

## Re-orienting the Eco-centric Lifestyle: A Review of Lepcha Cultural-Ecology in the Dzongu Valley of Sikkim, India

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**Abstract :** *In the northeastern parts of the Himalayas reside the Lepchas, one of the culturally oldest and richest ethnic groups that dwell in the southern slopes of the range. Lepcha culture and traditions are closely associated with nature and the environment as they are directly dependent on eco-resources and techniques for every aspect of their life. For this reason, Lepchas worship all aspects of the natural environment surrounding them. In the Lepcha reserve land of Dzongu valley of North Sikkim, the century-old ethno-environmental practices of the Lepchas are reflected in their livelihood, food habit and diet, medicines, building materials, conservation strategies, customs, literature and in fulfilling their basic daily needs - thereby forming the strong base of indigenous knowledge and perception on the sustainability of their natural environment. The knowledge has been passed from generation to generation. But, with more and more contact with the invading culture, market economy, and modern technology, there is a concern rising regarding the sustainability of environmental practices and the passing of cultural-ecological knowledge with time. At present, Lepchas of Dzongu are deliberately resisting the external influences on their culture, religion, and language to protect their ethnic identity, by creating awareness among them. The youth is playing a pivotal role in this process cultural revival. An eighteen-year-long protest by the Lepchas against the hydro-power projects in Dzongu valley has become the key driving force behind the cultural resurgence and self-awareness of the Lepchas as native inhabitants of the land. Lepcha values and knowledge on the environment have the potential of delineating a balanced, sustainable and eco-centric development approach in the fragile Himalayan landscape.*

**Key words:** *Dzongu valley, Fragile Himalayan landscape, Indigenous knowledge, Lepcha culture, Sikkim Hydro-power*

### Introduction

The Lepchas are the native inhabitants of the Sikkim and Darjeeling Himalayas, and were once the largest ethnic group of these regions. Lepchas call themselves as 'Rong-Kup', which translates as 'Children of the Mother Earth'. Prior to the 13<sup>th</sup> century, their territory used to cover a vast area in the Eastern Himalayan region where they used to live as ethnic aboriginals *in situ*. From the existing literatures it can be said that in the north, the Lepcha land of Chumbi Valley

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was primarily occupied by the Tibetans; in the east, the Bhutias occupied an entire strip of land forcing to shift the Sikkim-Bhutan boundary westward to its present location. Towards the west, Lepcha land was once extended up to the Koshi river which they lost to Nepal. All neighbouring states and ethnic groups had expanded their territories by consuming and narrowing the Lepcha territory. Even in the relatively recent past, their claim on land and other natural resources has been gradually fading since the in-migration of the Bhutias, followed by that of the Nepalese in the Darjeeling-Sikkim region during the 18<sup>th</sup> century (Roy, 2009). According to the census of India, 2011 Lepchas constitute only 7% of the total population of Sikkim. They share less than 1% of the combined total population of Darjeeling and Kalimpong districts (Kalimpong was part of Darjeeling district during the census of 2011). Therefore, Lepchas have become a minority in their own homeland (Thapa, 2022).

Dzongu valley of Mangan district (erstwhile North Sikkim district) is known for its concentration of the native Lepcha population who, in a deliberate effort of saving their ethno-cultural existence, live in a traditional eco-centric lifestyle, as much as possible. This region is considered by the Lepchas as their place of origin and has the highest density of Lepcha population. Lepchas call this place '*Mayel Lyang*', which means 'the paradise on earth'. Dzongu is located at an elevation ranging roughly between 700m to 6000m above the mean sea level (msl), covering approximately 78 km<sup>2</sup> of geographical area, including part of the Kanchenjunga National Park and Biosphere Reserve, located on the eastern flank of the Kanchenjunga massif. In north-south, the area lies between 27°28' N to 27°38' N of latitudes. In east-west, it is extended between 88°38' and 88°23' of longitudes (Bhasin, 2011). The Dzongu valley is characterized by high mountainous landscape, narrow valleys and gorges with the general trend of gradient towards south-east. Vertically, Dzongu is subdivided into two zones, namely – Upper Dzongu and Lower Dzongu. The great altitudinal variation has resulted into the formation of various climatic-vegetation zones. From east to west, Dzongu is characterized by the subtropical monsoon climate (below 1700m, amsl), the temperate-boreal forest climate (1700m to 3000m, amsl) and the alpine climate (above 3000m, amsl). The region receives high monsoon rainfall between June and September, favoring the rich ecological productivity and biodiversity (modified after Dhungel, 2021). The total population of Dzongu is 8550 persons, which is distributed in 1200 households over 14 census villages (Census of India, 2011).

Although the Dzongu area is demarcated as a 'valley', it is not a complete valley unit in terms of topographical perspective. Rather, Dzongu covers the entire valleys of the Rangyong '*chu*' (river) and the Tholung '*chu*' (also spelled 'Talung', Gowloog, 1991), a tributary of the river Teesta, and the adjacent valley side to the right bank of Teesta between Chungthang and Dikchu. The roughly triangular area is extended from Shipgyer village in the east to Lum village in the south, both located on the right bank of the Teesta. In the north-west, Sakyong and Pentong are the last villages of the Dzongu valley. Although as expected, a valley region starts from the crest of the hillsides in all directions downward, all the settlements and inhabitations of the Dzongu are located at the valley bottom close to the river, approximately below 2300m elevation (Bhasin,

2011; Khaling and Lepcha, 2022). Therefore, the Dzongu valley can also be thought of as a perceptual region belonging to the Lepchas (Banerjee, 2024), which lacks a definite boundary in the north-west but is guarded by the lofty peaks of the Kanchenjunga range. In the east and southeast, the river Teesta draws the boundary.

The Dzongu is an administrative unit as well. Realizing the importance of this valley as the cultural hearth of the Lepchas, as Lepcha sentiment is attached to it, Tashi Namgyal, the 11th '*Chogyal*' (King) of Sikkim declared Dzongu as 'Lepcha Reserve Area' by law under the Royal Proclamation of the 30<sup>th</sup> August, 1956. The law, forbidding non-Lepcha people from settling or buying land in Dzongu and limiting their residence only on temporary basis also liable to legal permission, remained unchanged even after Sikkim's annexation to India in 1975 (Little, 2008). According to the declaration of the *Chogyal*, only indigenous Lepchas enjoy the right to inherit, sell, buy, or mortgage their land, territory, and resources in Dzongu (Choudhury, 2007). This law has somewhat benefitted the preservation of the pristine natural environment of the Dzongu valley and the Lepcha traditions, which has been further supplemented by inaccessible terrain and poor connectivity of this region. In addition to Dzongu's status as Lepcha Reserve land, the Lepchas are recognized as Sikkim's "original indigenous inhabitants" by a Supreme Court verdict of 1993, and 'Primitive Tribal Group' by the State government of Sikkim since 2006 (Lepcha, 2021). Presently, Dzongu is an Assembly Constituency, covering all 13 Revenue Blocks of Dzongu sub-division (Lingthem, Lingdem, Tinvong, Lingza, Pentong, Salim-Pakyel, Lingdong, Hee-Gyanthang, Samdong, Barfok, Gor, Sangtok and Lum), 1 Revenue Block of Chungthang sub-division (Shipgyer), 1 Revenue Block of Mangan sub-division and 6 Revenue Blocks of Kabi sub-division of Mangan district (The Sikkim Act, 2021). But the Revenue Blocks of the Kabi and Mangan sub-divisions do not fall inside the actual Lepcha Reserve of Dzongu valley (Fig. 1).

