

Buddhist Practice of Environment and Biodiversity Conservation in North East India

Abstract

Buddhism has played an inimitable role in North East India, particularly in Arunachal Pradesh and Sikkim which is well reflected in conserving environment and biodiversity. These two states are very rich in sacred groves culture, a traditional way of biodiversity conservation. The sacredness, religious culture, belief and taboos play a significant role in promoting conservation and sustainable utilization of biodiversity of these regions. Lord Buddha's teachings are more relevant today than they were about 2500 years back. In this paper an attempt is made to study the role of Buddhist Sacred Groove on Biodiversity Conservation in Arunachal Pradesh and Sikkim.

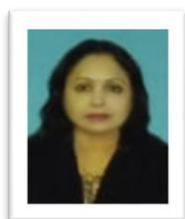
Keywords: Buddhism, Arunachal Pradesh, Sikkim, Environment And Biodiversity Conservation, Sacred Groves.

Introduction

Environmental protection is one of the urgent problems facing mankind today. It is ironic that man is the one who pollutes his own health, and kill the life of all beings in this Earth. The risk threatening our ecology is not minor. It leads to many measures to prevent or minimize the pollution, of world-wide scale. The awareness of protecting life and living environment has been generated in recent time. However, in Buddhism, it is one of the main basic laws which was set out by the Buddha some 25 centuries ago for his students to follow (Quang,1996). The Buddha manifested a complete compassion and is respectfully seen as the compassionate protector of all beings. He taught that for those who wishes to follow his Path should practice loving-kindness, not to harm the life of all beings, not only to protect mankind, but also to protect animals and vegetation (Quang,1996).

The state of Arunachal Pradesh in the Northeast region of India is known for its rich biodiversity and is the largest state of the region, sharing international boundaries with Bhutan, China, and Myanmar. It lies between 26°28' to 29°30' N latitude and 91°30' to 97°30' E longitude having geographical area 83,743 sq km which constitutes 2.54% of the area of the country. Around thirteen percent people of the of Arunachal Pradesh follow Buddhism in both Mahayana and Theravada form and some has come under Buddhist influence. Buddhism has played an unique role in Arunachal Pradesh, which is well reflected in conserving Biodiversity of Arunachal Pradesh. Sikkim, the second smallest state of India, located in the north eastern part of the country, in the eastern Himalayas. It lies between 27° 5' and 28° 10' North latitudes and between 88° 4' and 88° 58', barely 114 km long and 64km wide and measuring only about 7096 sq km in area sharing international boundaries with the Tibet Autonomous Region of China to the north and northeast, Bhutan to the southeast, Indian state of West Bengal to the south, and Nepal to the west. Nestling in the Himalayan mountains, the state of Sikkim is characterized by mountainous terrain. Prior to the advent of modern education the Buddhist monasteries played an important role in imparting knowledge and basic social education. The Monks encourage communities to protect the environment and even use their status to ensure protection for certain areas. Even Buddhist laypeople may play a role by performing environmentally friendly acts to gain merit.

Besides a number of formal protected areas in the region the two states are very rich in Sacred groves (SGs) culture, a traditional way of biodiversity conservation. They are the repositories of economical, medicinal, rare, threatened and endemic species and can be regarded as the remnant of the primary forests left untouched/undisturbed by the local



