



## Traditional Knowledge and Environment in a Globalised World: A Study

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### Abstract:

*Traditional knowledge, indigenous knowledge, or local knowledge generally refer to that knowledge systems which has embedded in the cultural traditions of regional, indigenous, or local communities. Traditional knowledge can also be defined as a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These kinds of knowledge are very much crucial for the subsistence and survival and are generally based on accumulations of empirical observations and interaction with the environment. These knowledge have been orally passed from generations to generations and from persons to persons. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, and even by some laws and by laws.*

*In the present globalised world, customary or traditional knowledge has been made publicly available and exploited without adequate compensation, and occasionally it has been claimed as intellectual properties of different researchers or giant companies. Therefore, in this paper I will focus mainly on the exploitation of traditional knowledge and environment in our present globalised world.*

**Keywords:** Traditional Knowledge, Environment, Indigenous, Globalised World, Intellectual Property, Know-How Etc.

### 1. Introduction & the Concept

Nature has always been very vibrant, giving and resilient to a very large extent. We, as Indians, take pride in our strong cultural heritage. Religion protects and nurtures nature. If we take a look at Hinduism, we worship the sun, wind, land, trees, plants, and water which is the very base of human survival. Likewise, respect and conservation of wildlife—garuda, lion, peacock, and snake—are part of our cultural ethos from time immemorial. Almost the entire living of God Ram and Goddess Sita was very close to nature. Further, ancient texts written in Sanskrit, Pali or other languages can provide significant details. For instance, the scripture Vishnu Samhitâ in Sanskrit language contains some direct instructions dealing with biodiversity conservation.<sup>1</sup>

In fact, whole civilisations have come into existence near sources of water like Indus Valley Civilisation. In this sense, nature and culture become intertwined. Culture reflects our history, tradition and our beliefs. Revolutions in the technological and communication fields and the advent of globalisation have made an impact on our culture which have also evolved with time. However, it becomes imperative that we adapt new things without losing the basic character of our long cherished traditions and values which include environmental conservation. India is a culturally rich and diverse country where people speak many different languages, with many communities which live in their



respective social structures completely depending on their environment to ensure their livelihood.<sup>2</sup>

The process of economic growth and development, though vital for any nation's progress, done at the cost of environmental degradation through industrialisation and urbanisation—transportation, burning of fossil fuels and deforestation—has led to the emission of green house gases into the atmosphere. These gases absorb the heat of solar rays, which results in the warming of the atmosphere, seas and oceans leading to floods, droughts, severe storms, melting of ice at the poles, receding of glaciers and rise in sea water levels. These issues have brought the concerns for environmental conservation and sustainable development to the forefront.<sup>3</sup>

At the international level, the Convention on Biological Diversity, signed at the 1992 Rio Earth Summit, is dedicated to promoting sustainable development. It recognises that biological diversity is about more than plants, animals and microorganisms and their ecosystems—it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live. At the national level, Article 48(A) of the Indian Constitution imposes a constitutional obligation on the state to protect and improve the environment and safeguard the forests and wildlife of the country. Article 51(A)(g) imposes a constitutional obligation on the citizens of India to protect and improve the natural environment, including forests, lakes, rivers and wildlife and to have compassion for all living creatures. We also have laws to deal with air pollution, emission of greenhouse gases and use of ozone-depleting substances like the Water Act, the Air Act and the Environment Protection Act but the need is for their strict implementation.<sup>4</sup>

The Convention for the Safeguarding of the Intangible Cultural Heritage, adopted by the 32nd session of the General Conference of

UNESCO in September 2003, calls for safeguarding knowledge and skills that are recognised by communities, groups, and in some cases individuals, as forming part of their cultural heritage; are transmitted from generation to generation and constantly recreated; are crucial for the sense of identity and continuity of communities and groups; are in conformity with human rights, and, mutual respect and sustainable development. This is commonly known as traditional or indigenous knowledge. The UN Declaration on the Rights of Indigenous Peoples, endorsed by the UN Human Rights Council in June 2006, recognises “that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment”. In India, the Biological Diversity Act contains a framework provision for the protection of this rare knowledge of indigenous communities but it is always in the implementation part that we lag behind.<sup>5</sup>