### Methodology

In this study, existing literature related to the ethnographical dimensions of Lepcha people, both in and outside the Lepcha Reserve Land of the Dzongu valley in North Sikkim have been reviewed and the opinions of scholars from different disciplines have been summarized. The main objective of this literature review is to understand the cultural ecology of the Lepchas of Dzongu and account for the historical and socio-economic events that have been playing crucial roles in shaping them. Logical conclusions are made by the authors of this review by using the inductive reasoning method based on the qualitative and quantitative secondary data obtained from the available literature. Different topics which are discussed in the following sections were pre-selected. The literature, such as published research papers, books, book chapters, PhD thesis, dissertations, government and non-governmental reports, census data, websites, newspaper reports and articles, etc. were collected from various sources and classified under the relevant broad themes. This literature, approximately 55 in number, concerns different aspects of the Lepcha community of the Dzongu valley— their mythology, history, demography, rituals, beliefs, and conservation approaches regarding the natural environment, usage of medicinal plants, craftsmanship, land use, the impact

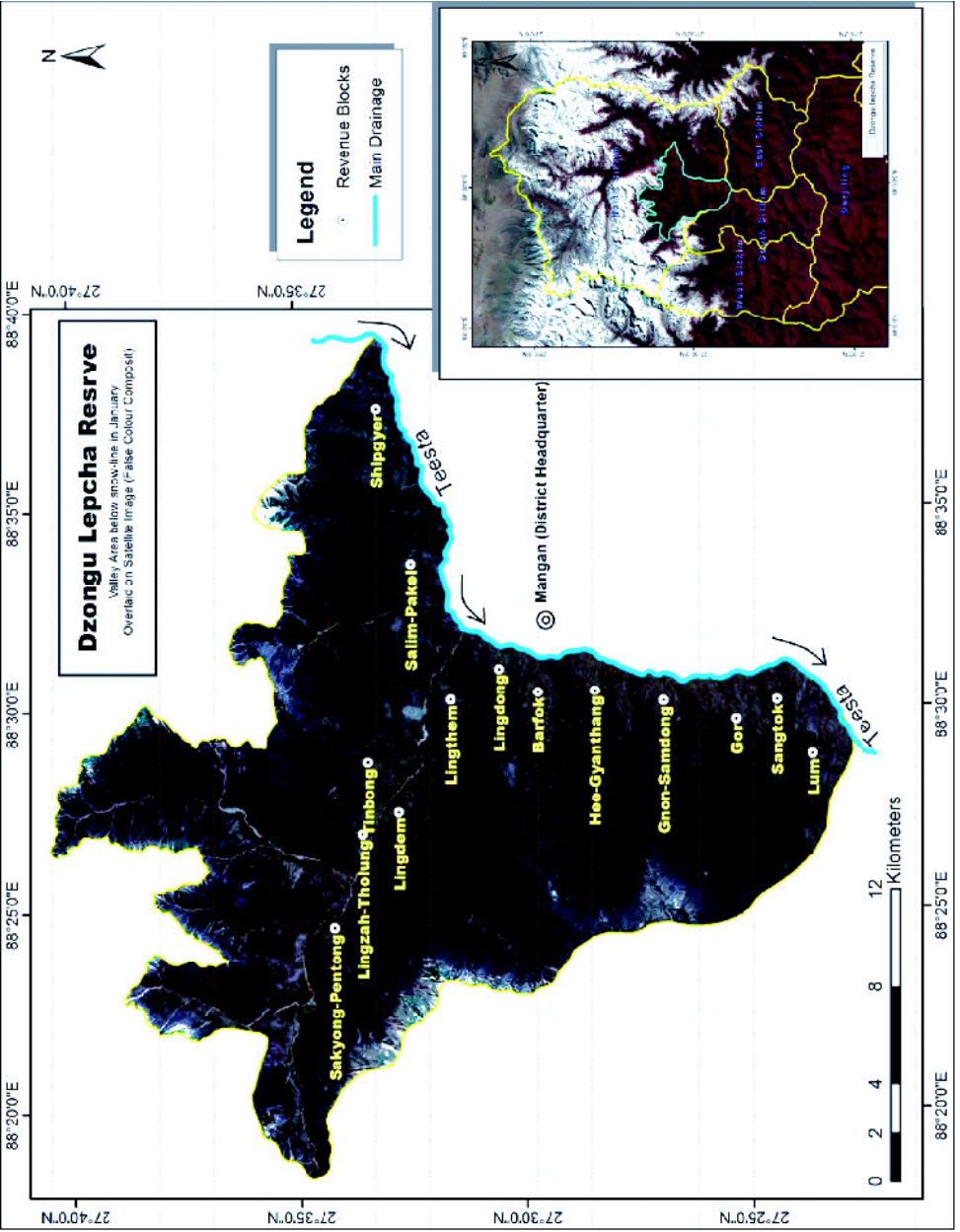


Fig. 1: The Lepcha Reserve area of Dzongu Valley with the location of the Revenue blocks  
Source: Landsat 8 Imagery (January 2022) and Administrative Atlas of India (2011)

of modern education, class struggle, self-perception, cultural revival, and their anti-dam movement that took place between 2006-2013. In this context, the topics like development of tourism and hydropower in Sikkim are also discussed. With the help of this systematic literature review, the authors of this paper have tried to make an in-depth study regarding the Dzongu valley as a cultural heartland of the Lepcha people, to bring a holistic perspective for eco-friendly development.

### **Socio-cultural Facets of the Lepchas**

The Lepchas are inhabitants of the Sikkim and Darjeeling Himalayas along with other ethnic groups like Bhutias, Nepalese, Tibetans, and Limboos, with several scriptures, folklores, and literary accounts demanding the Lepchas to be the original inhabitants and others to be immigrants at different phases of history (Chaube, 1987; Thapa, 2022). The Lepchas differ from either of the Bhutias and the Nepalese in terms of two sociological characteristics. Firstly, Bhutia and Nepalese immigrants were agrarian communities having relative technological advantages; and as a result, they took hold of more fertile lands with locational suitability, pushing the Lepchas, the hunter-gatherers and subsistent farmers to more remote and economically inferior lands. Secondly, Lepchas lacked the competitive mindset of the immigrants. Being inferior in technology, resource utilization as well as gradually becoming outnumbered in their own land, they had accepted themselves as a losing community in their struggle for existence (Das, 1978). Outside Dzongu, Lepchas occupy only scattered lands in the form of isolated hamlets of Sikkim, in the Darjiling and Kalimpong districts of West Bengal, and the Ilam district of Nepal; as most of the lands are occupied by various Nepalese tribes. Inter-marriage with Lepcha wives has been an instrumental method of land occupancy for the Nepalese. Bhutias did not directly compete for the lands, as their population was relatively lower, rather they gained hold of political power in Sikkim until the state's annexation with India in 1975 (Little, 2013).

The strong emotional attachment of the Lepchas to their land and environment has made them more resistant to social changes and occupational mobility, which resulted in their backwardness as compared to the Bhutias and the Nepalese. When the scenario of social changes among the Lepchas of Dzongu (Sikkim) is compared to that among the Lepchas of Kalimpong (West Bengal), it is observed that the Lepchas of Dzongu are lagging in almost every socio-economic sector. For example, even after receiving a sizable amount of earnings from cash crops like large cardamom, the Lepchas of Dzongu use to spend most of it on religious ceremonies. They lag behind their Kalimpong brethren in gross agricultural production, fertilizer usage and mechanization as well. The rate of conversion from Buddhism or Animism (Bonthingism) – the main and traditional religious practices of the Lepchas – to Christianity is higher among the Kalimpong Lepchas (Ghoshal, 1990), since Buddhist and Bonthing rituals cost more and Christianity represents modernity.

Before the introduction of Buddhism in Sikkim in the 17th century, Lepchas were 'Animists' by religion as they worshipped all the elements of nature around them – the sacred Mt.

Kanchenjunga and other snowy peaks, lakes, river Teesta, soil, trees, rain, cloud and flora and fauna of the Himalayas (Foning, 1987). Although the term 'Animism' implies the attribution of a living soul to inanimate objects or natural phenomena, it is the objects and natural phenomena themselves, who have souls or spirits and whom are to be treated as living things (Morris, 1938). In this practice of Animism, ritualistic performances are conducted by priests and priestesses, referred to as '*Bonthing*' and '*Mun*'. This very fact had earned the Lepcha Animism the name 'Bonthingism' (Ghoshal, 1990).

Inclusion of the Buddhism among the Lepchas was rather smooth, with Tibetan culture assimilated within Lepcha culture to form a distinct form of Buddhism. For instance, the recognition of Mt. Kanchenjunga as the Lepcha people's holy birthplace and guardian deity was also incorporated into Buddhism (Gorer, 1984). Despite some custom differences, Lepchas gradually started practicing Buddhism and their ancestral Bonthingism as a 'double-layered religious system', often intertwined with rituals and beliefs (Torri, 2010). Moreover, Buddhism also acted as a mutual ground of unification for the Lepchas and the Bhutias to form a combined resistance against the growing population of Nepalese immigrants and their socio-economic imposition in Sikkim (Subba, 1988). However, such cultural co-existence was not possible for more than a century between the traditional Lepchas and the Christian Lepchas due to the exclusive nature of Christianity. Conversion to Christianity involved a complete change of lifestyle, which was modern, aristocratic, financially better, and often, the prime driving force behind the conversion. As a result, the Christian Lepchas are often blamed by the traditional Lepchas for leaving and ignoring their own Lepcha culture, language, and overall ethnic identity (Chattopadhyay, 1990).

Lepcha societies, though casteless, are divided into different clans which they call '*Moo*', which are based on blood-lineage and play a significant role in protecting their ethnic purity and land ownership through birthright. A Lepcha man cannot marry a woman of his father's or mother's moo. Moo can only be acquired by birth and can only be lost in case of a forbidden inter-moo marriage or through conversion to Christianity, the latter being more common. There is no place of moo in Christianity and there is no place of Christianity in the moo system. If a Lepcha woman marries a non-Lepcha man, her moo is lost forever from the community. In recent years, Lepchas have become very aware and sensitive of protecting their moos (Roy, 2009).