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inhabitants and protected by local communities due to beliefs that the deities reside in these forests. In Arunachal Pradesh these sacred groves are particularly attached to the Buddhist monasteries, called Gompa Forest Areas (GFAs), which are managed by the Buddhist community Monpa and Sherdukpens of Arunachal Pradesh. These monasteries are mainly found in the West Kameng and Tawang districts of Arunachal Pradesh. Besides these Gompa forests, there are a good number of sacred groves in the Tawang and West Kameng districts of Arunachal Pradesh related to the community culture and beliefs and play a vital role in the conservation of the significant biodiversity of the region. Malhotra *et al.* have given vivid description of 58 Gompa forest areas, managed by Lama and Monpa tribes of Tawang and West Kameng districts of the state whereas Barbhuiya *et al.* have presented details of 63 sacred groves in these two districts including the geographic information, physical and biological attributes and traditional myths associated with the sacred grove. The sacredness, religious culture, belief and taboos play a significant role in promoting conservation and sustainable utilization of biodiversity of this region (Khan *et al.*, 2008). The local Buddhist community also provides tourism services to the visitors (Barbhuiya *et al.*, 2008). The tourism potential in relation to Sacred groves and cultural resources is great. Similarly, in Sikim 56 sacred groves spread over four districts have been documented in the state. All the Sacred Grooves are attached to the local monasteries (Gompas) dedicated to the deities and managed by Gompa authority of Lamas or often by the village community. These Sacred grooves are rich in biodiversity and harbor many rare species of plants and animals. Keeping all this in view the present study has been undertaken with an expectation of ever increasing demand of biodiversity conservation by changing the mindsets of people who are increasingly plagued by materialism and consumerism leading to environmental degradation or biodiversity loss in this unique planet earth.

Review of Literature

There have been very limited studies across the globe on the impacts of Buddhism on Environment and Biodiversity Conservation. However, the presence of Sacred groves in different parts of the country was recorded in the studies of Bora (1942), Hazra (1975), Sharma and Kulkarni (1980 and 1983), Dutta (1982), Jain (1983), Vartak and Kumbhojkar (1984), Vartak *et al.* (1986), Buch (1987), Meher-Homji (1987), Nair (1987), Malhotra (1988), Induchoodan (1988), Nipounage (1988) and Subramanyan and Sasidharan (1988). An investigation on 'Sacred Groves of Arunachal Pradesh: Traditional Way of Biodiversity Conservation in Eastern Himalaya of India' was undertaken by Chaudhary in 2014. According to Amirthalingam Murugesan (2016) the sacred groves are inextricably linked with the cultural and economic life of the local communities. A study on 'Sacred Groves: Myths, Beliefs, and Biodiversity Conservation—A Case Study from Western Himalaya, India' was carried out by

Singh *et al.*, in 2017. If we look into the present study region, i.e., Arunachal Pradesh and Sikim no significant works on the role of Buddhism on Biodiversity Conservation was carried out.

Objective of The Study

The main aim of the present study is to know the contribution of Buddhist teaching in conserving biodiversity of North Eastern Region of India and thereby convey message to the world to change the mindsets of people who are increasingly overwhelmed by materialism and consumerism leading to environmental degradation or biodiversity loss in this planet earth. Accordingly the objectives of the present study are as follows:

1. To study the traditional way of biodiversity conservation in buddhist Sacred grooves of Arunachal Pradesh and Sikim.
2. To study the importance of biodiversity conservation for economic, social and sustainable development.

Hypothesis

Buddhism has played a unique role in Sikim and Arunachal Pradesh, which is well reflected in conserving Environment and Biodiversity of these two states of North East India. The sacredness, religious culture, belief and taboos play a significant role in promoting conservation and sustainable utilization of biodiversity of this region.

Methodology of The Study

The present study is a kind of library based exploratory study as well as field study. Socio-cultural and biological features associated with each sacred forest was collected through a questionnaire, followed by field visits and interactions with elderly people and prominent citizens. The species composition was studied in all the visited sacred forests through visual observations. The desk work primarily included the collection of literature/reference materials in the form of hard and soft copies. The hard copies included the books, reports, reprint of published research papers, leaflets etc whereas the soft copies included web pages, pdf files (e-reprints) downloaded from the internet. The literature so collected was referred and critically analyzed and the issues were understood from the perspectives of the objectives and hypothesis of the present study.

