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When Mountains Disappear and the Rivers Run Dry, Can People Survive? Ecological Crisis in Kodagu

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ABSTRACT

Set against the backdrop of the environmental crisis in Kodagu, a small mountainous district on the South Eastern slopes of the Western Ghats in August 2018, this paper examines the destruction caused through flash floods and landslips to the indigenous people, not just in terms of lost lives and property, but also in terms of their culture and society. Subsequently analysing the reasons for the destruction of the biosphere, identified by environmentalist as a "biological hotspot," this paper seeks to find the reasons for the indifference in state policies towards environmental regulations. The paper argues, this refusal to regulate land use in an environmentally sensitive area, springs from a rigid adherence to market principles instated during the colonial rule. Underlying this belief, in an economy dependent on exploitation of natural resources, is the scientific theory that sees the earth as inanimate. The consequence of such an economic model has not only impoverished communities dependent on land, but brought destroyed the forests and rivers. As a case to point, the paper examines the innate contradictions in forest policies towards conservation of forests and ensuring people's rights to forests.

Key Words: Kodagu, indigenous, economy

Quando as montanhas desaparecem e os rios secam. Como as pessoas poderão viver?

RESUMO:

Tendo como pano de fundo a crise ambiental em Kodagu, um pequeno distrito montanhoso nas encostas sudeste dos Ghats Ocidentais, em agosto de 2018, este artigo examina a destruição causada por inundações repentinas e deslizamentos de terra aos povos indígenas, não apenas em termos de perda de vidas e propriedades, mas também em termos de cultura e sociedade. Analisando posteriormente as razões para a destruição da biosfera, identificada pelos ambientalistas como um "ponto de acesso biológico", este artigo procura encontrar as razões da indiferença nas políticas estaduais em relação às regulamentações ambientais. O artigo argumenta que essa recusa em regular o uso da terra em uma área ambientalmente sensível provém de uma rígida adesão aos princípios de mercado instaurados durante o domínio colonial. Subjacente a essa crença, em uma economia dependente da exploração de recursos naturais, está a teoria científica que vê a Terra como inanimada. A consequência desse modelo econômico não apenas empobreceu as comunidades dependentes da terra, mas também destruiu as florestas e os rios. Como exemplo, o artigo examina as contradições

inatas das políticas florestais em relação à conservação das florestas e à garantia dos direitos das pessoas às florestas.

Palavras-chaves: Kodagu, Indígenas, Economia

The rains that devasted Kodagu District of Karnataka in August 2018 foreshadow the consequences of indiscriminate destruction of an eco-system so vital to human survival in peninsular India. The mountain ranges of Kodagu – the Pushpagiri, Tadomal, Kotebetta and Brahmagiri – have protected human habitations in the lowlands against the fury of the south west monsoons. The river Cauvery and its tributaries Hemavati, Lakshmanathirtha and Barapole, the life-spring of South India, is nurtured in the primeval forests of the Brahamagiri. Without these, mountains, forests and rivers, Karnataka and Tamil Nadu will be parched earth.

The tropical forests and glades of Kodagu have an extraordinary range of indigenous plants, priceless trees, microscopic organisms, reptiles, birds and mammals.[i] Found only in the tropical climatic conditions of the Ghats, this biodiversity is a global importance.[ii] Considered a biological hotspot, this priceless eco-system is under imminent threat of extinction.[iii] Conservation of this biosphere is also vital because of its rich and varied cultural heritage; nurtured by 40 different indigenous communities, who have lived amidst these pristine mountains for centuries, these cultures are unique strands of India's heritage (GOI 1993: 142-200).

To the Kodavas and Gaudas (cultivators of the soil) as well as the forest dwellers (Kudiyas, Jenu Kurbas, Kadu Kurbas and Soligas) the forests and the rivers are sacred. (Poonacha 2018: 33-37). The mountains that sheltered them was the strong citadel that protected them against the vagaries of nature. To these indigenous people, the monsoons was a time when the earth burst forth with new life. The natural drainage of the landscape ensured there was no flooding; while, the thick green forest cover on the mountain slopes, ensured there were no major landslips.

