

BIODIVERSITY CONSERVATION AND ITS BENEFITS SHARING: AN ANALYSIS FROM THE TRIBAL PERSPECTIVE

A.Tamilselvan. M.L

Senior Civil Judge, Part-Time Research Scholar 2021-22, The Tamilnadu Dr. Ambedkar Law University, Chennai

Introduction

As a result of World War II, the United Nations Organization known as UNO was established in 1945 to maintain international peace and security. At the time of the founding of the United Nations, environmental issues were not a major concern at the global level. But as early as the 18th and 19th centuries, the world was suffering from environmental pollution. In 1949, the United Nations convened its first Conference on the Environment to protect and use natural resources.¹ The continuing and accelerating degradation of the quality of the human environment prompted the United Nations to convene the United Nations Conference on the Human Environment. Accordingly, a global conference called Stockholm Conference was convened in 1972 and the Stockholm Declaration, known as the Magna Carta of Environment, was passed. The United Nations Environment Conference in Stockholm was the first world conference to make the environment a major global issue. The main objective of the Stockholm Conference was to provide guidelines and encourage governments and international organizations to formulate policies to protect and improve the human environment and to address and prevent its degradation through international cooperation.² Following the conference, various environmental actions were taken at the global and national levels. In India, through the 42nd amendment³, our Constitution was amended in the year 1976 to include articles 48-A⁴ and 51-A (g),⁵ based on which various environmental laws were enacted to conserve the environment. In 1992, the 'Earth Summit, was held in Rio de Janeiro⁶, this global conference was held to mark the

¹. Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources, 17 August - 6 September 1949, Lake Success, New York, Vol. III, Fuel and energy resources <https://digitallibrary.un.org/record/1485027?ln=en>

² . United Nations Conference on the Human Environment, 5-16 June 1972, Stockholm, <https://www.un.org/en/conferences/environment/stockholm1972#:~:text=The%20Stockholm%20Declaration%2C%20which%20contained,and%20the%20well%2Dbeing%20of>

³ . <https://www.india.gov.in/my-government/constitution-india/amendments/constitution-india-forty-second-amendment-act-1976#:~:text=Protection%20and%20improvement%20of%20environment,life%20of%20the%20country.%22>

⁴ . <https://indiankanoon.org/doc/871328/>

⁵ . <https://indiankanoon.org/doc/1644544/>

⁶. United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992, <https://www.un.org/en/conferences/environment/rio1992>

20th anniversary of the first Human Environment Conference in Stockholm. In 1992, world leaders adopted a path to "sustainable development" at the Earth Summit. The Convention on Biological Diversity⁷, adopted in Rio, is an agreement between most of the world's governments that, as the world continues to grow, the world is developing the diverse biological resources needed to sustain life on Earth. Articles 8(j) and 10(c) of the convention are considered two of the most important provisions governing international environmental law for indigenous peoples and local communities. They are particularly applicable to communities that contribute to the conservation and sustainable use of biodiversity through traditional knowledge and cultural practices.⁸ Based on that, the Conservation of Biodiversity Act was enacted in India in 2002. The Nagoya Protocol on Access to Genetic Resources and the Convention on Biological Diversity on the Fair and Equitable Sharing of Benefits Arising from Their Use is an international agreement that aims to share the benefits arising from the use of genetic resources in a fair and equitable manner. The Nagoya Protocol on ABS was adopted in Nagoya, Japan on 29 October 2010 and entered into force on 12 October 2014.

In this article, we will learn about the methods of conserving biodiversity with the traditional knowledge of Toda, Kota, Irula, Kurumba, Katunayaka, and Paniya tribal people living in Western Ghats, Nilgiri Biosphere Reserve, and about the ways, they can access the bioresource and share its benefits. An attempt has also been made to analyse the measures taken in India.

Aim and object

The aim and object of this paper is to collect and provide details about the benefits to tribal people who share their knowledge about bio-resources.

