

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/305768036>

Regulating Eco-Sensitive Zones

Technical Report · August 2016

DOI: 10.13140/RG.2.1.4926.2329

CITATIONS

0

READS

1,843

2 authors:



Francis Kuriakose
Erasmus University Rotterdam

62 PUBLICATIONS 32 CITATIONS

[SEE PROFILE](#)



Deepa Kylasam Iyer
University of Cambridge

81 PUBLICATIONS 31 CITATIONS

[SEE PROFILE](#)

MONOGRAPH

08/2016

REGULATING ECO-SENSITIVE ZONES

ANALYSING INDIAN LAWS BASED ON WESTERN GHATS ECOLOGY PANEL REPORT

Francis Kuriakose
Deepa Kylasam Iyer

August 2016

We dedicate this work to M. Krishnan – a gifted artist and a warm human being. Indian ecology literally grew up to the music of his words in his column that ran continuously for more than four decades. This work is a deep acknowledgement that anyone after him would traverse with him a long way before finding a path of one's own. We owe an intellectual debt to Madhav Gadgil and Ramachandra Guha. Their meticulous documentation of the history of ecology and environmental movements has recapitulated environmental consciousness of the Indian subcontinent. Their work is the foundation on which Indian ecological policy rests. The views expressed herein are solely those of the authors and do not necessarily represent those of National Institute of Securities Markets or the National Law School of India University.

© 2016 by Francis Kuriakose and Deepa Kylasam Iyer. All rights reserved.

Dedicated to the loving memory and living legacy of

M. Krishnan

(1912-1996)

India's Evocative Naturalist

Regulating Eco-Sensitive Zones
Francis Kuriakose and Deepa Kylasam Iyer
Monograph 08/2016
August 2016

Summary

The monograph examines the recommendations of the Western Ghats Ecology Expert Panel on making the Western Ghats eco sensitive zones in the light of Indian environment laws. The Indian environment debate of conservation and protection of biodiversity has been sustained by post colonial response that has two major opposing strands. The first is the cultural opposition characterised by the indigenous people of their homestead, religious and livelihood rights. The second is the opposition within the political and legal framework that has taken the judicial and policy making route. Both these strands have richly contributed to the environmental policy that India has today. In this context, an expert panel on considering Western Ghats as eco sensitive zone observes the cultural and natural history of the biodiversity hotspot through the lens of planning and regulation. This brings out the tension between the natural habitat perspective of the people, flora and fauna of the forests and the regulatory band that the state imposes on it from outside. Understanding the conflict is the beginning of a sensitive policy toward incorporating forests as spaces of natural and cultural importance.

Keywords: Conservation, Eco sensitive Zones, Western Ghats, Biodiversity, Constitutionalism

Francis Kuriakose
National Institute of Securities Markets
NISM Bhavan, Plot No. 82, Sector 17
Vashi, Navi Mumbai, Maharashtra – 400 703
India
francis.kuriakose@gmail.com

Deepa Kylasam Iyer
National Law School of India University
Nagarbhavi, Bangalore – 560 072
India
deepakylasamiyer@gmail.com

Abbreviations and Acronyms

BDA	Biological Diversity Act
CrPC	Criminal Procedure Code
CRZ	Coastal Regulation Zone
EIA	Environmental Impact Assessment
EPA	Environment (Protection) Act
ESA	Eco Sensitive Areas
ESZ	Eco Sensitive Zones
FRA	Forest Rights Act
GMC	Genetically Modified Crops
IPC	Indian Penal Code
IPR	Intellectual Property Rights
MoEF	Ministry of Environment and Forests
PESA	Panchayats (Extension to Scheduled Areas) Act
PIL	Public Interest Litigation
PSM	People's Science Movement
UNESCO	United Nations Educational Social and Cultural Organisation
WG	Western Ghats
WGEEP	Western Ghats Ecology Expert Panel
ZASI	Zoning Atlas for Siting of Industries

1 INTRODUCTION AND RESEARCH DESIGN

Introduction

‘The story of the Ganges, from her source to the sea, from old times to new, is the story of India’s civilization and culture, of the rise and fall of empires, of great and proud cities, of the adventure of man and the quest of the mind which has so occupied India’s thinkers, of the richness and fulfilment of life as well as its denial and renunciation, of ups and downs, of growth and decay, of life and death.’

-Jawaharlal Nehru, *The Discovery of India*¹

‘When ascending, and on gaining the summit of any of these passes (in the Western Ghats), the survey which everywhere presents itself is of the grandest kind. ...The verdure about the Ghats to the southward of Poona is perpetual, but during the rainy season, especially towards the latter part of it, when the torrents are pouring from the sides of the mountains, the effect is greatly heightened by the extreme luxuriance of the vegetation.’

-Grant Duff, *History of Marathas*, Vol 1²

India is a vast natural geographical entity bound by the Himalayas in the north, the Thar desert in the north-west and the Indian ocean in the south. Over millennia, the mountain passes and the seas have provided passage for men and materials to freely pass through the sub continent. These exchanges of life and culture have been so vigorous and sustained that India, apart from China, is the only country to have had a continuous history spanning the last five thousand years. And yet the curious thing about India is that while one goes in search for the ‘entity’ called India and try to capture its historical essence, the journey has to begin with wandering in the rolling mountains and the vast plains, through the banks of its mighty rivers and locked valleys. It is with the epiphany that India begins and lives in its abundant wealth of natural resources and that it has witnessed the human civilization by vehemently

¹ Nehru, J. (1946, 2004). *The Discovery of India*, Penguin Books, New Delhi, pp. 42.

² WGEEP (2011). Report of the WGEEP Panel, MoEF, Government of India, pp. 2.

Intruding and silently withdrawing from human affairs from time to time, that history truly begins. That is why the founding statesman of India, Jawaharlal Nehru and a British historian of the nineteenth century, while attempting to discover the Indian history, in essence the temporal dimensions, are mesmerised into staying awhile in its geography, the spatial dimensions. Indeed, it has to be remarked that linguistically the name 'India' itself is a derivative of the mighty river 'Indus' and the Himalayas and the myriad rivers and rivulets are not mere hyperboles in India's cultural imagination. Agriculture began in the Indus valley as early as the sixth millennium BC and Indians showed a remarkable capacity to harness the annual folds and alluvial deposits. The tradition of accessing the benefits of nature through an integration process with little external inputs paved rich dividends in the early centuries and establishing sustainable farming as the hallmark of Indian agriculture. To this day some of the old practices like *Pokkali* agriculture in the coastal districts and *Kaippad* farming system of Kerala bear testimony to the integrity of agricultural practices in which humans maintained a symbiotic and reciprocal relationship with land and nature through land use pattern and agriculture. The soil, the stone, the ancient rocks and barren hills, the emerald lakes and the sapphire seas is the India lived by the Indians, at once their mythical land of the gods and the monstrous home to their children.

While this grandiose image is the India of the past as a cultural construct, ancient and enduring, the modern nation state called India as a political construct shows a very different picture. 'It is a landscape in which the natural world is continuously replaced by a world of artefacts: where trees, shrubs and grasses are giving way to plantations and crop fields, roads and buildings; where rivers are being increasingly impounded with waters diverted through underground tunnels to turn giant turbines or merely being disciplined to flow along paths straight and narrow; where old wetlands are being drained and new ones created in the form of waterlogged fields'³. In other words, someone passing through the cities and villages of India would be aghast at the teeming millions fighting for a piece of land, a plate of meal or a trickle

3 Gadgil, M. and Ramachandra Guha (1995). *Ecology and Equity: the use and abuse of nature in contemporary India*, Penguin Books, New Delhi, pp. 1.

of water. India's exploding population, expanding consumption power of a few segments of society and the wasteful resource practices of many have led the country to a state of staggering economic and ecological crisis. These localised fights over chronic resource shortages and vastly disappearing quality of natural resources are spread across the breadth of India, creating pools of misery and bubbles of protest in a vast ocean of dynamic equations and equilibrium. This is the backdrop of India's vibrant environmental movement and this study pertains to a part of it. It is imperative that while analysing the strategies to conserve the environment and non human lives who have an unassailable right to exist, the murmur of the man who vigorously fights for access to resources to maintain his life will be constant. It is this challenge that makes the study relevant and even the foundation for policy making sensitive and sustainable.

The idea of ecosystems, landscape and biodiversity

The concept of ecosystem, which is the fundamental unit of study pertaining to the environment, has itself undergone significant changes in its definition and scope. 'Traditionally, an ecosystem is defined as any unit that includes all living organisms in a given area, interacting with the physical environment so that a flow of energy leads to clearly defined trophic structure, biotic diversity and material cycling between abiotic and biotic components within'⁴. There are two important points to keep in mind while dealing with the ecosystem as a concept. First, the ecosystem has easily identifiable physiognomic features⁵. For instance, a forest, grassland, a pond or a marshy wetland is an easily identifiable ecosystem on virtue of its distinct physical and biological boundaries. This also leads to the fact that an ecosystem has both spatial and temporal dimensions. The spatial dimensions are covered by the physical and biological boundaries and the dynamic interconnectedness between them in terms of flow of energy and nutrient capital. The temporal dimension refers to the phases an ecosystem goes through in course of time. Under the new school of thought that views ecosystem as an ever-changing entity in space and time, an ecosystem roughly metamorphoses through four phases. The rest phase which is at

4 Ramkrishnan, P.S. (2001). *Ecology and Sustainable Development*, National Book Trust India, New Delhi, pp. 7.

5 Physiognomic features of an ecosystem refer to the general appearance of its terrain without the implied characteristics.

equilibrium with tightly bound resources is followed by the colonising phase which is characterised by the intrusion of a colonising element from without. Any small disturbance or interference leads to the ecosystem rapidly adjusting itself to the new dynamics. This is followed by the exploitation phase where sustained interference quickly changes the nature of functioning of the existing ecosystem. Then the ecosystem recuperates with the conservation phase or the climax phase. Consequently, increasing frequency or intensity of perturbations in the ecosystem between the last two phases can lead to the complete breakdown of the ecosystem.

The second feature of the ecosystem is that the definition of the term itself depends on the objective of the study. For instance, while studying functions of a leaf, the leaf with its surface area, physiological functions and living forms that inhabit can itself be an ecosystem. In another case studying a sacred grove, the leaf might be a component of the ecosystem sacred grove. Thus an ecosystem can be a microcosm or a macrocosm that satisfies two conditions - the presence of biotic and abiotic elements and energy flow.

Associated with the definition of an ecosystem, there are two functional characteristics to it. One is perturbation⁶ and other is fragility⁷. Ecosystems are subjected to perturbations all the time, ranging from minor to major, intrinsic to extrinsic. For example, when an ageing tree dies and falls over in a forest, it creates a small perturbation in the ecosystem. This is intrinsic to the system. But the ecosystem has a way of dealing with this in course of time by replacing it with new plants. Intrinsic perturbations may happen on a large scale like an insect attack on a given species or microbial infestation. In this case, the ecosystem may take a longer time to recover and sometimes some previous quality may be irretrievably lost leading to evolution. Extrinsic perturbations are unnatural and impacts over a large area. Timber extraction or discharge of pollutants into a river is an example. As a rule, it takes longer for an ecosystem to recover under two conditions - when the perturbation is large and extrinsic or when a perturbation is small but frequent. Both these events ultimately lead to the breakdown of the ecosystem.