Observational Findings and Discussion

Sacred Grooves and Religious Beliefs in Arunachal Pradesh

Around 13% people of the of Arunachal Pradesh follows Buddhism in both form, Mahayana and Theravada and some has come under Buddhist influence in both the states. In Arunachal Pradesh, a few of the Sacred Groves managed by Lamas and the Momba tribe, are attached to the Buddhist monasteries known as Gompa Forest Areas. 101 Sacred groves have been documented in the state of which 58 Gompa Forest Areas were reported from West Kameng and Tawang districts and they are under the control of monasteries and conserved by religious faith. These groves in the area have been conserved from spiritual point of view or by fear of specific deities and according to their belief that these forest patches are the property of Spirits/

Gods/Deities and must therefore, not be damaged in any way. The Gompa Forest Areas are dedicated to deities such as Buddha, 14th D' Lama, Mera Lama & 5th Dalai Lama, Lama Langa etc. Some of the significant Gompa Forest Areas of Arunachal Pradesh are described below.

Mechuka Gompa Sacred Grove

The Gompa at Mechuka is one of the oldest monasteries called Samten Yongcha of Mahayana sect located at a hilltop in the western most part of Mechuka, a place of tourist interest in the district of West Siang. This Gompa as per oral history of Membas is a contemporary of the great Tawang monastery. The vegetation of the Sacred Grove in and around the Gompa consists of evergreen and everlasting fir and spruce forests. A number of larger animals are supported by fir and spruce forests, such as moose, deer, birds, snowshoe hares, and other small mammals. Some species of Rhododendrons are also available in this sacred grove.

Kyong Teravada Buddhist Gompa Forest

The sacred grove lies in an around the Kyong Teravada Buddhist, Gompa, Vivek Vihar, Itanagar. Gompa is being maintained by Hinayana sect of Buddhists. The Khamti, Shingpho and Tangsa tribes of Arunachal Pradesh are the believers and worshipers of the sect of Buddhist. The sacred grove of the Gompa is about 0.5 hectares. It lies at an altitude of 274 m above mean sea level. It is about 300 m from the main road of Vivek Vihar connecting through Arunodaya Higher Secondary School, Itanagar. The vegetation within the sacred grove comprises of *Pinus kesiya*, *Mangifera indica*, *Polyalthia longifolia*, *Delonix regia*, *Ficus religiosa* and *Lagerstromia indica*.

Sidhartha Vihar Gompa Grove

The sacred grove lies in and around the Buddhist Gompa at Sidhartha Vihar, Bank Tinali, Itanagar . The Gompa is being maintained by Mahayana sect of Buddhists. The Monpas of Tawang, Bomdilla, Dirang, Rupa, Lumla and Sherdukpen tribes are the main believers and worshipers of this sect. The sacred grove of the Gompa is about 1.2 hac in area. It lies at an altitude of 274 m above mean sea level. The vegetation within the sacred grove comprises of *Pinus kesiya*, *Macaranga denticulata*, *Callicarpa arborea*, *Dendrocalamus hamiltonii*, *Bambusa pallida*, *Trema orientalis*, *Ficus religiosa* etc.

Biodiversity Conservation by Monpa Tribes

The Monpa tribe is one of the most populous tribes of Arunachal Pradesh and is considered as one of the major tribal communities in the entire region. Monpas are the inhabitants of the high altitude Tawang district and the mountain passes of Bomdila in West Kameng district. Mera Lama of Tibet spread Buddhism in southern Tibet and converted these Monpas into Gelugpa faith of Tibetan Buddhism. Monpa tribe has developed their location specific indigenous strategy for sustainable biodiversity conservation and overall natural resource management at community level. They follow many practices for conserving the indigenous forest trees and thereby agro-biodiversity. Maize is a staple food crop, managed, produced and conserved with the

natural dynamics of indigenous species of *Paisang* (*Quercus griffithii*, a species of Oak), *Roinangsing* as well as pine species, *Pinus wallichiana* A. B. Jacks. and *Pinus roxburghii* Sarg. The use of dry leaves of these trees as mulch and organic matter helps the farmers to increase the soil fertility, control soil erosion and conserve soil moisture, thereby, helpful in diversifying the local cropping systems (11 traditional cropping system of Monpa people) and reducing the risk. Paisang tree is the backbone of local people's culture and the loss of this resource system may eventually precipitate a decline in Monpa tribe's cultural diversity. An indigenous institution Choppa regulates access to paisang leaves.