Scope

The scope of this study is to know about the biodiversity conservation method of the tribal people belonging to the particularly vulnerable tribal group of Tamil Nādu, which has the Nilgiris biosphere as its base, and the benefits of providing knowledge about that bioresource.

Research Methodology

⁷. <https://www.cbd.int/youth/0003.shtml>

⁸ . <https://naturaljustice.org/wp-content/uploads/2015/09/Traditional-Knowledge.pdf>

The doctrinal research methodology for this article was followed by the researcher. Since it is a library-based study, books and research articles on plants used and protected by Nilgiris tribal people for food and medicinal use were studied, legal books, Statute, Legislation, Treaties, Protocol, Conventions, and research articles related to bio resource benefit sharing were taken for review.

Global Environmental Initiatives

The environment is the surroundings or conditions in which a person, animal or plant lives or works. Natural environment includes all living and non-living things. The Industrial Revolution of the 19th century mechanized the production and manufacture of goods and introduced the use of machinery and other heavy equipment, thereby using fossil fuels as a source of energy, and consequently began to degrade the environment.⁹ Environmental degradation is caused by various causes that include pollution, biodiversity loss, animal extinction, deforestation and desertification, global warming, and more.¹⁰ After realizing the degradation of the environment, the need to protect it was felt globally in the 1970s. The Convention on Wetlands also known as the Ramsar Convention was signed in the year 1971 in the Iranian city of Ramsar, which is one of the oldest inter-governmental accords for preserving the ecological character of wetlands.¹¹ United Nations Conference on Human environment was held in Stockholm, Sweden in the year 1972, the first declaration of international protection of the environment was also proclaimed which contained 26 principles. India was represented by our former Prime Minister Mrs. Indira Gandhi and she made a very famous speech at that conference. The United Nations Environment Program (UNEP) was the outcome of this conference.¹² The convention on the conservation of Migratory species of wild animals also known as the Bonn Convention was made in the year 1979 to conserve terrestrial, marine, and avian migratory species throughout their range.¹³ In the year 1985, the Vienna Convention for the protection of the Ozone Layer was adopted, it was the starting point of global cooperation for the protection of the Ozone layer. The Montreal protocol on substances that deplete the ozone layer was in 1987 and the

⁹ Dr. Mahendra Pratap Choudhary, Environment Degradation: Causes, Impact and Mitigation <https://researchgate.net/publication/279201881>

¹⁰ .ibid.

¹¹ . Daniel O.Suman, “Mangrove Management” Costal Wetlands (2nd ed), 2019 <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/ramsar-convention>

¹² . <http://www.un.org/en/conferences/environment/stocholm1972>

¹³ . <https://www.bmuv.de/en/themen/natur-biologische-vielfalt-arten/artenschutz/internationaler-artenschutz/bonn-convention>

amendment was made in the year 1989 in Montreal protocol.¹⁴ The World Commission on Environment and Development (WCED) also known as Brundtland Commission had been set up in 1983 it published a report entitled “Our Common Future” in 1987¹⁵ and it developed the theme of “sustainable development”.¹⁶

Ecosystem Management

An ecosystem is a geographic area where biotic factors such as animals, plants, fungi, and bacteria interact with abiotic factors such as soil, air, water, and temperature in the environment. Man can excel in life only if the ecosystem is in good condition. Ecosystem management is very important for that. Management is to maintain the same condition without destruction as well as to improve the condition and continue in the same position. At this point, it is also important to clarify what conservative and preservative mean. Conservation refers to efforts to make the human relationship with the environment sustainable while extracting natural resources.¹⁷ Preservation refers to demarcating uninhabited areas of land that have no visible signs of human influence.¹⁸ Therefore, in the conservation method of management, humans can sustainably extract natural resources, while in the preservation method of management, humans are prohibited from entering.