The people were, therefore, not prepared for the torrential rains in July-August of 2018. In July, the river Cauvery overflowed its embankments, destroyed roads and bridges, leaving many villages isolated. But the fury that the surging rivers displayed in July was nothing compared to the devastation that the lashing rains caused, across Madikeri and Somwarpet

Talukas, from 15-17 August 2018. The rainfall, in those critical three days, had reached a record high of 778 mms. This was about 4 percent more than the daily average rainfall in Chirapunji, that records the highest rainfall in the world. Kodagu had not seen such downpour in 50 years. (Sibi 2018; Pooviah, 2018:11). The unimaginable scale of destruction altered the old familiar landscape. Shorn of their tree cover, the hills were unable to withstand the force of the gale and the raging monsoon rains. The crumbling mountains left behind a trail of destruction through flash floods and landslides. People lost their homes, their crops and belongings as the mountains and its overhanging ridges crumbled and the red earth cascaded down into the valleys and into human habitation.

Apart from Madikeri and Kushalnagar towns, 35 villages from 6 gram panchayats in Madikeri and Somwarpet talukas were affected.[iv] Villages/hamlets like Jodupala, Makandoor, Katakeri, Kaloor, Madenadu, Haleri and Megathal disappeared without a trace. It was as if these villages bustling with life coffee estates, paddy fields, cattle sheds and houses never existed. (Dhanajayaprasad 2018:2). Villages were isolated from relief assistance by the roads and bridges destroyed by the landslides and swelling rivers. They had to battle the fury of the rains without electricity, potable water and depleting food reserves for many days. Those who managed to reach the relief camps set up in Madikeri town said, they could not retrace their steps back to their villages as the landscape had changed beyond recognition and the roads to their villages were riven by deep crevices (Hindu 2018; Deccan Herald 2018 a). [v]

Study Focus

Against the backdrop of this devastation, I write from ground zero—as one, who lived through the catastrophe and witnessed the scale of destruction. This article examines the loss -- not just the destruction of the landscape, lost lives and property -- but also its impact on the survival of indigenous communities and cultures. Subsequently, seeking to make sense of this calamity, this paper: 1) examines the causes for the ecological disaster; 2) highlights the disregard of environmental regulation in state polices; 3) examines the economic imperatives and epistemological rationale for this disregard; and 4) points to the contraditions between forest conservation practices and community rights. The paper underscores the vital need to conserve natural resources; for, when all the mountains disappear and the rivers run dry, can people survive?

Estimating Loss

Reports indicated that 14 people died, 5000 people were displaced. About 3000 were forced to live in 25 relief camps across the district. A preliminary by the Central Government estimated the loss as follows: 354 *pucca* houses were completely destroyed (Rs. 3.34 crores); 726 *pucca* houses were partially destroyed (Rs. 6.90 crores); 520 *kutcha* houses were destroyed (Rs. 4.94 crores); and an estimated loss of Rs. 9.20 crores due to partial destruction of *kutcha* houses.[vi] The crop loss included: one lakh hectares of coffee plantation;[vii] 158.30 acres of pepper crops; 4513 acres of arrack plantation; 30,500 acres of paddy crops; and 1,645 acres of ginger crops. It estimated about 61.7 kms of National Highway was damaged causing a loss of Rs.531 crores and 148 kms of district and rural roads were lost. (Deccan Herald 2018b :3; Bhat 2018). These estimates do not give the full import of the loss. The disaster affected more than 2,80,000 small growers holding less than 10 hectares of land and 70,00,00 people employed in coffee plantations (Hindustan Times 2018).

The disaster was a great socio-economic leveller: As houses collapsed and cultivated land disappeared under the red earth, people from all strata of society were impoverished. These houses were not just shacks belonging to the poor, but were also stately homes of the rich. The cultivated land lost by each farmer varied from 2 to 20 and even 30 acres; the future looms bleak before them. It is not possible to rejuvenate the barren land and begin cultivation anew in the next few years. If the small cultivators and the large plantation owners face a bleak future, the migrant estate workers are the collateral damage. Left homeless and jobless, without money to tide them through the year, these migrant workers were forced to return home. Some of them were without money to buy their return tickets home (Deccan Herald 2018c: 7)**.**