6 Perturbations are disturbances that alter the equilibrium of an ecosystem.

7 Fragility is the quality of an ecosystem by which it demonstrates the degree of resistance against perturbations.

Fragility, on the other hand, is a consequence of the system's response to perturbation. Very large and intense perturbations could trip the ecosystem from one state to another. An excellent example of this phenomenon is the grasslands found across India which is in an arrested state of succession, unable to move forward into being a forest. This is an example of extrinsic reasons for fragility as large scale destruction of forest for timber and the change of land use pattern in which forest was cleared for other purposes has led to herbaceous species taking over. This weedy stage of arrested succession is one where the land has already become unproductive; an advanced stage might lead to desertification. Sometimes, the reasons for fragility of an ecosystem are intrinsic. For example, the Cherrapunji area in Meghalaya in north eastern India is a region of very high annual rainfall and densely close canopy of tropical evergreen forests. There is a relict forest which is a traditionally protected sacred grove in Mawsmat region. This ecosystem is extremely fragile because of the highly leached acidic soil on which the vegetation grows works on a tight nutrient cycle. The rapid nutrient loss of the soil due to its nature and heavy rainfall is short circuited back by the thick dense mat of roots that is peculiar to this system. The roots of plants with the help of fungal mycelium forms the symbiotic *mycorrhizae* to mop up nutrients and keep the fragile ecosystem sustain on its own.

The concept of an ecosystem with its inherent qualities of perturbation and response to perturbation is important in understanding large scale biological features and the impact of thoughtless human actions on them. A landscape in the environmental parlance is a set of closely connected ecosystem types occurring in a given region. Tripping of an ecosystem is the metamorphosis of an ecosystem into another, often a degraded type. 'Biodiversity is the variability of natural populations at the level of taxonomic varietal entities or ecosystem entities'⁸. Human ecosystems largely lie on the outside of the biological ecosystems and yet cause a great deal of perturbations. With the increasing degradation of the environment, a sharp shift in the perspectives of ecology has taken place. Early ecological studies assumed natural resources to be inexhaustible and humans as agents from outside. But the concept of 'sustainable development' first explored by the World Commission on Environment and Development, 1987, through Bruntland report titled *Our Common Future* defines it

8 Ramakrishnan, P.S. (2001). *Ecology and Sustainable Development*, National Book Trust India, New Delhi, pp. 10.

as ‘actions that meet the needs of the present generation without compromising the ability of future generations to meet their own needs⁹.’ The acknowledgement that human beings are insiders in the biological system and the idea of inter-generational equity has led to the evolution of different currencies of evaluation of development. Other than the most obvious economic currency of high returns, two new parameters merit consideration- that of energy efficiency and value systems of the society. The interactions with nature has an economic, ecological and cultural value that helps to understand the quantitative and qualitative aspects of the relationship, its impersonal outcomes for the commons and the deep personal resonance with a particular group.

Cultural ecology of pre-modern India

The Indus valley civilization was the first inhabitants in India to have embraced the plough and the pen. Known to have made use of the annual floods to cultivate indigenous rainy season crops and winter season crops, they sold the surplus of produce to the nearby towns and villages. This literate farming-trading community was completely gone by the time, the Indo-Gangetic plains in the Indian sub-continent came under settled agriculture. The initial growth of population with abundant resources and per capita land availability followed a phase analogous to the r-strategists¹⁰ of ecology with exhaustive resource use. The burning of the Khandava forest by Arjuna in the Mahabharata is a typical illustration of the environmental ethic that the early inhabitants demonstrated. The forest that was the resource base for the enemy had to be burned before it was put to good use. This framework of ethics gradually changed with increasing population and livestock. By the time the Varna system was being established in India, the population was at a phase analogous to the k-strategists¹¹ of ecology corresponding to a rapidly decreasing man-to-land ratio. Prudent and sustainable resource use and conservation began to take

9 Ibid., pp. 13.

10 and 11. In Ecology, r/k selection theory relates to the selection of combinations of traits in a species that inversely relate parental investment and the quantity and quality of offspring. Each selection seems to promote success in different environments. The terminology of r/k-selection was coined by the ecologists Robert MacArthur and E. O. Wilson based on their work on island biogeography.

root in the culture of the people. Buddhism and Jainism, two heterodox religions that came into existence stressed non-violence towards all living forms, a strict code of abstinence and most importantly vegetarianism.

Post the age of Guptas, the eclectic belief system of caste helped in developing a new ecological outlook in India. The new belief system believed in the hereditary modes of subsistence, sanctity of individual plants and animals and identifying them in the contexts of the divine. For instance, *Ocimum sanctum* (the holy basil), *Ficus religiosa* (the peepal) and *Presbytis entellus* (the hanuman langur) were considered sacred. As Gadgil and Guha remark on the ecological functioning of the caste system in their book *This Fissured Land* (1992), the narrowness of the caste niches with strict codes of endogamy can be paralleled with the narrowness of biological niches of species within a tropical setting. Many traditions including sacred groves and sacred ponds as refuge, the protection to keystone species and to critical life history stages, and the moderation of harvests from village wood-lots have persisted in Indian society over the historical period, sometimes down to the present day. Thus a form of ecological adaptation using religious icons was a part of the Indian culture. Even the Mughals who came to India from Central Asia, did not alter the system drastically. They often taxed only the surplus of produce and seldom levied horticulture, fisheries or common forest wood lots. The State also had little control over common land other than hunting preserves. These emperors brought with them their own eclectic belief systems that were often in contradiction to their subjects, but the system that had survived six thousand years of domesticated crops remained more or less intact. This conservation of an ecological ethic as part of tradition and culture that survived millennia despite the onslaught of invading armies and alien rulers is remarkable because of the persistence of an inclusive framework of co-habitation with nature that survives in the Indian cultural milieu to this day. This is a remarkable fact considering the last of the colonisers, the British were to bring with them their idea of industrial progress and resource use that damaged not only the ecological fabric but the shared cultural heritage of the Indian sub-continent.

Colonial encounters

Pre-colonial India had a long established tradition of sustainable resource use, communal interdependency and entrenched cultural codes that helped in building

life and civilizations as well as preserving natural habitats. The great horde of central Asians and Mughals who came to India and made this foreign land their home, did little to disturb its social structure. The encounter with Europe was an entirely different matter. Europe with its monotheistic religion, considerable expansion of modern science and industry was hungry for resources and ambitious about conquests. It was in a momentous phase of her own history, on the cusp of great changes of perspectives, her rebirth and renaissance in the sixteenth century that modern Europe reaches out to the eastern world. In the battle of the European minds, they envisaged a vast world willing to be conquered for it was promised to those who sought. Little did they think about the reality of the physiognomy and the geography of the land, the culture and beliefs of its people, that the rendezvous was unplanned and revelatory to both sides, its consequences long lasting and irreversible. A lot of research has been done on the social, political, economic and cultural consequences of the throbbing centuries of colonialism, but very few have systematically applied their mind and time to the ecological implications of this juncture. As Gadgil and Guha remark in their work *This Fissured Land* (1992), there were three important facets of the colonial encounters that had an abiding impact on the ecology of post colonial India as well as its ideologies of response.

What happened with Industrial revolution was that it primarily enlarged the possibilities of transformation and transportation. With the advance of technology, an object hitherto thought of as a local produce began to have many lives in different parts of the world. For instance, wood that was primarily used to build implements or burn for cooking could now be so much more. It could be paper and matchsticks, burn for engines and ships, transported to different parts of the world for fire and fragrance. This remarkable possibility transformed not only the objects concerned but the perception of the objects as well. Consequently, it had a profound impact on resource use pattern, flow of materials and modes of ownership. What was once under communal control had so much value if retained as private property. In European history, acres of common land were usurped as private estates and the ideology of common lands questioned. Three elements of this revolution has direct value to the way Indian ecological history were to change. Primarily, it reduced the importance of resource gathering for food production and subsistence and instead focussed on resources to be gathered, processed and transported as commodities.

Secondly, co-operation with strangers that was the cornerstone of India's cohesive social structure became defunct. And finally, the commodities had to be accessed through common markets that became the focal point of economic and social life. The clash of two cultures is explained thus - 'For the elevation of commercial over subsistence uses, the delegitimization of the community, and the abandoning of restraints on resource exploitation-all ran counter to the experience of the vast majority of the Indian population over which the British were to exercise their rule. This was a clash, in more ways than one, of cultures, of ways of lives¹².'

Western Capitalism had an incredible impact on world ecology including the ecologically resistant tropical zones where the old world civilization inhabited. Europeans used trade and then their rule of the law to colonise not only the socio-economic world but that of eco-systems as well. The port-manteau biota¹³ that they brought with them to India, China and South America together with their home grown ideas of agriculture and horticulture, and methods of resource extraction that primarily benefitted their land and its people savaged the civilised world of the Orient, including and especially India. By leaving an industrial economy and the pleasures of a consumer society this legacy would remain even after they left India's shores.

The early onslaught of the colonial policy in India was based on expanding military power and increasing revenue. The fierce denudation of the forests of India from 1860 was explained by the phrase 'the safety of its empire depended on its wooden walls'. 'From the laying of the railway lines in 1853 and the pace of railway expansion from 1349 kilometres in 1860 to 51658 kilometres by 1910' (Gadgil and Guha, 1992) the trail of destruction on Indian teak, sal and deodar known for their durability, was unprecedented. Naturally, such large scale destruction by Government and private contractors led to the necessity of having a legal safeguard to check illicit activities. The first Forest Act of India 1865 was a consequence of this line of thought. But the law was aimed at bettering the colonial prospects at the cost

12. Gadgil, M. and Ramachandra Guha (1992). *This Fissured Land: An Ecological History of India*, Oxford University Press, New Delhi, pp. 116.

13. Port - manteau biota refers to the indigenous species of plants in the native countries of the colonisers that were later introduced in India.

of the natives who depended on forests for life and livelihood and the right of the mighty ecosystems to exist by themselves regardless of the needs of humans. Between the first Forest Act of 1865 and the second of 1878, the legal precedence set by this act had far reaching repercussions for Indian ecology.

Foremost among the consequences was that these legal acts became the vocal advocates of the state monopoly over what was once considered common property lands. 'Absolute proprietary rights' of the state over forests was established removing all ambiguity about access and ownership of common lands on India. The bedrock of this position was that those lands not under cultivation belonged to the states and the customary rights over these lands had to be expressly given by the rulers, in this case the colonial state. Distinction between rights 'as strict legal rights that unquestionably exist, and in some instances have been recorded in the land settlements records' and privileges defined as 'concessions of the use of grazing, firewood, small wood etc though not claimable as legal right, are always granted by the policy of the government for the convenience of the people'. The official primer of the forest law was that ancient monarchs of the Orient had powers that were supreme and this distorted assumption was the basis of the legal entitlement of the state. 'The right of conquest is the strongest of all rights- it is a right against which there is no appeal.' The national sentiment against such posturing was predictable- it denied any kind of intervention by the state by taking the perspective that any kind of forest use by the common people must be taken as evidence of property ownership by them. Eventually the forest act that emerged was bereft of Indian strains of aspirations and needs; it played a solitary imperial music. The interest of the British Crown was in generating adequate revenue to keep the administrative machinery self supporting. The strategic relevance of the forests in helping in the world wars by creating railway network was later realised. Markets for the multiple commodities that Indian natural resources offered had to be found and handsome urban centres craving for luxurious lifestyle were created. A deliberate separation between agriculture and forestry was made in such a way that farmers who depended on forests were denied access. Hunting preserves were created for the sport and recreation of the British officials through the Raj Shikars. And finally, large expansion of woodlands into tea, coffee and rubber plantations was enacted. The shrinkage of forest areas and 'the seemingly immeasurable extent of its natural

resources' were the first casualty. Large communal life and its modes of preservation was irretrievably lost. The subsistence of the peasant was severely affected and famines became more frequent. Finally, certain groups of Indians like hunter gatherers and artisans who had lived performing their traditional occupations for centuries slowly began to disappear from the sub-continent. The artisans working with bamboo, the tassar silk industry, the village tanners and dyers were some of the prominent among them.