World’s perspective on Tribalism:

Indigenous peoples are inheritors and practitioners of unique cultures and ways of interacting with people and the environment. They have retained social, cultural, economic, and political characteristics distinct from the dominant societies in which they live. The ILO has been involved in tribal and indigenous peoples' issues since the 1920s. It is responsible for the Tribal and Indigenous Peoples Convention, 1989 (No. 169), which is the only international treaty open for ratification dealing exclusively with the rights of these peoples.¹⁹ The UN Permanent Forum on Internal Affairs was established in July 2000 as an advisory body to the Economic and Social Council, with a mandate to discuss internal issues related to economic and social development, culture, environment, education, health,

¹⁴ . <https://ozone.unep.org/treaties/vienna-convention>

¹⁵ . <https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/Brundtland-report.html>

¹⁶ . Julie Drolet, “Disaster in Social, Cultural and Political Context” International Encyclopaedia of the Social & Behavioural Sciences (2nd ed), 2015 <https://www.sciencedirect.com/topics/social-sciences/brundtland-report>

¹⁷ . <https://www.peanc.org/whats-difference-between-conservation-and-preservation>

¹⁸ . Ibid.

¹⁹ . <https://www.un.org/development/desa/indigenouspeoples/about-us.html>

and human rights.²⁰ On September 13, 2007, the UN General Assembly issued the Declaration on the Rights of Indigenous Peoples.²¹ The Declaration is the most comprehensive statement on the rights of indigenous peoples ever produced, with an emphasis on collective rights unprecedented in international human rights. The first World Conference on Indigenous Peoples was held on 22-23 September 2014.²² The meeting was an opportunity to share perspectives and best practices for the realization of the rights of indigenous peoples, including adherence to the objectives of the United Nations Declaration of the Rights of Indigenous people. Resolutions adopted at the 1992 United Nations Convention on Environmental Development include provisions for indigenous peoples and their communities.²³ A more comprehensive environmental program and policy statement, known as the Rio Declaration and Agenda 21, reiterates the precepts of indigenous peoples' rights and seeks to integrate them into the larger agenda of global environmental and sustainable development.²⁴

Understanding of Biodiversity and its importance

Biodiversity is biological diversity, which consists of two terms, bio and diversity. bio means life and diversity means the variety of life, so the term biodiversity refers to the variety of life. Sociobiologist Edward Wilson popularized the term biodiversity.²⁵ Biodiversity refers to the variety of living things on Earth, including plants, animals, bacteria, and fungi. There are three types of biodiversity, genetic biodiversity, species biodiversity, and ecosystem or ecological biodiversity. Biodiversity is considered important for several reasons. As certain plants are considered sacred by certain people, it becomes a cultural identity. Some types of plants are used in the preparation of medicines like vitamins, painkillers, and various types of diseases for medical purposes. Also, many plants and tubers are used as food for humans, as well as raw materials like rubber, cotton, and timber oil are essential for industries. Biodiversity conservation is currently felt to be

²⁰ . <https://www.un.org/development/desa/indigenouspeoples/unpfii-sessions-2.html>

²¹ . <https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html> / <https://answershark.net/2021/02/17/the-declaration-on-the-rights-of-indigenous-peoples-was-adopted-by-the-un-general-assembly-on/>

²² . <https://www.un.org/development/desa/indigenouspeoples/about-us/world-conference.html>

²³ . S. James Anaya, *Indigenous Peoples and International Law Issues*, 92 AM. SOC'Y INT'L L. PROC. 96 (1998), available at <https://scholar.law.colorado.edu/faculty-articles/1541>.

²⁴ . Ibid.

²⁵ . <https://eowilsonfoundation.org/>

essential globally as economic benefits are available through bioresources, preventing environmental degradation and creating a healthy ecosystem.