In a study comparing the characteristics of cultural transformation among the Lepchas of Dzongu, Kalimpong, and Ilam, it is observed that the Lepchas of the Dzongu valley, which is believed to be their place of origin, mostly follow both the Bonthingism and the Buddhism. Proportion of the Christian Lepchas is highest in Kalimpong, whereas in Ilam of Nepal, the cultural-religious character of Lepchas is a triumvirate of Hinduism, Buddhism, and Bonthingism. As a result, although Lepcha traditions and eco-centric ethnicity is preserved best in Dzongu, the Lepchas of Kalimpong are educationally better qualified, more engaged in secondary and tertiary economic activities, and living with relatively modern lifestyle. It should be mentioned that, since the beginning of the 21<sup>st</sup> century, the effect of higher education has become beneficial for the

preservation and revitalization of the Lepcha culture. The Lepcha youth of Kalimpong, both Buddhists and Christians, understand the value of their eco-centric sustainable practices; and they are trying to explore their cultural routes in the form of learning scriptures and tales, becoming aware of their rights as the first citizens of Sikkim and Darjeeling-Kalimpong region, habituating with traditional food, dressing pattern and agronomical methods, and visiting Dzongu as a pilgrimage and ancestral home. Inter-marriages are taking place between the Lepchas of Dzongu and Kalimpong, the rate of which is higher than that between Kalimpong and Ilam. In case of inter-caste marriages with Nepalese and Bhutias, Lepcha women are insisting for their child to have the mother's surname, so that the child can claim his or her aboriginal right of land. Lepchas are gradually overcoming the sense of inferiority that was hindering them from flourishing for more than a century (Lepcha, 2013).

#### **Utilization of Plant and Bio-resources**

As native forest dwellers of the isolated valley of Dzongu, Lepchas have developed a thorough knowledge of the use and benefits of various forest products, and associated ecological practices over centuries. This harmonious way of living with the nature benefits both the Lepchas and their natural environment, while making the human elements an integrated part of the valley ecosystem of Dzongu. It being in the vicinity of the Kanchenjunga Biosphere Reserve and receiving high amount of monsoon rainfall (160-200cm annually), has been blessed with rich biota varieties. Abundant plants of numerous species and families are been found in Dzongu, which have become the main bio-resource for the Lepchas of Dzongu. All Lepcha folk literatures, including folklores and proverbs mention the bio-resources such as trees, flowers, fruits, climbers, wild edibles, various types of bamboo, etc. (Jana and Chauhan, 2000). Being completely dependent on various types of plants for their diet, medicines, building materials, and clothes, etc. (Palit and Banerjee, 2016) since long back Lepchas had accumulated vast knowledge and skill-base on plant use (Hooker, 1890). It is the nature-worshipping mindset and understanding the value of sustainable use of forest in their survival, led the Lepcha communities formed a rule called 'Bukchung' since the Namgyal reign. The rule states that every Lepcha must plant and grow eight sprouts against cutting one tree (Roy, 2011).

With regard to ethno-medicine, ethno-biological studies have found and documented 118 medicinal plant species in Dzongu. These are spread across 71 families and 108 genera. Some of these plants are endemic to the region and listed as endangered or vulnerable by IUCN. Out of the 118 plant species, 34 species are harvested for their roots and rhizomes from which the medicines are prepared, and 27 species of plants have medicinal values in their leaves. For other species, fruits, seeds, barks and whole plants are used as cures. The study has documented 66 diseases which are cured with the ethno-medicines prepared from these plants. Some common diseases and their plant-based cures used by the Lepchas are as follows – rhizome of *Aconitum heterophyllum* is used for fever and cold, rhizome of *Aconitum spicatum* is used for food poisoning and diarrhea, crushed leaves of *Lantana camara* are applied to heal cuts and wounds,

leaf extract of *Calamus macracanthus* is used to cure eye infection, *Coriandrum sativum* soot is used to cure digestive issues, etc. (Pradhan and Badola, 2008). It is also noteworthy that about 29% of the medicinal plant species of Dzongu are subjected to destructive harvesting— where either the roots and rhizomes or the whole plant is used to prepare medicines. If these species are collected without growing new plants, they might face the risk of endangerment soon (Badola and Pal, 2003).

Although Lepchas of Dzongu, in general, possess a certain degree of knowledge of the medicinal value of plants in their area, the knowledge is gradually fading away in recent times, due to changing cultural patterns and external influences brought by contemporary globalization, which are discussed in the later part of this paper. Nowadays more Lepchas, mostly youth, are losing their dependence on ethno-medicines and replacing them with allopathic medicines. This is more visible in villages with better connectivity, like Lingthem, Lingdem and Hee-Gyanthang; while the dwellers of the most remote villages and hamlets of Dzongu, such as Sakyong-Pentong and Lingzah-Tolung having no road network connecting them, still depend mostly on ethno-medicines (Pradhan and Badola, 2008). In Lepcha communities, the people who possess expertise in plant-medicines are called '*Moondawk*' (the healers). Bonthings and Muns – the priests and priestesses of Lepcha Animism (Bonthingism) also act as healers in some cases. It is a fact that Dzongu valley reserves plants of immense medicinal values and with proper research, study and plantation, these plant species may bring progressive changes in medical science and medical drug production and also become a potential source of income for its people. But it has been seen that the Moondawks are usually reluctant of sharing their knowledge and skill base on ethno-medicines with non-Lepcha people. The reasons behind such restrictions are possible adverse effect on environment due to over-extraction of the medicinal plants, and the belief that it will enrage the Lepcha deity of such plants. This non-sharing attitude had been responsible of declination of this practice (Biswas and Chopra, 1982).

Another example of plant-based resource utilization can be seen in architecture and craftsmanship, where the use of bamboo and cane is frequent. Bamboo, which is called '*Po*' by Lepchas, is a very common plant that grows abundantly in the humid forests of Dzongu below 3500 m elevation. 22 varieties of Bamboo grow in Dzongu (Palit and Banerjee, 2016). Cane is called '*Ru*' by the Lepchas. Bamboo and cane, as obvious local building materials, are integrated into Lepcha livelihood and used in almost all spheres of their life; from large constructions like traditional Lepcha houses, bridges, rafts, agricultural implements, and water conduits to small utensils like water carriers, drinking vessels, containers, baskets, fishing rods and traps, bows and arrows— all are made with different varieties of bamboo (Roy, 2011). Although cane is collected from forests, the tribe believes in and practices the domestication of bamboo for better resource management (Lepcha et. al., 2012).

The structural framework of traditional Lepcha house '*Rong-Lee*' is built with bamboo. These houses are prime examples of Lepcha engineering skills and environmental knowledge. The houses

are earthquake and flood-resistant as they are built over a raised base of flat stone layers and wooden beams above them. Thatched bamboo is also used to build the roofs of the house, which keeps it air-conditioned during the cold months. The walls are made of thatch or cane. Traditionally, no iron nails are used in the making of these houses and all materials are local, renewable, and eco-friendly (Sharma et. al., 2014). Cane and bamboo are also used in the making of suspension bridges, with cane being the binding material and bamboo being the foot-base. These bridges, locally known as '*Ru-Saom*' are lightweight but durable and easily repairable (Roy, 2009).

Use of bamboo can also be seen in Lepcha dresses since the women use bamboo as the material for most of their ornaments. Lepcha men wear the '*Sumok-Thyaktuk*' or traditional Lepcha hat, which is made of bamboo and cane strings. The hat is a customary wearing during Lepcha festivals like 'Namsoong' (Lepcha New Year) and offering ceremony to Mt. Kanchenjunga (Lepcha et. al., 2012). For various types of garments, Lepchas used yarns spun out of nettle plants (*Urtica dioica*) in ancient times. Fibres of different textures were produced from various nettle species, which is completely bio-degradable, due to usage of plant-based colour on them. But with the immigration of Bhutias and beginning of trade relation between Lepchas and Bhutias, cotton and woolen yarn have gradually replaced nettle yarns as main weaving materials (Faulkner and Rama Mohan, 2021). At present nettle-fibre garments are mainly used as traditional wearing of festivals.