Home grown rebellions- a response to the colonial rule

One of the first groups of people to directly protest the colonial policies were the social group most directly and intensely affected by them- the Adivasis. Small uprising or fituris in the late decades of the nineteenth century were common and documented. The Baigas of Central India were restricted in their hunting activities and shifting cultivation practices. Their method of protests was something short of direct confrontation- refusal to pay taxes and continuation of their practices in the forbidden areas. The most sustained rebellion was the Rampa rebellion of 1879-80 in the present day Seemandhara region of India. Sometimes the adivasis protested their own feudal countrymen as much as their colonial masters as in the Bastar uprisings and the rebellion at Adilabad in 1940. In all these instances what was remarkable was 'the tenacity with which they clung to their rights (which) was visibly manifest, too, in the escalation of forest offences per annum (averaging 30,000 per annum)- with the killing of forest personnel a not infrequent occurrence.' The Santhals in an act of affirmation of their traditional rights looted fish ponds controlled privately by zamindars. The 1873 act that prohibited the use of an axe in the forest literally made criminals of most Indians who depended on the forest for their sustenance. Thus thefts and crimes increased all the while, the criminals were merely going about the daily activities of their lives.

The defiance of forest laws formed an integral part of the national campaign against the imperial policies led by Mahatma Gandhi. In the decade between the initiation of the non-violence resistance of the 1920s and the civil disobedience of the 1930s, violation of forest laws like the salt laws was pervasive. Thus there was quite a spectrum of protests levelled against the British by different social groups in India reflecting a range of responses to ecological and economic degradation. 'These

conflicts were entirely consistent with the wide variety of ecological regimes, and correspondingly of social forms of resource use, which prevailed in the Indian subcontinent. The idiom of protest corresponded well to the language of exploitation. For instance, the economic monopoly went against the subsistence ethic of the peasant just as the legal claims of the state clashed with the cultural control of the social group. In order to discern an ideological content, one needs to understand that 'protest against enforced social and ecological changes clearly articulated a sophisticated theory of resource use that had both political and cultural overtones' (Gadgil and Guha, 1992).

Ideologies of the Indian environmental debate

A recapitulation of the Indian history is necessary to understand the social context in which legal acts were formulated that was to become the backbone of law, administration and justice. Two major ideological strands threw up two alternate visions of economic and ecological future of the country. The first was associated with the ideals and beliefs of Mahatma Gandhi. Gandhi espoused his ideology in a brief booklet titled 'Hind Swaraj' that he penned at one sitting on a voyage in 1909. The kernel of Gandhi's social philosophy is the idealisation of the Indian village and the traditional methods of craft production that was central to it. The political appropriation of the Indian peasantry was an idea that attracted the masses especially as it was enveloped in a moral praxis and religious symbolism like prayer and hunger fast. Gandhi's theory of the capitalist as a trustee of wealth and a massive indictment of Western modernism did not mobilise the powerful chunk of industrialists who massively funded the nationalist movement along with a substantial population of urban educated elites believed in the scientific and industrial path of progress and development for India. The crusading Gandhians are alive and relevant in contemporary India who express their deep distrust of materialistic modernism and call for a return of the glorious golden past that they call 'Ram Rajya' or the rule of a benign king.

The second alternative that was also a by-product of national movement was set by Jawaharlal Nehru, a Cambridge educated feisty nationalist who was shaped by his Victorian upbringing and bitter colonial experience. Nehru and those who believed with him were greatly sensitive to the intellectual and economic backwardness of

India at that time due to stagnation of a once great civilization and its resourceful people. They believed that India's 'revitalization could only come about through an emulation of the West, intellectually through the infusion of modern science, and materially through the adoption of large scale industrialization'. Meiji Japan¹⁴, Stalinist Russia¹⁵ and Bismarckian Germany¹⁶ were held as exemplars who created a strong nation state with rapid urbanisation and industrialisation. The choices of a strong centre made in the Bombay Action plan of 1944, the insistence of five year plans that supported industry through state subsidised funding and the bureaucrat politician nexus of rules and regulation were a direct result of this school of thought. Unfortunately this strategy willingly or unwillingly sacrificed the interest of the bulk of rural population, landless labourer, small and marginal farmers, artisans, nomads and various aboriginal communities- whose dependence on nature was a far direct one. That this ideology became the bedrock of the industrial economy of post independent India is significant.

Every ideology hides the seed for the germination of its opponent in its womb. The Gandhian ideology centred on tradition and non-violence induced not the arrival but the intensity of the Marxists to the fray. For the Marxists, an economically just society is a pre-condition for an ecologically just one and hence they focus on organising the poor and the victimised through collective action and awareness campaigns. Revolutionary overthrow of the status quo is the fundamental tenet that often leads to violent clashes with the state machinery. This emphasis on confrontational movements and the faith in scientific modernism distinguishes them from the crusading Gandhians. Naxalite groups, radical groups and various People's Science Movements are examples of the ecological Marxists. The initial field of action of these groups of taking science to the people has resulted in creating ecological awareness as well.

14. The Meiji Restoration was a chain of events that restored imperial rule to Japan in 1868 under the Meiji Emperor. The period spanned from 1868 to 1912 and was responsible for the emergence of Japan as a modernized nation in the early twentieth century.

15. Stalinist Russia refers to the USSR in the early 1920s with a highly centralised command economy, launching a period of industrialization and collectivization that resulted in the rapid transformation of the USSR from an agrarian society into an industrial power.

16. Bismarckian Germany refers to the Germany of the 19th Century consolidated by Otto von Bismarck that was a new bureaucratic, efficiency-oriented nation-state.

The third and equally influential group of people are those who go the middle way. Characteristically christened the 'appropriate technologists', they support science and modern tenets of development up to a point where they can better human life with minimum damage to the environment. Unlike the other two groups, their sphere of action is less, concerning only the urban educated elite. A noteworthy feature of this group is its increasing prominence in contemporary environment scene. Strongly criticising the social hierarchies of the Indian tradition, they focus on developing and harnessing resource conserving technologies to preserve the environmental balance.

Though the three strands of ideologies coalesce and oppose in different permutations and combinations, often a single environmental movement is likely to be composed of one or more of its tenets. For example in the Chipko movement opposing the tree fellers in the Gharwal district in the Himalayas, Sunderlal Bahuguna, the charismatic leader and the face of the movement represented the Gandhian strand. The ecological Marxists were represented by the Uttarakhand Sangharsh Samiti and the appropriate technologists by the Dasholi Gram Panchayat Samiti. While the Gandhians participated through peaceful protests, dharnas and padyatras, the Marxist youth wing had organised movements against deforestation, mining and illegal activities. Finally the appropriate technologists gave the momentum with conservation techniques. In this way, the three strands are not exclusive but rather complementary on the field and though they all have dedicated members and loyal following, their sphere of activities tend to strengthen the debate on ecology and environment while clearly giving space for articulation of different points of view regarding the recourse to the problem and modes of action. Other than the three strands which were a direct response to the ideology of the state, it is important to acknowledge that the state itself has an ideology regarding development and the place of environment in the discourse. These competing claims and conflicting voices give a fullness and complexity to the Indian environmental scene that serves as the backdrop to the central problem of the thesis. The context for the formation of the Western Ghats Ecology Expert Panel (WGEEP) and the consequences of its recommendations has a socio-political context from which the legal context itself springs.

RESEARCH DESIGN

Background of the region

The study pertains to the Western Ghats Region of India. The Western Ghats Ecology Expert Panel defines the Western Ghats as ‘the practically unbroken hill chain (with the exception of Palakkad Gap) or escarpment running roughly in a North-South direction, for about 1500km parallel to the Arabian sea coast, from the river Tapi (about 21° 16' N) down to just short of Kanyakumari (about 8°19'N) at the tip of the Indian Peninsula’ (WGEEP, 2011). This region has been nominated as one of the two world’s biodiversity hotspots in India - a region of great biodiversity and high degree of threat. The hills are a treasure trove of biodiversity and the water tower of Peninsular India receiving up to 2000 mm of annual rainfall. The level of endemism of the flora and fauna of the region is so great that the degradation of natural habitats in the region will inevitably lead to the disappearance of species. According to the panel report, nearly 4000 species (27% of the total country’s flowering plant wealth) of flowering plants are known to exist in the Ghats. Of the 645 species of evergreens in India, 56% are exclusive to the Ghats. Among the lower plant group, 850-1000 species of Bryophytes, 682 species of mosses and 280 species of liverworts are found in the Ghats. From the animal kingdom, the Western Ghats harbours some of the rich and rare species of Odonates (dragonflies and damselflies). The amphibian fauna is special to the region with recent discoveries of a new genus of frog reflecting the importance of the region in nurturing ancient Gondwanan lineages of life forms. Unique caecilian diversity and primitive burrowing snakes are also found in the region. The hills are the origin of various rivers like Krishna, Kaveri and Godavari that water the entire southern peninsula. Rich riparian vegetation, wetlands, hills and plateaus, secondary forest and relict forests all form part of the complex ecosystem of the Ghats. The thickly populated region is also subjected to various degree of human intervention from the absolutely pristine forest patches to the severely degraded secondary forests.

Sociologically, what makes the region interesting is that it is also a region with a high degree of literacy and consequently environmental awareness in the country. Democratic institutions are well entrenched and Panchayati Raj institutes are an integral part of the governance chain. Individual states in the region have taken

positive measures to conserve and protect the environment. In a way, the Western Ghats constitutes an appropriate region in the country to make the transition towards an inclusive, caring and environmental friendly mode of development both owing to its natural wealth and its institutional capacity.

Statement of the problem

The need for the expert panel reveals two significant factors about the region itself. Western Ghats region, one of the 12 world's biodiversity hotspots, home to nearly 38 World Heritage sites designated by the UNESCO is clearly the home and habitat of a rich and enduring natural and cultural legacy. This region needs to be preserved not only for India but for the whole of humanity and the non human world in which we are but a small though significant part. The challenge however is in finding ways to make development characterised by increasing an inclusive participatory approach involving the people in and around the region. This is one of the densely populated regions with an astonishing range of classes of people who depend on the Ghats to various degrees. While chartering pathways to better transport, communication and employment opportunities to the people, sensitivity and care need to be displayed towards the ecosystems in which the social systems are embedded. The current approaches towards the problem are found wanting in the face of increasing conflicts between various interest groups and the interest of the natural world. The WGEEP was mandated to study the criteria for identifying Eco Sensitive Zones in the region so that clearly demarked prioritised action plan could be set aside. The aim of this study is to analyse the recommendations of the panel in the background of the Indian laws on Eco Sensitive Zones namely the Environment (Protection) Act 1986, the Biodiversity Act 2002 and the Forest Rights Act 2006 to understand both the significant expansion of the scope of laws that they reflect and the possible lacunae with a potential for improvement. The questions that we pose are whether the report succeeds in doing justice to the spirit of the EPA and to what degree. Another interesting aspect of analysis would be how the report seeks to balance the interest of the biological world as given in the Biodiversity Act and the rights of the forests people as given in the FRA 2006. The concept of eco sensitive zones and whether they are relevant and viable under the legal light would be examined. Finally, to see what the recommendations of the report augur for the future of ecological conservation in India.

Scope and significance of the study

The concept of Eco Sensitive Zones is new in the field of environmental conservation. It derives its origin from Section 3 of the Environment (Protection) Act 1986. Though the term 'eco fragile area' has been used in the context of select districts in India, a consensus on definition and the significance of the idea was curiously lacking in the Indian ecological and legal context. WGEEP has come to a working definition of the term and the encompassing ideals of conservation approach and development pathways associated with it. This study attempts to evaluate the report in the light of three Indian laws on the environment. The EPA 1986 is the law from which the committee and its mandate derive its authority. The other two laws concerning biodiversity and forest rights have been selected to evaluate how the report seeks to strike a balance by taking into consideration the competing claims of both the interest groups.