Conservation of Biodiversity

Various studies say that biodiversity loss is also one of the reasons for environmental degradation. The biological wealth of our planet is rapidly decreasing due to human activities. According to the IUCN Red list of threatened species, 27 species have disappeared in the last twenty years alone, and now 13% of all Birds, 41% of all Amphibians, 27% of all Mammal species, and 21% of all Reptiles species in the world are threatened with extinction.²⁶ ²⁷ Some plants like Malabar Mahagani, Musli, and Red sandalwood are listed as endangered plants in India.²⁸ John P. Rafferty in his article “Biodiversity loss, Causes, effects, and Facts” states that biodiversity loss is generally associated with permanent ecological changes in ecosystems and that biodiversity losses caused by human disturbances are more severe and long-lasting.²⁹ Realizing that biodiversity conservation is a necessary thing, various methods are being taken to conserve it at the global level. Biodiversity conservation is done in two ways, in-situ and ex-situ. The in-situ method of conservation is called on-site conservation by creating and protecting biodiversity in its places, such as Biosphere reserves, Wildlife Sanctuaries, National parks, Hot spots, Wetlands, and Sacred Groves. Similarly, creating Zoos, Aquariums, Botanical gardens, etc., and thereby conserving biodiversity is an off-site method of conservation called Ex-situ. On-site arrangements including Biosphere Reserves and off-site arrangements including Zoos are established by the governments of respective countries and recognized by UNESCO. India has 18 biosphere reserves out of about 700 in the world. The Nilgiris Biosphere Reserve was the first biosphere in India established in the year 1986, covering the borders of the three states of Tamil Nadu, Kerala, and Karnataka.

Nilgiris Biosphere Reserve

The Nilgiris Biosphere Reserve has a total area of 5,520 sq. km in the Western Ghats with 2537.6 sq. km in Tamil Nadu, 1455.4 sq. km in Kerala, 1527.4sq.km in Karnataka, and a wide range of ecosystems and species diversity are found in the region. It is located in the Western Ghats between 76°- 77°15'E and 11°15' - 12°15'N. The Nilgiri Biosphere Reserve

²⁶ . <https://www.iucnredlist.org/>

²⁷ . <https://www.lifegate.com/extinct-species-list-decade-2010-2019#plants>

²⁸ . <https://www.floweraura.com/blog/endangered-species-of-plants-in-india>

²⁹ <https://www.britanica.com/science/biodiversity-loss#ref342678>

falls under the Malabar Rainforest biogeographic region. Mudumalai Wildlife Sanctuary, Wayanad Wildlife Sanctuary Bandipur National Park, Nagarhole National Park, Mukurthi National Park, and Silent Valley are the protected areas in this reserve.³⁰ The Nilgiris Biosphere Reserve has significant intact areas of natural vegetation ranging from dry scrub to evergreen forests and swamps, thus contributing to high biodiversity. The Nilgiris Biosphere Reserve is very rich in plant diversity.

The flora found in the Nilgiri biosphere includes 3238 species of angiosperms, 71 species of gymnosperms, and 134 species of pteridophytes. About 3,300 species of flowering plants can be found here. Of the 3,300 species, 132 belong to the Nilgiris Biosphere Reserve. The genus Baeolepis is confined to the Nilgiris. Some of the plants that are completely restricted to the Nilgiris Biosphere Reserve include Adenun, Galacanthus, Paeolepis, Freeria, Jarotina, Vagatea, Pocilonuron, etc. Of the 175 species of orchids found in the Nilgiris Biosphere Reserve, 8 belong to the Nilgiris Biosphere Reserve. The Sholas of the Nilgiris Biosphere Reserve are a treasure house of rare species of flora.³¹

The fauna of the Nilgiris Biosphere Reserve includes more than 100 mammals, 350 species of birds, 80 species of reptiles and amphibians, 300 species of butterflies, and countless invertebrates. Nilgiris Biosphere Reserve has 39 species of fish, 31 species of amphibians, and 60 species of reptiles found in the Western Ghats. Freshwater fishes such as Danio neilgheriensis, Hypselobarbusdubuis, and Puntius bovanicus are restricted to the Nilgiris Biosphere Reserve. Nilgiri tahr, Nilgiri langur, slender loris, blackbuck, tiger, cow, Indian elephant and marten are some of the animals found here.³²

Conservation and management of Nilgiri Biosphere Reserve depend on coordination between government agencies and local people. For efficient management, the Nilgiri Biosphere Reserve has been zoned into (i) a core zone (1240 sq. km) (ii) a buffer zone (4280 sq km). The buffer zone is further divided into management zones such as forestry, tourism, and recreation zones. Being one of the hotspots of biodiversity, the Nilgiri Biosphere Reserve has a few national parks and wildlife sanctuaries within its boundaries. The main objective of these national parks and wildlife sanctuaries is to protect wildlife.

