

Current status of biocultural knowledge of *Paudi Bhuyan*, a particularly vulnerable tribal group (PVTG) in Northern Odisha, India

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ABSTRACT

'Adivasis' are the tribals or indigenous people of India. As per the census of 2011 by the Ministry of Tribal Affairs, Government of India, tribals constitute about 8.6 % of India's overall population. These communities follow sustainable practices that are closely linked to their religious beliefs and culture that have evolved in a particular ecosystem/s of a landscape. This study is an assessment of bio-cultural knowledge of Paudi Bhuyan, a particularly vulnerable tribal group (PVTG) of 11 villages in the district Angul, Northern Odisha and incorporates impacts of changing dynamics on the nature and gender linked knowledge system and its cultural relevance. Positive and negative impacts of urbanization, development, migration, resettlement, intermixing of different tribal groups and villagers, linked stresses and perceptions have also been evaluated. Various aspects of biocultural knowledge were recorded through participatory rural appraisals (PRA), interview schedules and semi-structured and open ended questionnaires to provide data to Government and policy makers to formulate development programmes.

Keywords: *adivasis, landscape, traditional ethnoecological knowledge (TEK), particularly vulnerable tribal group (PVTG), urbanization, biocultural knowledge, perceptions.*

1. Introduction

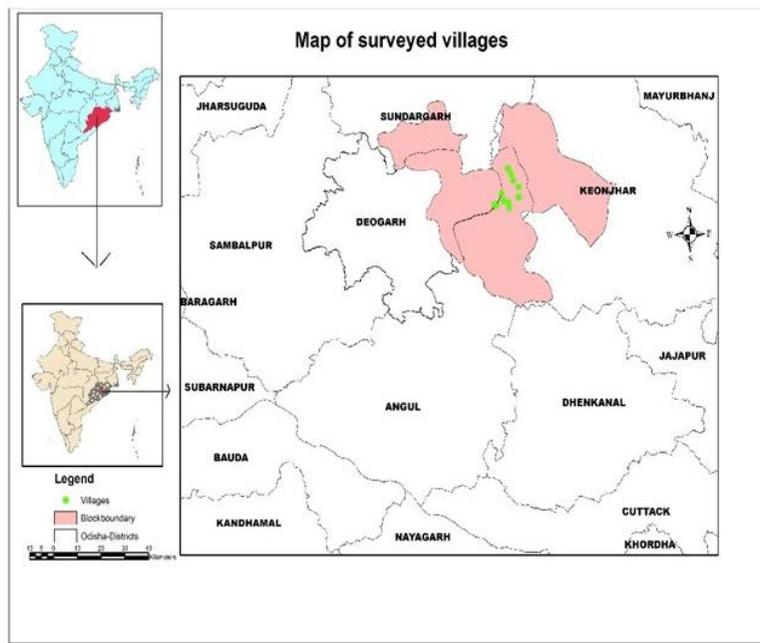
Traditional ethnoecological knowledge (TEK) includes biocultural knowledge which recognises strong interlinkages between culture and biodiversity. Ethnic communities and their socio-cultural practices have evolved within a particular natural landscape and thus contain knowledge about traditional use of resources around them in their cultural ethos (Badola, 2017; Cook and Offit, 2008). Culture is an evolving concept, and is hence complex in nature and it bestows upon society a capacity to adapt to change (Gunderson and Holling, 2002). Since there is similarity between the evolution of biological and cultural diversity (Maffi, 1998) studies on naturescapes and *in-situ* ethnic culture is relevant to assess their dynamics with changing times towards creation of a new knowledge regime (Milton, 1998). It is imperative to survey, record and protect traditional knowledge found with tribals (indigenous, ethnic communities) who are its true custodians. Rapid globalisation and technological boom have impacted TEK and impact of these factors varies from location to location within similar geographical landscape (Baggethun et al., 2010). Urbanization, population growth, migration trends, land transformation and degradation are some other important factors that also have impacted indigenous people and their local belief systems (Boillant and Berkes, 2013). Access to urban centres affects both the well-being and degree of dependence of indigenous peoples on natural resources (Godoy et al., 1998). TEK is universally being affected in all parts of the world and focus needs to shift to conceptualization of nature in local people's knowledge (Toledo, 2002). In spite of modernization pressures TEK thrives in isolated pockets inhabited by indigenous communities and there is a growing interest in mapping its various components. Advocating the concept of isolated TEK pockets globally, Baggethun, Corbera and Garcia (2013), propose a hybridization model of TEK wherein a mixing of old and new schools of thoughts happens simultaneously. Traditional wisdom is dynamic in nature and it slowly adapts to new environment conditions (Eyssartie et al., 2011). Several indigenous populations have their own set of rules and doctrines to support their conservation practices.