Traditional knowledge had always contributed to modern medicine and health care. Further for centuries, indigenous communities were used to surviving and adjusting their agriculture, fishing and hunting in the event of changes in climate. It is ironic that now when the threat of climate change is so imminent we are looking for solutions outside. However, there is another threat looming large, that is, of losing these communities to outright annihilation or due to their amalgamation in the mainstream. Moreover, with the commercialisation of even natural resources, traditional knowledge that managed to maintain sustainable levels of harvest has been sidelined. Issues of privatisation, alienation and ‘bio-piracy’ are major areas of concern. With globalisation these pressures are stronger than ever. The existing policy and legal mechanisms to protect traditional knowledge usually does not involve these communities themselves. Hence they do little to safeguard local community needs,



values and customary laws relating to traditional knowledge and genetic resources of indigenous and local communities. We have to preserve this aspect of culture and amalgamate it with modern methods to work towards environmental conservation.<sup>6</sup>

## 2. What Is Traditional Knowledge?

Traditional knowledge refers to the knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Sometimes it is referred to as an oral tradition for it is practiced, sung, danced, painted, carved, chanted and performed down through millennia. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, forestry and environmental management in general.<sup>7</sup>

### • Its Role and Value<sup>8</sup>

There is today a growing appreciation of the value of traditional knowledge. This knowledge is valuable not only to those who depend on it in their daily lives, but to modern industry and agriculture as well. Many widely used products, such as plant-based medicines, health products and cosmetics, are derived from traditional knowledge. Other valuable products based on traditional knowledge include agricultural and non-wood forest products as well as handicraft. Traditional knowledge can make a significant contribution to sustainable development. Most indigenous and local communities are situated in areas

where the vast majority of the world's genetic resources are found. Many of them have cultivated and used biological diversity in a sustainable way for thousands of years. Some of their practices have been proven to enhance and promote biodiversity at the local level and aid in maintaining healthy ecosystems. However, the contribution of indigenous and local communities to the conservation and sustainable use of biological diversity goes far beyond their role as natural resource managers. Their skills and techniques provide valuable information to the global community and a useful model for biodiversity policies. Furthermore, as on-site communities with extensive knowledge of local environments, indigenous and local communities are most directly involved with conservation and sustainable use.

The development and utilization of traditional knowledge (TK), by its very nature, involves communities and takes generations. It is closely intertwined with resources available in the environment around the communities involved. The holders of TK and its users are the same and have taken time to develop TK; they are, therefore, able to use it in a sustainable manner. Modern systems of knowledge and its exploitation are a result of the industrialization process, where production — not sustainable utilization — is the mantra. The development of modern knowledge takes years, not generations. Since many people are interspersed between the developers and the practical users, there is no intrinsic need to apply such knowledge in a sustainable manner.<sup>9</sup>

Knowledge, both modern and traditional, has now become the dominant factor in production. A consequence of this is that the knowledge of local communities and people is exploited in an unsustainable and inequitable manner. The unfairness of such practices is compounded by the fact that the holders of such knowledge are not aware of modern legal systems that could be used for its



protection, nor have they sought due compensation for its use. Together, these circumstances may lead to the unfortunate consequence of TK's disappearing altogether.<sup>10</sup>

Due to the globalization of production systems and the distance between the holders of knowledge and its exploiters, the future of TK is in peril. The international community is debating the consequences of globalization in its various dimensions in various forums. It is the international community's responsibility to come up with means of protecting TK.<sup>11</sup>

### 3. Protection of Biodiversity and Traditional Knowledge: The Indian Experience<sup>12</sup>

Traditional Knowledge (TK) associated with biological resources is an intangible component of the resource itself. It has the potential of being translated into commercial benefits by providing leads for development of useful products and processes. The valuable leads provided by TK save time and money that industry would otherwise invest in research and product development. Hence, a share of these benefits must be returned to the creators and holders of TK.