Biodiversity conservation by Tikhak Tribes

The Buddhist temples and Monasteries have become centres of religious, educational and cultural advancement of the Tikhak society of Theravada Buddhism. The people have got rid of expensive rituals, ceremonies and animal sacrifices. To obtain higher crop yield or to get rid of diseases, famine like situations and other problems, the Bhante recites sutras such as *Ranta sutra*, *Mangal sutra*, *Jina sutra*, *Panjar Katha* and *Bhujang sutra*. Due to the influence of Buddhism, people have stopped animal sacrifices and consumption of alcohol, opium and meat has been reduced. A puja called Yami Jack is performed for securing success of crop season and also to obtain higher crop yield.

Protection for Special Purpose

The traditional societies and the refugee settlers such as Chakmas who are the followers of Buddhism of the western periphery of Namdpha National Park have been protecting many plant species of different social and economic importance. The Chakmas protect *Bombax ceiba*, *Terminalia myriocarpa*, and *Sterospermum chelonoides* species as the honeybees prefer to take shelter and makes hives on these trees. *Zalacca secunda* is also valuable species as it is the only roofing material and *Mesua ferrea* is a sacred tree for the Chakma community who consider that the God generally inhabit this tree. The 'Singphos' also conserve *Livistonia jenkinsiana* as it is the roofing material for their houses.

Environment and Biodiversity Conservation in Sikkim

Buddhism is the second major religion in Sikim. There are more than 200 monasteries or Gompas in Sikkim belonging mainly to the Nyingmapa Sect or the Kargyupa Sect, other than few of the Gelugpa, Sakyapa and Bon faith. Around 27.39% of total population of Sikim follows Buddhism of Tibetan origin and some has come under Buddhist influence. About 56 sacred groves spread over four districts have been documented in the state. All the Sacred Grooves are attached to the local monasteries (Gompas) dedicated to the deities and managed by Gompa authority of Lamas or often by the village community. These Sacred grooves are rich in biodiversity and harbor many rare species of plants and animals. Some of the significant Sacred Grooves of Sikim are described below.

The Rumtek Monastery

The Rumtek Monastery is the largest and most significant monastery in Sikkim. The environmental goals of Rumtek Monastery are to create awareness on Environment conservation and global climate change not only within the monastic community but also for surrounding areas of the monastery. Rumtek monastery along with other monasteries under the auspices of the 17th Karmapa, eventually developed their own conservation projects that directly engage Buddhist monastics: these include organic farming, rooftop water harvesting, reforestation and river clean up. Their efforts are having an impact. For example, there is the annual plantation of over 25,000 indigenous tree saplings locally, as well as a shift to solar energy as the primary source of water heating and kitchen facilities in twenty-one of the monasteries. In addition, all institutions are plastic-free and segregate waste for recycling. All of them have community clean up days where they clean public areas once a month. Besides, instead of selling brand-new silk khatas, devotees are charged a small amount of money to offer a clean recycled khata to Rinpoches instead. Since the production of silk involves killing silkworms, this is also beneficial from a Dharma perspective. The vegetation of the Gumpa land is mainly dominated by Dhupi tree. Other tree species found here are Bangey, Kutmero, Lal Chandan and Khanakpa. Under growth of this grove consists of shrubs like Basak, Bilanue, Titepati, Angeri etc, and herbs like Kuro, Halhalay, Abijalo, Harkata, Banmara etc.

