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TITLE- COMPARATIVE ANALYSIS OF BIODIVERSITY AND TRADITIONAL KNOWLDEGE

Authored by -Ayush upmanyu¹

INTRODUCTION

What is Biodiversity?

Biodiversity is a collective lineage that subsists as a result of years of evolutionary processes. It is generally defined as “the variability among living organisms from all sources including, among other things, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.”² This includes intraspecific, interspecific, and ecosystem diversity. Therefore, it can be classified into genetic diversity (diversity within species), species diversity (diversity at the species level), and ecosystem diversity. Includes both managed and unmanaged ecosystems. The sustainability and protection of biodiversity has become increasingly important in recent years, as diversity is essential for sustaining life for both humans and other life forms on Earth.

What is traditional knowledge and how can it help conserve biodiversity?

Simply put, traditional knowledge refers to the know-how, practices and innovative tools used by indigenous peoples and communities around the world to advance various goals. It is also often called ethnoscience. H. As a "knowledge store" containing "concept systems, beliefs, and learning methods." This form of knowledge is an accumulation of collective experience accumulated over centuries, gradually adapted to topographical and cultural needs. , songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local languages, and agricultural practices, including the evolution of plant and animal species. Its importance lies in the fact that it is practical in nature, especially in the fields of agriculture, fisheries, health, horticulture, forestry, and environmental management in general. As these knowledge systems are built through gradual accumulation and transmission, they often lead to the generation of spatio-temporal insights that are of critical importance to the governance and implementation of biodiversity measures. Traditional knowledge can therefore help

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² <https://www.kashishipr.com/blog/traditional-knowledge-and-conservation-of-biodiversity/>

and contribute in the following ways:

Identify indicators to calculate the current state of biodiversity, ecosystem services and cultural well-being;

Set different thresholds to measure different levels of intervention management Stimulate decline in biodiversity; and

Set targets and meet the objective as per the rate of recovery.

Such knowledge systems have contributed to various fields such as Biodiversity. Conservation of biodiversity and preservation of ecosystem services, restoration of tropical ecology and biocultural, sustainable water management, conservation of genetic resources and management of other natural resources. Additionally, indigenous knowledge has also proven useful for ecosystem restoration and often includes elements of adaptive management.

Civilization is attempting to return to its old ways. Therefore, today it plays an important role not only for indigenous communities but also for other modern industries and farmers as many products are herbal medicines and health products, and cosmetics, including other products like agriculture, non-wood products, and handicrafts.

In addition, traditional knowledge can make a significant contribution to sustainable development, as most indigenous and local communities are located in areas where the vast majority of the world's genetic resources are found. Some of their practices have been shown to improve and promote biodiversity at a local level and help maintain a healthy ecosystem. Their skills and techniques provide valuable information to the global community and help recommend useful models 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.

Regulatory Framework at National, Regional and International Level

Biodiversity includes all types of plants, animals and microorganisms and the differences between them and the ecosystems to which they belong. It occurs at three levels, namely:(i) species level: refers to the number and types of living organisms; (ii) gene level - refers to genetic variation within a species population;

(iii) ecosystem level – refers to the diversity of habitats, communities and ecological processes that take place in such habitats;

Many Governments are now in the process of implementing [Article 8 \(j\)](#) of the Convention through their national biodiversity action plans, strategies and programmes. A number of Governments have adopted specific laws, policies and administrative arrangements for protecting traditional knowledge, emphasizing that the prior, informed consent of knowledge-holders must be attained before their knowledge can be used by others.³

Traditional knowledge (TK) associated with biological resources is an invisible part of the resource itself that can be transformed into commercial advantage by guiding the development of beneficial products and processes⁴. TK's valuable leads save time, money and investment in research and product development for the modern biotechnology industry. Therefore, some benefit must accrue to the creators and owners of TK. Only new knowledge can be patented. Patents apply only to inventions, not to existing knowledge. However, if the knowledge is verbal only, many IPR rules do not consider oral knowledge evidence of previous documents, and there is a risk that this knowledge will be patented. Biopiracy is the acquisition of intellectual property rights without the consent of the original owner of the biological resource/knowledge on which the innovation is based and/or the acquisition of biological resources/knowledge without the consent of the original owner of the profit. commercial exploitation (without obtaining intellectual property rights). Biopiracy is a form of theft. Examples of biopiracy include patents granted to neem, turmeric and naphull wheat varieties. The impact of biopiracy is both economic and ethical.

