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Indian Knowledge Tradition and Environment

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ABSTRACT

Traditional knowledge is the information or method or process or practices about any particular science which came down to us from our forefathers in the form of customs, usages, folklore, literature, way of living, and habits. India is world's oldest civilization encompass huge amount of traditional knowledge, which can reshape, rebuilt India's journey towards prominence. This traditional knowledge either in respect of herbs, crafts, arts, technique or medicinal knowledge are common heritage of mankind. India which is seventh largest country of the world has three of the world biological hotspot and various national parks and wildlife sanctuaries. Further various traditional knowledge evolves through the flora and fauna of the Indian biodiversity. Any patent or copyright which originates from such traditional knowledge will hamper the growth and rights of the indigenous and local communities. Therefore, these communities are against such patenting of traditional knowledge. To protect such rights over traditional knowledge Patent (Amendment) Act, 2002, Protection of Plant Varieties and Farmers' right Act, 2001 Biological Diversity Act, 2002 and were legislated by Parliament of India. This present study views India' rich heritage in terms of traditional knowledge in its wider approach using doctrinal method.

I. INTRODUCTION

Environment Biodiversity plays a prominent role in sustaining economic stability and socio-economic interest of indigenous and tribal communities. Right to healthy environment are third generation rights. These are collective group rights, which are emerged and gained widespread recognition around 1960's & 70's at the world level. But in India, Environment & other issues and legal incidents appended to it are recognized since the civilization flourished in Indian subcontinent. Indian traditions gave primacy to the security of the environment and are infilled with several instances, customs, usages, literature wherein protection of environment is at the forefront of the domestic, societal and national level of understanding and are also a part of individuals food habits, way of life, profession and every other aspect of life. "Environmental

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consciousness” phrase got new worldwide publicity and media coverage but Indian traditions and the law governing ancient Indian states emphasizes the people’s perception about the extensive relations between society and nature. Mahatma Gandhi believed that earth provides enough to satisfy every man’s need but not every man’s greed.² Thus, as provided in principle 2 of Declaration on the Human Rights 1972 it was said that the natural resources of the earth, including the air, water, land, flora and fauna and especially representatives’ samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

The Constitution of India as enacted on 26 November 1949 does not include specifically any provision for environmental protection or preservation. However, the Constitution (Forty-second Amendment) Act, 1976 added Article 48-A to Part IV of the constitution and 51A(g) to part IVA of the constitution which expressly conferred constitutional status to environmental protection. Article 48A says: *“The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country”*³. Though directive principles are not enforceable in the Courts, but the State has duty to comply with its provisions when creating laws. Article 51A(g) says about duty of every citizen to protect and preserve the environment It says that *“It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.”*⁴

The constitution of India under Article 21⁵ provides fundamental right to every person of right to life and personal liberty. It says that *“no person shall be deprived of his life and personal liberty except according to the procedure established by law.”* Right to clean and healthy environment is an implied aspect of this fundamental right. Further Supreme Court of India in Subhash Kumar V/S State of Bihar⁶ observed that *“right to live is a fundamental right under Article 21 of the constitution and it includes the right of enjoyment of pollution free water and air for full enjoyment of life. If anything endangers or impairs that quality of life in derogation of laws, a citizen has right to have recourse to article 32 of the constitution for removing the pollution of water or air which may be detrimental to the quality of life.”*

Environment in its etymological sense means our immediate surroundings and variety of issues

² Govind Singh, Mahatma Gandhi - A Sustainable Development Pioneer, <http://ecoworldly.com/2008/10/14/mahatma-gandhi-who-first-envisioned-the-concept-of-sustainable-development/>

³ Article 48A of the Constitution of India.

⁴ Article 51A(g) of the Constitution of India.

⁵ Article 21 of the Constitution of India.

⁶ AIR 1991 SC 420: (1991) 1 SCC 598.

connected with human activity, their impact on natural resources such as land, water, forest, atmosphere, wildlife etc. According to Section 2(a) of Environment (Protection) Act, 1986 & Section 2(c) of National Green Tribunal Act 2010, The word 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plant, micro-organisms and property. Thus, it can be said that Environment is the study of different disciplines of knowledge such as ecology, natural science, cultural science of different communities, sociology, oceanology, atmospheric science and many others. The environment has allowed the life in the earth to enrich and flourish. The environment and ecosystem consisting of earth, air, water, plants, animals and the inter relationship between them provides the essential and sufficient conditions for sustaining human life.

