Role of Cultural and Religious Drivers for Ecosystem Change

Prashanti Rao, I.P. Singh

Abstract: *Human societies are chiefly propelled by their unique culture and religious practices. An integral part of the Indian culture is working in unity with nature. This reflection is seen in a various sacred and religious beliefs, arts and crafts, folk tales, traditional practices, rituals, and in the day to day lives of the people of India from the ancient times. Nature Conservation is largely embedded in the ecosystem of Indian civilizations; which in turn is largely exhibited/displayed by their distinctive culture and religious practices. A strong credence that through thoughtful integration between communities and nature efficient ecosystem management is accomplished. Communities have always adapted themselves to better fit into the changing societal needs and thus reshaped their spatial setting. The human species, while safeguarded against environmental proximities through their unique culture and cultural practices, skill, and technology, are eventually wholly dependent on the flow of ecosystem services. The challenge faced by the present global environment is that certain traditional practices lead to downgrading of the ecosystem, while some of them play an appropriate role in advancing biodiversity and preserving the resources, thus serving societies to address the effects of climate change. India with a diverse culture of different communities satisfies the regulatory and functional aspects of nature and natural systems. This paper is intended to look into the religious and traditional aspects of Indian societies to comprehend the dynamism of cultural drivers for ecosystem change and gauge their interrelation with human behavior. The varied case studies have been reviewed by using the Millennium Ecosystem Assessment tool with an objective, that the environment can be protected by changing community behavior. These are examined by using arguments related to values, beliefs, and traditional customary laws associated with different communities across India. The analysis involves the finding of most influencing and commonly influencing factors of values among the communities by calculating and comparing mean and standard deviation for all kind of values associated with varied case study. The study reveals novel ways of integrating conventional, ecological and native wisdom into management processes of the ecosystem. The outcome of the study focuses on policy formulation through participative planning in the decision-making procedure for ecosystem management.*

Keywords : *Cultural and religious Drivers; Ecosystem Change; Ecosystem management; Millennium Ecosystem Assessment and Participatory Planning.*

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I. INTRODUCTION

India is a land of vibrant cultures, diverse values, and beliefs. Nature has been ingrained in the Indian culture since Vedic civilization; wherein the oldest Indian text 'Rigved Samhita' itself describes Earth, Fire, Water, Air, and Sky as principal components of life and need to preserve them [15]. These texts were designed to safeguard the environment from a fast-growing society by associating the natural ecosystem with cultural beliefs. As the time passed, Puranas replaced Vedas and the pro-environmental Vedic beliefs and practices turned into ill traditions, where cultural and religious services that once acted as purification system of ecosystem became its major polluters and are continuing till date [13].Since the cultural and behavioral relationship is very context-specific, the broad comparison of every culture will never prove to be useful because this will overlook vast differences in cultural beliefs, norms, and values. Role of culture in environmental issue thus should be examined without over-generalizing cultural values.