II. Rationale of the Study

Indigenous communities are also referred to as '*adivasis*' or 'tribals' in India. India has second largest tribal population in the world after Africa. 75 Indian tribes are further classified as primitive vulnerable tribal groups (PVTGs) based on their primitive agriculture technology, declining population, and low literacy level and subsistence economy. The Indian state of Odisha harbours 62 tribes which constitute about 22.21 % of the total population of the state (Census, 2011). There are 13 PVTGs identified in Odisha and *Paudi Bhuyan* is one of them (Sahani and Nandy, 2013).

The present study enumerates biocultural dynamics of *Paudi Bhuyan*, a particularly vulnerable tribal group (PVTG) currently inhabiting several districts North of Mahanadi river, Odisha. Maximum concentration of this tribe is confined to pockets in Banshapal block (Keonjhar district), Banai block (Sundargarh district), Barcote block (Deogarh district), and Pallahara block (Angul district) (Acharya, 2015).

Fig. 1: Map showing distribution of *Paudi Bhuyan* in Odisha and the surveyed villages



In process of adaptation to and adoption of new conditions, *Paudi Bhuyan* tribe has re-structured their own socio-cultural factors, slowly getting detached from many of their traditional practices. In the period between 1980s and early 1990s Indian government unified tribal communities of Northern Odisha belonging to Bhuyans, Juangs, Panos, Hadis, Doms, Patras, Chasas, Mundas, and Kolhs. This was initiated for an administrative ease. According to Acharya (2015), this intermixing of tribes and subsequent assimilation initiatives by Indian government led to changes in levels of socio-cultural practices observed in response to their natural surroundings. A perusal of literature reveals limited studies on social and cultural aspects of Paudi Bhuyans (Nayak, 2010). In this study current status of biocultural knowledge of this tribe is assessed.

III. Study Area

Odisha is phytogeographically a part of Eastern Ghats and lies in the tropical belt between 17° 49' and 22° 34' N latitude and 81° 27' E and 87° 29' E longitude with a geographical area of 1,55,707 sq km. The state abounds in tropical and sub-tropical vegetation. Our study covers an area of ca 270 square kilometres and includes 11 villages located close to Pallahara, a sub divisional headquarter in Angul district of Odisha. For convenience of further tabulation and analysis these villages are clubbed into two categories- higher altitude (more than 305 meters) and lower altitude villages (less than 305 meters). Villages falling under higher altitude category are Balibahal (613 meters), Sibida (605 meters), Namagaon (583 meters), and Nagira (542 meters). Villages under lower altitude category are Bandabhuyan (305 meters), Rugudhi (254 meters), Bhimkhand (239 meters), Dudipani (25 meters), Jamardihi (211 meters), Itee (198 meters), Siaria (180 meters). These villages fall under two gram panchayats, namely, Nagira and Bandabhuyan.

IV. MATERIALS AND METHODS OF THE STUDY

An interaction with officials at *Paudi Bhuyan* Development Agency (PBDA), Pallahara (Block) in Angul District facilitated our shortlisting of 11 villages for the study. Rapid assessment and regular interactions with these villages were held between 2015 to 2018 to get a pulse of the relationship between their socio-cultural fabric and overall natural landscape where they have lived and evolved over generations. It was evident that most of the rituals and cultural festivities practiced by them were linked with nature. Hence this study was designed to assess the level of bio cultural knowledge and interdependence of the tribal population with nature. For collection of information, semi structured and open ended questionnaire were designed. The questionnaire covered areas including information on inhabitants, houses, occupation, social customs, and dependency on natural resources- covering various aspects of TEK.

This was followed by discussions with officials at tribal museum in Bhubaneswar, *Paudi Bhuyan* development agencies (PBDA), Employment Directorate in Pallahara, NGO personnel and officials in Ministry of Tribal affairs, Govt. of India. Review of literature included study of research papers, policy documents, reports, dissertations, opinion editorials and newsletters. Due to language limitation, interactions with assistance of a local interpreter were conducted.

Discussions held in all 11 villages led to compilation of a collective list of rituals and festivals observed by various populations of *Paudi Bhuyan* tribe. This was followed by village to village survey to ascertain and document festivals observed in each location and relevance of these to natural resources, phenology of plant species, month of observance, and level of participation of villagers. Separate discussions were done with members of both gender. Elderly population and youth were drawn into talks to get their perspective on reasons for losses in levels of current bio cultural practices and addition of new ones.