Objectives of the study

The objectives of the study are

1. To evaluate the report of the Western Ghats Ecology Expert Panel in the light of three Indian environmental laws namely Environment (Protection) Act 1986, Biodiversity Act 2002 and Forest Rights Act 2006.
2. To assess how the recommendations of the report seek to strike a balance between the competing claims of preserving biological wealth and the rights of the forest people as enshrined in the acts.

Methodology and sources of data

The methodology used for the study is descriptive and analytical. The data has been collected from sources like WGEEP report, the Environment Protection Act, the Biodiversity Act, the Forest Rights Act and various secondary sources like books and academic papers.

2 INDIAN ENVIRONMENTAL LAWS AND ECO-SENSITIVE ZONES

Environment in the legal context

“How can you buy or sell the sky, the warmth of the land. The idea is strange to us, if we do not own the freshness of the air and the sparkle of water, how can you buy them?”

Thus spoke the Red Indian Chief on being asked by the colonialists to sell the land he was born on. Environment as a home and habitat of all living beings on earth has been the oldest idea regarding nature. This home that was freely available to all could not be brought or sold; only lived in and experienced. According to the Red Indian Chief, the sale proposed by the White chief of Washington nullifies many facets of the home that he knows and lives in- the sacredness of the land, the freshness of the air, the sparkle of water, the midst of dark woods, the music of the winds, the songs of the humming insects and the fragrance of the flowers. With the early hunter gatherers increasing in population, the idea of resources became crucial in survival of tribes. Prudence of resource use became a useful ideology. With settled agriculturalists and a steady increase in human population, resource restraint and skill development especially gained importance. Slowly, the idea of free nature became nature as conquest and eventually nature as property and asset. Indeed, in the long sweep of human history, four historical modes of resource use have been classified according to the aspect of technology, economy, social organisation, ideology and the idea of ecological impact itself. They are gathering (including shifting cultivation), nomadic pastoralism, settled cultivation and industry. Though land laws have been found codified for long, the idea of environment as something more than the immediate habitat and as a common goods began to take root in the law book only very recently after the middle of the last century across the globe. The industrial mode of production and the capitalist mode of economy led to unprecedented levels of resource use and subsequently steadily declining quality of environment. The problem of environment as a global concern rose with environment disasters like the Chernobyl Incident that had transnational consequence. This has led to a realisation that ‘environment knows no political boundaries but accepts only bio-regional or eco-boundaries’. Inevitably, norms of interdependence have emerged at the international level for protecting the

environment, and enabling environmental law to go beyond the limits of municipal law and extending to the field of international law.

International conventions paved the way for both international and national law regarding the environment. The United Nations Conference on the Human Environment held in Stockholm in 1972 was the first forum to highlight issues of degrading environment and the human causes that led to it. The document of the conference known as the 'Stockholm Declaration' highlighted the contemporary situation and the principles of future action. This conference emphasised the capabilities of human beings to transform the environment and to restrict the indiscriminate use of resources. Twenty years later in the United Nations Conference on Environment and Development held in the year 1992 in Rio de Janeiro, the first attempt to create a global partnership to protect the environment was laid down. The report of the UNCED headed by Gro Bruntland used the term 'sustainable development' for a common future. For the first time, intergenerational equity through optimum use became a priority. At the turn of the new millennium in 2002, the World Summit on Sustainable Development in Johannesburg committed themselves to build a humane, equitable and caring society. The path of resource hungry development that provided comfort to a few at the expense of misery to many including the environment itself began to be questioned.

In the backdrop of these events, curiously an Indian brand of environmentalism was brewing on the native shores with multiple heads and voices. A remarkable feature of the Indian variety of environmentalism that began vocally in the 1970s was that it was initiated by the people who were affected due to manmade hazards. The success of the early environmental movements like the Chipko had an impact on law makers. Four years after the Stockholm conference, the forty second amendment of the Constitution of India introduced certain significant provisions relating to the environment. Enshrined in the Directive principles which guide the state in moulding its laws it was given that 'the state shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country' (Article 48 A, Indian Constitution). Among the Fundamental Duties brought into the Constitution by the same amendment, every citizen of India had a 'duty to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures' (Article 51, Indian Constitution). Wildlife,

population, nomadic tribes, social and economic planning that have a close impact on the environment are in the Concurrent List of areas where both the Central Government and the respective states can make laws in.

Article 252 of the Constitution empowers the Indian Parliament to enact laws on a state subject if two or more states make such a request. Water (Prevention and Control of Pollution) Act was the first law to be passed in independent India on environment after the Stockholm Conference. Water being a state subject, it was felt that the commitment of the Stockholm conference could be incorporated into Indian laws through the law. The Air (Prevention and Control of Pollution) Act 1981 followed suit. These laws were passed using the 'external affairs' clause of the Constitution for implementing decisions made at the international fora. The first environmental act that was enacted with the wider purpose of protecting and improving the human environment (a goal of Stockholm Conference) was the Environment (Protection) Act 1986. Separate laws exist to regulate land resources including forests like the Indian Forest Act 1927, the Mining Act, the Forest Rights Act and those to prevent pollution of the environment and improve its quality like the Air Act, the Water Act, Noise Pollution Act. The coastal zones are safeguarded using special laws exclusive to the regions. The Indian Wildlife Act 1972 and the Indian Biodiversity Act 2002 are laws to protect environment by focussing on other life forms in integration with human lives. The report of the National Wildlife Boards, National Biodiversity Authority, The Environment Impact Assessment together with the rulings of the honourable Supreme Court of India provide the much needed impetus to give legal rights, to settle disputes and broaden the horizons of social justice by including the environment.

Legal definition of the environment and environment law

The Environment (Protection) Act, 1986 gives an inclusive definition of the environment. It defines the environment as one which 'includes water, air and land and the interrelationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organisms and property'. Environmental law therefore relates to the management of the environment and the strategies for tackling the problems affecting the environment. Rodgers defines environmental law as 'the law of planetary housekeeping, protecting the planet and

its people from activities that upset the earth and its life-sustaining capacities' (Leelakrishnan, 2008). Thus environmental law embraces a wide spectrum- the natural environment namely the physical conditions of land, air and water and the human environment namely health, social and other man-made conditions affecting human beings on earth. The domain of the environmental law extends to the relations we have with other living beings and natural resources.

Sources of environmental law

The interdependency of environment laws with other branches of law makes it unique. The law relating to the environment is derived from two principal sources- Common Law developed by courts through judicial precedents and the statute law comprising regulations and bye-laws. Under the common law, a person can sue for nuisance when an act endangers his life, health, property and comfort or obstructs his enjoyment of the rights common to all people.

A. Common Law

There are a number of questions raised while dealing with common law.

The case of public nuisance: In most environmental cases, the act endangers a class of people reasonable affecting their material comforts and convenience. Thus it is a question of public nuisance that covers a whole range of interference upon common rights of the general public. As Lord Denning observes '...public nuisance is a nuisance which is so widespread in its range or so indiscriminate in its effect that it would not be reasonable to expect one to take proceeding on his responsibility to put a stop to it, but that should be taken as the responsibility of the community at large' (Leelakrishnan, 2008).

The question of locus standi and juristic personality: Natural objects feel the pressure of human intervention and expansion in a way that threatens their peaceful life and existence. In legal parlance, the obvious question is how they can have a legal personality that seeks to redress issues of rights violation. The issue of locus standi and juristic personality have been redressed in the Indian environmental context with the coming of public interest litigation. The legal issues pertaining to nature and environment are dealt with not only from the human perspective but on behalf of the

objects concerned as well. As Justice Douglas J of the United States Supreme Court remarked, it is a case of justice to endow a legal personality on 'valleys, beaches, ridges, groves of trees, swamp lands or even air that feels the destructive pressures of modern technology and modern life' (Leelakrishnan, 2008).

The burden of proof: The burden of proof that normally rests with the plaintiff is not a hurdle while dealing with environmental cases. The phenomenon of PIL has proven that judicial remedies for environmental problems would have effect only if the remedies satisfy the affected parties to the litigation, i.e., environment.

B. Statutes

Statutes are the second important source of environmental laws after the Common Law. These have considerable advantages over the Common Law. A statute can declare certain actions to be offensive and provide administrative agencies with power to take decisions or impose sanctions. It also provides better avenues for public participation thereby avoiding costly protracted litigation. The provision for complaint by citizens for criminal action against the offender enshrined in the EPA is an example of a statute law.

C. The Indian Constitution

The forty second amendment of the Constitution of India introduced certain significant provisions relating to the environment. Enshrined in the Directive Principles which guide the state in moulding its laws it was given that 'the state shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country' (Article 48 A). Among the Fundamental Duties brought into the Constitution by the same amendment, every citizen of India had a 'duty to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures' (Article 51). Article 21 of the Constitution that guarantees the fundamental right to life, personal liberty and procedure established by law was expanded in its scope to include the right to live in a healthy environment. In the landmark judgement of *T Damodar Rao v Special officer, Municipal Corporation of Hyderabad* (AIR 1987, AP 171), the High Court of Andhra Pradesh remarked that 'from a constitutional point of view, it would be reasonable to hold that the enjoyment of life and its attainments and fulfilment guaranteed by Article 21 of the Constitution embraces the protection and reservation of nature's

gifts without (which) life cannot be enjoyed'. This was brought about for the first time through the landmark decision in *Maneka Gandhi v Union of India* (AIR 1978, SC 597). Through the MC Mehta group cases in *MC Mehta v Union of India* (AIR 1987, 1988), Article 32 was interpreted to mean that a petition of rightful compensation against an environmental conflict could be entertained under the article and the terms of the compensation decided based on the recourse. The apex court further added that Articles 39 (e), 47 and 48 (A) collectively cast a duty on the state to secure the health of the people, improve public health and protect and improve the environment. In another judgement in *Consumer education and Research centre v Union of India* (AIR 1995, SC 922), the relationship between Fundamental Duties and Directive Principles was quoted to emphasise the duties of the state or an industry, private or public, to enforce safety measures.

'Compensation for living creatures' introduced by the forty second amendment of the Constitution is part of the fundamental duties to protect and improve the natural environment. Wildlife, population, nomadic tribes, social and economic planning that have a close impact on the environment are in the Concurrent List of subjects where both the Central Government and the respective states can make laws in. Article 252 of the Constitution empowers the Indian Parliament to enact laws on a state subject if two or more states make such a request. This provision has been used to settle inter-state disputes regarding common natural sources.

D. Indian tradition

India has had a long tradition of peaceful co-existence with nature and prudent resource use of natural resources. It is not surprising that Vedic Hinduism advocated the worshipping of forces of nature like sun, water and air. Sacred groves and specific species of plants have been worshipped for centuries, some of which continue to the present day. *Ficus bengalensis* (The Indian banyan tree), *Rauwolfia serperntina* (Sarpaghandi) and *Ocimum sanctum* (the holy basil) are examples. Emperor Asoka of the third century BC, the greatest warrior-administrator of India, who in his later years embraced Buddhism and non-violence began a social programme of forestry and conservation by planting trees on a large scale in public places and issuing a charter prohibiting certain animals from being killed for food or pleasure. The concept of 'dharma' which approximately means justice enshrined in the Hindu

sacred texts advocate every individual to have a moral axis that encourages duty and shuns deviance from the chosen path of harmonious existence with nature and fellow human beings. Kautilya, who wrote Arthashastra (Treatise on wealth), introduced the concept of systematic management of forests whereby the quantum of punishment for felling of trees was proportionate to the utility of the area. Thus in the long passage of history where kings, philosophers and writers had wielded power, a fundamentally positive approach to nature and its protection was envisaged in the country.