However, environment pollution poses a serious threat to the living organisms on our mother planet earth. It not only adversely affects humans but all forms of living beings on earth also. According to Section 2(c) of Environment (Protection) Act, 1986 'Environment pollution' means the presence in the environment of any environment pollutant. Further Section 2(b) of Environment (Protection) Act, 1986 provides that 'environment pollutant' means any solid, liquid or gaseous substance present in such concentration as may be or tend to be injurious to environment. Thus, the existence of any unwarranted substance or the absence of any essential ingredient in any solid, liquid or gaseous substance in such concentration that causes imbalance in the saturation level or concentration of ecosystem can be called as environment pollution.

The problem of environment pollution causes various disturbances in our mother earth as global warming, ozone layer depletion, cyclones, floods, land degradation, noise problems, acid rain, drought, famines and many more. The general causes responsible for environmental pollution are rampant process of industrialization, urbanization, exponential population growth, deforestation, poverty, and many others. The conditions prevalent by these factors are very frustrating and serious in nature as to future ahead. The Supreme Court of India in *Almitra H. Patel V/S Union of India*⁷ taken cognizance of pollution prevalent in Delhi and observed that: *"the historic city of Delhi is one of the most polluted cities in the world. The authorities responsible for pollution control and environment protection have not been able to provide a clean and healthy environment to the residents of Delhi. The air is so polluted that it is difficult to breathe. The river Yamuna, the main sources of drinking water supply is the free dumping place for untreated sewerage and industrial waste. Apart from air and water pollution, the city*

⁷ (2002) 2SCC 679

is virtually an open dustbin. There is no doubt that rapid industrial development, urbanization and regular flow of persons from rural to urban areas have made a major contribution towards environmental degradation.”

Issue involving environment protection was first acknowledged in 1972, wherein the first International Conference on Human Environment was held in the Stockholm (Sweden) under the auspices of United Nations. It provides for an ‘action plan for the Human Environment’ and gives a ‘Declaration on the Human Environment’. After the Stockholm Conference, the international community started to recognize the various menace created due to unintelligible exploitation of natural resources. Since then, various conferences and treaties were organized and various protocols are provided wherein targets are set and responsibilities are given to countries to adhere the goals declared for protection of environment.

However, the recognition of Environment problems and Environment protection are age-old and inbuilt in respect of the Indian civilization notwithstanding the current menace caused in Indian subcontinent due to Environmental problems. Indian civilization is the most environment friendly civilization which protects and secures the nature. However due to various factors such as urbanization, industrialization, etc., the present condition of environment in India is not praiseworthy. Indian peoples as the part of world’s oldest civilization can enrich their self from India’s traditional knowledge in respect of environment and its protection and can prevent further degradation of Environment in India and the World.

Traditional knowledge is also known as indigenous knowledge and local knowledge. Traditional knowledge is the information or method or process or practices about any particular science which came down to us from our forefathers in the form of customs, usages, literature, way of living, and habits. An illustration of it is the use of NEEM tree whose various uses are described in Ayurveda. Neem tree and its byproducts are being in use in India since ancient times. Patent for its use were applied In European Patent Office but due to India’s opposition it was not given. Similar cases also surfaced in respect of Basmati Rice, Turmeric etc. Traditional knowledge is developed and transferred from generation to generation in the form of stories, songs, cultural values, traditional laws, local languages, rituals, healing arts, and agricultural practices, for the collective good of communities.⁸

From point of view of understanding the Indian Traditional Knowledge in relation to environment and other crafts, we study the whole topic into 3 stages i.e., ancient, medieval and

⁸ Posey D, Duffield, “Beyond intellectual property: towards traditional resource rights for indigenous peoples and local communities”. Ottawa: International Development Research Centre. 1996.}

modern age

II. ANCIENT AGE

Indus valley civilization's (which flourished around 2600 to 1900BC) most remarkable feature was its urbanization. The towns of Harrapan settlements show a remarkable unity of conception and an advanced sense of planning an organization. These well-built settlements show us the management skills, proper utilization of resources, awareness about health and hygiene. Sages of ancient period are articulated with use of medicinal plants which grown up in Himalayan regions or in forest areas of India. Several treatises have been written by them which provides various use of different herbs used as medicinal plants and food stuffs. Ayurveda which is India medicinal art is one of the products of long evolving traditional knowledge of India.