³⁰ . <https://vikaspedia.in/energy/environment/biodiversity-1/the-nilgiri-biosphere-reserve>

³¹ . Ibid.

³² . Ibid.

Some of these areas have been designated as Tiger and Project Elephant Areas by the government.³³

A wide variety of human cultural diversity can be found in the Nilgiris Biosphere Reserve. Tribes such as Thodas, Kotas, Irulas, Kurumbas, Baniyas, Adians, Edanadan Chettis, Cholanayakans, Allars, and Malayans are indigenous to the reserve. Except the Cholanayaks who live exclusively on food gathering, hunting, and fishing, all other tribes are engaged in their traditional occupation of agriculture. 75 types of Particularly Vulnerable Tribal groups have been identified in India, of which 6 types identified in Tamil Nadu are Thodar, Kothar, Irular, Kurumbar, and Paniyar, all of whom live in the Nilgiris.³⁴

Recognition of Traditional knowledge:

Traditional knowledge is also called Indigenous knowledge. Indigenous knowledge describes the knowledge and information followed by the tribal local community to ensure conservation and sustainable use of biodiversity. That knowledge is passed on from generation to generation through story, song, cultural value, local language, healing art, agricultural practice, etc. It is manifested by living in the environment for generations and observing the environment continuously.³⁵ There is a growing appreciation of the value of traditional knowledge now more than in the past. Traditional knowledge is valuable not only to those who depend on it in daily life but also to modern industry and agriculture. Traditional knowledge of land and species conservation and management and revitalization of biological resources is based on an intimate understanding of the daily lives and practices of indigenous peoples and their environment cultivated over thousands of years.³⁶

Article 48 (A) of the Constitution of India³⁷ imposes a constitutional duty on the state to protect and improve the environment and protect the forests and wildlife of the country. Article 51 (A) (g)³⁸ imposes a constitutional duty on the citizens of India. To preserve and enhance the natural environment including forests, lakes, rivers, and wildlife, and to be

³³ . Ibid.

³⁴ . Ganesh B, Rajakumar T, Acharya SK, Vasumathy S, Sowmya S, Kaur H. Particularly Vulnerable Tribal Groups of TamilNadu, India: A Sociocultural anthropological review. India J Public Health (serial online) 2021 <https://www.ijph.in/text.asp?2021/65/4/403/333976>

³⁵ . Biba Jasmine, Yashaswi Singh, Malvika Onial and V.B. Mathur, “Traditional Knowledge Systems in India for Biodiversity Conservation” Indian Journal of Traditional Knowledge, Vol. 15 (2), April 2016. PP. 304-312

³⁶ . Traditional-Knowledge-backgrounder-FINAL.pdf

³⁷ . <https://indiankanoon.org/doc/871328/>

³⁸ . <https://indiankanoon.org/doc/1644544/>

kind to all living beings. The UN Declaration on the Rights of Indigenous Peoples, endorsed by the UN Human Rights Council in June 2006, recognizes that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and sound management of the environment. The theme of the 2019 session of the United Nations Permanent Forum on Indigenous Issues is the creation, transfer, and protection of traditional knowledge. The forum will be an opportunity to identify and share good practices and lessons learned to advance the rights of indigenous peoples, formulate policy and program recommendations to promote and protect the rights of indigenous peoples and ensure generation, transmission, protection, maintenance, and strengthening of traditional knowledge.³⁹ Recognizing the importance of traditional knowledge, the right of indigenous peoples to develop, maintain and protect traditional knowledge is enshrined in many international protocols and policy instruments. The UN Declaration on the Rights of Indigenous Peoples (UNDRIP) emphasizes the protection of indigenous peoples' rights to traditional knowledge under Article 31.⁴⁰ Article 8(j) of the Convention on Biological Diversity (CBD)⁴¹ recognizes the close relationships of indigenous peoples and local communities with biological resources and the traditional knowledge Convention and the contributions they can make to sustainable biological diversity. For this purpose, the CBD has established a Task Force on the Implementation and Protection of Traditional Knowledge.