There is, however, no “going back” for the original inhabitants. For farmers with small-land holdings in places like Hemmethal, Hebbetegeri, Haleri, Makkandur or Mukkodolu, the future is desperate, because every blade of grass, every tree and coffee shrub were buried under a morass of sludge. Those who lost their houses have been left with nothing more than the clothes they wore on that fateful night. Kuttappa, with a four-acre estate in Hemmethal, lost two acres. He was perhaps a degree more lucky than his neighbours, since his house did

not collapse. This, however, is not much of a consolation, because the house tilts precariously

on the edge of the cliff. There is no way that Kuttappa, a middle-aged man with poor health, can rebuild his life. He has to let the land lie fallow for at least 5 years and then think of replanting coffee shrubs. It would take another 6 to 7 years before he can think of harvesting the yield.[viii] Others in the village are worse off as they have lost everything—their houses, their land, their cattle and are left without any possibility of rebuilding their lives. Claiming compensation for these people is also difficult. For the land is *jamma* land (ancestral land) which may not have the title deed in their name to claim compensation.[ix] Moreover the landslides have changed the topography of the land so completely that there are no markers left to indicate the boundary of their land. Like Kuttappa, Shanti, a middle-aged woman, in Hebbetegeri, lost everything on those fateful three days when mounds of mud slid down the mountain into her 8 acres of coffee estate, destroying 6 acres of it, as well as her under-construction home. Left with nothing, she now lives in a rented home and is unable to claim compensation for her lost under-construction home as she has no papers to prove the loss.

The same stories are heard in other parts of North Kodagu. In Madapur, a large estate owner lost about 10 acres of coffee land. Another 75 -year old lady in Hatti had to escape her beautiful mansion, so lovingly maintained through the years, when cracks began appearing on the walls and groundwater seeped into the house. She had to trek 6 kms with her estate manager's family before she found shelter. The next day, she found her house had disappeared without a trace under sludge and rubble. All that she had with her was the clothes she wore on that fateful night.

There are equally poignant stories heard from other survivors from Mangaldevinagar, Puttaninagar and Chamundeshwarinagar in Madikeri town. These were newly constructed settlements in forest land, built to meet the housing needs of the poor. Raju, a mason, says that he and his family of four barely escaped certain death with the clothes they were wearing. They were living in a refugee camp and subsisting on tea and biscuits. Rajesh, a plumber, moaned that he would not be able to claim compensation, as he had no title deed for the house given to him. To make matters worse, he had lost his motorcycle under the debris and would not be able to attend to his clients living in interior areas.

The long-term impact of the devastation, however, cannot be assessed only in economic terms: For the assessment of economic loss does not take into account the long-term impact

of the devastation on the lives of those survivors who are forced to migrate to urban

congloromates in search of livelihood. Without the necessary skills to rebuild their lives, these people will become part of the vast sea of faceless humanity, living in squalor and poverty. What they would have lost is a way of life, as farmers and lords of the soil, living in a close-knit socio-cultural environment. Their forced alienation from the land will undoubtedly leave its mark on their children and generations to come. [x]

Another important aspect that cannot be valued in narrow economic terms is the irreparable loss of cultural heritage. For the histories of indigenous people, their cultures and civilizational inspirations are formed within the biosphere that they live. The destruction of this eco-space, destroys not just the biodiversity, but also obliterates indigenous cultures shaped by the everyday lives of people; it destroys a well-organized social order. As pointed out by Boverianda Nanjamma and Chinappa (2018), the disaster affected villages were Katkeri, Made, Karanageri, Monnageri, Makkanduru, Nukkokudulu, Kaloor, Hatti and Megathokulu areas. The people in these isolated pockets adjoining the Pushpagiri biosphere had maintained their ancient cultures through the centuries. The Kodava and Gowda families living in these regions celebrated their festivals together. They shared the trusteeships of various ancient temples such as the Appendrappa temple as well as others dedicated to local deities. Boverianda Nanjamma and Chinnappa (2018) write:

> "The areas that were most affected by the recent unprecedented floods and landslides happen to be in places where Kodava culture[xi] has been best preserved for centuries. Surlabi Nad in North of Kodagu is a region known for its scenic beauty. During our field visit there to study *ainmanes* [ancestral homes] we found that Kodava customs and songs and dances have been best preserved there for centuries… How can uprooted people, continue the practices of their unique culture?" [xii]