The ecosystem is a widely used terminology, which means a system, where biotic and abiotic components interact with their physical environment. United Nations (UN) initiated the Millennium Ecosystem Assessment (MEA) to define ecosystems and their benefits for human well-being in the form of goods and services [8]. Ecosystems vary enormously in size, nature, and duration as an artificial pond and an ocean; both can be ecosystems. In the last decades, the importance of protecting and managing ecosystems and awareness for their restoration has gained momentum [12]. Millennium Ecosystem Assessment (MEA) defines Ecosystem Services (ES) as "the benefits, people obtain from ecosystems which include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, religious and other nonmaterial benefits." Ecosystem services are freely obtained from the natural system but these services are valuable though exceptional. However nothing is available free of cost in the natural world, sometimes we pay for it and sometimes we don't. Ecosystem services are therefore needed to be considered not as gifts of nature but need to be mobilized by investments [16].
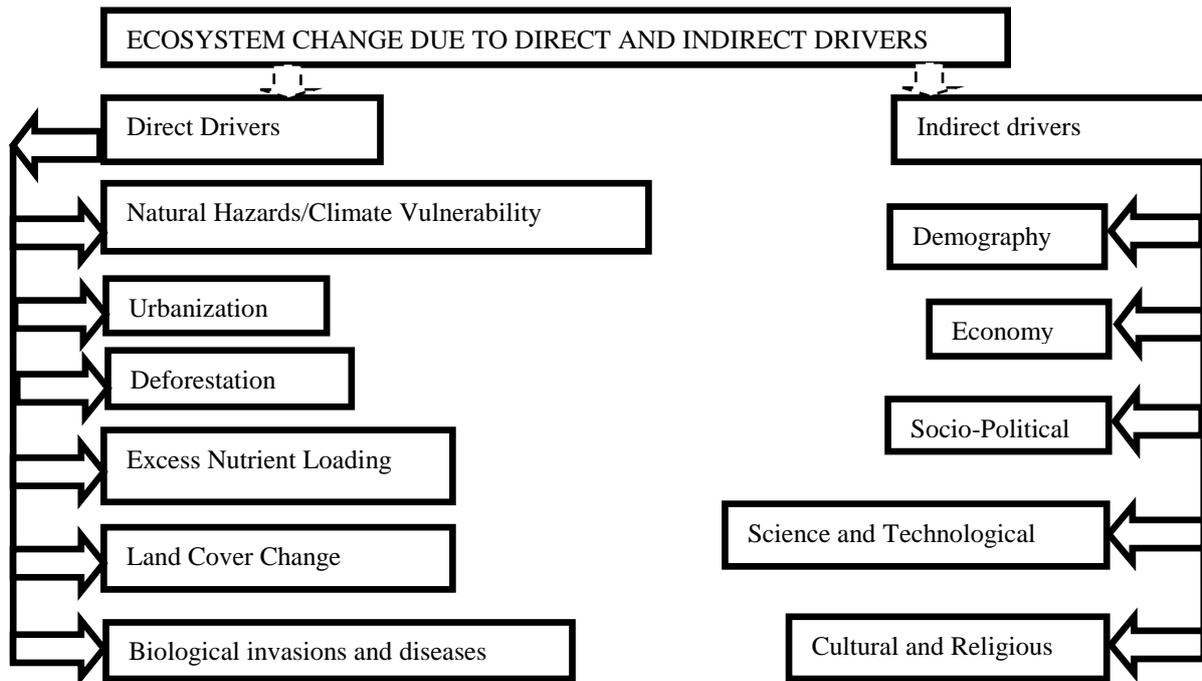
**Fig.1. Direct and Indirect drivers of change in ecosystem (*Source: Author)*

Since the ecosystem is a dynamic system, it changes due to many factors that are either driven by nature or induced by human activities. These factors of transformation are termed as Drivers of change in the ecosystem [17]. MEA classified broadly the drivers of ecosystem change into two categories, one being the direct drivers and others are indirect drivers of change. Changes due to direct drivers can be identified effortlessly and have a straight forward consequence on the ecosystem's structure, functions, and processes [20]. On the other hand, indirect drivers cause effects, indirectly, which means at a very low rate and causing a change in one or another direct driver [11].The drivers of change in ecosystem always influence each other and cannot be considered in isolation. As these direct and indirect drivers change ecosystems; goods and services obtained from those ecosystems also get affected. Although intricacy of these drivers increases due to over-exploitation of natural resources and overuse of other ecosystem services like provisioning and cultural services. It is therefore important to understand the drivers of ecosystem change and establish better acquaintances between them. Hence direct and Indirect drivers for ecosystem change is further detailed as shown in Figure-1.