Plants used and conserved by Nilgiris Tribals

The Forest Rights Act, 2006⁴² brought by the Government of India to redress the long-standing injustice done to tribals by British-era laws, empowers tribal communities and other traditional forest dwellers and recognizes the contribution of tribal communities in the protection and conservation of wildlife, biodiversity, ecosystems, and forest resources. This Act gives the right to access biodiversity and gives the right to sell minor forest produce. The Biodiversity Act 2002,⁴³ recognizes the role of indigenous communities in conserving and protecting biodiversity, traditional knowledge, and sustainable use of biodiversity.

³⁹. Ibid.

⁴⁰ . [https://biocultural.iied.org/un-declaration-rights-indigenous-peoples#:~:text=%E2%80%9CIndigenous%20peoples%20have%20the%20right,%E2%80%A6%E2%80%9D%20\(Article%2031\).](https://biocultural.iied.org/un-declaration-rights-indigenous-peoples#:~:text=%E2%80%9CIndigenous%20peoples%20have%20the%20right,%E2%80%A6%E2%80%9D%20(Article%2031).)

⁴¹. <https://www.cbd.int/traditional/>

⁴² . <https://www.indiacode.nic.in/bitstream/123456789/8311/1/a2007-02.pdf>

⁴³ . <https://www.indiacode.nic.in/bitstream/123456789/2046/1/200318.pdf>

Tribal communities live close to forests and have managed and conserved the biodiversity of their areas since time immemorial. India is a prosperous country with large ethnic communities and Biodiversity. There are 45,000 species of ethnobotanical importance. 7500 of these species are in medicinal use for indigenous health practices. About 3900 plant species are used as food by the tribals including 145 species of roots and tubers, 521 species of leafy vegetables, 101 species of bulbs and flowers, 647 species of fruits, 525 species used for fiber, 400 species used as fodder, 300 species used in the manufacture and extraction of chemicals, which are used as naturally occurring pesticides and extraction of gum, resins, dyes, and perfumes.⁴⁴ Besides these many plants are used as timber and building material and 700 species are culturally important from the moral, religious, and social point of view.

The tribal people living in the Nilgiris depend on natural resources for their livelihood. Different ethnobotanical studies say that they use different types of plants for food and medicine. As early as the year 1990 S. Rajan and M. Sethuraman (1990) reported in their research paper⁴⁵ that 34 plants were used as food and medicine by the Kotas of Nilgiri District. Pradeeps. M. and G. Poyyamoli (2012)⁴⁶ through their field study found that the Irulas use 74 species of plants including 28 trees, 5 lianas, 17 shrubs, and 24 herbs for medicinal purposes. V. Ramachandran and C. Udayavani (2013)⁴⁷ found that out of 123 species of plants used by the Baniya and Kurumba tribes, 72 were edible plants, including 56 wild and 16 semi-wild species, 24 tree species, 22 herbs, 14 shrubs, and 11 climbers. Deepak. P and Gopal GV (2014)⁴⁸ in their research paper stated that among the Nilgiri tribes, Kurumbars use 51 species of plants for medicinal purposes, Katunayaks 40, Irulas 40, Kothas 28, Paniyas 49 and Todars 32 species. In a study conducted by S.M. Dhivya and K. Kalaichelvi, (2016)⁴⁹ it has been mentioned that the Irulas use 40 types of plants to cure

⁴⁴. Arora, Ranjit K. 1997. Ethnobotany and its role in the conservation and use of Plant Genetic Resources in India, Ethnobotany 9: 6-1

⁴⁵.S. Rajan and M. Sethuraman, "Plants used in folk medicine by the Kotas of Nilgiris District, Tamilnadu" Ancient Science of life, Vol. X No4, April 1991, Page 223-230.