An Anatomy of the Disaster

The main reason for the catastrophe was the excessive rain fall between July-August, particularly between 15 and 17 August. Kodagu had not witnessed such heavy rainfall for nearly 50 years.[xiii] The consequent overflow of water into the reservoirs required the opening of the sluice gates of dams, flooding the area (Mondgal 2018). The extent of the catastrophe makes it evident that rainfall alone could not have caused the mayhem. According to geologists, the existing seismic vulnerability of Kodagu was aggravated by the "hydro-geological" action caused by the "accumulation of water pressure in the top soil" over loose lateritic rocks. These "hydro-geological cavities" in the mountainous

substratum may have been caused by the deforestation in the Kodagu-Sampaje area, which then caved in due to heavy rains (Rao 2018). Lending credence to this theory about the seismological vulnerability of the area is the occurrence of an earthquake (measured at 3.4 on the Richter scale) on 9th July 2018 about 10 kms below ground surface between Madikeri-Sampaje. The people in Madikeri and a few nearby villages had felt the tremors, heard the underground blasts and seen fissures appear over ground (Rao: 2018). The major destruction was around this biosphere.

These underlying causes for the calamity were undoubtedly exacerbated by decades of unhealthy land-use policies, uncontrolled forest encroachment, deforestation, sand-mining and quarrying. For centuries the mountainous slopes were protected from land erosion by the biomass cover provided by dense forests and soil microbes. The soil erosion resulting from the loss of forest cover and natural mulching caused the landslips. The maximum damage was in areas of recent deforestation (such as, Mukkodulu, Galibeedu, Kalur, Monnageri, Hebbettegeri and Madapur (Korse 2018). Reiterating this argument is a detailed study by scientists of IISC's Centre for Ecological Sciences across Kodagu (cited in Deccan Herald 2018c &d). It indicates that the landslides and floods were caused by the loss of forest cover, illegal sand mining and unplanned development.[xiv] The study noted that in densely forested areas there was hardly any surface overflow, as rainwater percolates into the ground.

A technical report by the Institute of Engineers, Mysore (India) local centre, stated that, "an environment that was stable for millions of years was destroyed through deforestation, levelling of the hills for agriculture, cutting of slopes for roads or building construction." The effect of this incremental deforestation due to unhealthy land use is aggravated by the large-scale deforestation caused by infrastructure projects. It enhances the vulnerability of the landscape to landslips (Star of Mysore 2018). Singh (2018a: 10) states the erratic weather conditions which caused floods/landslips in Kodagu and Kerala and drought conditions in Maharashtra and North Karnataka was because of global warming caused by large scale destruction of forests. Between 2000 and 2005 the earth has lost about 3 percent of its forest cover. Forests act as biotic pumps to drain excess surface water flow.

Destruction of Forests

According to the State of Forest Report (2017) Kodagu has 796 sq. kms of open forests, 1880 sq. kms of moderately dense forests and 575 of open forests.[xv] This biennial report indicates that Kodagu has lost about 102 sq. kms of forest cover. [xvi] Aiyappa (2011) and Singh (2017:10) point out the dense vegetation of Kodagu which covered 86 per cent of the land about four decades ago has dwindled to less than 16 percent. This rapid deforestation is because of ill-conceived development projects, conversion of forest/agricultural land for commercial purpose, timber logging and sand quarrying of rivers. Aiyappa writes, the evergreen pockets in Kodagu on land defined as *Kans*, *Bane*, *Kuki* and *Kharab* that are not regulated by forests department are easily encroached through political patronage. Korse (2018) adds this problem is also compounded by the lack of proper land use policy for an ecologically fragile terrain. Hills are excavated and debris are dumped irresponsibly in ponds, streams and vacant land. Streams are embanked or diverted arbitrarily without consideration of impact on the terrain. Felling of trees and clearing of forests are not regulated and this has also led to the destruction of the forests. Land and its resources are viewed as capital that can be exploited with impunity.

In the Aftermath of the Catastrophe

Despite the scale of the destruction, the Government of Karnataka resists attempts to introduce strict environmental norms: It has not stayed the central government's proposal to widen the existing two-lane national highways into four lanes and construct two railway lines connecting Mysuru to Thalassery and Mangalore via Kodagu. These proposed projects through Kodagu forests, at an estimated cost of Rs 1000000 crores, will deplete the forests, disturb wild life and destabilize an intrinsically fragile terrain. It will dry the water source for South India (Deccan Herald 2018d:2).[xvii] People in Kodagu have not forgotten the impact of the environmental cost of the installation of 400KV high power lines from Mysuru in Karnataka to Kozhikode in Kerala through Kodagu forest. It destroyed over 100000 trees although official estimates state that 56,000 trees were chopped down (Poonacha 2018:33-37).[xviii]