The Vedic Age (which flourished around 1500 to 500 BC) provides us the plethora of literature in respect of different studies and is a lightening torch which provides a splendid aroma of traditions governing and exemplifying our culture. These literatures are consisting of religious literature as Vedas, brahmans, Aryankas, Vedangas, Tripitak, Angas, Upangas etc., secular literature as Arthshastra, Asthadhayi, Mahabhasya, Rajtarangani etc.

In the Atharvaveda Veda (Prithvi Sukta, slok number- 12), the Vedic seer solemnly declares the enduring filial allegiance of humankind to Mother Earth. "*Mata Bhumi Putroham Prithivyah*": Earth is my mother; I am her son.'. It can be understood that Vedic society was the first Environmental Protection Society in the history of mankind. In Veda we find the concept that everything in the world has life in it whether it is living or non-living. Veda begins with the worship of Gods of Nature, viz. the terrestrial Gods like Prithvi, Agni, Brihaspati and Soma, the atmospheric Gods like Indra, Rudra, Maruts, Vayu and Parjanya and the celestial Gods like Dyaus, Varuna, Ushas and Asvins. This clearly reveals that in vedic period the Humankind had clear concept of their surroundings.⁹

Upanishad's sages perceived the existence of God in trees and other plants and those they were gifted to man as a companion for mutual survival. "*The God who exists in the universe, lives in air, water, in fire and also in trees and herbs, men should have reverence for them*". Brhadaranyaka Upanishad (3.9.28) equate trees with human beings as follows: Just like a tree, the prince of the forest, so the man is, in truth.¹⁰ In the Taittiriya Upanishad (5.101) certain norms were prescribed for human beings to keep the environment clean. "One should not cause

⁹ Dr. Nimisha Sarma "ENVIRONMENTAL AWARENESS AT THE TIME OF VEDAS." (Vol. 26 July-December 2015) Veda-Vidyā

¹⁰ (Trivedi, 2004). {Trivedi PR (2004). Environmental Pollution and Control, A.P.H. Publishing Corporation, New Delhi}

urine and stool in water, should not spit in water; and should not take bath without clothes”. The Iso-Upanishad has revealed the secrets of existence of life on earth and the importance of every organism for mutual survival. “The universe along with its creatures belongs to the Lord. No creation is superior to any other.”¹¹

Vedangas are the supportive and augmenting literatures in the study, preservation and protection of the Vedas and the Vedic traditions. The six Vedangas are Siksha, Chhanda, Vyakarana, Nirukta, Jyotisha and Kalpa. Siksha deals with the study of sounds and pronunciation associated with each syllable; Chhanda with the mastery of rhyme and meter; Vyakarna with the study of word and sentence structure; Nirukta with the meaning of complex words and phrases; Jyotisha with the study of heavenly bodies to find an auspicious time for the performance of the rituals; and Kalpa with the ethical, moral and procedural precepts associated with the performance of rituals as a way of life.

Kautilya in his book Arthshastra gives emphasised for protection of life and livelihood. Kautilya provides punishments for burning or destroying pasture land, forests, elephant forests and houses.

Manusmṛiti traditionally the most authoritative of the books of the Hindu code in India. It declares cutting of trees as sinful acts and provides punishments for it. Puranas says that “anybody even unknowingly put fire to hermitage of forests is equal to a murderer and should be punished accordingly.”

Charak Samhita and Susrat Samhita are ancient texts on Ayurveda’s. They provide variety of methods and medicines for the prevention of disease and for upkeep of a healthy body. These traditional knowledges are bringing revolutionary studies and changes in medicinal fields.