V. Results

A *Paudi Bhuyan* (PB) village- Most villages have a similar structural outline. Entrance is marked by presence of a worship place which is a replica of temple. It is decorated with leaves and flowers and painted with vibrant colours. Houses are well plastered with mud, and occasionally with a coat of grey mud and natural dyes obtained from bark of trees such as *Asan* (*Terminalia tomentosa*). The houses are clustered together. Animals are kept in separate enclosures. Backyards of houses have storage space for grains and dried eatables. There is a common play area in the villages with a traditional swing used for festivals and ceremonies of rejoice.

Festivals and Rituals- It was evident that most of the festivities and rituals practiced in the study area are linked with nature. Folklores, music, dance, religious practices, festivals are characteristic to tribal communities and have evolved over a period of time in a particular natural landscape. *Paudi Bhuyans* in the past were actively engaged in various dance forms imitating animals. These dance performances were done to rejoice various occasions and also welcome guests in their villages. Religious fervour was also marked with worship of various Gods and Goddesses, village deities and ancestral deities. Gods were worshipped in the form of Earth, Sun, hills, forests, fields, and water bodies. Due to migration and intermixing with populations in new areas of settlements, adoption of new forms of worship by *Paudi Bhuyan* are recorded

Table 1- Festivals recorded from study area

S. No	Name of the festival	Month of observance and relationship with nature and natural resources
1.	Gramshree	Gramshree is performed by both men and women by worshipping forest and trees. This festival is observed in December (Pausha) and July (Shravana).
2.	Badam puja	Only after this special puja is conducted in month of Chaitra (March), the villagers enter the forests to collect forest produce. Badam puja is performed by both men and women to worship land on which they live.
3.	Sarpata puja (Uadi puja, Ashadi puja)	Elderly men in the village perform this puja in Ashadha (June) with the belief that they will stay safe from attack by wild animals.
4.	Mahula puja	Women perform this ritual by offering special prayers near streams in February (Falgun) and then enter forests to collect forest produce.
5.	Basana puja	This is a part of the acceptance of the newly wed women by the village community. This ceremony is performed next to streams and then they enter forests to collect Sal seeds, Kendu leaves, Mahul flowers and Aonla fruits.
6.	Karama puja	This special ceremony is performed in the month of December (Pausha) by unmarried boys and girls who fast and observe this puja.
7.	Bhimbudha puja	This ceremony is performed to please rain God to seek blessings for a good rainy season.
8.	Dhana Nua	Performed in Bhadra month (August), this ceremony is mandatory before the villagers touch the new harvest of rice.

9.	Bishiri puja	Observed in the month of Magha (January), Bisiri puja is performed by both men and women. There is an extensive worship of water and idols at this time.
10.	Dhibandha	Village priest performs this puja to please the God. Rituals with sacrifice of hen is done. This marks the beginning of marriage season. This is done in April (Vaishka) and is gender specific, attended only by men.
11.	Nadi puja	Men perform this puja in the month of November (Agrahayana) to thank God for having saved their paddy crop from attack of animals and elephant rampage.
12.	Nuakhai	A festival observed to celebrate the new harvest of rice, this festival is observed in month of Kartik. Offerings are made to village God and special prayers are offered.
13	Rajaparab	A festival of joy attended by both men and women in June (Ashadha) month. Villagers celebrating womanhood of Mother Earth and abstain from working in the fields. Instead they spend time dancing and singing and organising community feasts.
14	Jatalpuja	A collective village puja performed by the priest. Offering of goat meat is done to please the Gods. This festival is attended only by men in month of August (Bhadra).

We classified these cultural festivities into 2 categories:

Festivals endemic to tribal population- Gramshree, Badam, Bisiri, Mahula, Karam, Nuakhai, Dhibandha, Basana, Rajo parab, Nadi puja, Jatal Puja, Bhimbudha, Dhana Nua, Sarapta puja (details in Table 1)

Festivals celebrated by other rural population and members of general caste - Akshay Tritiya, Pushpurnima, Kartik Purnima, Jagannath puja, Makar Sankranti. They have now also started worshipping various Hindu deities like Laxmi, Durga, Saraswati and Ganesha.