The Karnataka Government's indifference to environmental concerns is also apparent from its objection to the draft notification issued for the fourth time by the National Green Tribunal (NGT) to demarcate 56825 sq. kms of the Western Ghats, eco-sensitive (ESAs) and introduce environmental regulations in accordance with the recommendations of the High-

Level Working Group (HLWG) (Chandrashekar 2018; Khange 2018). The resistance is inexplicable since the proposed demarcation was far less than the recommended area in the HLWG Report[xix]. After the catastrophe in Kodagu and Kerala, it could have been hoped that these states would withdraw their opposition to environmental regulation as suggested by the HLWG.[xx]

A Blinkered Approach

The HLWG committee was constituted by the Government of India, Ministry of Environment and Forests (MoEF) on 17 August 2012, to review the report of the Western Ghats Ecology Expert Panel (WGEEP) also known as the Gadgil Committee Report) set up earlier by the MoEF. The need for such a review was necessitated by the widespread protest against the implementation of the WGEEP report. The HLWG was mandated to study:

> "the preservation of ecology, environmental integrity and holistic development [defined as sustainable and equitable development] of the Western Ghats" …. "In view of their rich and unique biodiversity with high degree of endemism [varying from 11 to 78 percent of the flora and fauna]" (HLWG 2013).

Seeking to accommodate the interests of the multiple stakeholders (including, government agencies, residents and industry) the HLWG chiselled down the stringent environmental regulations sought by the WGEEP report. In comparison, with the WGEEP report (which according to experts, was oriented to environmental conservation) the HLWG report is biased towards "development" (Chandrakant and Nagraj 2018: 117-124).

The differences in the two reports is in their research methodology and ideological underpinnings: The WGEEP report is based on in-depth field investigation, consultations with local communities and experts as well as examination of local initiatives to revive/protect environment. It designated the entire Western Ghats, an area comprising 1,29000 sq.km, extending from Tapti valley to North Kanyakumari, as Eco-Sensitive Areas and demarcated locality specific zones within it, as Ecologically Sensitive Zones (ESZs I, II, &III). [xxi] The ESZ grids are areas outside the existing Protected Areas (PA) in need for protection because of the threats confronting their biodiversity. The ESZs, so demarcated include 142 talukas located on the Western Ghats across 6 states. With the exception of Kodagu and Nilgiris, entire districts have not been designated as ESZs (WGEEP 2011: 16).[xxii]

In contrast, the HLWG report (2013) divided the Western Ghats area of 1,64281 sq. kms into cultural landscape (60 percent, comprising human settlements and agriculture/horticulture economy) and natural landscape (41 percent, about 59940 sq. kms). The cultural landscape comprised "human dominated land use settlements of agriculture, plantation and other forest plantation." Subsequently, on the basis of detailed geospatial analysis conducted through satellite remote sensing at a fine resolution of 24 meters, with the village as a unit, the HLWG concluded that that 37 percent of the natural landscape was eco-sensitive. These were areas "having high biological richness and low fragmentation and low population density and contained Protected Areas, World Heritage Sites and tiger, elephant corridors." (GOI 2013: 43-97).

The recommendations made by HLWG sought to curtail: 1) environmentally damaging activities (such as mining, stone quarrying and sand mining within ESA areas; and 2) prohibit construction of thermal plant projects of over 20,00000 sq. metres and townships/area development projects on a total area of 50 hectares with built up areas of 15000 sq. mts. These restrictions were not applicable to entire districts or even talukas, but only in the natural forests, sanctuaries and villages within ESAs. The restrictions applicable to villages did not extend beyond the village boundaries. In effect, the report sought to prioritize the demands of multiple stakeholders and introduce minimum environmental compliance in areas that largely comprised protected areas, world heritage sites and tiger/elephant corridors.

The two reports seek to preserve the rich biodiversity of the Western Ghats. Nevertheless, there are differences in their ideological underpinnings. The WGEEP report is based on the recognition that conservation and protection of the eco-system is the bedrock on which sustainable development and poverty eradication can be achieved. [xxiii] The HLWG report accommodates the demands of the stakeholders of a market economy.