III. CUSTOMS IN ANCIENT INDIA ON ENVIRONMENT PROTECTION

The rivers, mountains, animals, forests are given a divinity character in Indian traditions. The scientific division of seasons in Indian traditions provides a well-organized crop production system in India. The 6 seasons of India as per the Hindu Calendar are Spring (Vasant season), Summer (Grisham season), Monsoon (Varsha season), Autumn (Sharad season), pre-winter (Hemant season), and Winter (Shishir or Sheet season). This division of seasons benefits Indian agricultural structure to know which crop can be grown at a particular season. For example, In Monsoon and Autumn seasons are found most suitable for kharif crops in which rice, maize, sorghum, pearl millet/bajra, finger millet/ragi (cereals), Arhar (pulses), soya

¹¹ R. Renugadevi “Environmental ethics in the Hindu Vedas and Puranas in India” African Journal of History and Culture (AJHC) Vol. 4(1), pp. 1-3, January 2012

bean, groundnut (oilseeds), cotton etc are grown. In Pre- winter and winter seasons are found suitable for rabi crops which include wheat, barley, oats (cereals), chickpea/gram (pulses), linseed, mustard (oilseeds) etc. In spring and summer seasons are found suitable for Zayed crops which include Water melon, Cucumber, Muskmelon, Sunflower, Sugarcane, Bitter gourd, pumpkin etc. The concept of Indian tradition knowledge in relation to agriculture was so perfect that no need in its change is realised even in modern age of science although it was practised since civilization flourished in Indian subcontinent. Further divine characterisation of forests, rivers, animals give a personal or emotional attachment to Indian peoples to improve and protect the environment.

The killing of animals is prohibited in ancient India. Several animals (such as cow) are worshipped and respected while others are protected from killing. The use of milk products and various other use of cow dung and cow urine are the knowledge which every household has.

Different design and structures of coins are also a prominent feature of this age. Punch mark coins (of silver and copper) are the earliest coins of India. Different figures of deities (such as of lord Shiva on the coins of Vima Kadphises) depicts nature of ancient civilization. Different scripts and languages also originated during this period. Brahmi is the originator of most of the present Indian scripts, including **Devanagari, Bengali, Tamil, and Malayalam** etc. The Brahmi script confirms to the syllabic writing system and was used **more for writing Prakrit, the language spoken by ordinary people** initially and **later Sanskrit also was written in this script**. Kharosthi Script written from right to left. It was used in the Gandhara culture of North-Western India and is sometimes also called the Gandhari Script. Its inscriptions have been found in the form of Buddhist Texts from present day Afghanistan and Pakistan. Other scripts are **Indus script, Nagari Script, Tamil Script etc.**

Five vows of Jainism i.e., panch mahavratas are Ahimsa, Satya, Asteya, Aparigraha and Brahmachrya provides an insight to Jainism religion and further reiterates the basic tenets of Hinduism.

The kautilya book Arthashastra provides a broad outlook to the administration system. He described the 7 elements of states in his saptanga theory which are Raja, Amatya, Janapada, Durg, Kosha, Sena, and Mitra.

Several literatures in the field of science, Jyotish, Agriculture, space, etc written in this period. All these literatures provide a broad perspective of Indian Traditional science and knowledge tradition.

IV. MEDIEVAL PERIOD

The medieval period in India is a long period of the history of subcontinent between the ancient and modern period. It encompasses the 6th to the 18th centuries A.D.

Traditional knowledge in this period relates to the design and development of tools, implements and gears for different applications, it covers the natural resources management by the indigenous local communities. In the medieval periods the knowledge can be represent through the skill and design or construction like housing, water harvesting construction roads, bridges, well etc. It is basically involving seasonality-based practices like restriction of fishing, harvesting forest resources during flowering periods etc.

The post-Mauryan period saw the development of local or regional styles of sculptural art i.e., Gandhara and Mathura in the north and Amaravati in the lower Krishna-Godavari Valley. Gandhara school of art adopted themes from Buddha's life & jataka stories while Mathura school adopted both Buddhism and Hindu's themes. Sufi and Bhakti movement saints produced several literatures and tried to reinvigorate their religions.