Dubdi Monastery

Located 4 km (approx.) uphill from Yuksom town in West Sikkim occasionally called Yuksom Monastery is a Buddhist monastery of the Nyingma sect of Tibetan Buddhism . The grove of 1.73 acres in Gumpa land hosts tree species like Cupressus, Silver, Oak, Kawla, Tooni, Katus and Phaledo. Herbs like Kalo Bansa and Kalo Kibu etc. and shrubs namely Asare, Argeli, Kesari, Basak, etc. and climbers like Charcharey lahara, Majito and Chabo are present in the area.

Nor Gumpa

Located 8 km from Gangtok town in East Sikkim it adheres to the Sakya School of Tibetan Buddhism and was build in the year 1971 on the land gifted by the monarch of Sikkim, Chogyal Tashi Namgyal in the year 1961. Nor literary meaning seat of "Norsa Kunga Gyampu". The top canopy of Nor Gumpa is fully dominated by Dhupi tree. The under growth consists of shrubs like Algeri, Ghurpis, Aiselu, Kalo Bilanue, Amliso, Titepati and herbs like Harkata, Bukey, Kalo Banmara, Abijalo, Kuro, Ningro ,Dubo and Sisnu

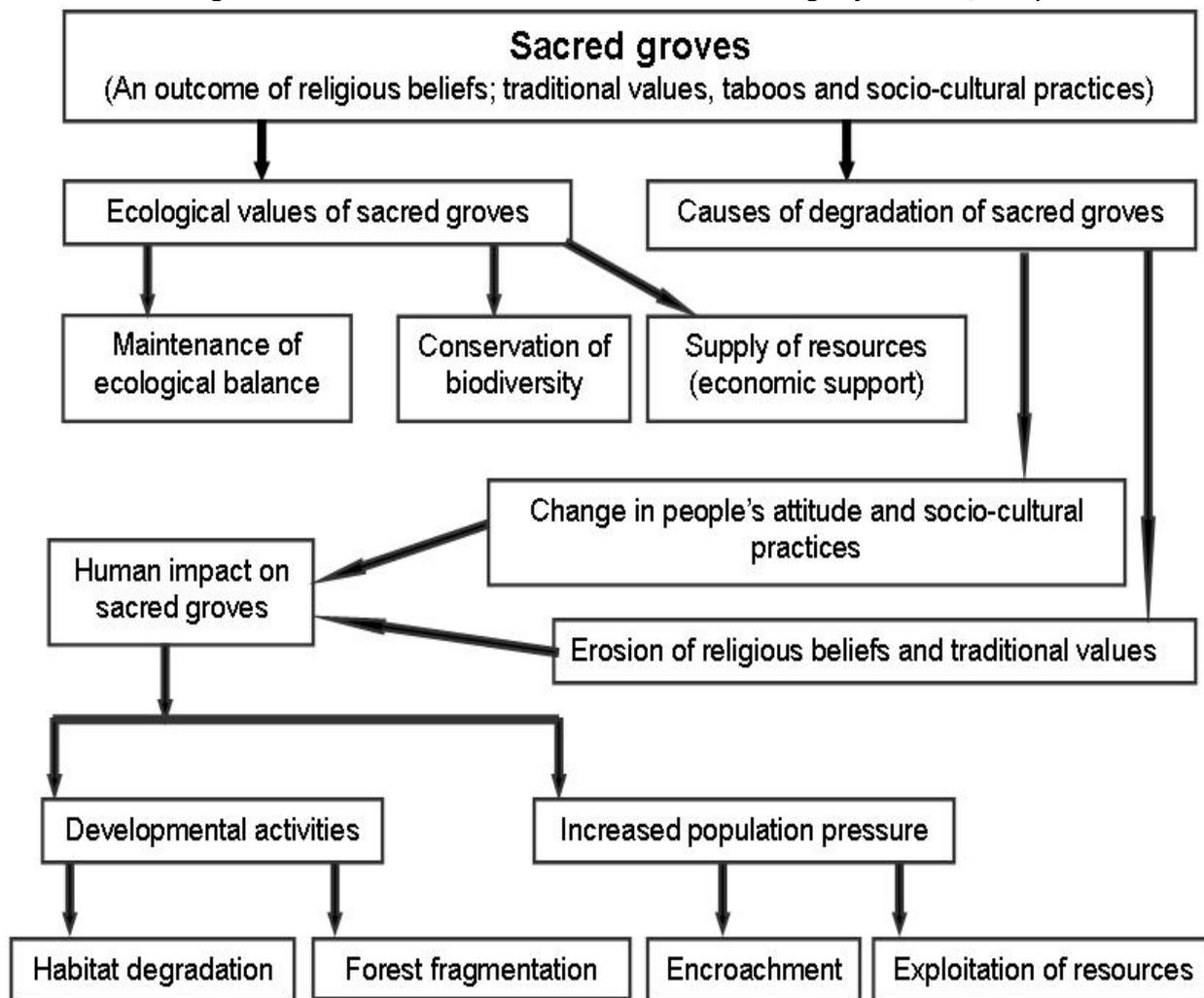
In Situ Conservation of Biodiversity by Sacred Grooves