India is a party to the Convention on Biological Diversity (CBD). The CBD envisages that the benefits accruing from commercial use of TK have to be shared with the people responsible for creating, refining and using this knowledge.<sup>1</sup> India is also a party to the TRIPS Agreement of the World Trade Organization (WTO), which creates, inter alia, private rights over inventions.

The CBD offers opportunities for India to realize benefits from these resources. India has, therefore, proposed to enact legislation to realize the benefits provided for by the Convention. The bill, which was introduced in the Parliament in the 2000 budget session, addresses the basic concerns of access to and collection and utilization of biological resources and knowledge by foreigners, and

sharing of benefits arising there from. The legislation provides for a National Authority that will grant approvals for access, subject to conditions designed to ensure equitable sharing of benefits.

Recently, there have been several cases of biopiracy of TK from India. First a patent was issued for the wound-healing properties of haldi (turmeric); now patents have been obtained in other countries for the hypoglycaemic properties of karela (bitter gourd), brinjal, and other plants. An important criticism in this context relates to foreigners' obtaining patents based on Indian biological materials. There is also the view that the TRIPS Agreement is aiding the exploitation of biodiversity by allowing the patenting of biodiversity expressed in life forms and knowledge. A patent granted on neem as a fungicide was contested and subsequently revoked in the European Patent Office in May 2000. However, since the time and money involved in getting individual patents examined and revoked in foreign patent offices are prohibitive, an internationally accepted solution to such biopiracy is necessary.

The problem of biopiracy may not be resolved by such revocation actions and domestic biodiversity legislation alone. There is a need to provide appropriate legal and institutional means at the international level for recognizing the rights of tribal communities to their TK based on biological resources. There is also a need to institute mechanisms for sharing benefits arising out of the commercial exploitation of biological resources using such TK. This can be done by harmonizing the different approaches of the Convention on Biological Diversity on the one hand and the TRIPS Agreement on the other, as the former recognizes the sovereign rights of States over their biological resources and the latter treats intellectual property as a private right. India has proposed, in this context, that patent applicants be required to disclose the source of origin of the biological material utilized in their



invention under the TRIPS Agreement and also be required to obtain the prior informed consent (PIC) of the country of origin.

This would enable domestic institutional mechanisms to ensure sharing of the benefits of such commercial utilization by the patent holders with the indigenous communities whose TK has been used. Simultaneously, provisions for disclosure of the source of biological material have been introduced in amendments proposed to the Patents Act of 1970 through the Patents (Second Amendment) Bill 1999. The bill is currently before the Parliament. What is required in addition, to prevent biopiracy, is the acceptance of this practice of disclosure and PIC by all patent offices in the world.

#### 4. Suggestions For Protecting Traditional Knowledge (Tk)<sup>13</sup>

The following suggestions have been advanced to extend protection to knowledge, innovations and practices:

- Documentation of TK
- Establishment of a TK digital library
- A TK-specific registration and innovation patent system
- Development of a sui generis system

- **Documentation of traditional knowledge**

Some believe that proper documentation of associated TK could help check biopiracy. Some also assume that if knowledge or materials are documented, they can be made available to patent examiners the world over, so that prior knowledge in the case of inventions based on such knowledge or materials is readily available. It is also hoped that such documentation will facilitate the tracing of indigenous communities with whom the benefits of commercialization of such materials or knowledge have to be shared.