#### **Agricultural Traditions of Dzongu**

A substantial shift in ecological practice and forest dependency can be found in the sphere of economic activities among the Lepchas of Dzongu. Although those activities are still almost entirely primary and they do depend on bio-resources, the method and nature of those activities have changed under certain key determinants. According to literature, Lepchas have been hunter-gatherers collecting both plant-based and animal-based food from the forests they dwell (Hooker, 1890; Gorer, 1984). Fishing activities in local rivulets are also documented. Simultaneously, they have practiced shifting cultivation by cutting, clearing, and burning small patches of forests, which they call '*sudyomo*'. Lepchas were aware of the fact that 'slash and burn' cultivation does not retain the fertility of the land for a long period. Therefore, after using a piece of land for two consecutive seasons of cultivation, they used to leave that land for ten years, when the surrounding forest recaptured the land and the accumulation of organic matter recharged the soil fertility (Khaling and Lepcha, 2022). Since the population density of the Lepchas has historically been very low and the agricultural activity is completely community-based and subsistent, its impact on the environment was minimal (Bhasin, 1984). While they collect edibles like fruits, nuts, vegetables, roots, shoots, mushrooms, tubers, etc. from forests, various local landrace varieties of dry paddy, millet, buckwheat, maize, yams, sorghums, etc. were grown as staple food crops in shifting cultivation lands. A part of this subsistence farming was the rearing of livestock (mostly sheep, goat, and yak) which used to graze in the forests of the Dzongu valley. Since the livestock were fed on green leaves and grass, the excreta they provide were used as rich organic manures (Khaling and Lepcha, 2022).

Before 1890, shifting cultivation was the sole farming method practiced in Sikkim, including Dzongu. One of the main reasons of thriving of shifting cultivation was to eradicate land taxation policy of the monarchy of Sikkim, as tax used to increase every year for a permanent land ownership (Subba, 2009; Ali, 2017). Settled agriculture on permanent land holdings was introduced in Sikkim by the British colonial authority in 1897 after considering problems of tax collection and increasing agricultural productivity of lands (Subba, 1999). In the next hundred years, shifting cultivation of Sikkim gradually transited into settled terrace cultivation, which is called '*Singmo*' by the Lepchas (Khaling and Lepcha, 2022). The main reason of the rapid acceptance of terrace cultivation was the introduction of cash crops like large cardamom, ginger, mandarin orange, different exotic vegetables, pulses, oilseeds, etc. with a high market value in mid-1900s. Wet rice farming on terraces, brought by the Nepalese in Sikkim, has replaced landrace varieties as staple food crops. Specially cultivation of large cardamom brought quick cash to Lepchas and encouraged them to focus on intensive monoculture. In the same period, the population of Sikkim gradually increased. People started considering food crops grown in shifting cultivation lands as inferior and of low productivity (Uma et. al., 2014). Farmers were introduced to modern agricultural methods, horticulture, greenhouses, efficient tools, High Yielding Variety of seeds, herbicides, pesticides, etc. As Sikkim merged with India in 1975, the market-oriented agricultural activity intensified (Sharma et. al., 2000).

At present, shifting cultivation is practiced either as customary basis before cropping seasons and cultural festivals or in distant remote villages of Upper Dzongu, but not as the mainstream agricultural practice. For the past fifty years or so, most of the farmers of Dzongu had practicing terrace cultivation at their homesteads as major cultivation method and shifting cultivation at a relatively distant forest land as minor method for selected crops. Fruits, vegetables, cash crops some local cereals and wet paddy is cultivated in the larger parcels of land as terrace cultivation and garden farming (Kharel and Bhutia, 2013). HYV seeds, predominantly rice, are provided by the government and used for the cultivation of the main food crop to enhance productivity and income. For food crops, subsistent agricultural activity has now changed to market-based sources of diet, since rice and wheat are available through the public distribution system and animal-based foods can be bought from the local shops. Although horticulture and garden farming for various vegetables is still done on a subsistence basis by most of the households of Dzongu, they are not solely dependent on it. After the formation of Kanchenjunga National Park and Biosphere Reserve, the grazing activities were restricted and animal husbandry became more of a backyard economic activity, like horticulture, in the form of poultry and dairy. Sifting cultivation is also restricted to limited grounds (Tambe and Rawat, 2009).

This changed scenario of land use patterns, food habits and farming methods has induced some negative impact in the agro-biodiversity and productivity of Dzongu. The local landrace varieties of maize, dry paddy, millets, vegetables, yams, etc. which Lepchas started considering as inferior and of low productivity, are not only much nutritious in terms of food value but also less demanding in terms of soil fertility. Most of those crops are the distinctive features of

ecological productivity and agro-culture of Dzongu with the knowledge of cultivation only known by the Lepchas. Some of these crops are consumed as ritualistic practices in Lepcha festivals. Since the transition from traditional shifting cultivation to monoculture-based and market-oriented settled terrace cultivation began, cultivation of these landrace species are becoming out of practice, except by some progressive farmers (Khaling and Lepcha, 2022).

Secondly, it is a fact that grazing is a threat to the soil stability, forest cover, and biodiversity of any hilly region. But, since the very existence of the Lepchas was balanced with the natural ecosystem of Dzongu, the forests have regenerated themselves from the impact of shifting cultivation as well as grazing. With the present status of backyard animal husbandry, the animal excreta they use as fertilizers in their terrace cultivation land does not have enough organic content to renew the soil fertility (Tambe and Rawat, 2009). This is adversely affecting agricultural productivity in recent years. Yet, Lepchas of Dzongu prefer to depend on bio-resources for farming exclusively, thanks to their ancestral lineage and modern awareness regarding the impact of chemical fertilizers and pesticides (Sikkim Organic Mission, Govt. of Sikkim, 2019).

Ever since the forest dependency of the Lepchas has reduced in recent times, their ancestral knowledge regarding forest-based food resources such as edible varieties of shoots, roots, tubers, and mushrooms is gradually fading away. Young Lepchas are becoming unaware of different uses of bio-resources, such as a de-poisoning method of mushrooms and shoots, medicinal use of plants, natural soil fertility regain methods, bamboo and cane craftsmanship, etc. Often bio-resources are used unsustainably due to lack of knowledge. Needless to say, climate change keeps the alpine forest resources and biodiversity of Dzongu facing constant threat of extinction anyway (Chhetri et. al., 2012). Modern cultivation methods, influence of global economy and eco-tourism have undoubtedly enhanced their financial condition, but at the same time harmed their cultural-ecological distinctiveness.

### **External Influences since 1975**

During the colonial rule, Sikkim was a princely state of the British India. After the independence of 1947, it continued as a protectorate state of India, with the 'Chogyal' of Namgyal monarchy independently handling the internal affairs. This condition ceased to exist on 6<sup>th</sup> April 1975, as anti-royalist movements by local political parties broke out and, in an attempt, to establish peace and order, Indian Army took control of the capital Gangtok. On 16<sup>th</sup> May 1975, Sikkim officially joined the Union of India as its 22<sup>nd</sup> state. Sikkim is a developing state where the environment offers a large store of potential natural resources through limited accessibility due to the mountainous terrain. The urge of economic development was one of the key factors that led the people of Sikkim opt to join India through electoral methods development (Little, 2013).

In the first decade of the 21<sup>st</sup> century, Sikkim government sanctioned eight hydroelectricity projects over the river Teesta, involving the construction of large dams and altering the flow

pattern as well as the in-migration of workers within the Kanchenjunga National Park area of Dzongu. The decision left Lepchas threatened and feared that they will lose their lands and their cultural purity due to the obvious demographic and socio-economic changes, as it has happened in other places of Sikkim in past. This fear, together with the concern of damage and destruction of the natural environment due to construction, deforestation, displacement of people, alteration of flow regime, and pollution, led to the formation of a massive anti-dam movement by the Lepchas against the government, which took place between 2005 and 2009 and again from 2012 to 2021. Although laws like the declaration of Dzongu as Lepcha Reserve remained unchanged and became a part of the state's law, its effort to keep the purity and tranquility of the Lepcha land became secondary to the infrastructural and socio-economic development (Little, 2013).

Another impact of the inclusion is seen in the large cardamom production. A large cardamom plantation was started in Dzongu during the colonial era but picked up its pace after 1975. With ever-increasing accessibility due to the ongoing and completed roadway projects in the past few decades, the remote Lepcha villages of Dzongu are being connected to the global economy. During the second half of the 20<sup>th</sup> century, the plantation of large cardamom as a cash crop was the main economic reason of developing connectivity and interaction of the Lepchas with the outside world (Sharma et. al., 2000). In Dzongu and the areas surrounding Mangan in North Sikkim, only recently agricultural labourers started coming in larger numbers. The Lepcha villagers of the region were relatively poor, yet self-sufficient farmers engaged in subsistence type of agricultural practice, until they started to cultivate large cardamom as a cash crop for export to India and other places in the world (Ali, 2017). Cash crops eventually brought more cash in the hands of economically weak farmers. With this growing wealth came the opportunity for Lepcha farmers to employ Nepalese labourers to work on the land, especially on the cardamom fields, as well as to provide their own children with an education by sending them to school. As discussed earlier, the Nepalese played a crucial role in changing the cropping method from landrace-based subsistence shifting cultivation to permanent intensive terrace farming in Dzongu, by introducing wet-paddy as main food crop.