Discussion

The prevailing market economy, dependent on the over-utilization of natural resources, rejects even a modicum of environmental regulations suggested in the HLWG reports. Premised on the fundamentals of a market economy, state policies and programmes assesses societal well-being through the logic of wealth creation. The policies fail to recognize that

colonial underpinnings of theories of economic progress. Colonial capitalism, that enriched Britain in the 19th and early-20th century, was through the plunder of India's natural resources and the blood and tears of Indians. The economic model destabilized local economies and improvished indigenous communities—the cultivators of the soil, the herdsmen and forest dwellers. The human cost of industrial capitalism was never acknowledged in dominant economic discourses — these theories were intended to justify domination and entitlements of colonial powers. Sadly, in its enthusiasm to replicate the level of prosperity seemingly enjoyed by western countries, the Indian elite allowed the plunder of natural resources in their own country. Gadgil and Guha write:

> "The British imperialism could not wipe out the population of India—ironically; it set into motion a process of demographic expansion—but it did certainly disrupt, perhaps irrevocably the ecological and cultural fabric of its society. And after it formally left Indian shores, the tasks it left unfinished were enthusiastically taken up by the incoming nationalist elites whose unswerving commitment to a resource - intensive pattern of industrialization has only intensified the process of ecological and social disturbance initiated by the British." (2013:213)

No doubt in order to forestall the more blatant consequences of socio-economic inequalities, the Indian state introduced social welfare programmes for vulnerable communities. Also recognizing the rural basis of Indian economy, the state provided agricultural subsidies to farmers. Such measures are, at best, palliatives that do not address the roots of the problem. The agricultural distress in the country is, not just due to falling crop prices, but the desertification of the countryside with ill-considered development projects.

Since the catastrophe in Kodagu was largely caused by deforestation, I focus on the broad contours of forest policies and their contradictions. The Indian Forest Act (1927) demarcated forest land into reserved and protected forests. The reserved forests were intended to meet the demands for timber by the empire, while the protected forests were expected to meet its long-term demands. The Draconian forest law, not only provided for any area to designated as 'protected' or 'reserved' forests for colonial use, but also denied local communities their entitlements to forest resources. Within this policy framework, forests were viewed through monochromatic lenses for their commercial value. Reforestation efforts aimed to conserve tree like teak, silver oaks, for their timber value, rather than fruit trees or any other native trees. The continuation of the colonial forest policies in Karnataka until 1970, meant the continued exclusion of local communities from access to forest resources and the promotion

of forest-based industries like paper, plywood, poly-fibre and match boxes. These commercial interests have also dominated conservation practices (GOI 1993: 31).

Since the 1980s forest policies have been reframed in response to environmental movements like, Chipko in Eastern Himalayan region and Apikco in the Western Ghats. (Gadgil and Guha 1995: 148-175). Some of the forest laws formulated in response to various people's struggles include the Wildlife Protection Act (1972) the Indian Conservation Act (1980, amended in 1988) and the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Rights) Act 2006 (referred here as FRA for short.)which recognizes the *de jur*e rights of the forest dwellers. It grants them free access to forest resources and ensures that they are not relocated without their consent, even if they are living inside national parks and sanctuaries. However, the ground realities are rather different; for, what rights can disempowered forest communities claim, when they have been alienated from their cultural moorings and are sucked into an unfamiliar economy order?

When forests and ESAs are destroyed because of environmental catastrophes or perhaps even infrastructure projects, people are forced to migrate to mega-cities in search of livelihood options. Their numbers increase each day as the land, water and other natural resources are depleted (Roy 2002: 241-278).[xxiv] Despite this irrefutable evidence of the limitations of such an economic model, the government is determined to go ahead with the construction of highways and railways across Kodagu through densely forested areas. The levelling of hills, cutting down of trees and depletion of water table can only escalate the environmental crisis in Kodagu. Moreover, the failure to acknowledge that forests cannot be assessed only for their commercial value is to ignore the multiple uses of forests.

The policy-blindness indicated in the prevailing approach to forests may be traced to the determined pursuit of wealth by the power elite. The epistemological justification for the exploitation of the natural resources evident since the industrial revolution is to be found in the paradigm of science that developed in the Age of Enlightenment. The paradigm with its emphasis on rationality and empiricism, objectified nature as inanimate (Barrett, Michele and Philip, Anne 1992: 1-9). Emphasising human entitlement to natural resources, it overturned a more holistic worldview of the pre-industrial society that stressed a prudential use of natural resources. The earth's biosphere was of value merely as a source of raw material. Shiva

writes:

> "Contemporary science and development conserve the ideological roots and biases of scientific and industrial revolutions even as they unfold into new areas of activity and new domains of subjugation. The scientific revolution in Europe transformed nature from terra mater into a machine and source of raw material; with it removed all ethical and cognitive construction against its isolation and exploitation. The industrial revolution converted economics from the prudent management of resources for sustenance and basic needs satisfaction into a process of commodity production for profit maximization. Industrialism created a limitless appetite for resource exploitation, and modern science provided the ethical and cognitive license to make such exploitation possible acceptable and desirable…. Contemporary development activity in the Third World superimposes the scientific and economic paradigms created by western gender-based ideologies on communities in other communities…." (1988: xv-xvvi)

Similarly warning us of the consequences of unbridled greed and the need to radically alter our scientific knowledge, Knudtson and Suzuki:

> "The rapid and catastrophic degradation of the planetary biosphere has been the main catalyst for the radical reassessment of the limits of scientific insights and application. …Our world is radically altered by our muscular technology. But if we cannot predict the global ecological effects of our activities, how can we control or manage them?...
> Our main dilemma is not the lack of information or technological capabilities, rather our inherent difficulty in the way we perceive our relationship to the rest of nature and our role in the grand scheme of things." (1992: xxiii-xxiv)

I am aware that reversing this trend is not as easy as it sounds: The current economic trends are far too deeply entrenched to make possible drastic changes. Attempts to radically revise the trends would affect the livelihood of those dependent on the economy across the rural-urban divide in India. Forest conservation too is a hugely complex subject: The existing conservation practices seek to exclude people from within the forest boundaries. It assumes that indigenous communities dependent on forest resources are guilty of its depletion. Scientific theories about biodiversity conservation do not engage with traditional conservation practices and do not see indigenous communities as partners in conservation. Attempts are, therefore, made to evict forest dwellers and other grassroots communities dependent from access to forests. (Aiyadrai 2018:37-44). Additionally, as Wolleben (2016) writes:

> "Forests are not first and foremost lumber factories and warehouses for raw material and secondarily complex habitat for thousands of species, which is the way

modern forestry treats them.”

The two instances that indicate the inherent problems with this approach to forests are: 1) the Supreme Court order derecognizing the rights to forest land claimed by 10 lakh families across 16 states, under the FRA (2006) (EPW 2019a: 8-9); and 2) the proposed Indian Forest Act (2019) formulated in the name of forest conservation. If the draft Indian Forest Act is promulgated, it would place unlimited policing power in the hands of forest officials, encourage commercial forestry to meet the needs of a neoliberal economy and deny forest dwellers of their entitlements (EPW 2019b:9). Indubitably, the proposed forest law (2019) is not the answer to protecting forest biodiversity.

The question still remains on how best can we conserve our natural resources so vital for human survival? There is no doubt that the legitimate rights of indigenous communities must be protected as intended under FRA (2006). But can we deny, that not all the encroachers are indigenous people and that widespread encroachments do take place, in connivance with local authorities and political patronage? These encroachments effectively subvert the spirit of the FRA (2006). Forest land gets converted very easily to resorts and other commercial enterprises destroying the surrounding forest land. As a former Principal Chief Conservator of Forests, Karnataka, writes:

> "FRA [Forest Rights Act] has been taken to such an extreme that if anyone encroaches forest land today and submits and application to the local gram sabha he/she can't be evited till the application has been considered by three different FRA committees over several years. This is what is actually happening today in the forests, courtesy FRA. Forest officers stand bereft of their powers Politicians strongly support FRA because people vote, not trees and animals." (Murthy 2019: 10)

Is it not necessary, while talking of human rights, to prevent environmental devastation of the scale witnessed in Kodagu? There is a need within forest policies for a holistic approach--to protect people's rights and conserve resources that belong to the country from exploitation destruction and encroachments for profiteering. I speak, not from an abstract ideological position, but on the basis of the ground realities in Kodagu. Extensive encroachments, plunder by timber smugglers and quarrying of river beds have caused the environmental crisis in Kodagu. Consequently, this summer, an area that was water-rich, faces acute water shortage. There also exists severe conflict between wild animals and people as animals enter human habitat in search of food and water (Singh 2017: 10). The monsoons are expected

bring in its wake flooding and landslips. As a precaution, the district administration has asked all the villagers living in the disaster affected villages to move out of there. How long do we turn a blind-eye to such ecological disaster? From this concern, the paper has documented the environmental crisis confronting Kodagu, examined the economic and epistemological blindness towards ecological concerns in state policies and pointed to the inherent contradictions in conservation practices. It calls for a prudential use of natural resources.