II. CULTURAL & RELIGIOUS DRIVERS OF CHANGE IN ECOSYSTEM AND ENVIRONMENTAL SPACES

The Cultural Ecosystem Services, goods, and benefits are produced by the interface of cultural practices and environmental spaces. These spaces are motivated historically by the interaction of various societies, cultures, and technologies over decades, centuries and millennia. These spaces consist of biophysical features like green and blue areas that provide many opportunities for prevailing cultural practices in the form of spiritual, cultural and recreational values. Cultural practices thus shape

environmental spaces and environmental spaces enable cultural practices. MEA suggests that to understand culture and religion as a driver of ecosystem change, the most imperative entity is to think culture as values, beliefs and norms that society shares when they obtain certain goods and services from the ecosystem. Cultural values and beliefs are deeply rooted inside human psychology and hence they change human perceptions of choice of action between appropriate and inappropriate. Culture and religion, therefore, guide people's ideology and perception of the world, this perception influence an individual's behavior to prioritize things and for which they decide the choice of actions. It depends upon the individual's culture whether to choose appropriate (pro-environment) or inappropriate i.e. actions against the environment. Apart from this, there are many constraints faced by individuals while defining the ability to shape pro-environmental behavior that would be discussed in further arguments. This paper thus highlights the role of culture and religion to shape human behavior by linking the psychology of human society for environmental concern and influence of shared and social values, norms and beliefs on one's own decision. Cultural practices are dynamic and manifested with time as both of them share values, that are normative to communities, large societies and beliefs often deviate from place to place and can be discriminated according to magnitude associated with them such as concepts, provision, and intentions as shown in Table-I. These values are classified as transcendental values, cultural & societal values, communal values, group values, and deliberated values, etc. associated with society[6]. The major factors that are somewhere dissimilar and are often considered in economic studies as business services get influenced by other fundamentals of culture to protect the

Table- I: Major typology of values, their definitions dimensions as per their discrimination

Type of values	Definition	Dimensions
Transcendental values	Conceptions about desirable end states or behaviors that transcend specific situations and guide selection or evaluation of behavior events	Concept
Cultural and Societal values	Cultural values are grounded in the cultural heritage and practice of a society and within societal institutions, where as societal values are the cultural values of a society , so there will be multiple set of cultural values in one society.	Provider
Communal Value	Values based on share principles and senses held in common by members of community (e.g., geographic faith/ belief based , community and practice etc.)	Provider
Group Value	Values expressed in groups as a whole in some kind of valuation or interpretations .	Provider
Deliberated Values	Outcome of deliberative process which involves discussion and learning.	Process
Contextual values	It is a sense of importance attached to the well being of others.(Human and Non Human)	Intentions
Value to Society	Benefit worth or importance to society as a whole	Scale

Source:(Kentera, et al., 201

natural system.These economies twisted cultural factors such as Environmental consumer conduct, environmental political conduct, and willingness to make sacrifices [24].

III. STUDY METHOD

Study had been conducted for four villages under different arguments (Value, Belief and traditional customary laws) to understand the impact of Cultural and Religious drivers. Approximately 50 household from each village had been surveyed and scored (1 for yes and 0 for No) to understand the direct and Indirect influences of cultural and religious drivers. In fact study tried to explore which type of law made a more influence on the society out of Customary laws or enforced laws of governance. Cultural and Religious aspects were examined through values addressed in Table-1.

IV. CASE STUDIES: -ARGUMENTS APPLIED TO ENVIRONMENTAL CONCERNS

A. The argument I – Value

Numerous works of literature made conjectural and pragmatic arguments to support the following concept "Things that people consider important in their life – is important in shaping behavior and are relatively stable over the life course" [1].

i. Communal Value: Case of Mendha (Lekha) Village, Gadhichiroli district, Maharashtra

Mendha (Lekha) village in Gadhichiroli district of Maharashtra experienced a great loss in biodiversity due to extreme deforestation. After this Villagers among themselves decided to ban commercial exploitation of forests. Due to the dependency of tribal communities on natural resources for their livelihood, only commercialization of Non-Timber Forest Produce was permitted. Moreover, the villagers themselves started many initiatives like regulating the number of resources to be extracted from the forests, multiple measures to reduce soil erosion, prohibited burning of

post-harvesting residue in agriculture fields due to the threat of fire into forests. Encroachment into forest land was also banned by local communities. The important aspect of this case study is that residents themselves decided to take all efforts without any external support or guidance [2].