At present, most of the agricultural labourers working in Dzongu are of Nepalese ethnicity. Among them, there are both Indian Nepalese and Nepali citizens, who migrate to India in search of seasonal work. They enter Dzongu on the basis of legal permits, validated on the basis of attestation from the Lepcha employer. Nepalese and Lepchas, both being tribal community of the Eastern Himalayas, work and live together. Their social interactions result in the exchange of culture. Often marriages take place between Nepalese and Lepchas, but such marriages are not welcomed among the Lepchas of Dzongu irrespective of the fact whether the bride or the groom is a Lepcha. If a Lepcha woman weds a Nepalese man, in order to prevent the ownership to a non-Lepcha in future, she loses her right to the land of Dzongu. If a Lepcha man weds a Nepalese woman, there are possibilities that the child would prioritize the mother's language over the father's (Bently, 2007).

### Development *versus* Sustainability

Several factors kept Lepchas united and reunited time and again. The foundation of their unity lies in their belief itself. Belief, a common mindset shared by a large group of people that makes them act as one, is a major constituent of culture. Land, the land of Dzongu in particular, is of utmost importance to them (Ghoshal, 1990). Three different facets of Lepcha belief have merged to give land such importance that it almost symbolizes the very existence of Lepcha people. Firstly, Lepcha mythology tells us that the first Lepcha man – *Fadongthing* and the first Lepcha woman – *Nuzaongnyoo* were created from the snow of the mount Kanchenjunga by Mother Nature, who also created *Mayel Lyang* and sent them there to live and prosper. *Mayel Lyang* refers to the south-eastern valley of Kanchenjunga where Dzongu is located (Foning, 1987). Whether living in Dzongu or outside of it, the valley is the holy land of all Lepchas. This brings us to the second belief of environmental sustainability. As mentioned before, not only do the Lepchas depend on the natural resources of Dzongu, like the water of the rivers, the soil of the valley, the plants as sources of food and medicine, and bamboo as building material; but they also believe the existence of soul or spirit in all those elements and worship them. This belief has made traditional Lepcha lives subsistence but self-sustaining and part of the natural ecosystem of Dzongu.

These two beliefs have given birth to the third, and the very idea of Lepcha identity. Dzongu, with all its socio-cultural and environmental aspects, is the core of what Lepchas consider that make them Lepchas. To protect their cultural identity, Dzongu was declared a Lepcha reserve. They believe if the cultural and ecological purity of Dzongu is disturbed and damaged, it will eventually lead to the end of their existence (Purkayastha, 2013). Therefore, any type of large-scale socio-economic activities, designed or conducted by non-Lepcha people that directly or indirectly involve the land of Dzongu, are unwelcomed by the Lepchas. On the other hand, all the measures that have the potential to sustain, to promote or to revive Lepcha culture are wholeheartedly supported by them. Although the reserve status is still intact, its strictness is compromised in this era of economic globalization. In a large developing country with huge population pressure and market influence, marginal communities, their values and their environmental concerns are often risked in the name of development. Dzongu has been witnessing such scenarios as well, with Lepchas making efforts to oppose and check them to save their heartland (Bently, 2011). The prime example of this effort is the protest against the Teesta Hydropower projects (Little, 2008).

Being a small mountainous north-east state, Sikkim is still at its initial stage in terms of modern infrastructure. The state and the union governments policies emphasize on the development of connectivity, tourism industry and power generation in Sikkim not only to uplift the socio-economic status of its people, but also to strengthen its geostrategic position between three neighbouring countries – i.e. Nepal, Bhutan and China. Sikkim is blessed with many swift flowing perennial streams that have high potential for harnessing hydroelectricity. By focusing on the

fact that hydropower development is a key stepping-stone of infrastructural and economic development, the state is inviting both public and private sectors to develop such projects. The development of hydro power project boosted up since the launch of Hydro Power Development Policy by the Ministry of Power of Indian Government in 1998, The Sikkim Power Development Corporation Limited (SPDCL) in the same year and Sikkim Hydro Committee in 2004. Prior to it, a survey report published in 1974 assessed the potential hydroelectricity generation of the state to be 8000 MW; and for this purpose, the damming of Teesta should be done in six stages i.e. Teesta-I to Teesta VI (Dahal, 2008). The tributaries of Teesta, such as Lachen, Rangyong, Tholung, Rangpo, Rangit etc. are also to be used for hydroelectricity generation (Purkayastha, 2013).

By 2007, SPDCL granted permission to 27 hydro-power projects, which were to be built and run under The National Hydroelectricity Power Corporation Limited (NHPC), Independent Power Producer (IPP) and Joint venture modes (Syed and Dutta, 2012). Out of these, eight projects with combined capacity of around 2500 MW, including Teesta stage III (1200 MW), IV and V and projects located in Panan, Rangyong, Rukel, Ringpi and Lingzah are situated completely within the valley of Dzongu or at its vicinity (as Dzongu is bordered by Teesta from east and south-east). Panan, Rangyong, Rukel, Ringpi and Lingzah are planned to harness Tholung 'chu' and Rangyong 'chu', the two tributaries of Teesta that drain the Dzongu valley. Moreover, the projects are located within the vicinity of the Kanchenjunga National Park and Biosphere Reserve (Rahman and Mamun, 2020). Moreover, Panan project under Teesta stage IV would occupy the sacred natural sites, like Kagey Lha-Tso Lake and the hot-springs of Jhe-Tsa-Tsu and Kong Tsa-Tsu, which are of medicinal importance for the Lepcha people (Purkayastha, 2013).

Lepchas, who have been losing their lands and culture to in-migrating communities for centuries, and who happen to worship the very natural environment of Dzongu knew what price they were going to pay if those hydro-power projects became a reality. At the very beginning, large scale anthropogenic activities surrounding the construction of the power projects will trigger many-fold environmental problems in Dzongu e.g. alteration of flow regime, hindrance of water and sediment transport and siltation of the riverbeds. A mountainous course like Teesta and its tributaries, located in high rainfall zone with a number of glacial lakes at the source will eventually lead to flash flood events in the monsoons, which are common in the Himalayan rivers (Mandal and Chakrabarty, 2016). Deforestation due to expansion of roads and built-up areas will make the riverbanks more prone to erosion and landslides, which will eventually increase the magnitudes of flash floods. In case of such events, the existing villages on the hill-slopes might be completely washed away causing great loss of resources and lives. Secondly, as the crustal stability of the entire Himalayan region including the whole state of Sikkim is very poor and falls under the high seismic zone (Zone IV, after Bureau of Indian Standards), heavy constructions like dams, multistoried buildings, tunnels etc. will cause crustal tension and make the area more vulnerable to earthquakes, as it was experienced in 2011 (Lepcha, 2021). Thirdly, an induced rate of anthropogenic activities will cause pollutions of all kind and will generate greater number of wastes. The traditional self-sustaining Lepcha lifestyle, a part of the ecosystem of Dzongu, which also

shelters several types of endemic flora and fauna; pollution and habitat loss will increase the threat of extinction of these species and damage the overall biodiversity of the Kanchenjunga National Park and Biosphere Reserve.

Alongside the environmental impacts, Lepchas of Dzongu Reserve area will face a greater degree of multidimensional socio-politico-cultural stress, as they are already witnessing to some extent, which will lead to class and ethnic conflicts. As the project will progress, more people of different ethnicity & cultures and language groups will in-migrate to Dzongu; and the outsiders are neither bound to worship the very environment of Dzongu, nor to adapt the Lepcha traditional lifestyle rather to incorporate different value systems not in conformity with this area. Throughout their history, the Lepchas have witnessed the impact of invasive language, culture, social order and economic practice in their land of Darjeeling-Sikkim Himalayas, that have forced them into the status of minority with the minimum hold of political influence (Foning, 1987). In Dzongu, their last stand, they fear that the hydro-power projects will invite outside people, and if the population of Nepalese origin” already the largest ethno-language group of Sikkim, and people from other states of India, increases in Dzongu “ they will influence the decision-making system of the Lepcha-land. The influence of culture associated with Hinduism and Christianity will increase and so will the non-Lepcha languages. With time, the Lepcha language, their eco-centric cultural practices and Bonthing-Buddhism values, based on the respect to natural environment, will gradually fade away towards extinction. Instead of subsistence organic farming style, more market-oriented economic practices will take place, leading to drastic change in the land-use pattern. The combined effect of all these changes, reserve status of Dzongu valley, will become insignificant and so will their right of deciding what the best is for them and their own land.