⁴⁶. Pradeep. M, and G. Poyyamoli, "Ethnobotany and Utilization of plant resources in Irula Villages (Sigur Plateau, Nilgiri Biosphere Reserve, India" Journal of Medicinal Plants Research, Vol. 7(6). P.P.267-276, 10 February 2013.

⁴⁷. V.S. Ramachandran and C. Udhayavani, "Knowledge and uses of wild edible plants by Paniyas and Kurumbas of Western Nilgiris, TamilNadu" Indian Journal of Natural Products and Resources, Vol. 4(4), December 2013, PP. 412-418.

⁴⁸.Deepak P. and Gopal GV, "Nilgiris: A Medicinal Reservoir" The Pharma Innovation Journal 2014: 3(8):73-79.

⁴⁹. S.M.Dhivya, K.Kalaichelvi, " Ethno Medicinal Knowledge of Plants used by Irula tribes, Nellithurai beat, the Nilgiris, TamilNadu, India" Asian Journal of Medical Sciences/ SEP-Oct 2016/Vol 7/Issue 5.

various ailments like Ashthuma, Jaundice, TB, Leprosy, Cough, Fever, Skin disease, Hypertension, wound healing, and diabetes. Lokesh R and 5 other researchers (2017)⁵⁰ found that 6 tribes belonging to Nilgiri's Particularly Vulnerable Tribal Group (PVTGs) use 40 species of plants for medicinal use.

It is clear from various studies that the tribal people have been accustomed to protecting the plants used for their food and medicine from perishing and consuming them only as needed. Apart from that culturally and based on the belief some types of trees have been protected by Nilgiri tribal people.

Concept of Access and Benefits Sharing: Indian scenario

Biodiversity leads to sustainable development in all sectors of people's livelihoods and activities. Yet growing anthropogenic pressures lead to rapid urbanization and industrialization, which are contributing to global biodiversity loss. An important convention on biodiversity conservation was adopted at the Rio conference held in 1992. India is a party to the said United Nations Convention on Biological Diversity (CBD), the Biological Diversity Act was adopted in 2002 to achieve the objectives of the CBD in India. To effectively implement the Biodiversity Act 2002, India promulgated the Biodiversity Rules in 2004⁵¹ and framed the Guidelines for Access to Biological Resources and associated Knowledge and Benefit Sharing Regulations in 2014.⁵² These laws are aimed at ensuring the objectives of the CBD i/e (i) conservation of our biological resources (ii) sustainable use of its components and (iii) fair and equitable sharing of benefits arising from the use of biological resources. The concept of access and benefit sharing encourages indigenous peoples and conservationists to provide biological resources and traditional knowledge for commercial use and research. This concept was further reinforced in the Nagoya Protocol on the CBD to provide legal certainty, transparency, and clarity to the ABS mechanism. Commercial users of biological resources are legally bound to share a portion of their benefit with such conservators in monetary and non-monetary forms. India

⁵⁰ . Logesh R, Dhanabal SP, Duraisamy.B, Chaitanya mvnl Dhamodaran P, and Rajan S, "Medicinal plants Diversity and their Folklore uses by the Tribes of Nilgiri Hills, TamilNadu, India" International journal of Pharmacognosy and Chinese Medicine, 2017, 1(3) 000114.

⁵¹.https://www.forests.tn.gov.in/tnforest/app/webroot/img/document/legislations/01_Biological%20Diversity%20Rules%202004.pdf

⁵². [https://kbb.karnataka.gov.in/storage/pdf-files/notification%20Eng/ABS-Regulations-2014-Notification\(1\).pdf](https://kbb.karnataka.gov.in/storage/pdf-files/notification%20Eng/ABS-Regulations-2014-Notification(1).pdf)

has recognized the rights and privileges of tribal and rural communities by enacting various laws.