ii. Cultural and Societal Values: Meetei communities, Manipur

Sacred groves are locally known as Umanglais, by Meitei communities of Manipur which form an integral part and culturally valued environmental spaces of their tradition of worshipping nature. From a long period they are living in the tiny dense forests. As per their population, they require very less amount of resources to survive. They are dependent on their catchment area to obtain small services and are living in harmony with nature. Religious beliefs have played an extremely important role in protecting sacred groves. These protected groves have diverse species of plants that provide medicinal benefits and habitation for birds and animals. In this way, certain cultural and religious beliefs help in the conservation of the ecosystem [2].

A1-Sub Argument I- Post Materialistic Values

"Only once when people achieve a reasonable degree of material security, they can assign priority to issues such as environment [4]." Environmental degradation is a general phenomenon in slums worldwide. The increasing population in urban areas from rural and other urban areas has augmented rapid slummification which is deteriorating urban ecosystem. On one hand is the poor, who have many dependencies on natural resources and the other hand, resourceful people deplete and pollute natural resources at a faster pace, due to lack of access to other types of resources [26].

i. Communal and Deliberated Process Value: Case of Ralegaon Siddhi, Maharashtra

It is a small village in Ahmednagar district of Maharashtra and was drought-prone and poverty-stricken. Surprisingly, it had a single industry of distilleries and villagers had no option for safe water. Daily purchases of distilled water cans also had a huge burden on the pockets of residents. The reason behind extreme conditions was overgrazed and exploited forests; this, in turn, caused a shortage of food and water for local villagers and fodder for animals. The well-known public figure and retired army personnel, Anna Hazare, returned to serve his native place. He took local youth in confidence and mobilized them to focus more on the value of 'shramdan' or voluntary physical labor. He with the help of local villagers worked for regulation and control of free grazing, regeneration of the uncultivated wastelands, storing & harvesting rainwater, the formation of check dam, generation of biogas and manure of cowdung etc. [10].

B. Argument II - Beliefs (Altruism)

"Beliefs are considered as a predictor of the behavior of individuals, groups or communities. Traditional values, which might be termed *conservatism* and appear to be related to *fundamentalism* in many faiths lead to less concern with the environmental concerns" [14].

● Case of Indian Scenario; Environment pays a big price for cultural and religious belief

Immersing of idols during Durga Puja (e.g. Kolkata) and Ganpati (e.g. Mumbai). Uncontrolled use of fireworks and bursting of crackers during cultural events and festivals like Diwali are continuing to pollute the air in many cities. Fecal coli form organism count has increased to 200 times the normal count even at stretches where the water current was very fast during mass bathing and fairs [3]. Pilgrims dump religious wastes into sacred water bodies near the temple without realizing the concept of carrying capacity and the role of the ecosystem is creating havoc with the environment. Also, another major problem is the immersion of dead bodies remains; as bodies that are partially burnt are continued to be dumped in rivers, Ganga.

C. Argument III – Traditional Customary laws

"These are particularly important in local commons management, where they often guide behaviors that prevent overexploitation of a common pool resource" [15].Theses traditional customary law is set of customs and practice that are accepted as obligatory rules by people and the local communities.

● Case of Apatani Eco-Cultural Landscape, Arunachal Pradesh

Topographically cut off from the mainland, historic Apatani civilization in Ziro valley of Arunachal Pradesh is a UNESCO world heritage site. It is the best illustration of valuing the ecosystems and setting up norms to preserve them. They sustainably manage their natural resources using the traditional ecological knowledge and judicial utilization of the ecosystem [18]. It has a very strong Village Council known as 'Bulyang'. Recently, a Joint Forest Management program was initiated as a community participatory effort by Bulyang through several institutional arrangements. The aim of this initiative was towards the restoration initiatives that needed to be taken in degraded Unclassified State Forests

(USF) around the villages that have been under excessive biotic pressure which is arising from uncontrolled grazing, removal of forest species, fuel-wood/timber and the age-old practice of Jhum cultivation [15].Getting inspired by cultural norms and the ancient judiciary system, Bulyang has developed customary laws for violating natural systems as shown in Table- II.