Adoption of new culture in form of observance of new rituals and festivals is more evident in villages located in lower altitudes and closer to dense human habitations. Inhabitants of villages Itee and Jamardihi, which were closer to motorable roads and more exposed to urbanisation follow more cultural festivals in both the categories mentioned above. However in Bandabhuyan (100% PB presence) only endemic festivals were practiced.

Relationship between festivals and natural resources: The villagers worship Mahul (*Madhuca longifolia* var *latifolia*), Kendu (*Diospyros melanoxylon*), and Sal (*Shorea robusta*). Commonly observed religious festivities include Karam, Bisiri, Gramshree, and Banadurga puja (Table.1). All these are linked to forests, because the inhabitants have a direct dependence on these for meeting their daily requirements. The villagers have a strong belief that observance of these festivals will protect them from any harm. They have inherited these traditions from their forefathers and are continuing to do so. They have formed an active *Van Sangrakshak Samiti* (VSS) and they guard and protect the forests adjoining their villages. They do not allow any trespassers to move into the forest.

Dependence on nature and natural resources is aplenty. This is seen through direct utilisation as food, fodder, timber and other household needs; and also use in cultural practices and customs. A survey and discussion with all the villages revealed active use of certain plant species for customary cultural practices.

Table 2- Festivals linked with flora observed in study area

S. No	Plant Name and Family	Local Name in Odiya	Plant Components used in the festival (Puja)
1	<i>Jasminum sambac</i> (L.) Aiton (Oleaceae)	Bela	Fruit, flower and leaf of this ornamental plant in worshiped in puja of Lord Shiva
2	<i>Phyllanthus emblica</i> L. (Phyllanthaceae)	Amla	Stem and fruit of this deciduous tree is used in Laxmi puja.
3	<i>Ocimum sanctum</i> L. (Lamiaceae)	Tulsi	This shrub is a common sacred plant in the area. Its leaf is used in many rituals and is also consumed as prasad.
4	<i>Gardenia latifolia</i> Aiton. (Rubiaceae)	Champak	Flowers of this evergreen tree are used in offerings during rituals.
5	<i>Hibiscus rosa-sinensis</i>	Mandar	Flowers of this evergreen shrub are offered

	L. (Malvaceae)		during worship of Goddess Kali.
6	<i>Caesalpinia pulcherrima</i> (L.) Sw. (Fabaceae)	<i>Krishna Chuda</i>	Flowers of this branched tree are used in worship of Lord Krishna.
7	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. and Schult. (Apocynaceae)	<i>Tagar</i>	This tree has sweet smelling white flowers which are offered during prayers.
8	<i>Shorea robusta</i> Gaertn. (Dipterocarpaceae)	<i>Sal</i>	Leaves and stem of this huge deciduous tree are used in performing pujas and rituals. The resin tapped from the stem is burnt as incense sticks. This tree is specially used in Badampet puja.
9	<i>Lawsonia inermis</i> L. (Lythaceae)	<i>Benjati</i>	Leaves of this shrub are commonly used in festivals and rituals. The leaf yields orange-red dye called 'Mehndi'.
10	<i>Terminalia alata</i> Heyne ex Roth.(Combretaceae)	<i>Asan</i>	A large tree whose bark is crushed to yield a greyish- black dye. This is used for coloring and cleaning thresholds and has a cooling effect. It is mostly used to create worship areas.

However, there are many other species of plants that are also used regularly in rituals and cultural festivities observed by members of *Paudi Bhuyan* tribes in the study villages. These are Karam (*Mitragyna parvifolia*), Kendu (*Diospyros melanoxylon*), Paorimala (*Bauhinia vahlii*), Mango (*Mangifera indica*), Raj Kusumo (*Schleichera oleosa*), Gendu (*Tagetes erecta*), Muchkundu (*Pterospermum acerifolium*), Barh (*Ficus benghalensis*), Hambu (*Cryptolepis brazzaei*), Limbo (*Azadirachta indica*), Bans (*Bambusa arundinacea*), and Palasho (*Butea monosperma*)

Gender participation in festivals: The tribal society is patriarchal. Women are forbidden to attend many festivals and customs like Jatalpuja, Nadi puja, Dihibandha. The only festival celebrated universally by women is Manda Ubha or Mahula puja. This is observed in month of February/March (Fagun). This coincides with the time of flowering of Mahula. This puja is observed near water streams and mostly under the Sal tree. Time of flowering of Sal and Mahua coincides and adds to the festival fervour. They prepare cakes made from Mahua and rice powder (manda). They throw one manda as an offering into the stream and the remaining are distributed as prasad. Special prayers are offered to forest gods and deities (Banapati, Banadurga), and without this special puja they do not touch the Mahua flower or other forest products. Men do not join this puja.