The present study has revealed that Sacred Grooves are one of the ways of in situ conservation of environment and biodiversity in North Eastern Region of India. They play an important role in ecosystem services such as clean environment i.e., air, Soil and water conservation, flora and fauna conservation, carbon sequestration, temperature control and conservation of traditional knowledge. Outcome of religious beliefs, traditional values, taboos, and socio-cultural practices provide ecological value of Sacred Groves which maintains ecological balance, conservation of biodiversity and supply of resources or economic support as shown in the figure. Some of the approaches of biodiversity conservation by Sacred Grooves are discussed below.

Approach towards Eco-retreats

The devastating impact of pollution, supplemented by deforestation can only be restored by green lung area of the Sacred groves which, besides providing numerous tangible products remains the storehouse of the life gas–oxygen. If these storehouses are not properly managed and conserved, the future generation will definitely be deprived off this valuable asset (Anthwal *et al.* 2006). Banyan, Pipal, Ashoka, Bela and Harada are among the most commonly found plant species in the Sacred groves that play a vital role in ecosystem services. Three of the worth mentioning Buddhist Sacred Groves of Arunachal Pradesh are discussed shortly in the following-

Figure : Relationships Between Ecological Values, Religious Beliefs And Traditional Values, And Causes Of Degradation Of Sacred Groves Modified From Khumbongmayum *Et Al.*; 2004)



Conservation of Medicinal and Aromatic Plants through Local Belief

The Sacred Groves are believed to be a treasure house of medicinal and aromatic plants. Though most of the indigenous people residing near the groves are illiterate, they have scrupulously nurtured their traditional customs, rituals, ceremonies and a way of forest life through folk beliefs with great vigour. Thus, medicinal plant conservation is an integral part of sustainable living by these people with the nature. Till now medicinal plants like mint (*Mentha arvensis*), coriander (*Coriandrum sativum*) and fenugreek (*Trigonella foenum-graecum*) are planted as an important component of SGs and preserving Himalayan ecosystem.

Approach towards Animal Conservation

The dense forests and big trees are looked upon as ancestral souls and hornbill hunting is banned during the breeding season. The tiger is sacred as it is the 'brother of Tani', the first humans on earth'. Certain animals like tiger, toad and wagtail are believed to be ancestral brothers and well wishers of human beings and are avoided from killing.

Belief and Myth towards Soil and Water Conservation

Sacred groves play an important role in soil and water conservation. They improve the soil stability of the region and act as soil binder. Plants like vetiver grass (*Vetiveria zizanioides*) and *Eucalyptus* species are maintained to bind the soil thereby preventing soil erosion. These groves are often associated with stream or spring which help meet the water requirements of downstream and local people and take care of drinking water problem during drought.