Table-II Customary Laws of Apatani tribes to offense natural system

Offence	Customary Law
Trespassing of Paddy Fields and Bamboo	To pay twice the cost of destructed paddy fields / fine of fully grown cow to the village authority.
Burning of House/ bamboo Garden/Pine grove	The offender has to pay for the cost of pine grove with all intention for destructed property.
Intentional destruction of boundary, fencing, Water pipe and ritual place	To pay twice the cost of damaged material and fine of fully grown cow to the village authority

Source:(J. Dutta, 2012)

V. RESULTS AND ANALYSIS

The table-3 below shows the impact of different cultural and religious drivers in all four villages was varying. It states that the variables were context specific and influence as per their need. Few values, beliefs were deep rooted and a few evolved because of experiential learning. The study clearly depicts that Customary laws were more influential than the enforced law , which were less context specific. Similarly influence of Cultural –societal value and context value found more than communal and group value . The reason might be that communal and Group value needs an external motivation or strong condition to follow. As these Communal and Group values were more beneficial for formation of customary laws, based upon the common concern. As it clearly depicts in Table -III the communal, group and contextual values were predominantly influencing amongst the other cultural and religious driver. It might be because of livelihood and occupational; traditional practices, which were diminishing due to lack of resources and awareness. The same had been analyzed by calculating Mean and Standard deviation of each value collectively for all the case examples to understand the direct and indirect influence.

1554

Table-III Comparative Analysis for all different kinds of Argument related to Values, belief and Traditional customary laws.

Arguments ⇒	Argument-1			Argument -III
Cultural and Religious Drivers ⇓	Case-1	Case-2	Case-3	Case-4
Transcendental values	●	-	-	●
Cultural and Societal values	●	●	●	●
Communal Value	●	-	●	●
Group Value		-	●	●
Deliberated Values	●	-	●	-
Contextual values	●	●	●	●
Value to Society	●	●	●	●

Formula for mean

m = X1+ X2 + X3+.............X n/n

Whereas m = Mean, n = number of sample and $\sum x$ = sum of scores ;Formula for standard deviation

SD = $\sqrt{(\Sigma X - Mean)^2 / n}$

Table -4 Showing Mean and Standard Deviation(When n=200)

Source : Author

Cultural and Religious Drivers	Mean	Standard Deviation	No. of positive responses
Transcendental values	0.60	8.40	120
Cultural and Societal values	0.87	12.30	175
Communal Value	0.70	9.80	140
Group Value	0.70	9.80	140
Deliberated Values	0.37	5.20	75
Contextual values	0.90	14.14	180
Value to Society	0.75	10.50	150

The above calculation summarizes the general inclination of people's belief, values of all four case examples. It was observed that mean and standard deviation for all five categories of Cultural and religious drivers more or less similar (mean = ranges from 0.6 to 0.75; SD=8.4 to 10.5); Whereas mean and standard deviation for deliberated value is least (Mean=0.375; SD=5.2) and highest for Contextual value (Mean= 0.9; SD=14.14). This is indicative of strong impact of the Contextual values as culture and religious factors changes with respect to change in the place as in Fig.2.and Fig.3.
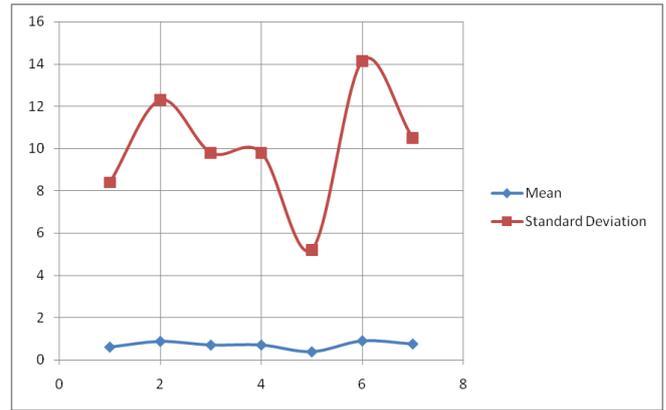