Others, however, believe that documentation may facilitate biopiracy. They

argue that the trade secrets of an indigenous community can be maintained only as long as they are closely held by the community: as soon as they are put on paper, they will become accessible to pirates and be purloined. This dilemma is the subject of discussions in national and international debates on benefit sharing. Some suggest empowering the indigenous communities themselves so that they are able to get legal protection for closely held knowledge without the involvement of outside agencies. Nevertheless, documentation has one clear benefit: It would prevent the issuing of patents based on public-domain TK that today are difficult to prevent because patent examiners lack some necessary information.

In India, the preparation of village-specific Community Biodiversity Registers for documenting all knowledge, innovations and practices has been undertaken in a few states.

- **Traditional Knowledge Digital Library**

Recently, there have been several cases of biopiracy of TK from India. To prevent such instances in the future, there is a need to develop digital databases of prior knowledge related to herbs that is already in the public domain. Following problems experienced with patents for brinjal and other plants, an exercise has been initiated in India to prepare an easily navigable database of documented TK relating to the use of medicinal and other plants that is already in the public domain. This database, to be known as the Traditional Knowledge Digital Library, would enable patent offices all over the world to search for and examine existing uses or prior knowledge of the enabling knowledge from which an “invention” may have been derived.

While documentation of TK is one means of recognizing knowledge holders, mere documentation may not lead to the sharing of benefits arising from the use of such knowledge, unless the documentation is



accompanied by some mechanism for protecting the knowledge. In other words, documentation of TK may serve the defensive purpose of preventing the patenting of this knowledge in the form in which it exists, but documentation alone will not facilitate benefit sharing with the holders of TK.

- **Innovation registration and patent system**

Creating a system for the registration of innovations by inventors would be tantamount to giving inventors the right to challenge any use of their innovations without prior permission. For novel and useful innovations, some kind of petty patent giving protection for a limited duration might be worked out.

Some limited efforts regarding registration have been made in India. For example, the Honey Bee Network maintains a database, established 10 years ago, for the registration of innovations. The database can be accessed for adding value to these innovations and sharing benefits with knowledge providers and innovators. It involves documentation, use and dissemination of indigenous knowledge. Probably the world's largest database on grassroots innovations, it now includes about 10,000 innovations, with the names and addresses of the innovators (individuals and communities). Through the newsletter of the Honey Bee Network, information about grassroots innovations has been disseminated to more than 75 countries. For example, this database has entries on traditional uses of fish and fish products, information that can (among other things) be used to improve crop productivity.

- **Development of a sui generis system**

Some experts have suggested that a sui generis system separate from the existing IPR system should be designed to protect knowledge, innovations, and practices associated with biological resources. However, the parameters, elements and modalities of a sui generis system are still being worked out. A

sui generis system of protection for plant varieties has been developed separately in India, and a bill regarding this is before the Parliament.

- **Adding value to TK**

An additional issue relating to TK is the need to add value to this knowledge by converting it into economically profitable investments or enterprises. Many of the innovators, however, do not have the capacity for adding value. Institutional support is needed for locating, sustaining, and scaling up grassroots innovations, and to enhance the technical competence and self reliance of these innovators, through the establishment of "green venture" promotion funds and incubators. In India's national budget for 1999–2000, a proposal was made to set up a National Innovation Foundation. The purpose of this foundation, which is in the process of being established with an initial budget of INR.200,000,000, is to build a national registry of innovations, mobilize intellectual property protection, set up incubators for converting innovations into viable business opportunities and help disseminate this information across the country.

## 5. Provisions In The Biodiversity Bill, 2000, And The Patents (Second Amendment) Bill, 1999<sup>14</sup>

To ensure that the holders of TK that is still not in the public domain get the benefits arising from the use of such knowledge, an enabling provision for protecting TK has been included in the Biodiversity Bill, 2000. The relevant provisions of this bill are discussed below.