Indian laws on the environment

The main Indian laws on the environment can be classified under the broad headings of Pollution Control Laws, Laws on Forest and Wildlife, Laws relating to Liability, Laws relating to Environmental Tribunals and relevant provisions on environment in other laws. In addition to the laws, some important notifications, relevant articles of the Indian Constitution, interpretations of the courts of law make up the legal framework of environmental dispute and its resolution. A brief introduction to the laws is given below.

A. Important pollution control laws

The Water (Prevention and Control of Pollution) Act 1974 and Rules, Central Board for the Prevention and Control of Water Pollution (Procedure for Transaction of Business) Rules 1975 and The Water (Prevention and Control of Pollution) Cess Act 1977 govern the issues of maintenance of quality of water and preventing pollution. The Air (Prevention and Control of Pollution) Act 1981 and The Air (Prevention and Control of Pollution) Rules 1982 were passed soon after to govern the domain of air and atmosphere. These laws were principally in response to the commitments of the Stockholm Conference. The Noise Pollution (Regulation and Control) Rules 2000 brought in the importance of right of Indian citizens to a peaceful environment that was an extension of enjoyment of natural resources. The Environment (Protection) Act 1986, The Environment (Protection) Rules 1986 and Schedules and Environment (Protection) Third Amendment Rules 2002 are the most integral laws that is the source spring of a series of important legal notifications regarding protecting pristine spaces since it acts as an umbrella law under which disputes regarding pollution, environment and its resources are seen. These laws in their widest scope are also

responsible for the establishment of WGEEP and the demarcation of Eco-Sensitive Zones and are very important in the context of this study. Coastal Regulations Zone Notification, notifications regarding eco labelling and notifications concerning ban on import of hazardous substances are some important rules governing pollution control.

B. Important laws on forests and wildlife

The Indian Forest Act 1927, The Forest (Conservation) Act 1980 and The Forest (Conservation) Rules 1981 are the most important laws governing demarcation of different administrative types of forests like reserve forests, protected forests etc and the governing rights of the state and the forest people on forest produce. The Wild Life (Protection) Act 1972 and Schedules and The Wild Life (Protection) Amendment Act 2002 exclusively deal with the *ex-situ* and *in-situ* conservation of wildlife and the methods of conservation including National Park, wildlife sanctuaries, Protected Areas and special projects on the census of wildlife, specific endangered species of animals and wildlife corridors and the problems of man-animal conflict. The Biological Diversity Act 2002 extensively deal with bio-diversity of the flora and fauna especially in highly threatened habitats like the biological hotspots that harbour endemic species. The Forest Rights Act 2006 deals with the rights of the forests people of India like certain scheduled Tribes in preserving their home, habitat and culture besides addressing their livelihood options.

C. Important laws relating to liability and environmental tribunals

The Public Liability Insurance Act 1991 and The Public Liability Insurance Rules 1991 deal with the liability aspect of environmental crimes. It denotes the compensation clauses and punitive measures regarding violation of environmental laws. The National Environmental Tribunal Act 1995 and The National Environment Appellate Authority Act 1997 are the laws governing the jurisdiction of the appellate authorities in the cases of environmental disputes.

D. Relevant provisions of other environmental related laws

Provisions of Indian Penal Code, Provisions of Criminal Procedure Code and Provisions of Factories Act 1948 are the other major laws that have relevant provisions for the resolution of environmental conflicts redress.

Table 1

Important Indian Environmental Laws

Serial Number	Category of Laws	Name of the Law	Year
1	Important Pollution Control Laws	Water (Prevention and Control of Pollution) Act	1974
		Air (Prevention and Control of Pollution) Act	1981
		Air (Prevention and Control of Pollution) Rules	1982
		Noise Pollution (Regulation and Control) Rules	2000
		Environment (Protection) Act	1986
		Environment (Protection) Rules	1986
		Coastal Regulation Zone Notification	1991
2	Laws on Forest and Wildlife	Indian Forest Act	1927
		Forest (Conservation) Act	1980
		Forest (Conservation) Rules	1981
		Wildlife (Protection) Act	1972
		Biological Diversity Act	2002
		Forest Rights Act	2006

3	Laws related to Liability	Public Liability Insurance Act	1991
		Public Liability Insurance Rules	1991
		National Environment Tribunal Act	1995
		National Environment Appellate Authority Act	1997
4	Other Laws related to Environment	Indian Penal Code	1860
		Criminal Procedure Code	1973
		Factories Act	1948

Source: Compiled by the authors

The idea of eco-sensitive areas

‘Ecologically Sensitive Areas’ is a widely used term in efforts of conservation and is loosely defined and suggests different meanings in different contexts. It is imperative to unambiguously determine the meaning and utility of the definition before choosing the relevant legal provisions to assess the results. From an assortment of working definitions, the WGEEP defines an eco-sensitive area as ‘ecologically and economically areas vulnerable to even mild disturbances and hence require conservation’. This inclusive definition implies three things- that eco-sensitive areas are biologically rich in the sense that they could hold high value to human beings, in maintaining the ecological stability of the area and in preserving the bio-diversity, unique in the sense that the species are endemic and will be impossible to replace if once lost, and vulnerable in the sense that they are threatened by habitat disintegration and destruction by both erratic human and non human factors. Determined this way, they are also Ecologically Significant Areas because of their biological, ecological, economic, cultural and historical value. They require layered levels of attention and conservation effort because they are prone to different levels of vulnerability and subsequently different degrees of resilience. While the existing framework of conservation that is both external and internal have been crucial to the protection of these habitats, the bias in our emphasis that inadvertently neglects un-

recognised but equally important areas and species and our complacency in attitude that is natural in a long term project need to be rectified.

A host of unique habitats like Myristica swamps, floral plateaus of Northern Western Ghats and shola forests, lesser charismatic species, newly emerging hotter spots and non-valuation of invisible services of the eco-systems like the grasslands- all call for a variegated approach to management. The formidable costs in implementing these efforts and the inclusion of local participants who depend on these resources on a daily basis is also equally important in the way we conserve. In order to implement this co-adaptation strategy without a punitive restriction regime that excludes the locals, a fresh look at the conservation efforts is the need of the hour.

Rationale for the selection of three Indian laws

Though there are a number of environment laws in India that directly and indirectly concern environmental conservation, the focus of the study are three important laws- The Environment (Protection) Act 1986, The Biological Diversity Act 2002 and the Forests Rights Act 2006. There were a number of criteria applied while choosing these laws to the exclusion of some equally important laws like the Wildlife Act 1972. One of the chief concerns was the potential of the law to encompass the idea of eco-sensitive areas. The EPA 1986 is the law with the widest scope for rectifying lapses and lacunae in conservation efforts towards environment in India. Section 3 of the Environment (Protection) Act 1986 gives the Union Ministry of Environment and Forests the power 'to take all measures that it feels is necessary for protecting and improving the quality of environment and to prevent and control environmental pollution'. To meet this objective, the Central government has power over any areas in which industries, operations or processes, or class of industries, operations or processes shall not be carried out or carried out under certain safeguards as per section 3 (2) (v). Section 5 (2) of the Environment (Protection) Rules 1986 states that the Central Government can provide or restrict the location of industries and carrying out certain operations or processes on the basis of considerations like the biodiversity of an area (clause v), maximum allowable limits of concentration of pollutants for an area (clause ii) environmentally compatible land use (clause vi) or proximity to protected areas (clause viii). The Biodiversity law was especially chosen to evaluate the recommendations of the panel with exclusive reference to the

endemic species in the regions. The region Western Ghats is one of the eight hottest spots in India that harbours one of the highest percentages of endemic and endangered species. The Biodiversity Act serves 'to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge'. This is crucial in the setting of the Ghats where the region owes equal but inequitable claims of the flora and fauna, the forest people and the local non-forest people. The final law, Forest Rights Act 2006 is the litmus test for recognising the special rights of the forest people of India who have been given the constitutional mandate to have special rights of habitation, ownership and livelihood in the forests that have been traditionally occupied by them. Analysing the panel recommendations in the light of the authority given by EPA, the governing principles of BDA 2002 and the social justice and issues of constraints placed by FRA 2006 is the objective of the study.

.

3 ANALYSIS OF THE RECOMMENDATIONS OF WGEEP AND CONCLUSION

Significance of the Western Ghats region

The Western Ghats is an unbroken range of hills (except the mountain pass in Palakkad in Kerala) that runs to a length of 1600 kilometres beginning from the mouth of the river Tapti near the border of Gujarat and Maharashtra to Kanyakumari, the southernmost tip of the Indian subcontinent in Tamil Nadu. It includes six Indian states namely Gujarat, Goa, Maharashtra, Karnataka, Tamil Nadu and Kerala. The region covers nearly 1.60 lakh square kilometres. The biological importance of the region is that it is one of the world's four biodiversity hotspots in India and one of the 'eight hottest spots of biodiversity' in the world that harbours some of the highest concentrations of wild relatives of cultivated plants. The area covers 4000 species of flowering plants, 645 species of evergreen trees and an impressive range of lower species of plants including bryophytes and pteridophytes. In terms of fauna, nearly 403 species of birds, rare and endemic species of butterflies and dragonflies, amphibians including frog and turtles and several primitive burrowing snakes are found in this region. New species of plants and animals have been recently discovered. Geologically, the entire stretch of the Ghats cover three regions (Surat-Goa, Goa-Nilgiris and South of Palakkad Gap) and nine geographical landscapes. The area also receives a wide range of rainfall from 500 mm to 7000mm due to its high topographic gradient and is home to the southern peninsula's mighty rivers like Godavari, Krishna, Kaveri, Kali Nadi and Periyar that have inter-state importance. A wide range of vegetation forms like tropical wet evergreen forests, montane stunted evergreen forests (shola forests), grasslands, laterite plateaus, moist deciduous forests are also found in this region.

The Western Ghats also harbours some of the ancient cultural practices unique to the region. Sacred groves, sacred species of plants and animals, water and river beds and mangrove forests belong to a fast disappearing culture of nature veneration that also helped reinforce a practical form of ecological conservation. For example, most of the smaller sacred forests are referred to as *nagabana/sarpakavu* or serpent groves and are linked to temple complexes. *Ficus bengalensis* or the Indian banyan tree is a species revered across the region. In temple tanks and local ponds mahaseer fishes

and turtles are protected due to their religious significance. In fact Western Ghats with its abundant natural wealth has been such a constant presence in the cultural imagination of the entire Indian sub continent is evident from the poetry of Kalidasa, the ancient Indian poet, who composed his lines praising the mountains of the range to a comely young maiden, her head near Kanyakumari, Anamalai and Nilgiris her breasts, Goa her hips and her feet near river Tapti (WGEEP 2011). These intimate worlds of pristine forests and protected areas that have been an enduring presence in the actual lives and the cultural icons of Indians for centuries, are facing an unprecedented pressure because of a particular brand of development ethos that is hungry for more land, wood and other forest produce.

The ecosystem of the forests of the Ghats provides both goods and services in economic terms. While the goods include major and minor forest produces, the services can be 'life provisioning' like food, water and fibre, 'life supporting' like pollination, nutrient cycling, soil formation and 'life enriching' like aesthetic pleasures, cultural traditions and social relations. The environmental problems faced by the area in recent times include increasing pressure of population, industrial development and tourism, river valley projects for hydro electric power, mining operation, felling of forests to obtain forest produce or to raise plantations of tea, coffee, rubber and other mono cultural plantations, infrastructural projects that take up land for laying roads and railways and climate change that affects habitat and precipitation and consequently, life and living relations of the region. Between 1920 and 1990, nearly 40% of the original forest cover was lost or converted to other land use resulting in a meagre forest area of only 7% left today. A much larger area is under secondary forest cover and about 15% is under Protected Area. Though the transformation of tropical forests for the establishment of mono cultural plantations began in the late nineteenth century, the demand for forests and forests produce peaked by 1980 when forest based industries exploded such as plywood, polyfibres, paper and match wood industries. There have also been competing demands on forests from river valley projects and cultivation. The response to such aggressive takes of development was an equally aggressive form of conservation that included planting of exotic species like Eucalyptus and *Acacia auriculiformis*. Some of the areas were demarcated as Protected Areas like National Parks or Wildlife Sanctuaries.