Driving by these factors, the Lepchas, both of Dzongu and outside of it, formed a movement to stop the proposed hydro power projects. The movement formally started in 2005, with the formation of a resistant group of protesters called the ‘Affected Citizens of Teesta’ (ACT). Although the protestors were mainly Lepchas, they received support of other ethnic groups of Sikkim, like Bhutias and Limbus. Soon, other Lepcha associations such as ‘Concerned Lepchas of Sikkim’ (CLOS), ‘Sangha of Dzongu’ (SOD), etc. were established to support this cause and also to promote Lepcha heritage, culture, and knowledge of the environment. Interestingly many of these organizations were based in Gangtok and managed by young Lepchas who had received modern education (Bently, 2007). As the Sikkim government progressed with their planning of the hydel-power projects in and around Dzongu, ACT and fellow associations kept organizing protests, rallies, demonstrations, and awareness campaigns against it. Inspired by the Gandhian ideology of ‘Satyagraha’, the nature of these protests was peaceful and positive (Little, 2008).

The Lepcha Anti-Dam Movement and protest reached its peak in June of 2007, when members of ACT and CLOS gathered on Tibet Road, just outside the capital of Gangtok, and went on an indefinite hunger strike, declaring that their hunger strike and protest would continue till all the hydro power projects proposed for Dzongu were stopped and other projects in North Sikkim are

reviewed (Wangchuk, 2007). The hunger strike was broken by the government's interference, but restarted again by the protestors. From 2007 to 2009, a relay of hunger strike was conducted by the members of ACT and CLOS. Finally in 2009, the hunger strike was ended when the state government of Sikkim with a written declaration to scrap four out of five hydroelectricity projects as they were located inside the land of Kanchenjunga National Park in Dzongu (Little, 2013).

Many contrasting opinions were surfaced and debated surrounding the two-year long Anti-Dam protest of the Lepchas. For the young members of ACT, CLOS and Lepchas of Dzongu, and of other places of Sikkim and West Bengal, it was a collective effort to save their land, environment, language, ethno-cultural identity, and overall rights, which was formed as a joint outcome of fear and deprivation along with elevated self-perception and awareness due to modern education. For the state government of Sikkim, the movement and hunger strikes were political acts and interests of a single community against the overall infrastructural and economic development of the state and its people. The section of the Lepcha population who sold their lands for the projects, the movement threatened the land accusation process and brought them in the horns of a dilemma— whether to choose their self-interest or the collective interests of their community. Those who supported the hydro-power projects, it was a breakthrough in the process of development and modernization of the backward regions of Sikkim. They started a pro-dam movement in favour of the projects, demanding termination of Dzongu's 'reserve' status for social and economic development. Those who supported as outsiders, it was a local protest with global theme, a battle between indigenous rights of land and environment against the conventional large-scale development and capital flow (Little, 2013).

Protesting Lepchas knew that to gain support for the demand for cancellation of the hydro-power projects in Dzongu as well as to strengthen the non-agricultural economic activities in the valley, they had to come up with a more logical, sustainable, and less capital-intensive alternative. During the movement, Dzongu and its Lepchas received global exposure with people, tourists, researchers, and journalists covering the movement in Dzongu. It was the beginning phase of the expansion of the social media platforms. Ever-expanding industry of tourism gradually became familiar with this picturesque valley, and the Lepchas of Dzongu discovered their alternative in the form of eco-tourism and home-stay industry. The first homestay was opened in the village of Hee-Gyanthang in 2009 (Lepcha, 2021). Other villages such as Lingthem, Tingbong, Lingdem, Sakyong-Pentong soon came up with such homestays. The monasteries, lakes, hot springs, trek-routes, and the Lepcha village life of Dzongu became favoured tourist attractions-cum-destinations.

Later on, several events have occurred in and around Dzongu that supported the prediction of man-induced environmental hazards as pointed out by the protesting Lepchas. In 2007, the Carrying Capacity Report of the Teesta basin was published by the Centre for Interdisciplinary Studies of Mountain and Hill Environment (CISMHE), which declared that some of the hydro-electricity projects located in Dzongu are environmentally not advisable. The Sikkim earthquake of 2011 was also a sign that the structure and lithology of Dzongu and surrounding region of

North Sikkim (Mangan district) are not suitable for large hydropower projects (Syed and Dutta, 2012). The Sikkim government only scrapped 4 projects, but the Panan project located within Dzongu was reviewed and permitted, despite facing constant opposition from the Lepchas of Dzongu (Lepcha, 2023). The project is currently under construction and expected to be operational in 2026. Other dams located on the Teesta, at the border of Dzongu, were also given the green signal, and currently, both the Dikchu project (stage V) and Chungthang project (stage III) have completed damming and regulating the flow (Rahaman and Mamun, 2020). Reduction of crop production, accelerated rate of landslides, development of cracks due to blasting, drying up of perennial streams, etc. are being reported around these construction sites (Bhasin, 2011; Purkayastha, 2013). Lepcha protests organized by ACT and CLOS have been resumed since 2021. In the North Sikkim flash flood of October 2023, the built-up areas on the banks of Sikkim were heavily damaged and great loss of human lives took place. The flash flood washed away the Teesta Stage III dam, located in Chungthang (Giri, 2023).

### **Re-orientation of the Lepcha Youth**

When comes the question of higher education, Lepcha interest of protecting their cultural facets faces a dilemma. The nearest high school is located in Mangan town, the district headquarters positioned outside of Dzongu. The nearest general degree college is located in Gangtok, the capital city of Sikkim located at a road distance of 70km from the valley. They are aware of the fact that to receive a collegiate education, a Lepcha student has to leave the land of Dzongu and travel to Gangtok at least, if not to larger cities such as Darjeeling, Siliguri, Guwahati, Kolkata, or elsewhere. Both the factors of modern education and cities are seen as evidence of modern lifestyle and the opposite of culture and tradition. Lepcha villagers fear that due to the exposure to other cultures, the essential elements of Lepcha culture and values will gradually erode from the lifestyle of younger generations. Moreover, Lepcha youth will reside permanently in large cities for the sake of better occupational opportunities. Physical distance between the generations will lead to socio-cultural and traditional detachment, and Lepcha youth will eventually lose their indigenous eco-centric knowledge and values (Bently, 2007).

Despite the reality of the abovementioned concern, the fact cannot be denied that education is very essential for any ethnic group for the sake of understanding the importance of their own identity and preservation of their knowledge, culture, and language. Educated Lepchas have been demanding their rights as native aborigines, practicing and promoting their traditions and language; and they are protecting their natural environment and constructively criticizing disputed development policies like the hydro-power project. The Lepcha youths, living outside Dzongu, are making effort for getting familiar with their culture. Lepchas, both in Sikkim including Dzongu, and in the Darjiling-Kalimpong region of West Bengal are uniting by forming associations to serve these purposes. Social media platforms have been key elements in connecting and uniting Lepchas and creating awareness for a cultural revival (Lepcha, 2013). Residing in large cities like Gangtok,

the educated youth have better access as well as exposure to media, public and government officials, which help in understating the decision-making system in their favour (Bently, 2007).

So, it is evident that, after Sikkim's inclusion in India, the process of globalization and modernization was slowly making its way into the traditional Lepcha lives, through which external culture, mainstream education, and the urge for a better standard of living were slowly attracting Lepcha youth to shift elsewhere, as it happened to most of the rural and economically backward areas. Many of these youths were the first generation of educated people from their villages. This transition was more natural than forced, and it reflects itself on the census data of Sikkim with a gradually decreasing Lepcha population. But, when the government of Sikkim planned to install the hydro-power projects, the threat of losing their cultural identity and their land gave them the alarm call. After that, it was the Lepcha youth—enlightened with the knowledge by mainstream higher education, aware of their political rights as Indian citizens and also a primitive tribe, and concerned with the value of their culture in protecting and sustaining the natural environment—have raised their voices against the government's hurried decision of damming the Teesta in Dzongu. As a part of the anti-dam movement, a renaissance of Lepchas occurred, as the youths from outside of Dzongu (mostly from Gangtok, Darjeeling, and Kalimpong), barely speaking Lepcha language and unaware of their religious traditions and logic behind them, started taking efforts to reconnect with their root. They were guided by the elders and studied Lepcha literature. Debates and awareness campaigns organized by the protesters played a key role in reawakening and expanding Lepcha belongingness among the youth (Little, 2013). In economic spheres too, Lepcha youths are setting up examples by putting eco-centric responsibilities ahead of profit-making, by sticking to organic method of farming and making sure that the nature of eco-tourism in Dzongu does not transform into mass tourism.