Variations observed in cultural festivities - Several pressures faced by tribal population due to modernisation have changed socio-cultural practices in these villages. Detailed discussions with respondents revealed discontinuation of certain practices like celebration of Karma puja and Doligita (a traditional song usually sung by young boys and girls during marriage functions) in Balibahal, Dudipani, and Sibida villages. Badam puja (conducted in March and April) was earlier a compulsory ritual to be performed before entering the forests. This is however, completely missing in villages of Bhimkhand, Namagaon, Jamardihi and Siaria. Another important observation was absence of use of bamboo due to non-availability of the same. This has led to a complete loss of their ancient craftsmanship. Village Itee was the only area which still retained practice of bamboo workmanship. Most of the festivals observed by the villagers are linked to forests and phenology of trees. The current study is a start of investigative journey because all villages display unique responses.

VI. Discussion

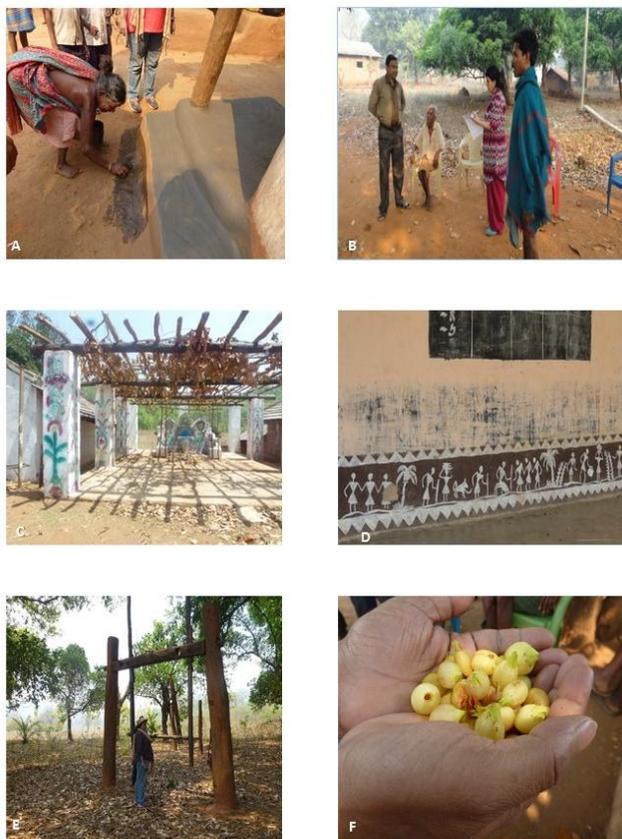
Literature supports a strong need for situated studies on bio-cultural component of TEK of tribal (indigenous) communities, thereby assisting in sustainable conservation approaches (Gavin *et al*, 2015). Due to an increased awareness about TEK all national and international forums are including this aspect in policy dialogues (Turnhout *et al*, 2012). Global priorities and policy frameworks are slowly orienting towards a man- nature balance and this is evident through initiatives being taken by International Union for Conservation of Nature (IUCN), Convention on Biological Diversity (CBD), United Nations Environment Programme (UNEP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) (Maffi, 2014). The current exploratory study is an effort towards understanding of cultural landscape of a

highly sensitive tribal (indigenous) population of *Paudi Bhuyan* tribe. Urbanisation seems to be threatening their ethnic culture, and diluting their traditional base.

Inter-dependance of tribal (indigenous) communities with nature and natural resources is now being recognised globally.

Indigenous knowledge related to bio-cultural practices is relevant for development processes and is in fact an essential part of the global knowledge systems. We feel that there is a strong need to document further about the variations in the cultural practices which was limited due to time constraint. The results of this study are promising and show a direction in which biocultural knowledge is varying in the field. Tribal communities are repositories of bio-cultural knowledge and with their intermixing with members of other tribes has both positive and negative impact. While the population is gaining due to adoption and adaptation of new cultures, but the core knowledge pool is being lost. This is further getting influenced by several development schemes being introduced by the administrations to aid and help the tribes' survival. This is a paradox and more intensive studies need to be taken to arrive at a conclusion about the benefit of these 'welfare' schemes.