Traditionally, the people of the Ghats region depended heavily on natural vegetation for their lives and livelihood. But with better health care and education, the population rate has fallen and modernisation began that gradually made them urban and less dependent on forests directly. Some of the hunter gatherer tribes still live in the Ghats but most of the areas are inaccessible terrains at high altitudes. Since this region has high literacy rates and good environment awareness along with entrenched systems of local administration and a strong women's movement, this area of natural and cultural wealth is also the appropriate region to begin a road to conservation that is viable and sustainable.

Need for the formation of WGEEP

Section 3 of the Environment (Protection) Act 1986 gives the Union Ministry of Environment and Forests the power to take all measures that it feels is necessary for protecting and improving the quality of environment and to prevent and control environmental pollution. To meet this objective, the Central government has power over any areas in which industries, operations or processes, or class of industries, operations or processes shall not be carried out or carried out under certain safeguards as per section 3 (2) (v). Section 5 (2) of the Environment (Protection) Rules 1986 states that the Central Government can provide or restrict the location of industries and carrying out certain operations or processes on the basis of considerations like the biodiversity of an area (clause v), maximum allowable limits of concentration of pollutants for an area (clause ii) environmentally compatible land use (clause vi) or proximity to protected areas (clause viii).

These provisions were invoked in 1989 in the context of Murud-Janjira, a coastal village in the Raigad district of Maharashtra. Consequently, the term 'Ecologically Fragile Area' was used for the first time in the context of Dahanu Taluka of Maharashtra in 1991. The Supreme Court rulings in connection with the Doon Valley notification also paved the way for limiting the categories of industries that could not be permitted near Ecologically Sensitive Areas. Subsequently, a number of areas were termed as Ecologically Sensitive Zones/Areas, Ecologically Fragile Areas or Ecologically Sensitive Localities without a consensus on the definition and scope of the concept. Most of the rechristening and the concept of ecologically fragile zones itself was put forth by civil societies while working towards protecting vulnerable

areas. In 1990, the Union Ministry of Environment and Forests made a primary attempt to define Ecologically Sensitive Areas by releasing a report titled 'Parameters for Determining Ecological Fragility' and asking all the state governments to submit a list of Ecologically Sensitive Zones in their respective states according to these parameters. In 1996, a taskforce of the Planning Commission also published a report titled 'Conserving Ecologically Fragile Ecosystems.'

In the meanwhile, several areas were notified as ecologically sensitive according to the provisions of the Environment (Protection) Act 1986 without proper study or definition. In order to systematise the concept, the MoEF constituted a committee under Dr Pronob Sen to frame parameters to designate as Ecologically Sensitive Zones in 1999. In 2000, the committee submitted its report with its findings and conclusions. The committee found previous attempts of the Ministry as well as the Planning Commission wanting as far as definition or implementation of their objectives to preserve Ecologically Fragile Areas. The committee looked afresh at the definition and arrived at 'imminent and irreparable loss of extant life forms from the world, and of significant damage to the natural process of evolution and speciation, coupled with loss of biodiversity services as a condition for determining ecologically fragile area'. It also gave detailed primary and auxiliary criteria for selecting ESAs. Some of its important recommendations included mapping of base-line data, to design and operationalize a comprehensive monitoring system and involvement of other institutions and local populations in the attempts to conserve ESAs. Unsatisfied with the results, the MoEF constituted an expert panel under Mohan Ram to review the findings of the Pronob Sen Committee report in 2001. The period of functioning of this committee was extended up to 2006 and the report of the committee is not available in the public domain.

In the meanwhile, a resolution of the Indian Board for Wildlife in 2002 used the term 'Ecologically Sensitive Zones' to demarcate areas up to 10 kilometres around Protected Areas. A Hill Stations Committee was constituted to identify Eco Sensitive Areas in hill areas. National Wildlife Action Plan 2002-2016 states that 'all identified areas around protected areas and wildlife corridors are to be declared as ecologically fragile under EPA 1986 (Section III (5.2)1). The plan further proposes 'to extend ecologically fragile status under EPA 1986 to adjoining areas of PAs, crucial wildlife corridors and to all biosphere reserves, world heritage sites, Ramsar sites and other

areas notified under international conventions and treaties'. Section 9 of the Wildlife Conservation Strategy 2002 states that 'lands falling within 10 km boundaries of National Parks and Sanctuaries should be notified as eco-fragile zones under section 3(2)(v) of the EPA 1986 and Rule 5 Subrule 5 (viii) and (x) of the EPR. In response to a writ petition (No.460) (*Goa Foundation v/s Union of India*) filed in 2004, the Supreme Court in its order dated 6 December 2006 gave specific direction on the declaration of an area of 10 km around Protected areas as ESAs. The Environment Impact Assessment 1994 used the term 'Ecologically Sensitive Areas' in a generic manner to include all areas like national parks, wildlife sanctuaries, tiger reserves, reserve forests, coral reefs, mangroves, marine parks and spawning grounds. In 2006, the new EIA notification gave under its general conditions that 'any project under category B will be considered as category A if it falls under various classes, one of which was 'notified Eco Sensitive Areas' (class iii).

In July 2004, an expert committee under the chairmanship of Dr M.S.Swaminathan was asked to make a comprehensive review of the Coastal Regulation Zone Notification 1991. The committee recommended different categories of Coastal management Zones in which the Coastal Management Zone 1 was named Ecologically Sensitive Areas and its significance was enunciated as 'the areas of coastal zones that play an important role in maintaining the functional integrity of the coast, including acting as natural barriers to coastal hazards and, or, harbouring a diverse biodiversity that provides valuable resources to local communities'. An indicative list of possible ESAs in the coastal regions that included coral reefs, mangrove forests, sand dunes, mud flats, marine nesting areas, and specific habitats of species like birds, crabs and turtles were given.

The Biological Diversity Act 2002 was passed by the Indian Parliament with the express objective of acknowledging and conserving the rich biodiversity of the country and making the necessary provisions for their protection. The Act empowered the Ministries concerned to not only look into preserving the natural wealth of the country but also encourage sustainable and equitable sharing of the services and the knowledge related to biodiversity. This was a right step in regulating access to biodiversity while making allowances for the establishment of the National Biodiversity Authority at the centre and Biodiversity Management Committees at the local level empowering and encouraging local people to determine the contours of

development in their region. The Forest Rights Amendment Act 2006 reaffirmed the rights of access traditionally enjoyed by the Scheduled Tribes of India. Both these laws help to contextualise the issue of environment and its protection not just as pristine wilderness out of bounds for human beings but as habitats shared by humans and the flora and fauna for centuries. Finally, there was also a step contrary to the acts and legislations favouring Eco Sensitive Zones. In 2007, the MoEF considered introducing a draft legislation of National Environmental Tribunal Bill that proposed to do away with 16 Appellate authorities including committees set up for the formation of ESAs. The draft bill envisaged giving the authorities of ESAs to state Environment Impact Assessment authorities. This move elicited a furore of protests from the notified ESAs.

This gallery of overlapping committees and commissions who have defined and notified ESAs under different contexts both legally and biologically along with the rulings of the Supreme Court and findings of civil society organisations form the backdrop of the circumstance in which WGEEP was constituted in 2011, nearly 22 years after the concept of ESAs was first playing the rounds in the ecological lexicon of the country. The gradual and chaotic circumstances, the conflicting interests of different centres of power with their competing ideologies provide an illuminating account of the source of the mandate for the panel and the immense challenges it faced and even the predictable and the unpredictable consequences it unleashed.

Mandate of WGEEP

In view of the environmental sensitivity and ecological significance of the Western Ghats region and the complex inter-state nature of its geography, as well as possible impacts of climate change on this region, the Ministry of Environment and Forests, Government of India constituted the Western Ghats Ecology Expert Panel (WGEEP) in March 2010. The mandate of the panel as described by the Government of India order dated 4 March 2010 was as follows.

- i. To assess the current status of ecology of the Western Ghats region
- ii. To demarcate areas within Western Ghats Region which need to be notified as ecologically sensitive and to recommend for notification of such areas as ecologically sensitive zones under the Environment (Protection)

Act 1986. In doing so the panel shall review the existing reports such as the Pronob Sen Committee Report, Dr. T.S. Vijaya Raghavan Committee Report, Mohan Ram Committee Report, Honourable Supreme Court's decisions, recommendations of the National Board for Wildlife and consult all concerned State Governments.

- iii. To make recommendations for conservation, protection and rejuvenation of the Western Ghats Region following a comprehensive consultation process involving people and Governments of all concerned States.
- iv. To suggest measures for effective implementations of the notifications issued by the Government of India in the Ministry of Environment and Forests declaring specific areas in the Western Ghats Region as eco-sensitive zones under the Environment (Protection) Act 1986.
- v. To recommend the modalities for the establishment of Western Ghats Ecology Authority under the Environment (Protection) Act 1986 which will be a professional body to manage the ecology of the region and to ensure its sustainable development with the support of all concerned states.
- vi. To deal with any other relevant environment and ecological issues pertaining to Western Ghats Region, including those which may be referred to it by the Central Government in the Ministry of Environment and Forests.
- vii. The Ministry has subsequently asked the Panel to include in its mandate
 - (a) The entire stretch of Ratnagiri and Sindhudurg districts, including the coastal region, and to specifically examine the
 - (b) Gundia and
 - (c) Athirappilly hydroelectric projects
 - (d) Recommendations with regard to the moratorium on mining licenses in Goa

In order to perform the express functions, the panel could co-opt any expert or official if found necessary for the collection of inputs with the permission of the Chair. The meetings could be held in Delhi or any other place with the approval of the Chair. The committee had to submit its report six months after it has been constituted, to the Central government through the Ministry of Environment and Forests.

The methodology of working of WGEEP

The Western Ghats Ecology Experts Panel embarked on its appointed task on 30 March 2010 with a panel meeting in Bengaluru. Through a sustained debate of 14 panel meetings in one and a half years, the panel deliberated at length, on various issues related to the Western Ghats Region. The panel meeting were interspersed with expert consultation, public participation, brainstorming sessions and field visits. The panel adopted a multi-pronged strategy of compiling all readily available and accessible information on the Western Ghats. Then they developed a geospatial database on ecological sensitivity for the entire Western Ghats Region which would provide a multi-criteria decision supporting system for demarcation of ecologically sensitive areas. Comprehensive consultation involving all stakeholders including government officials, civil society groups and people's representatives at the local governments like Gram Panchayats and Zilla Parishad were also undertaken. In the tenure of the Panel, extensive inputs both technical and those based on the primary data were obtained through 7 brain storming sessions, 8 consultations with Government officials, 1 expert consultation meeting, 40 meetings with various civil society groups, 14 field visits and 42 commissioned papers.

Challenges of the WGEEP mandate

The mandate of the WGEEP posed a number of scientific challenges. The ecology of an extensive area called Western Ghats region covering 1,29,037 square kilometres with implication on manifold human interventions had to be ascertained. Information regarding a great deal of issues were available, yet they were poorly organised and were of variable quality. The boundaries of the area under study had to be decided afresh keeping in mind the ecological view point. Though in some accounts, the Ghats refers to only the western escarpment of the peninsular plateau while the higher mountain regions were ascertained as a distinct geographical entity,

the panel defined Western Ghats in a more broader sense to include the entire tract hill from the mouth of the river Tapti to Kanyakumari keeping in mind the larger issues of conservation involving vegetation, flora and fauna.