Approach towards Carbon Sequestration

Estimation of carbon stocks and stock changes in tree biomass are necessary for reporting to the United Nations Framework Convention on Climate Change (UNFCCC) and which is required for Kyoto Protocol reporting also. The tree, *Terminalia bellirica* was found to be dominant of sequestering 327.78 tonnes of carbon followed 221 tonnes by *Ficus amplissima* (Hangarge *et al.*, 2012). The species *Gnidia glauca* had lowest carbon sequestration potential i.e. 0.0808 tonnes. A Sacred Grove having thick vegetation possesses high carbon sequestration potential thereby contributing to reduced

concentration of CO₂ in the atmosphere (Hangarge et al; ,2012).

Suggestion

Although sacred groves are important ecological centres to study the potential vegetation, they are less studied and least understood by the scientific community. Hence further research should be carried out on the ecology and underlying socioeconomic mechanisms of natural sacred sites to reveal the potential for environment and biodiversity conservation.

Conclusion

No environmental legislation irrespective of how effectively it is implemented will stop the ongoing assault on the environment under the pretext of development unless mindsets of people who are increasingly plagued by materialism and consumerism in this post-globalization era won't be changed. It is high time that we should give-up our present lifestyle which could contribute degradation of our environment and biodiversity. The religious belief serves as an instrument of protection of rare forest species. There are many elements of Buddhist doctrine and practice which promote respect and conservation of nature. Buddhism tries to preserve life in different degrees for human needs and conserve animal and plant life forms. Therefore, it would appear that Buddhist ideology could be promoted as a positive force in Biodiversity conservation all over the world.

References

1. Anthwal A ., Sharma R.C, Sharma, A . (2006), 'Sacred Groves: Traditional way of conserving plant diversity in Garhwal Himalaya, Uttranchal'. *The Journal of American Science* Vol. 2: 35-43.
2. Barbhuiya, A.R ., Khan, M.L., Arunachalam, A ., Prabhu, S.D., Chavan, V. (2008), 'Sacred Groves: Informal protected areas in the high altitudes of eastern Himalaya, Arunachal Pradesh, Northeast India': 'Traditional beliefs, biodiversity and conservation. In: Angus O' Reilly, Doron Murphy, National Parks': Biodiversity,

conservation and tourism. Nova Science Publishers, Inc. US 131-146.

3. Borang, A. (2001), 'Traditional biodiversity conservation and management system of tribes in Arunachal Pradesh'. *Arunachal Forest News*. 19: 212-216.
4. Chaudhry, P., Dollo, M ., Bagra, K ., Yakang B. (2011), 'Traditional biodiversity conservation and natural resource management system of some tribes of Arunachal Pradesh, India'. *Interdisciplinary Environmental Review* 12: 338-348.
5. Dollo, M., Gopi, G.V., Teegalapalli, K., Mazumdar, K., (2010), Conservation of the orange bellied Himalayan squirrel *Dremomys lokriah* using a traditional knowledge system: a case study from Arunachal Pradesh, India. *ORYX* 44: 573-576.
6. Hangarge, L.M., Kulkarni, D.K., Gaikwad, V.B., Mahajan, D.M., Chaudhari, N.(2012), 'Carbon Sequestration potential of tree species in Somjaichi Rai (Sacred grove) at Nandghur village, in Bhor region of Pune District, Maharashtra State, India.' *Ann Biol Res*, 3(7):3426–3429.Google Scholar.
7. King-Oliver I.E.D., Chitra, V., Narasimha, D. 'Sacred groves: traditional ecological heritage'. *Int J Ecol Environ Sci* 1997, 23: 463–470.Google Scholar
8. Khan M.L., Devi, A., Khumbongmayum and Tripathi, R.S. (2008) 'The Sacred Groves and Their Significance in Conserving Biodiversity An Overview'.*International Journal of Ecology and Environmental Sciences* 34 (3): 277-291.
9. Malhotra, K.C., Gokhale, Y., Chatterjee ,S., Srivastava, S. (2001) 'Culture and Ecological dimensions of Sacred groves in India', INSA, New Delhi, India
10. Quang, T.T., (1996). *Buddhism and Environmental Protection*, (translated by Binh Anson) Buddha Sasana.