1. Original owner does not receive profit share/credit for resource/knowledge advancement
2. Once the intellectual property rights are acquired, the original owner cannot commercially exploit the resources protected by the intellectual property rights.
3. Infringement of the rights of the original resource/knowledge owner.

An important issue for gaining consent or benefit is identifying the "original owner" of a biological resource or related knowledge.

India is one of her 12 mega-biodiversity countries in the world. With only 2.4% of its land area, India already accounts for 7-8% of the world's recorded species. This figure is based on examining 65-70% of the country's total geographic area. The Indian Plant Survey and the Indian Fauna Survey record over 47,000 species of plants and over 81,000 species of animals, respectively. Some of the remaining

³ <https://www.cbd.int/traditional/intro.shtml>

⁴ <https://www.twn.my/title/cteindia.htm>

regions (such as the Himalayan region, A islands and N islands) are expected to be much richer in biodiversity than most of the regions already surveyed.

The Convention on Biological Diversity (CBD) is a landmark in the fields of environment and development, as it was the first to adopt a holistic rather than sectoral approach to the conservation of the planet's biodiversity and the sustainable use of biological resources. It is a periodic event. This is a framework of agreement on two counts. In the first sense, it leaves the individual Contracting Parties to shape most of the provisions. be implemented. This is because its provisions are mostly expressed as overall goals and policies, rather than as hard and precise obligations as in, for example, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

On May 22, 1992, the nations of the world adopted the CBD in Nairobi and on June 5, 1992, the CBD was presented at the United Nations Conference on Environment and Development in Rio de Janeiro, where a record 150 countries signed the convention.

The main purposes of the Convention are to:

1. Conservation of biodiversity;
2. Sustainable use of biodiversity components.
3. Fair and equitable sharing of benefits arising from utilization of genetic resources.

The CBD provides that Parties have sovereignty over their biological resources, but facilitate access to genetic resources by other Parties, subject to domestic law and mutually agreed terms. This necessitated the passage of legislation to provide a framework for granting access, set the conditions for that access, and ensure fair benefit sharing.

There are many laws and bills related to forestry, wildlife, etc.

1. Indian Forest Act, 1927
2. Wildlife (Conservation) Act 1972
3. Forest (Conservation) Act, 1980
- 4th Patents Act of 2002 (2nd Amendment)
5. Plant Variety Protection Act 2001 and Farmers Rights Act
6. Biodiversity Bill, 2000 # Kerala Tribal Peoples Intellectual Property Rights Bill, 1996
7. Karnataka Community Intellectual Property Bill, 1994.

These Acts cover protection of flora and fauna in notified sanctuaries and national parks, six specified plant species and regulates hunting of animals specified in Schedules appended to the Acts.

Therefore, the protocol omits the following from its scope: # The wild flora outside of the reported protected areas and national parks (many of which are outside forest areas, including deserts, coastal and marine systems, grasslands, river systems and wetlands) allows a large number of invertebrates (of the 81,000 animal species described so far) in the country, around 68,000 are invertebrates) and microorganisms

The Acts also do not deal with the following:

Issue of access to biological resources and benefit sharing # Protection of traditional knowledge and equitable sharing of benefits arising out of the use of such knowledge.

The purpose of the Biodiversity Bill is to realize equitable sharing of benefits arising out of the use of biological resources and associated knowledge. The proposed legislation primarily addresses the issue of access to biological resources by foreign individuals, institutions or companies.

Traditional knowledge to protect biodiversity To be effective, efforts to protect biodiversity may depend on context-specific local knowledge and institutional mechanisms such as cooperation and learning collective action; intergenerational transmission of knowledge, skills and strategies; concern for the welfare of future generations; dependence on local resources; limitation of exploitation of resources; an attitude of gratitude and respect for nature; management, conservation and sustainable use of biodiversity outside formal protected areas; and transmission of beneficial species between households, villages, and wider landscapes. Traditional knowledge of biodiversity conservation in India is as diverse as the 2753 communities and their geographical distribution, agricultural strategies, dietary habits, livelihood strategies and cultural traditions.

Over thousands of years, local people have developed a variety of vegetation management practices that still exist in tropical Asia, South America, Africa, and other parts of the world. We follow ethical principles that help us coordinate our actions. Such systems, often integrated with traditional rainwater harvesting, promote landscape heterogeneity by encouraging the growth of trees and other vegetation, which support diverse fauna. I'm here.