In 2007, when the protest against the hydro-power projects in Dzongu was at its peak and attracting many Lepchas to the site of movement, a group of Lepcha youths, Christian by religion, from Kalimpong, made a pilgrimage to Dzongu in search for their ancestral root. During the pilgrimage, they re-converted themselves to Bongthing-Buddhism by giving up their Christian names and beliefs in order to regain access to Lepcha community and culture (Bently, 2011). The movement not only made Lepchas from different places unite for one common cause but also became a motivation for young Lepchas to re-establish their native cultural identity.

## **Conclusion**

The Lepcha strive for reviving, protecting and strengthening their unique environmental relation and belief is not to be thought as an isolated story. The National Environmental Policy of India (MoEF, Government of India) was re-formulated in 2006, ironically when Lepcha anti-dam movement started accelerating its pace. To protect the mountain ecosystem, the policy emphasized measures like—encouraging the cultivation of traditional varieties of crops and horticulture by promoting organic farming; promoting sustainable, eco-friendly, and responsible tourism; promoting

livelihood for local communities through the creation of access to ecological resources and considering mountainscapes as entities with 'incomparable values'. With these proposals, the policy hallmarked the Lepcha way of life in Dzongu and the environmental perspective as essential for the sustainability of the Himalayan ecosystem.

In 2007, The General Assembly of the United Nations, after the recommendation of the Human Rights Council, adopted the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). The Article 8, Article 14, Article 18-20, Article 23-25, Article 29, and Article 31 of UNDRIP state that it is extremely important for the protection and preservation of the distinct identity of indigenous communities that they, by their right, practice their cultural tradition and language; take part in the decision-making procedures that would affect them in future; maintain their socio-politico-economic systems and activities; follow their own set of development strategies; utilize and protect their medicinal plants, seeds, flora and fauna, mineral and overall environment; maintain their spiritual relationship with their land and maintain, control and protect their cultural heritage, traditional knowledge and literatures. The declaration also advised all nations to undertake effective policies that go harmoniously with the rights of their indigenous population. In case of the Lepchas of Dzongu, the government and its policy-makers did not go directly against UNDRIP violating the Lepcha rights as indigenous tribes. But the turn of events and present status of Dzongu regarding the matter of hydro power projects do clearly indicate negligence and derogation of indigenous rights.

Finally, a holistic approach for the conservation of the Himalayan environment was initiated by the Indian government in 2010 in the name of 'National Mission for Sustaining the Himalayan Ecosystem' (NMSHE), a part of the 'National Action Plan on Climate Change'. All five interrelated and interdependent issues it aimed to address were more or less visible in Dzongu. These are– (i) Himalayan glaciers and the associated hydrological concern; (ii) Biodiversity conservation and protection; (iii) Wildlife conservation and protection, (iv) Traditional knowledge societies and their livelihood; and (v) Planning for sustaining the Himalayan ecosystem. The NMSHE recognized the role of the indigenous knowledge system in balancing conservation and development in the sensitive Himalayan landscape. Focusing on that fact, the mission particularly advised on enhancing human and knowledge capacities with the help of hill communities and stakeholders.

In its Report on 'Sustainable Tourism in the Indian Himalayan Region' published in 2018, the NITI Aayog advocated that the role of responsible eco-tourism is instrumental for economic development and employment generation in remote and backward regions of the Himalayas since large scale development activities could cause harmful effects on the natural environment of the Himalayas by contributing in issues such as climate change, deforestation, landslides, flash floods, earthquakes, etc. Moreover, mountain-specific tourism is included in targets of the Sustainable Development Goal 8 (sustained inclusive, and sustainable economic growth) and 12 (ensure sustainable consumption and production patterns) of the UN, and also instrumental in the fulfillment of SDG 11 (sustainable cities and communities) through efforts of protecting cultural

and natural heritages. Long-term eco-tourism must replace the present mainstream mass tourism in order to protect Himalayan biodiversity, natural resource and ecosystem services.

At this point, the question is inevitable to be raised: if the cultural-ecological practice of the Lepchas of Dzongu is on par with the national and international level policies which quote this practice not only as essential, but the only scientific method for the sustainability of fragile Himalayan ecosystem, then why Lepchas, as native tribes of Dzongu valley of North Sikkim, have been struggling to sustain their ethno-cultural identity by protecting their land and environment against large-scale development approach already proven unscientific and harmful?

In the light of the recent scenario of Dzongu, the gap between the policies regarding the conservation of biodiversity and natural environment, protection of tribal knowledge and culture and exercising rights of indigenous communities and their actual implementation in real world are evidentially profound. It is also a fact that Sikkim being a developing state with physiographical limitations and having an international boundary, the policy-makers will always try to overshadow environmental and eco-centric development perspectives with mainstream large-scale infrastructural development favouring more economically productive land-use. Throughout the history, in different parts of the world, indigenous tribal communities have been paying the price of states' economic and geopolitical interests on which governments lay more importance than environmental sustainability. Moreover, the recent concern over the identity and importance of Lepcha-environment relationship is yet to revive them completely from the century-long negligence and cultural shift they suffer, both from within and outside. For a holistic, sustainable and balanced development of the Lepchas and other ethnic communities of Sikkim as part of a delicate Himalayan ecosystem, the ethnic groups must be empowered with modern education combined with their traditional knowledge and value systems. The development approach should be less materialistic but more eco-centric, knowledge-based and culturally rooted.

## References

- Ali, B. (2017). *A review of agrarian relations and changes in state Sikkim, India*. International Research Journal of Social Sciences. Vol -6(8). Pp. 59–62.
- Badola, H. K., & Pal, M. (2003). *Threatened medicinal plants and their conservation in Himachal Himalaya*. Indian Forester. Vol-129. Pp. 55-68.
- Banerjee, A. (2024). *Eco-Anthropological Approach to Select Lepcha Folklore: A Study*. Journal of the Department of English. Vidyasagar University Publication Division. Midnapore. Vol-17. Pp. 25-35.
- Bently, J. (2007). 'Vanishing Lepcha': *Change and Cultural Revival in a Mountain Community of Sikkim*. Bulletin of Tibetology, Vol 43. Pp 59-79.
- Bentley, J. (2011). *Ambivalence of change: Education, eroding culture, and revival among the Lepchas of Sikkim*, In McKay, A., & Balikci-Denjongpa, A. (Ed.), *Buddhist Himalaya: Studies in Religion, History and Culture*. Proceedings of the Golden Jubilee Conference of the Namgyal Institute of Tibetology, Vol-2, pp-179-189.

- Bhasin, M. K., Kumar, V. and Sehgal, A. (1984). *Impact of human activities on the ecosystem and vice-versa with reference to the Sikkim-Himalaya MAB (Man and Biosphere) Programme, UNESCO*. Mountain Research and Development. Vol-4. Pp. 267–271.
- Bhasin, V. (2011). *Settlements and land-use patterns in the Lepcha Reserve-Dzongu zone in the Sikkim Himalaya, India*. Journal of Biodiversity, Vol-2(1): pp. 41–66.
- Biswas, K., & Chopra, R. N. (1982): Common medicinal Plants of Darjeeling and Sikkim Himalayas. Periodical Experts Book Agency (Re-printed).
- Chattopadhyay, T. (1990). *Lepchas and Their Heritage*. B.R. Publishing Corporation.
- Chaube, S. K. (1987). *Ethnicity and Politics in Sikkim*. In, Raha, M. K. (Ed.). The Himalayan Heritage. Gian Publishing House. Pp. 61-73.
- Chettri, N., Shakya, B., Lepcha, R., Chettri, R., Rai, K. R., & Sharma, E. (2012). *Understanding the Linkages: Climate Change and Biodiversity in the Kangchenjunga Landscape*. In, Arrawatia, M. L., & Tambe, S. (Ed.). Climate Change in Sikkim: Patterns, Impacts and Initiatives. Information and Public Relations Dept. Govt. of Sikkim. Pp. 161-178.
- Choudhury, M. (2007). *The Rights of indigenous tribes and threat perception of the Lepchas of Sikkim*. In, Ali, N. (Ed). National Resource Management and Sustainable Development. Mittal Pub. Pp 33-44.
- Dahal, M. (2008). *Sikkim's Initiatives in Hydropower*. Hydro Nepal. Vol- 3.
- Das, A. K. (1978). *The Lepchas of West Bengal*. Calcutta Edition Indians.
- Department of Science and Technology, Government of India. (2010). *National Mission for Sustaining the Himalayan Eco-System: under National Action Plan on Climate Change*.
- Dhungel, T. P. (2021). *History of Agricultural Development in Sikkim*. International Journal of Research Publication and Reviews. Vol-2(1). pp 960-970.
- Faulkner, S., & Rama Mohan, K. R. (2021). *Mayel Lyang Embodied: "Traditional" and Contemporary Lepcha Textiles*. Himalaya. Vol-40(2). Pp. 97-107.
- Foning, A. R. (1987). *Lepcha, My Vanishing Tribe*. Sterling Publishers Pvt. Ltd. New Delhi.
- Ghoshal, S. (1990). *The Lepchas of Darjeeling and Sikkim: A Study in Cultural Ecology and Social Change* [Doctoral Thesis, University of North Bengal]. INFLIBNET Centre. <http://hdl.handle.net/10603/137479>
- Giri, P. (2023, October 05) 'Sikkim disaster: 1,200 MW project dam washed away'. Hindustan Times. <https://www.hindustantimes.com/india-news/sikkim-disaster-1-200-mw-project-dam-washed-away-101696446796387.html>
- Gorer, G. (1984). *The Lepchas of Sikkim*. Cultural Publishing House. New Delhi.
- Govt. of India & Govt. of Sikkim (2016). *Power For All (PFA) Roadmap Document – A joint initiative*. Deloitte.
- Gowloog, R. (1991). *Lihgthem after Fifty Years: A Diachronic Study of a Lepcha Village in Dzongu, North Sikkim* [Doctoral Thesis, University of North Bengal]. Institutional Repository NBU. <http://ir.nbu.ac.in/handle/123456789/140>
- Hooker, J. D. (1890): *Himalayan Journal: Or, Notes of a Naturalist in Bengal, The Sikkim and Nepal Himalayas, The Khasia Mountains, &c*. The Grand Colosseum Warehouse Co. Glasgow.