Section 36(iv) provides for protection of the knowledge of local people relating to biodiversity through measures such as registration of such knowledge and development of a sui generis system. For



ensuring equitable sharing of benefits arising from the use of biological resources and associated knowledge, Sections 19 and 21 stipulate that the approval of the National Biodiversity Authority (NBA) must be secured before the resources can be accessed. While granting approval, the NBA will also impose terms and conditions that secure equitable sharing of benefits. Section 6 provides that anybody seeking any kind of IPR to research based on biological resources or knowledge obtained from India needs to first obtain their approval of the NBA, which will impose benefit-sharing conditions. Section 18(iv) stipulates that one of the functions of NBA is to take measures to oppose the grant of IPR in any country outside India to any biological resource obtained from India or on knowledge associated with such a biological resource.

In the Patents (Second Amendment) Bill, 1999, the grounds for rejection of a patent application or revocation of a patent include non-disclosure or wrongful disclosure of the source of origin of the biological resource or knowledge in the patent application. Patent applications are also required to disclose the source of origin of the biological material used in an invention.

The above provisions in the Biodiversity Bill, 2000, and the corresponding provisions in the Patent (Second Amendment) Bill, 1999, would ensure equitable sharing of benefits arising from the use of TK with the original holders of such knowledge.

## 6. International Action and Traditional Knowledge<sup>15</sup>

Even though provisions of Article 8(j) of the CBD are subject to national legislation, India believes that securing benefits arising out of the use of TK related to biodiversity cannot be limited to national action, and that a basic understanding of and respect for an internationally recognized regime to protect the

rights of these communities is an absolute must. These two requirements, therefore, have to go hand in hand. To secure this, India's representatives in international forums under the aegis of the CBD as well as the WTO have suggested that applications for patents be required to disclose the following:

- The source of knowledge and biological material; and
- State that the prevalent laws and practices of the country of origin have been fully respected.

While securing benefits for creators and holders of TK is subject to national legislation, national action alone is not sufficient to ensure the realization of benefits. Users of this knowledge all over the world must share responsibility for ensuring compliance with the consent

requirement for using the knowledge and equitable sharing of benefits derived from it as envisaged in the CBD.

Two conclusions can be drawn from India's national experience with protection of biodiversity and TK:

(i) National biodiversity preservation regimes conforming to the objectives of the CBD are being established to protect TK associated with biological resources. These regimes could provide legal protection to biological resources and associated traditional knowledge at the national level. However, these regimes are not adequate for providing international protection of TK.

(ii) Certain supplementary actions help in preserving TK and/or sharing the benefits arising out of the commercialization of TK. Documentation of TK can help prevent the issuance of unfair patents. It cannot, however, resolve the problem regarding TK that is kept closely guarded by the knowledge holders (and is, therefore, not in the public domain). Registration can help facilitate information and material transfer agreements. It cannot, however, stop others from accessing TK in



order to add value to it and obtain legal protection, including protection through IPR, for the resulting product without sharing the benefits arising out of sale of that product. Innovation patent systems may be helpful for those holders of TK who have the capacity to understand and access such systems; however, the holders of TK generally do not have such capacities. As a result, these supplementary actions are of no avail as far as the international dimension of the issue is concerned.

## 7. The International Debate on Traditional Knowledge<sup>16</sup>

Although the issue of protecting TK is engaging the international community in a debate in some international forums, the debate is inevitably tailored to the charters and focuses of these forums and not to the rights of TK holders.

For example, the debate in the WTO is focusing on avoiding biopiracy. While attention to biopiracy is necessary, and while corrective action through the WTO is needed, this focus limits the debate to the defensive element of traditional knowledge – that is, ensuring that patents based on prior knowledge are not granted. It does not adequately cover the more relevant aspect, namely, extending legal protection to the holders of TK themselves.

The debate in the CBD is focused more on the access and benefit-sharing aspects of TK, as per the mandate of the CBD. If such knowledge has already been accessed, legally or illegally, then recourse to benefit-sharing mechanisms cannot be adequately addressed under the CBD.