Fig. 2. Scattered Plot showing Mean and Standard deviation of Cultural and Religious drivers
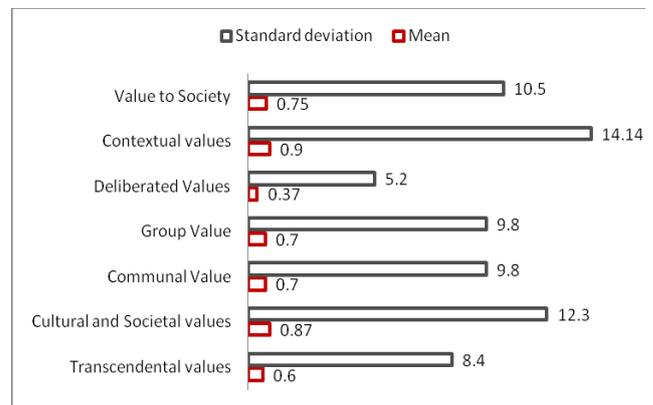

Fig. 3. Comparative Bar Graph showing Mean and Standard deviation of Cultural and Religious drivers

VI. DISCUSSION AND CONCLUSION

This establishes that one can care for the ecosystem by minimally bringing change in cultural values, beliefs, and Customary laws. However, these components have an intricate relationship among themselves. While cultural and religious drivers of ecosystem change have a significant impact on ecosystems, research in the paper also exhibits that that argument should always be more context-specific. As discussed earlier in all the specified four arguments, out of them, only a few cultural and religious drivers could be analyzed quantitatively, while others require qualitative analysis. Change in culture is a significant part of qualitative elements and this can be illustrated in hypothetical and modified scenarios created by MEA to explore possibilities for the future that cannot be predicted by simply forecasting of past and current trends. While comparing two scenarios of Apatani tribes and Raleagaon Sidhi village with the above arguments, in both cases local groups and societies at various levels unfold a proactive approach to understand ecosystem management and pursued various strategies for environmental protection. Culturally distinct forms of learning about and conforming to ecosystem changes which are encouraged in the above societies. Innovative ways of integrating conventional, ecological and native wisdom into management processes are fostered.

Safeguarding the cultural and religious values, beliefs and customary laws are assigned to nature in various cultures became a part of developed strategies of indigenous communities. In order to secure, preserve and raise the traditional culture and knowledge of the indigenous communities, statutory authorities should take further steps to empower them. Communities should be encouraged to develop and the opportunity for further education and skill development should be provided so that they are more conservative towards pro-environmental behavior and ethics. Learning lessons from best practices on human behavior, government and associated institutions should make policies and best practice manuals to implement them in other areas. Though, plenty of departments are engaged in these activities, but for better governance, it is needed to integrate the policies to avoid overlapping amongst departments for smooth implementation. Environmental advocacy groups and civil societies should be involved in government schemes and decisions to implement these policies because at a certain time it is easy for Non-Government Organizations (NGOs) and civil societies to interact with tribal people. Also, get across to the urban population and encourage them to understand about tolerance and regard for the natural system as well as their cultural heritage. Lack of awareness and knowledge about ecosystem services to the general public lead to the chaotic situation and made disrespectful towards the environment. Hence it is important to sensitize and instruct officials who are in charge at the upper and local levels to make the people understand and respect the cultural values and environmental concern. Since indigenous communities rely mostly on natural resources for their livelihood so, in present-day context for protecting natural system, it is important to promote alternative means of livelihood pattern which may include forest and agricultural produces, herbal medicines, heritage & traditional health-based tourism (like Kerala), ecotourism, scientific tourism (such as biodiversity), handicrafts/ handlooms, traditional & ancient art and knowledge. The community engagement in the decision-making process for ecosystem management develop a responsibility for caring towards its ecosystem .The involvement of the people is required in every stage of plans and policies pertaining to environmental planning and management at the local level to balance the ecosystem with unique religious and cultural practices are the driving forces of human societies, of how they perceive their environment. Traditionally, scientific or conservation ethics are the way for modern ecosystem management. This often led to variance between culture and conservation, but lately it has been a strongly recognized that effective ecosystem management can only be attained through assimilation and better understanding of the relationships between nature and communities.