Administratively, the exercise posed a serious challenge. The scientific units of the Western Ghats called 'grids' that the panel devised did not correspond to the administrative units such as districts and talukas. The Western Ghats as an administrative entity was first visualised in the mid 1970s as part of the regional planning exercises to disburse central assistance. Though the administrative units called talukas did not correspond in terms of utility of environmental regulation, the WGEEP still recommended talukas as the basic unit of focus since it constitutes the only and reasonable administrative unit.

The popular opinions of the people as represented through their political leaders while compiling the report also raised some interesting points. The primary concern of the people was that though wildlife was important and integral to the country, the people who lived in the area suffered poverty and unemployment due to exclusive no-go zones and laws that not only eliminated but also punished them while coming to contact with the forest regions. These areas seldom had good infrastructure so that alternate development pathways were not possible. Human animal conflicts in these areas and the stringent laws of conservation made it impossible for the people of the region to go on about their daily activities and livelihood without coming into conflict with the wild or the law. For example, wild pigs and elephants constantly destroyed the farmlands in the Ghats region of Tamil Nadu. 200 acres of cardamom plantations of Idukki-Munnar districts in Kerala was classified as forest land. Many farmers whose land came under the Protected Areas could do nothing with their asset. Therefore, the common concern of the people was that land designated as ecologically sensitive should be realistically demarcated.

Another concern voiced by the people was that the Biodiversity Committees at the local level that came to existence with the passage of the Biodiversity Act 2002 should be given clear guidelines as to their functions with regard to Eco Sensitive Zones. The local people favoured the local governments to execute the laws as they were more sensitive to the local variations in circumstances. In the regions where the panel was asked to look into the power situation regarding the viability of the river

valley projects especially in Kerala and Karnataka, alternative method of power generation and the method of its employment was a crucial question. Regarding the afforestation programme by the government by which saplings were planted with the help of local schools, sustained care to the new generation was found wanting and hence the efficacy of the programme itself was brought into question.

Finally, the concept of the Eco Sensitive Zone itself that was one of its kinds, introduced in the Indian context in the light of mounting pressure on the environment needed detailed analysis. The problem of demarcation of the Eco Sensitive Zones and its administrative maintenance was challenging. The recommendations of the Pronob Sen committee report that a comprehensive programme for generating base-line data on different aspects related to the biogeographical regions of India and a monitoring programme was not in place. Expertise in conservation biology was limited. The question of how existing science could be brought to help define eco-sensitive zones, how a decentralised administrative unit could be asked to fulfil the objective of the model with great transparency and understanding, how the issue of the interest of the wild life and human life in these zones could be harmonised without severely penalising either, had the daunting task to plug the loopholes in law, lacunae in infrastructure and give a viable solution to the issue on the ground.

Major recommendations of the WGEEP

The WGEEP provided detailed sector wise recommendations on the conservation strategy for the entire Western Ghats Region, the demarcation of eco-sensitive zones, the establishment of Western Ghats Ecology Authority and the specific aspects the panel was asked to look into. The main recommendations are briefly given below:

1. **Eco Sensitive Zones:** The WGEEP recommends a graded or layered approach to regulation and promotion of development activities located in the Ghats depending on the kinds of environmental impacts the activity entails and the ecological sensitivity of the region. The WGEEP concluded that the entire Western Ghats region should be considered as eco-sensitive. The region has been zoned into regions of highest sensitivity (ESZ 1), regions of high sensitivity (ESZ 2) and regions of moderate sensitivity (ESZ 3).

2. **Eco Sensitive Localities:** Water conservation measures and riparian management to be done with local self government level participation. For this the region around origin of rivers to be declared as Eco sensitive localities.
3. **Cumulative assessment:** All new projects in the region (dams, mines, tourism and housing) are to be subjected to cumulative impact assessment and should not exceed the carrying capacity.
4. **GM crops:** Make the Western Ghats free of genetically modified crops, trees and animals.
5. **Agro bio-diversity conservation:** A participatory plant breeding and crop improvement programme needs to be launched at the Panchayat level to restore traditional varieties and develop good varieties suitable for each locality.
6. **Tribal farming:** Strategy on priority for tribal farming to revive their traditional farming methods and culture, bringing back the traditional cultivars and food culture needs to be developed.
7. **Research:** Research on agriculture and horticulture should prioritise restoration of traditional farming practices and low cost organic farming inputs.
8. **Plant diversity and livestock rearing:** Monetary and marketing support should be given to Adivasis willing to keep indigenous cattle.
9. **Animal Health:** It would be ideal if every village had its own animal health worker who was trained in giving vaccinations, first aid, elements of traditional veterinary practices, ethno veterinary medicine using locally available plants.
10. **Medicinal plant nurseries:** It would be advisable to start nurseries for medicinal plants as well as medicine making units at the Panchayat level on a co-operative basis.

11. **Fisheries:** Extensive micro-geographical surveys for compiling the database on population distribution and geographical distribution of endangered and endemic species of fishes and investigation on invasive nature of exotic species in natural habitats should be carried out. Quarantine and control introduction of exotic species should be made more effective and foolproof.
12. **Forest management:** Promote social security forest plantations to provide job security and profit sharing of the local community and strengthen the rural development department on issues related to bamboo resource availability, marketing and other Non Timber Forest produce.
13. **Organised industry:** Promote industries that involve dematerialisation and encourage local bio resource based industry. The Zoning Atlas for Siting of Industries should be used as a tool for decision making for the establishment of industries.
14. **Mining:** No mining should be allowed in the current Protected Areas and Eco-Sensitive Zones 1 regions in the Western Ghats.
15. **Tourism:** Eco-tourism in ESZ 1 and ESZ 2 should be restricted with strict regulation on waste management, traffic and water use.
16. **Land use pattern:** In ESZ1 and ESZ 2, change in land use should not be permitted from forest to non-forest uses or agricultural to non-agricultural except agricultural to forest and when extension of existing village settlement areas needs to accommodate increase in population of local residents.
17. **Development planning** should be decentralised with increased convergence of planning at grassroots level.
18. Establishment of **Bio-Diversity Committee** in all local bodies should be expeditiously implemented.
19. Schools and Universities in the localities should be roped in to build awareness and to participate in **eco-restoration programmes**.

20. Subsidies and payment options to forest people should be exercised by adopting suitable measures through Green Development Mechanism and other programmes.

Analysis of the major recommendations

The WGEEP brought out detailed recommendations for the Western Ghats regions in 15 major sectors to fulfil its mandate regarding Eco-Sensitive Zones. These include land and livelihood issues, industry and infrastructure, settlement and governance, nutrition and health and environment and awareness. These recommendations are the life lines of a language of development that accommodates environmental concerns along with priorities of development. Analysis of the recommendations in the light of three laws selected is given below.

A. WGEEP recommendations and the EPA 1986

The Environment (Protection) Act 1986 was enacted under the provisions of Article 253 of the Constitution in order to implement the commitments taken by the participating countries in the United Nations Conference on Human Environment, Stockholm, 1972. The need to protect and enhance the quality of the environment through legislative measures was stressed in this conference. In India, EPA was formulated to create authorities with adequate power for environmental protection, co-ordination of various regulating agencies, regulation on discharge of pollutants and handling of hazardous substances, speedy response in the event of accidents and provisions for deterrence. The mandate was widened from the narrow aspect of pollution control to the wider aspect of environmental protection. Consequently, The Environmental (Protection) Rules 1986 came into force to carry out the provisions of EPA and to meet specific problems in execution of the law. Rules framed under EPA cover environmental awareness and literacy, location and relocation of industry including a closure clause, nation-wide programme for environmental protection and the need for buffer zones of protection.

Section 3 and 5 of EPA 1986 professes to 'empower the government to make all such directions and take all such measures as are necessary or expedient for protecting and promoting the 'environment', which expression has been defined in very wide and expansive terms in s 2(a) of the EPA. The constitution of WGEEP takes its legal

justification from this provision of the Act. Section 2 (iii) of the Act states that the act has provisions to 'lay down standards for the quality of the environment in its various aspects'. The recommendations of the panel with respect to Eco-Sensitive Zones and Localities and the gradient approach to management of the zones widen the scope of this clause to include a new class of regions with specific terms and conditions. Section 2 (v) and (vi) of the Act empowers it to 'restrict areas in which any industries, operations or processes' and lay down 'procedures and safeguards' to prevent accidents. The restrictive recommendation regarding closure of mining industries, restraints on tourism and the recommendation encouraging dematerialised approach to organised industry fulfils this objective. Finally, Section 2(iii) of the Act affirms the commitment of the Central Government in 'planning and execution of a nation-wide programme' to spread information and Section 2 (xii) expressly permits 'collection and dissemination of information in respect of matters relating to environmental pollution.' The WGEEP strongly advocates the inclusion of schools and universities to create awareness and encourage their participation in the environment building process.

While the panel recommendations fulfil the objectives of the Act and that of the mandate in these respects, there are some shortcomings as well. Though the panel recommends research activities on new technologies to make development environmental friendly, it is silent on carrying out and sponsoring research and investigation relating to the problems of environmental pollution within the ESZ. Also, the management approach to the demarcated zones is sketchy and it deserves a thorough examination from the administrative and legal view point.

B. WGEEP recommendations and Biological Diversity Act 2002

Biological Diversity Act 2002 has been a product of the commitments taken in the United Nations Convention on Biological Diversity that laid down three objectives- conservation of biological diversity, sustainable use of its components and fair and equitable sharing of benefits arising out of the utilisation of genetic resources. The Biological Diversity Act 2002 that was passed in India re-iterated its commitments by giving four thrust areas- access to biological resources and information, benefits sharing with conservers of biological resources, notification of important area in terms of biodiversity as biological heritage sites and protection of threatened species.

Section 36 (1) of the Act states that ‘the Central Government shall develop national programmes for the conservation, promotion and sustainable use of biological diversity including measures for identification and monitoring of areas rich in biological resources, promotion of *in situ* and *ex situ* conservation of biological resources, incentives for research, training and public education to increase awareness with respect to biodiversity. The demarcation of ESZ was done with biodiversity and degree of endemism in mind. The specific recommendation for research in tribal farming devotes considerable efforts to revive traditional methods of cultivation. The incentive to include a wide information dissemination programme through local people and especially educational institutions also fulfils an objective of this clause. Encouragement given to foster traditional medicinal plants and nurseries and breeding of indigenous livestock has an implication on the genetic make-up of the population in the Ghats region. The Act is vehement in its stand on biological resource or knowledge. S 20 (1) states that ‘no person ...shall transfer any biological resource or knowledge associated thereto’ and 21 (2) imposes regulations by the National Biodiversity Authority on grant of joint ownership, transfer of technology, location of production, research and development units, association of Indian scientists in such projects and payment of resources for equitable sharing of benefits. The move to stop the introduction of Genetically Modified stock, introduction of exotic species of fishes, live stock or plants as per the guided recommendations of the panel is in accordance with the objectives of the BDA as given in 36 (4) (ii) ‘to regulate, manage and control risks associated with the use and release of living modified organisms resulting from biotechnology likely to have adverse impact on the conservation and sustainable use of biological diversity and human health.’

Further, the recommendation to constitute Biodiversity Management Committees is given in 41 (1) that ‘every local body shall constitute a BDMC within its areas for promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biodiversity.’ The idea of cumulative assessment for sanction of projects also aligns with 36 (3) of BDA that states that the Central government as far as possible would integrate appropriate programs for conservation and sustainable use into relevant sectoral or cross-sectoral plans or policies.

Some important areas that require further clarification as far as the recommendations are concerned are the areas regarding Intellectual Property Rights with regard to biodiversity. The report is silent on the methodology to be adopted with dealing with IPRs inside Eco Sensitive Zone. This aspect is however covered legally in the BDA. The recommendation on payment options also need to be viable according to each region inside the Eco Sensitive Zone. The panel has illustrated a number of eco-system payment services options adopted by various countries, but a modality of operation is yet to be devised.