WIPO is also looking at the issue, but primarily in order to find ways to adjust TK within the available forms of IPR. As can be seen from the debate so far, most TK is not amenable to protection within the existing forms of IPR.

In addition there is one aspect of TK that is not on the agenda of any of these forums, namely the commercialization of TK on behalf of its holders (i.e. addressing the capacity needs for its marketing and ensuring a fair price for its holders). This aspect would be best handled by an organization that deals with trade and development.

## 8. The Proposal from India Regarding Traditional Knowledge<sup>17</sup>

India, therefore, proposes that a separate and sui generis system for the protection of TK and its international recognition be explored. India is still in the process of identifying the essential components of such a system, and the United Nations Conference on Trade and Development (UNCTAD) could possibly help in developing it. Current thinking suggests that such a system should include the following elements, among others:

- Legal protection for the rights of the holders of TK through national legal or other regimes
- International recognition of national protection
- Adequate interaction between different national authorities to ensure that information on such protection is available to the nationals of each country.
- A system or procedure whereby the use of TK, particularly for seeking IPR protection, is allowed only after such use is disclosed and PIC is obtained from the TK holders or the competent national authority of the country of origin.

## 9. Conclusion and Suggestions

First, the government should take further steps to preserve, protect, and promote the traditional cultures and knowledge of the indigenous people. Second, side by side they should also be encouraged to develop, and opportunity be provided for education and





scientific study. Third, related departments should coordinate to avoid overlapping as well as for smooth implementation of a particular policy. Fourth, there is further need to involve related non-government organisations as at times it is easy for NGOs to interact and get across to tribal people. Fifth, another important aspect is to sensitise and educate concerned officials at the state and especially at the local levels to understand and respect the culture differences. Sixth, ways have to be worked out so that benefits can be shared from accessing traditional knowledge. There is need for synergy between locals and scientists. Oral presentations complemented by video can bridge the gap between the two. Both are complementary to each other. Modern science can give a broader perspective to local sustainability whereas traditional knowledge can provide in depth experience in the local context. Seventh, though it may be crucial that in the designated areas, customary landowners are prohibited from excessive harvesting of biological resources to protect biological diversity, however their rights to land and resources should be formally approved. Eighth, to promote alternative means of livelihood products and services, including forest and agricultural products, herbal medicines, cultural heritage or traditional health-based tourism, ecotourism, scientific tourism and handicrafts based on traditional knowledge and skills be encouraged. Ninth, indigenous people should be fully involved in every stage of policies and plans related to sustainable development. Finally, young people should be encouraged to learn more about their cultural heritage as well as tolerance and respect for other cultures and traditions.<sup>18</sup>

Hence, we are faced today with the challenge of not only industrialisation, liberalisation and urbanisation but also to make sure that fresh air and clean water are available to our people. This is possible only by active participation both by the government and the

people in resource conservation and management. This requires political will, education, and a change in the mindset of the people at large. Conservation of natural resources and culture can be achieved only through the empowerment of indigenous communities and their development. Finally, it is good to know that our efforts at preservation of natural resources have been recognised the world over with the latest survey by National Geographic magazine calling Indians as the most environment-friendly people. But this puts an additional responsibility on Indians, that is, not only to protect, preserve and promote Indian cultural heritage and traditional knowledge, but also to lead the world in environment conservation through sustainable development through the ages.<sup>19</sup>

Last but not the least, it is pertinent to mention that in our today's present globalised world where all the countries are advocating for preserving the ideology of Welfarism, we must remember that the concept of welfare cannot be attained at any cost if there is a huge differences in enjoying the resources of this world and if we cannot preserve the brotherhood among the country man of this globe and above all we must work towards the upgradation of all the persons irrespective of their caste, creed, colour, sex, nationality, poor, rich etc. etc. We are living in a very beautiful world and therefore it is our duty to maintain that beauty of this world by minimizing all the differences among us and then only we actually can attain the concept of Welfare, which is the prime importance to lead the world towards progress and peace.

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