The tribal population in India is estimated at 104 million or 8.6% of the national population and 705 ethnic groups are officially recognized as Scheduled Tribes.⁵³ Every tribal ethnic group in India preserves some type of plant for food and medicine. The government of India established the Ministry of AYUSH in 2014 to bring alternative medicine especially tribal medicine into the healthcare sector. Also, developing education, research, and propagation of traditional medicine is the main task of the Ayush Ministry. Ayurveda, Yoga, and naturopathy, Unani, Siddha, and Homeopathy are alternative health systems covered by the Ministry.⁵⁴

Biodiversity Act, 2002 provides for the constitution of the Biodiversity Management Committee under Section 41 of the Act. So far 276895 Biodiversity Management Committees (BMC) have been established in 28 States and 7 Union territories.⁵⁵ The functions of BMC include the preparation, maintenance, and verification of the People Biodiversity Register (PBR) in consultation with local people. This PBR helps in promoting sustainable resource management and ensures equitable distribution of monetary benefits to local communities for the use of their living resources. The Biodiversity Act 2002 governs ABS through a three-tier system comprising (i) National Biodiversity Authority (NBA) (ii) State Biodiversity Board (SBB) and (iii) Biodiversity Management Committee (BMC).

The Ministry of AYUSH in association with the Council of Scientific and Industrial Research (CISR) and the Ministry of Science and Technology set up Traditional Knowledge Digital Library (TKDL). TKDL database is a value-added digital database created by the Government of India to (i) protect TK (ii) prevent misuse of TK (iii) generate active research using modern science.

Discussion & Analysis

This paper presents the tribal knowledge about biodiversity conservation and biodiversity resource from the tribal perspective and highlights the steps taken by the government to make the benefits available to the tribal people. Tamil Nadu Biodiversity

⁵³. <https://www.iwgia.org/en/india.html>

⁵⁴ . <http://nbaindia.org/content/20/35/1/bmc.html>

⁵⁵ . <http://nbaindia.org/content/20/35/1/bmc.html>

Board (TNBB) has been established and is doing its work. The Tamil Nadu Biological Diversity Rules, 2017 has been made on 9th November 2017. Tamil Nadu Biodiversity Board (TNBB) completed 385 Blocks in Tamil Nadu State, block level Biodiversity Management Committee (BMC) in May 2018. Even though the Biodiversity Act was enacted long back, and the central government rules the Biological Diversity Rules framed in the year 2004 some of the states still do not make rules to implement the Act, which will cause a huge setback in the tribal people getting benefits. Although State Biodiversity Board (SBB) has been set up in many states, Biodiversity Management Committees functioning at the grassroots level have been set up by 2,76,895 BMCs across India, but many more have not been set up. People's Biodiversity Registers were prepared by consulting the tribal people, and only 1,96015 out of 275286 PBRs.⁵⁶

The information collected by various researchers during the field study of different tribes in different areas in Nilgiri tribes, it is known that different tribes use the same type of medicinal plants, in such situations no clear explanation is given as to who should be given benefit. Is an agreement with one village enough? when several others also access the same resources. In the absence of any clarity as to the answer to this question, there are great difficulties in obtaining benefits. There are still fundamental problems in establishing ownership of biodiversity resources as traditional knowledge is recorded according to self-evident information. Benefit sharing is still resource-focused and lacks clarity on how to regulate benefit sharing in people's access to knowledge.

Conclusion

In general, tribal people are backward in terms of education and economic comfort. International agreements to protect and recognize the traditional knowledge of tribal people at the international level and domestic laws have been established to implement it locally. Accordingly, the Convention on Biodiversity was established in 1992, and to implement it, the Indian Biodiversity Act 2002 was the first law in the world, rules were introduced in 2004, and regulations were introduced in 2014. However, it takes a long time to establish the structures as per the provisions of the Act, thus reducing the strength of the Act. It will be useful if the necessary infrastructure is established so that the essence of the law does not diminish quickly, taking into consideration that the benefits of the law will be available to the right people, necessary steps will be taken to raise the livelihood of the tribal people

⁵⁶ <https://www.nbaiindia.org/>

by establishing the necessary BMCs in all the states. There is no doubt that the implementation of laws will require clarifications, but when those problems are identified through research and mistakes are rectified, the benefits will reach the people who need them.