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REFERENCES

1. Ajzen, I, The theory of planned behavior. Organizational Behavior and Human Decision Processes,1991, 179-211.
2. Chhibber, B. , Indian Cultural Heritage and Environmental Conservation through Traditional Knowledge. Mainstream,2008, 25.
3. Down To Earth., Defiling the sacred. Retrieved from Down To Earth:http://www.downtoearth.org.in/coverage/defiling-thesacred,2000 ,17624
4. Inglehart, R., & Abramson, P. R , Economic Security and Value. American Political Science Review,1994, 88, 336-354.
5. J. Dutta, O. M. , The 'Tani' Mega-cultural Landscape. In K. S. P.S. Ramakrishnan, Cultural Landscapes: The Basis for Linking Biodiversity Conservation with the Sustainable Development,2012, (pp. 47-58). New Delhi: UNESCO.
6. Kentera, J. O., Bryceb, R., Christiec, M., Cooperd, N., Hockleye, N., Irvinef, K. N., et al, Shared values and deliberative valuation: Future directions. Ecosystem Services, 2016,358-371.
7. Kulke, H., &Rothermund, D. , A History of India. London: 1998,Routledge.
8. MEA. ,Ecosystems and Human Well-being: Policy Responses, Volume 3. Washington D.C.,2005, Island Press.
9. Müller, M. ,A History of Ancient Sanskrit Literature. London: 1859,Williams and Norgate,.
10. Nadkarni, M. V. (2000). Poverty, Environment, Development: A Many Patterned Nexus. Economic and Political Weekly, 2000,1184-1190.
11. Nelson, G. B. , Drivers of change in ecosystem conditions and services,2005, Island Press.
12. Ninan, K. , Introduction: Biodiversity, Ecosystem Services, and Human Well-Being. In K. Ninan, Conserving and Valuing Ecosystem Services and Biodiversity – Economic, Institutional and Social Challenges.,2009,London.
13. Ostrom, E., Dietz, T., Dolšak, N., Stern, P. C., Stonich, S., & Weber, E. U. ,The Drama of Commons. Washington, DC: 2002,National Academy Press.
14. P. Wesley Schultz, L. Z. ,Values as Predictors of Environmental Attitudes. Journal of Environmental Psychology, 1999,255-265.
15. Ramakrishnan, P. , Globally Important Ingenious Agricultural Heritage Systems (GIAHS): An Eco-Cultural Landscape Perspective. Rome,2002, Food and Agriculture Organisation of the Unitec Nations.
16. Spangenberg, J. H., Haaren, & C. V. &Settele, J. ,The ecosystem service cascade: Further developing the metaphor. Integrating societal processes to accommodate social processes and planning, and the case of bioenergy. Ecological Economics,2014, 22-32.
17. Stern, P. C. Towards a coherent theory of environmentally significant behavior. Journal of Social Issues, 2002,407-424.
18. UNESCO. , Apatani Cultural Landscape. Retrieved from World Heritage Convention, UNESCO, http://whc.unesco.org/en/tentativelists/5893/,2014
19. UNFPA, UNFPA State of world population, 2007. United Nations Population Fund.
20. WRI. (2008). Ecosystem Services: A guide for decision-makers. 2008,World Resources Institute.

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1556

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