In India, these systems can be categorized in different ways.

1. Religious Traditions:

temple forest, monastery forest, sacred tree

2. Traditional tribal traditions:

sacred grove, sacred grove, sacred tree

3. Royal Tradition:

Royal hunting grounds, elephant forests, royal gardens, etc. # Livelihood Traditions: Forests and orchards that serve as cultural and social spaces and as sources of subsistence products and services.

Tradition is also reflected in various practices related to trees, forests and water use and management. These include:

1. Collection

Tradition is also reflected in various practices related to trees, forests and water use and management. These include:

Collection and management of timber and non-timber forest products.

2. Traditional ethics, norms and practices for the careful use of forests, water and other resources.
3. Traditional Forest conservation, production and restoration practices.
4. Cultivation of useful trees in cultivated landscapes and agroforestry systems
5. Creation and maintenance of traditional water harvesting systems such as tanks and planting of nearby groves. These systems support lower biodiversity than natural ecosystems, but can help alleviate harvest pressures. There are 15 types of resource management practices that contribute to landscape heterogeneity. The Bishnoi community's environmental ethics suggest compassion for wildlife and prohibit the logging of the *Prosopis achenaria* trees found in the area. Bishnoi's teachings declare:

"If you have to cut off a head (life) to save a tree, know that bargains are cheap."

National regulatory framework

At the national level, India has enacted the Biological Diversity Act (2002). It stipulates that prior approval from the National Biodiversity Authority is required before applying for any kind of Intellectual Property Rights (IPR) based on research or information on protected biological resources. Additionally, the Patent Act (2nd Amendment) provides for disclosure of the source and geographic origin of biological material/related knowledge used in an invention. It also provides for challenging the grant or revocation of a patent if biological material and related sources of knowledge are undisclosed or unlawfully disclosed.

The Biodiversity Act - 2002 deals primarily with access to genetic resources and related knowledge by foreign individuals, institutions or enterprises and equitable sharing of benefits to countries and peoples arising from the use of these resources and knowledge. to ensure

A three-tier structure will be established at federal, state and local levels.

1. National Biodiversity Agency (NBA):

All matters relating to requests for access by foreigners, institutions or companies and all matters relating to the dissemination of research results to foreigners are handled by the National Biodiversity Agency.

2. State Biodiversity Board (SBB):

All matters related to India's access for commercial purposes are the responsibility of the State Biodiversity Board (SBB). Indian industry should announce this in advance

Concerns of SBB regarding the use of biological resources. State commissions have the power to restrict activities that violate the goals of conservation, sustainable use and equitable distribution of benefits derived from biological resources.

3. Biodiversity Management Committee (BMC):

Local government bodies are encouraged to establish biodiversity management committees in their respective fields for the protection, sustainable use, documentation and recording of knowledge on biodiversity and traditional knowledge. It has been.

The NBA and SBB are obligated to consult with affected BMCs on matters relating to the use of biological resources and related knowledge within their jurisdiction.

The CBD provides that access to genetic resources and realization of benefits are subject to national law by formulating prior informed consent (PIC) and mutually agreed terms (MAT); India emphasizes that such national measures alone are not sufficient to ensure delivery of services. to country of origin or provider. This is especially true when genetic material from one country is used in another country to develop a product or process for which patent protection is sought. The burden of benefit-sharing is also shared by user countries to create an enabling environment and trust through compliance with PIC provisions and legislative measures to ensure equitable benefit-sharing as outlined in the Convention. I have to.

Regulatory framework at the regional level

India's Biodiversity Information System 'IBIS' should be established. It builds on the wealth of existing information on biodiversity and the information gained from the preparation of PBRs. IBIS promotes the conservation and sustainable use of biological resources, the enhancement of the value of biodiversity and associated knowledge, and the equitable sharing of benefits arising from their use.

NBA may start preparing for IBIS during Plan 11. However, there are many issues related to IBIS that need to be addressed, including:

IRP issues related to sharing value and benefit while maintaining confidentiality while promoting value. These may be carried out through the National Innovation Foundation. The intellectual property legal framework should be strengthened by expanding the legal/economic/commercial departments of certain universities, where the Intellectual Property Centre is already functioning, and the facilities of the National Law School.