Distinct architectural style of temples in this period was result of geographical, ethnic and historical diversities. **Nagara in the north, Dravida in the south, Vesara style are some of the forms of temple architectural style. The main features of Indian temples are Sanctum (garbhagriha literally 'womb-house'), mandapa, mountain-like spire i.e., shape of a curving shikhra in North India and a pyramidal tower, called a vimana, in South India, and Vahan.**

The rich cultural heritage of India provides various languages, different communities, different customs but all of them are blended with each other as some sweater has been sewn with different colours of fabric. The different Dance forms also gives uniqueness to the different traditional customs in India. These dance forms can be traced from book titled 'Natya Shastra' a treatise written on performing arts. Some of the dance forms in India are Bharatanatyam, Kathakali, Kathak, Manipuri, Kuchipudi, Odissi etc.

V. MODERN PERIOD

The modern period witnessed the severe deterioration of Environment in Indian subcontinent. The rulers of Indian states in last phase of medieval period and at the advent of modern age the Britishers ruined the Indian Economy and tried to sabotage the traditional knowledge, customs which the peoples are adhering since the civilization flourished in the Indian subcontinent. The country which is known as "bird of gold" and "Visv guru" were tortured and looted by these

foreign invaders. The trees were cutted frequently to further their economic interests. After independence, several legislations are brought to contain pollution and for protection of Environment but all these efforts become insufficient. The present condition is that Twenty-one of the world's 30 cities with the worst air pollution are in India, according to data compiled in **IQAirAirVisual's 2019 World Air Quality Report**, with six in the top ten.

Thus, in handling the present worsening situation of environment prevalent in our country, we can certainly be benefited from our enriched traditional knowledge. For the first time the U.N. Convention on Biological diversity (CBD) i.e., Earth Summit 1992 provides an international norm which recognize the need to protect and promote traditional knowledge in relation to biological resources. The biological resources and the traditional knowledge associated with them are intrinsically interconnected and inseparable.

The convention on biological diversity recognizes the nation-states sovereign rights on their biological resources and left it to them to devise a method to safeguarding and implement this right. India being a signatory to this convention, passed ‘The Biological Diversity Act, 2002 which became effective from October 1st 2003. The preamble to it provides its objective as “*An Act to provide for conservation of Biological Diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith.*” The Act created a 3- tier structure to facilitate the conservation, sustainable use and equitable sharing of benefits arising out of all biological resources. The approval consists of 3 main stages—

- A) Authorization: it involves taking stock of the resources which are going to be accessed, their availability and the potential to be exploited from a particular region.
- B) Prior Consent: it involves taking the community which is continuously using the resources into confidence on the end use.
- C) Sustainable use: it ascertains whether harnessing the resources may lead to any economical imbalance in future.

Section 6 of the Act¹² provides that “*no person shall apply for an intellectual property right, by whatever name called, in or outside India for any invention based on any research or information on a biological resource obtained from India without obtaining the previous approval of the National Biodiversity Authority (NBA) which is setup under section 8 of above Act*”¹³. The Act also provides for revocations of approvals.

Further Patent (Amendment)Act, 2002¹⁴ provides for non- patentability of any innovation

¹² Section 6 of The Biological Diversity Act, 2002.

¹³ *ibid*

¹⁴ Amendment made to The Patent Act 1970.

which is based on traditional knowledge and it made mandatory for patent applicant to disclose geographical origin of biological material used in his invention. Failure to such disclosure would lead to cancellation of patent applicant.

Similar provisions are provided in Protection of Plant Varieties and Farmer' Right Act, 2000. It provides that any patent application which seeks registration of plant varieties must disclose geographical location from which genetic material were taken which evolves new variety.

Thus, it can be said that the traditional knowledge on biological resources which is used by our communities since time immemorial can be safely safeguarded from encroachment by foreign institution or citizens of India as well from patenting and monopolizing such knowledge.