C. WGEEP recommendations and the FRA 2006

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 popularly known as the Forest Rights Act is a landmark legislation that seeks to recognise the rights of the forest peoples. The Act initiated a new dialect in the environmental discourse in India that recognised and accommodated the rights of Adivasis in forest legislations in India. The FRA recognises some important historical sleights and attempts to correct them legally and inclusively by making the forest people partners in environmental restoration projects. The FRA recognises the right to home stead, to cultivable and grazing land and to non-timber forest produce. It accepts that there are legitimate non-tribal forest dwellers and their right to rehabilitation in the case of past forcible displacement. It prescribes all future notifications of inviolate conservation zones and curtailment of rights in protected areas to be with the consent of people. Significantly, FRA also points out the rights of forest dwellers to conserve forests and bio-diversity and admits people's involvement will strengthen conservation efforts.

Section 2 (a) of the Act defines customary common forest lands where the communities had traditional access and practised traditional methods of conservation. The WGEEP recommendations to encourage tribal farming practices, on inclusive methods of forest management with security for forest dwellers and the prohibitive suggestion on change of land use pattern in ESZ are in the spirit of the Act. Section 3 (1) (i) and (k) recognise the 'right to protect, regenerate or conserve or manage any community forest resource' and 'right of access to biodiversity and community right to intellectual property and traditional knowledge'. The recommendations to encourage plant nurseries and tribal forests and the financial

payment options for ecosystem services come under the scope of these sections. The report expressly urges the government to execute FRA in the relevant regions of the Ghats.

The inclusion of the forest people in conservation and biodiversity efforts and in the efforts to propagate their cultural way of dealing with land and forests are noteworthy. The suggestion to have local governance bodies be an integral part of conservation strategies is envisaged in 6 (1) of the FRA. Some of the aspects such as the modalities of equitable sharing of benefits by forest people envisaged under both FRA and BDA need to be examined in detail.

Scope for further research

This study exclusively dealt with the environmental laws that concerned the participants of the environmental restoration project envisaged under the Eco Sensitive Zones of the Western Ghats region- namely the flora, the fauna and the tribal and non-tribal forest people. There is scope to evaluate the report recommendations in the light of laws on local governance like Panchayats (Extension to Scheduled Areas) Act 1996. The issue of 'equitable benefit sharing' that has been envisaged in both BDA and FRA is a vast area that deserves close examination. Research in these lines would inevitably shed more light on the modalities through which provisions of Indian laws on environment could be suitably enacted with positive ground results.

Conclusion

The idea of Eco Sensitive Zones in Indian conservation efforts is unarguably going to have long lasting consequences both in the way our environmental discourse would shape up and in the ways laws make meaningful change in people's life. This concept acknowledges the inherent value of nature, the invisible eco-system services that humans receive from the environment, the rights of the forest people who for centuries have made the Indian jungles their home and habitat and the critical threats that the biological world faces from unwarranted anthropological actions. The WGEEP report has made a significant step forward tracing the evolution of our environmental consciousness and outlining a principled way to meet the future challenges. The test of the next century especially for a developing country endowed with vast natural resources like India, is to finely balance its natural wealth which is

both a biological, historical, cultural and economic heritage with the aspirations of lives and livelihood issues including land and energy. How India reclaims her ancient eco-systems filled with the joy and wonder of the natural and human world for the whole of humanity without jeopardising her economic ambitions, in a vibrant democratic framework would reveal the way towards this planet's common future.

BIBLIOGRAPHY

Conventions

Convention for the Protection of World Cultural and Natural Heritage, 1972.

United Nations Conference on Environment and Development (UNCED), Rio de Janeiro 1992.

United Nations Conference on the Human Environment, Stockholm 1972

United Nations Convention on Biological Diversity 1992.

World Summit on Sustainable Development, Johannesburg 2002.

Statutes, Rules And Regulations

Air (Prevention and Control of Pollution) Act 1981.

Biological Diversity Act 2002.

Coastal Regulation Zone (CRZ) Notification 1991.

Code of Civil Procedure 1908.

Code of Criminal Procedure 1973.

Environmental Impact Assessment Notification 1994.

Environment (Protection) Act 1986.

Environment (Protection) Rules 1986.

Forest Conservation Act 1980.

Forest Conservation Rules 1981.

Indian Forest Act 1927.

Indian Penal Code 1860.

Mines and Minerals (Regulation and Development) Act 1957.

Scheduled Castes and Other Forest Dwellers (Recognition of Forest Rights) Act 2006.

Water (Prevention and Control of Pollution) Act 1974.

Wildlife (Protection) Act 1972.

Reports

Anonymous (2000). *Report of the Committee on Identifying Parameters for Designating Ecologically Sensitive Areas in India*, Ministry of Environment and Forests, Government of India.

Anonymous (2008). *Report of the Task Group on Problems of Hilly Habitations in Areas Covered by the Hill Areas Development Programme/ Western Ghats Development Plan*, Planning Commission, Government of India, Chapter 1.

Anonymous (2010). *Manthan Committee Report on Forest Rights Act*, A Joint Committee of Ministry of Environment and Forests and Ministry of Tribal Affairs, Government of India.

Daniels, R.J.R. (2001). *National Biodiversity Strategy and Action Plan – Western Ghats Eco Region*, Ministry of Environment and Forests, Government of India.

Kapoor, M. et. al. (2009). *India's Notified Ecologically Sensitive Areas: The story so far*, Kalpavriksh.

Kerala Sastra Sahitya Parishat (1984). *Science as Social Activism: Reports and Papers on the People's Science Movement in India*, Kerala Sastra Sahitya Parishat, Trivandrum.

WGEEP (2011). *Report of the Western Ghats Ecology Expert Panel*, Ministry of Environment and Forests, Government of India, New Delhi. Available at westernghatindia.org accessed on March 12, 2014.

Books

Atwood, D. W. and Baviskar, B.S. (eds.) (1988). *Who shares?* , Oxford University Press, New Delhi.

Bahuguna, S. (1983). *Walking with the Chipko Message*, Navjivan Ashram, Silyara (Tehri Garhwal District).

Calman, L. (1985). *Protest in Democratic India*, Westview Press, Boulder.

Dasman, R.F. (1988). 'Towards a Biosphere consciousness' in D. Worster (ed.). *The Ends of the Earth: Perspectives on Modern Environmental History*, Cambridge University Press, Cambridge.

Dawkins, R. (1976). *The Selfish Gene*, Oxford University Press, Oxford.

D'Souza, R. (ed.) (2012). *Environment, Technology and Development: Critical and Subversive Essays*, Orient Blackswan Pvt. Ltd., Hyderabad.

Ehrlich, P. (1969). *The Population Bomb*, Ballantine Books, New York.

Elwin, V. (1964). *The Tribal World of Verrier Elwin: An Autobiography*, Oxford University Press, Bombay.

Gadgil, M. and Ramachandra Guha (1992). *This Fissured Land: An Ecological Book of India*, Oxford University Press, New Delhi.

Gadgil, M. and Ramachandra Guha (1995). *Ecology and Equity: The use and abuse of nature in contemporary India*, Penguin Books, New Delhi.

Guha, R. (1989). *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*, Oxford University Press, New Delhi.

Guha, R. (2000). *Environmentalism: A Global History*, Oxford University Press, New Delhi.

Guha, R. (2000). *Savaging the Civilised: Verrier Elwin, His Tribals, and India*, Oxford University Press, New Delhi.

Guha, S. (ed) (1992). *Agriculture Productivity in British India*, Oxford University Press, New Delhi.

Hart, H. C. (1956). *New India's Rivers*, Orient Longman, Bombay.

Krishnan, M. (1975). *India's Wildlife in 1959-70: An Ecological Survey of the Larger Mammals of Peninsular India*, Bombay Natural History Society, Bombay.

Krishnan, M. (2000, 2007). *Nature's Spokesman*, Penguin Books, New Delhi.

- Krishnan, M. (2012). *Of Birds and Birdsong*, Aleph Book Company, New Delhi.
- Kumar, D. (ed.) (1983). *The Cambridge Economic History of India: Vol. II c- 1757-2003*, Orient Blackswan, Hyderabad.
- Kumarappa, J.C. (1946). *Economy of Permanence*, Sarva Seva Sangh Prakashan, Varanasi.
- Leelakrishnan, P. (2006). *Environmental Law Case Book* (second edition), LexisNexis, Gurgaon.
- Leelakrishnan, P. (2008). *Environmental Law in India*, LexisNexis, Gurgaon.
- Martinez-Allier, J. (2002). *The Environmentalism of the Poor*, Edward Edgar.
- Misra, R. P. (ed.) (1995). *Environmental Ethics: A Dialogue of Cultures*, Concept Publishing Company, New Delhi.
- Munshi, I. (ed.) (2012). *The Adivasi Question: Issues of Land, Forest and Livelihood*, Orient Blackswan, Hyderabad.
- Nandy, A. (1987). *Traditions, Tyrannies and Utopias*, Oxford University Press, New Delhi.
- Nandy, A. (1989). *Science, Hegemony and Violence: A Requiem for Modernity*, Oxford University Press, New Delhi.
- Nehru, J. (1946, 2004). *The Discovery of India*, Penguin Books, New Delhi.
- Phule, J. (1883,1969). *Shetkaryacha Asud: The Whipcord of the Farmer*, Maharashtra Sahitya Sanskriti Mandal, Pune.
- Ramakrishnan, P.S. (2001). *Ecology and Sustainable Development*, National Book Trust, New Delhi.
- Rangarajan, M. (2001). *India's Wildlife History*, Permanent Black, New Delhi.
- Rangarajan, M. (ed.) (2007). *Environmental Issues in India: A Reader*, Pearson, New Delhi.
- Shiva, V. (1988). *Staying Alive: Women, Ecology and Survival in India*, Kali for Women, New Delhi.
- Subrahmanyam, N.S. and A.V. S.S. Sambamurty (2000,2006). *Ecology* (second edition), Narosa Publishing House Pvt Ltd, New Delhi.
- The HINDU (2012). *Survey of the Environment*, The HINDU, Chennai.

Articles and Papers

Daniels, R.J.R. et. al. (1991). 'Assigning conservation value: A case study from India', *Conservation Biology*, Vol. 5, pp. 464- 475.

Gadgil, M. et. al. (2011). 'Mapping Ecologically Sensitive, Significant and Salient Areas of Western Ghats: Proposed Protocol and Methodology', *Current Science*, Vol. 100, No. 2, pp. 175- 182.

Ganeshiah, K.N. et. al. (2002). 'A Regional Approach for the Conservation of the Biodiversity of the Western Ghats', *Tropical Ecosystem: Structure, Diversity and Human Welfare*, pp. 552-556.

Kuriakose, F. and Iyer, D.K. (2016). 'Grassroots politics & Green illusions: Exploring the discourse on environment, governance and democracy in Independent India', *Public Affairs and Governance* (forthcoming), https://www.researchgate.net/publication/282122267_Grassroots_Politics_Green_Illusions_Exploring_the_discourse_on_Environment_Governance_and_Democracy_in_Independent_India, accessed on April 4, 2016

Kuriakose, F. and Iyer, D.K. (2016). 'India and Africa: A shared future on environmental issues', https://www.researchgate.net/publication/303749454_India_and_Africa_A_Shared_Future_on_Environmental_Issues, accessed on May 22, 2016

Pascal, J.P. et. al. (1982). 'Forest Map of South India: Mercara-Mysore', Karnataka and Kerala Forest Departments and The French Institute, Puducherry.

Prasad, A. (2007). 'Survival at Stake', *Frontline*, Vol. 23, No. 26, pp. 4-10.
Ramakrishna, V. (2008). 'Hope & Fear', *Frontline*, Vol. 25, No. 4, pp. 4-8.