corporations to exploit such traditional knowledge. But in such cases, what has to be kept in mind is that the traditional communities should not be deprived of their rightful share in the profits earned by the business corporations from the sale of such products. The government should ensure, on behalf of the traditional communities, that the share which they are getting in the profits is justified. The government should stress on clauses, during the agreements with the corporations exploiting the resources, such as a particular percentage of the profits incurred from the distribution should be aside as the share of the traditional communities of that particular region and transfer of technology know-how to the government, on behalf of those communities. A *novel* strategy with regard to benefit sharing can also be giving equity shares by the company, which acquired patent or license over the traditional knowledge, to the traditional community against their knowledge. Such shares can be held by cooperatives consisting of members of those communities and can provide them long term security by way of dividends.

But, the most crucial aspect with regard to prevention of biopiracy is generation of awareness. Not only the villagers and the indigenous communities but also members of the educated sections of the society e.g. engineers, lawyers, politicians, students etc. are unaware about the menace of biopiracy and its consequences on biodiversity and at the end of the day, on the economy of India. Such a step is can be significant, the reason being, in case of any instance of biopiracy taking place in India, people would not be sitting at home totally

unaware of the situation. They can voice their opinion through mass media and create strong public opinion thereby creating pressure on the administration to take strong and effective measures to prevent the theft of our bio-resources and traditional knowledge.

Few measures which should be adopted by the government and which can be effective with regard to this objective are suggested below:

(a) organizing awareness generation camps in the villages with the help of NGOs, active in that region (such NGOs must be provided all possible support by the government at the administrative and financial end);

(b) organizing frequent seminars and public lectures, by intellectuals in the field, at various colleges and institutes to spread awareness among the student community;

(c) raising the issue in talk shows (in the TV channels) and exploiting the other mediums of electronic and print media to generate awareness, among the masses, mainstreaming the issues like conservation of biodiversity and community rights (till date the media has not given the issue the necessary importance.

Thus, I would like to conclude with the hope that the government of India takes all possible effective measures, both at the national and international level, to prevent biopiracy. On an optimistic remark, that the government realizes the importance of conservation of biodiversity, I would like to quote Dr. Devinder Sharma – "……..that plant and animal biodiversity is to India (and for that to other developing countries) what oil has been for the Middle East." [48]

[48]Devinder Sharma, Selling Biodiversity: Benefit Sharing is a Dead Concept, (Sep. 4, 2010), http://www.mindfully.org/WTO/2004/Selling-Biodiversity-Sharma3may04.htm.