- Jana, S. K. & Chauhan., A. S. (2000). *Ethnobiological studies on Lepchas of Dzongu, North Sikkim, India*. Annals of Forestry. Vol-8(1). Pp. 131–144.
- Khaling, S., & Lepcha, P.Y. (2022). *Shifting to Settled Agriculture: Experiences from Dzongu Valley, North Sikkim, India*. In Shaw, A. K., Natori, Y., & Edake, S. (Ed.), *A Tradition in Transition: Understanding the Role of Shifting Cultivation for Sustainable Development of Northeast India*. TERI Press. Pp 246-271.
- Kharel, S. & Bhutia. W. J. (2013). *Gazetteer of Sikkim*. Home Department, Government of Sikkim
- Lepcha, C. K. (2013). *Religion, Culture, and Identity: A Comparative Study on the Lepchas of Dzongu, Kalimpong, and Ilam* [Doctoral Thesis, North-Eastern Hill University]. INFLIBNET Centre.<http://hdl.handle.net/10603/169486>
- Lepcha, M. (2023, November 27). ‘A Rich Historic Ecosystem and the Lepcha Community’. *Revolve*. <https://revolve.media/features/history-lepcha-ecosystem>
- Lepcha, R. (2021). *Hydro Power Projects Induced Conflict: A Study of Lepcha Community of Dzongu*. International Journal of Research in Engineering, Science and Management. Vol-4(1). Pp 72-81.
- Lepcha, S. R., Gurung, R., & Arrawatia, M. L. (2012): *Traditional Lepcha craft Sumok-Thyaktuk (Lepcha Hat) and its conservation in Dzongu Tribal Reserved Area (DTRA), Sikkim, India*. Indian Journal of Traditional Knowledge. Vol. 11(3). Pp. 537-541.
- Little, K. (2008). *Lepcha Narratives of Their Threatened Sacred Landscapes*. Transforming Cultures E journal, Vol-3(1).
- Little, K. (2013). *Stories of the Lepcha: Narratives from a Contested Land* [Doctoral Thesis, The University of Technology, Sydney].
- Mandal, S.P., Chakrabarty, A. (2016). *Flash flood risk assessment for upper Teesta River basin: using the hydrological modeling system (HEC-HMS) software*. In, Islam, M. N., & Aherne, J.(Ed.). *Modelling Earth Systems and Environment*. Springer. Vol-2.
- Ministry of Environment, Forest and Climate Change, Government of India. (2006). *National Environment Policy*, 2006.
- Morris, J. (1938). *Living with Lepchas: A book about the Sikkim Himalayas*. Heinemann.
- NITI Aayog, Government of India. (2018). *Sustainable Tourism in the Indian Himalaya Region: Report of Working Group II*.
- Office of the Registrar General & Census Commissioner, India. Population Census 2011. Table PCA: Primary Census Abstract C.D. Block wise, Sikkim - District North District – 2011.
- Palit, D. & Banerjee, A. (2016): *Traditional Uses and Conservative Lifestyle of Lepcha Tribe Through Sustainable Bioresource Utilization – Case Studies from Darjeeling and North Sikkim, India*. International Journal of Conservation Science. Vol-7(3). Pp. 735-752.
- Pradhan, B. K., & Badola, H. K. (2008): *Ethnomedicinal plant use by Lepcha tribe of Dzongu valley, bordering Khangchendzonga Biosphere Reserve, in North Sikkim, India*. Journal of Ethnobiology and Ethnomedicine. Vol-4(22).
- Purkayastha, S. (2013). ‘*Hydro Power Development and the Lepchas: A case study of the Dzongu in Sikkim, India*’. International Research journal of Social Sciences. Vol. 2(8). Pp. 19-24.
- Rahman, M. M., & Mamun, A.A. (2020). *Hydropower development along Teesta River basin: opportunities for cooperation*. Water Policy. Vol. 22(4). Pp. 641-657.

- Roy, D.C. (2009). *'Lepchas: Then and Now'*. Pano Gaeboo Aachyok 2009: A Lepcha Bilingual Magazine: p.15-27.
- Roy, D.C. (2011). *'Lepcha-Nature Relation'*. Aachuley, A Bilingual Journal Illustrating the Lepcha Way of Life.
- Sharma, T. P., Dahal, S. & Borthakur, S. K. (2014). *Bamboos diversity and its utilization among the Lepcha tribe of Dzongu valley, Sikkim, India*. Journal of Non-Timber Forest Products. Vol-21(3). Pp.163–166.
- Sharma, E., Sharma, R., Singh, K. K. & Sharma, G. (2000). *A boon for mountain populations*. Mountain Research and Development, 20(2). Pp. 108–111.
- Siiger, H. (1967). *The Lepchas: Culture and Religion of a Himalayan People. Part I: Results of Anthropological Field Work in Sikkim, Kalimpong and Git*. The National Museum of Denmark.
- Sikkim Organic Mission, Government of Sikkim. (2019). *Organic Farming in Sikkim as a Strategy for Sustaining Ecosystem Service and Livelihoods*.
- Subba, J. R. (1999). *Limboos of the Eastern Himalayas: With Special Reference to Sikkim*. Sikkim Yakthung Mundhum Saplopa. Gangtok, Sikkim
- Subba, J. R. (2009). *Indigenous knowledge on bio-resources management for livelihood of the people of Sikkim*. Indian Journal of Traditional Knowledge. 8(1). Pp. 56–64
- Subba, T. B. (1988). *Interethnic relationship in northeast India and the "Negative Solidarity" thesis*. Human Science. Vol-37: p. 369-377.
- Syed, A., & Dutta, S. (2012, May 11). *'Rs 20,000 crore Hydropower Scam in Sikkim; State Govt in cahoots with Pvt Players'*. *Current News*. Gangtok. [http://www.siblac.org/doc/Syed\\_Dutta\\_Scam\\_in\\_Sikkim.pdf](http://www.siblac.org/doc/Syed_Dutta_Scam_in_Sikkim.pdf)
- Tambe, S. & Rawat, G. S. (2009). *Ecology, economics, and equity of the pastoral systems in the Khangchendzonga National Park, Sikkim Himalaya, India*. Ambio. Vol-38. Pp. 95–100.
- Thapa, S. (2022). *Ethnicity and protective policies in Sikkim: Consolidation and reconfiguration*. Contributions to Indian Sociology. Vol-56(1). Pp. 63-87.
- The Sikkim (Re-organization of Districts) Act, 2021 (Act No. 15 of 2021), Law and Parliamentary Affairs Department, Government of Sikkim, p. 9.
- Torri, D. (2010). *In the shadow of the devil: Traditional patterns of Lepcha culture reinterpreted*. In F. Ferrari (Ed.), *Health and Religious Rituals in South Asia. Disease, Possession and Healing* (1<sup>st</sup> ed., p. 149-165). Routledge.
- Uma, P., Ghanashyam, S., Gurung, M. B. Nakul, C., & Eklabya, S. (2014). *Large cardamom farming in changing climatic and socioeconomic conditions in the Sikkim Himalayas*. ICIMOD Working Paper, 2014/2.
- United Nations (2007). United Nations Declaration on the Rights of Indigenous Peoples.
- Wangchuk, P. (2007). *Lepchas and their Hydel Protest*. Bulletin of Tibetology. Vol-43 (1&2)