Traditional Knowledge Digital Library (TKDL) set up in 2001 is an initiative of India to prevent misappropriation of country's traditional medicinal knowledge at International Patent Offices on which healthcare needs of more than 70% population and livelihood of millions of people in India is dependent. Its genesis dates back to the Indian effort on revocation of the patent on wound healing properties of turmeric at the USPTO. Besides, in 2005, the TKDL expert group estimated that about 2000 wrong patents concerning Indian systems of medicine were being granted every year at international level, mainly due to the fact that India's traditional medicinal knowledge which exists in local languages such as Sanskrit, Hindi, Arabic, Urdu, Tamil etc. is neither accessible nor comprehensible for patent examiners at the international patent offices. Traditional Knowledge Digital Library has overcome the language and format barrier by scientifically converting and structuring the available contents (till date 0.29 million medicinal formulations) of the ancient texts on Indian Systems of Medicines i.e. Ayurveda, Siddha, Unani and Yoga, into five international languages, namely, English, Japanese, French, German and Spanish, with the help of information technology tools and an innovative classification system - Traditional Knowledge Resource Classification (TKRC). (Council for scientific and Industrial research website)

VI. INDIAN TRADITIONAL KNOWLEDGE OVERVIEW

Traditional knowledge also known as indigenous knowledge is used to describe any innovation or custom, tradition etc. Traditional knowledge has very vital role to the food security and health of millions of people and sustainable use of biodiversity and various traditions.

Educational practices that combine with indigenous traditional knowledge and languages are a significant way to maintain and preserve indigenous cultures, identities and enhance learning and protect the environment and wellbeing. Traditional knowledge generally refers to knowledge systems embedded in the cultural traditions of regional or local communities.

Intellectual property rights laws also preserve, protect and promote the traditional knowledge. TRIPS is established for creating and protecting intellectual property rights and WTO is to investigate the relationship between the intellectual rights, biodiversity and traditional knowledge.

The three board approaches to protect traditional knowledge have been developed at the world level:

- (1) Emphasizing Traditional knowledge as a form of culture heritage.
- (2) It is protection of Traditional knowledge as collective human rights.
- (3) It is taken the WTO and WIPO works as investigative wing for protecting traditional knowledge.

The various advantages factors are as follows:

- (i) India is a land of various knowledge, tradition and, culture through which we can aware of our ancient periods of knowledge
- (ii) Learning about any culture builds immense pride and self-esteem and builds a community and communities build harmony.
- (iii) It develops the better appreciation and understanding of the knowledge, traditions and practices of India.
- (iv) Indian traditional knowledge contains vast amount of knowledge about environment protection, science, space, medicinal plants etc., that by utilizing this knowledge we can once again became a ‘visv guru’

India has rich knowledge and culture, it will get an objective insight into the traditional practices of India and these can be developed and can be used to ascertain how these teaching of knowledge may inform and benefit them in future.

Traditional knowledge is integral to the identity of most local communities. It is key constituent of a community’s social and physical environment and as such its preservation is of paramount importance.

VII. CONCLUSION

The importance and value of traditional knowledge in addressing the current crisis of climate change in the field of Environment is immense. It can be certainly said that the tremendous challenges that humankind is facing presently in mitigating and adapting to climate change needs to restate and revise the compelling scientific evidence or reasons for human induced global warming. Traditional knowledge is associated with natural resources and environmental

management; it is basically the knowledge-based practices. Traditional knowledge can play a central role if contemporarily relevant elements can be strengthened through revival of the social processes of its generation, conservation and transfer.¹⁵

The various traditional customs have been prevailing in India to preserve the environment in India and others provisions must be made to find out the useful solutions for safeguarding the environment, culture, economic and social rituals etc. The initiative 'Ek Bharat Shreshtha Bharat' can promote and enhance the knowledge of the culture, traditions and practices of different states & UTs and it will lead to an enhanced understanding and bonding between the states, thereby strengthening the unity and integrity of India. Thus, by recognising the potential of states and communities and providing essential technologies to them can ensure our India's progress towards prominence.

¹⁵ Unnikrishnan PAYYAPPALLIMANA and Osamu KOIKE," Traditional Knowledge for Sustainable Development: A Case from the Health Sector in Kerala, India ", United Nations University Institute of Advanced Studies, (2010).