The documentation of traditional knowledge available in archival documents is carried out by NISCAIR (CSIR Lab) in the form of a computerized database, the Traditional Knowledge Digital Library (TKDL). The creation of PBRs is expected to document the unencrypted oral traditional knowledge of the local population. Considering that this is a difficult and time-consuming task, the All-India Coordination Project on Traditional Knowledge to document unencrypted oral traditional knowledge of local peoples, especially of known biological resources. is proposed to start with the 11th Plan. worth. Conservation of biodiversity at the genetic, population, species, community and ecosystem level is achieved by two main approaches: (i) in situ conservation and (ii) ex situ conservation. Protected areas (PAs), which include forest, wetland, coastal, marine and mangrove ecosystems, represent on-site biodiversity conservation. These PAs form important repositories of cultural heritage and gene pools.

There is an urgent need to strengthen conservation research and monitoring in all protected areas. This can be achieved by establishing conservation research and monitoring units in each protected area. Each unit should have at least 1 botanical taxonomist, 1 taxonomist/wildlife biologist, 1 ecologist, and 1 resource economist/social scientist.

Domesticated biodiversity includes a wide range of landraces of plant and animal varieties that represent valuable gene pools useful in improving modern breeds/cultivars.

Methods of in situ conservation

As part of the ex-situ conservation approach, seed banks, sperm and egg banks of threatened biota (excluding domesticated biodiversity) should be established at forest research institutes, BSI, ZSI, selected universities, national institutes and even leading botanical gardens and zoological parks. India has a network of 96 national parks and 509 wildlife sanctuaries in the different states that harbour important flora and fauna that is endemic and insignia. However, the Protected Areas (PAs) can still be termed as discreet isolated patches of forests managed exclusively for wildlife/biodiversity preservation and many important habitats still exist in the rest of the forests, which

require special attention for conservation for ensuring sustainability of the populations. Habitat in these areas is being depleted for a variety of reasons, as will be discussed later. The problem is exacerbated by the fact that although special protection mechanisms are in place within protected areas and wildlife within protected areas is adequately protected, wildlife outside protected areas remains at risk. Here the guards are poorly organized and managed and poorly equipped. In fact, it's easy to say it doesn't exist for the most part.

Regulatory framework at the international level

Global pressure to privatize biodiversity continues to encourage ownership of these genetic resources. Many countries and the large companies they support want to manage these resources and associated knowledge for commercial gain. Such control measures are the use of intellectual property rights, especially patents. TRIPS obligations may adversely affect the use of biological and genetic resources and the distribution of the resulting benefits. Intellectual property protection in the current TRIPS regime can deprive countries that provide biological and genetic resources and providers of traditional knowledge about the use of these resources from a fair share of profits.

Fair and equitable benefit sharing is one of the objectives of the Convention on Biological Diversity (CBD) and the implementation of intellectual property rights (IPR) obligations should be consistent with the objectives of the CBD. This is contained in Article 16(5) of the CBD.

In recent years, there has been growing concern about "biopiracy" by institutions and companies in developed countries regarding traditional knowledge related to biological resources (agriculture and medicine). Under the WTO – World Trade Organization TRIPS Agreement, countries must ensure intellectual property protection for plant varieties at the national level through patents and/or an effective proprietary system. By calling for a full review of the TRIPS Agreement, as well as a review of Article 27.3(b), Asian countries have taken a prominent position in the WTO. India, for other Asian countries, requested harmonization of TRIPs with the Convention on Biological Diversity (CBD) in a submission to the TRIPs Board. At the 4th WTO Ministerial Conference in Doha, China, she issued a statement that the G77 and the TRIPs Agreement should support and not contradict her CBD objectives and principles. The statement also offered practical advice, stating that Member States should agree not to initiate dispute settlement procedures against developing countries during the course of this review. China, India, Pakistan, Thailand, and other African and Latin American countries have also submitted bills to the TRIPs Council to amend the TRIPs Agreement, requiring patent applicants for biological materials or traditional knowledge to do so.

Conclusion

With increasing government support, it is clear that industry is rapidly gaining control over plant genetic resources and associated knowledge through the use of intellectual property rights. However, opposition to this encroachment on community rights has been varied and experimental. Overall, local governments are increasingly losing control of their facilities and their knowledge is being increasingly misused. The tide is beginning to turn as groups, communities and even governments become more aware and those affected become more organized. However, there are many strategic initiatives to be taken between NGOs and popular movements to build stronger social forces against the growing influence of trade and intellectual property rights on genetic resources and traditional knowledge.

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