Fig. 2: Various aspects related to traditional knowledge captured from the field



A- Bandabhuyan elder demonstrating process of traditional coating of grey mud and natural dye obtained from bark of *Asan (Terminalia tomentosa)*
 B- Author in conversation with villagers in Bandabhuyan
 C- Decorated and colourful entrance to village temple in Itee
 D- House walls decorated with traditional paintings
 E- Author observing the traditional swing in Rugudhi
 F- *Mahula flowers (Madhuca longifolia)* are used in Mahul puja observed in all villages

Based on evidence and results of this study we have arrived at interesting conclusions. Tribal societies are highly sensitive bio-cultural areas and they require a case by case attention for protection and conservation of their ethnic knowledge. Same geographical location does not necessarily mean that external influences on the tribes are uniform. Hence a 'one size fits all' model of development will be detrimental to the situated knowledge systems flourishing with these indigenous communities.

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Disclosure Statement

No potential conflict of interest was reported by authors.

References

1. Acharya, S.K., Das, P.K., and Kshatriya, G.K. (2015). Love and marriage practices among the Pauri Bhuyan tribe in Keonjhar district of Odisha, India. *The Eastern Anthropologist* 5: 26-43.
2. Badola, H.K. (2017). Biocultural knowledge for biodiversity conservation: some Himalayan endorsements. *Biodiversity*. 18 (4): 212-218.
3. Boillat, S.E., Serrano, S., Rist, and Berkes, F. (2013). The importance of place names in the search for ecosystem-like concepts in indigenous societies: an example from the Bolivian Andes. *Environmental Management*. 51(3): 663-678.
4. Cook, G., and Offit, T. (2008). Pluralism and transculturation in indigenous maya religion. *Ethnoecology*. 47:45-59.
5. Eyssartier, C., Ladio, A.H., and Lozada, M. (2011). Traditional horticultural knowledge change in a rural population of the Patagonian steppe. *Journal of Arid Environments*. 75: 78-86
6. Gomez-Baggethun, E., Mingorria, S., Reyes-Garcia, V., Calvet, L., and Montes, C. (2010). Traditional Ecological Knowledge Trends in the Transition to a Market Economy: Empirical Study in the Donana Natural Areas. *Conservation Biology*. 24 (3): 721-729.
7. Gómez-Baggethun, E., Corbera, E., and Reyes-García, V. (2013). Traditional ecological knowledge and global environmental change: research findings and policy implications. *Ecology and Society*. 18(4):72.
8. Gavin, M. C, McCarter, J., Mead, A., Berkes, F., Stepp, J.R., Peterson, D., and Ruifei, T. (2015). Defining biocultural approaches to conservation. *Trends in Ecology and Evolution*. 1895: 1–6.
9. Godoy, R., Brokaw, N., Wilkie, D., Colón, D., Palermo, A., Lye, S., and Wei, S. (1998). Of trade and cognition: Markets and the loss of folk knowledge among the Tawahka Indians of the Honduran Rain Forest. *Journal of Anthropological Research*.54:219-233.
10. Holling, C.S., and Gunderson, L. (2002). Resilience and adaptive cycles. *Panarchy: Understanding transformations in human and natural systems*. Washington: Island Press. pp. 25-62.
11. Maffi, L. (1998). Language: A resource for nature and resources. *UNESCO Journal on the Environment and Natural Resources Research*. 34(4):12-21.
12. Milton. (1998). Nature and Environment in Indigenous and traditional cultures in Spirit of Environment: Religion, values and Environment concerns. eds: Cooper DE and JA Palmer pp.86-99 London and New York: Routledge
13. Nayak, A.N. (2010). Primitive Tribal Groups of Odisha: An Evaluation of Census Data. *Odisha Review*. 202-205.
14. Sahani, R. and Nandy, S.K. (2013). Particularly vulnerable tribal groups in India: An overview. *Journal of the Anthropological Survey of India*. 62(2): 851-865.
15. Toledo, V. (2002). Ethnoecology: A conceptual framework for the study of indigenous knowledge of nature. *Ethnobiology and Biocultural Diversity*. International Society of Ethnobiology, Georgia, USA. Pp. 511-522.
16. Tumhout, E., Waterton, C., Neves, K., and Buizer, M. (2012). Conservation Letters, Rethinking biodiversity: from goods and services to "living with". 6(3).
17. Payyappallimana, U., and Fadeeva, Z. (Eds) (2013). *Innovation in Local and Global Learning Systems for Sustainability: Traditional Knowledge and Biodiversity – Learning Contributions of the Regional Centres of Expertise on Education for Sustainable Development* UNU-IAS, Yokohama, Japan.