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End Notes

[i] The forests in Kodagu are of extraordinary diversity. Second only to the Sub Himalayan region, the region has some of the finest trees, indigenous plants, animals, reptiles and birds. (Ragavendra and Kushalappa 2011: 3; GOI 1993:114)

[ii] "Biodiversity refers to the vast array of lifeforms that make up ecological communities. From the minutest fig wasp to the largest fig tree, biodiversity encompasses all life. Microorganisms, plants and animals all work together to create a living landscape that occupies every zone on the planet from the heights of the tallest canopy to the depths of the deepest stream." (Kadur and Bawa 2007: 42).

[iii] Conservation biologists consider an area as a biological hotspot when it has features of remarkable biodiversity. There are 34 biological hotspots across the world and most of these are located in the tropics. Although these hotspots occupy barely 2.3 percent of earth's land area, they are home to 50 percent of all vascular plants and 42 percent of terresital vertebrates. The area is also refuge to nearly 75 percent of the earth's most threatend mammal, birds and amphibians.(Kadur and Bawa:2007: 42) While Kadur and Bawa identify the entire Western Ghats as a biological hotspot, I would see the forests of Kodagu of particular importance, because these forests have still not entirely lost their vitality by human greed. There is still the possibility of saving the Western Ghats by focusing on microregions like Kodagu.

[iv] Kodagu is the smallest and least populated district of Karnataka. It has a population of 545322people living in the three talukas (administrative sub divisions) of Madikeri, Somwarpet and Virajpet. It has 97 gram panchayats, 303 villages and 605 habitations and 16 hoblis. Apart from the indigenous communities of Earuvas, Kudiyas, Kurbas and Kodavas, Kodagu has the largest percentage of Scheduled Castes in Karnataka. (<desrt.kar.nic.in/dietwebsite/Kodagu District Profile> Download 9 Feb.2019) Out of the three talukas in Kodagu, two were devastated during the monsoons.

[v] The Hindu (Bangalore Edition) reported on 22 August 2018 that in Makkandur the paddy fields disappeared leaving a flat land devoid of trees and any vegetation for about 2 kms. Very few houses remained, as most of them had collapsed and the road to the village had developed deep crevices. The survivors living in refugee camps said that going back to the village was hazardous and that there was no way that they could identify familiar landmarks in the village. Similarly, Bhat Prajwal in the *News Minute* reported that in Erande Monnageri Village was so badly destroyed that as many as 197 houses were destroyed, 18 people died and about 699 people were forced to find shelter in the various relief camps set up for them.

[vi] The terms *pucca* and *kutcha* used in Census record to indicate the nature of the construction of the building. Pucca houses indicate houses made out of bricks and cement or concrete and kutcha houses indicate temporary structures (built with tin or asbestos sheets and other local materials).

[vii] Recent estimates however place the loss of coffee as much higher. According to the Coffee Board of India the estimated loss of coffee due to 2018 floods and landsides in the three coffee growing districts of karnataka (namely Chikmangalore, Kodagu and Hassan), is about 48250 metric tons at an average estimated value of Rs. 167559 crore and Rs. 808 crores in the international market. The coffee growers, however, feel that this is an underestimation, for the Coffee Board's estimates has not taken into account additional factors such as fruit rot and droppings. If these factors are included in the estimation of crop loss the actual loss would be about Rs. 1500 crores. (Deccan Herald 2019)

[viii] When I met Kuttappa on 13 March 2019, I asked him if he had got any compensation for the loss. He replied "who as the time to follow up the paper work requirements to claim compensation. I have been so busy trying to salvage what I can, that I have not bothered with the Government. My priority is securing my land and getting my house reinforced."

[ix] In Kodagu, the division of ancestral land (jama land) was often left in the name of the head of the clan. The division of property between the various members of the clan was an internal understanding. Therefore, each member of the clan may not have the necessary papers to put forward his claim.

[x] I make this assertion on the basis of another field work study I have undertaken in Mumbai in 2018. The study entitled, *Rescripting Girlhood through Non-Formal Education: the Vacha Experiment* undertaken jointly with my colleagues Sangeeta Desai and Usha Lalwani required our visits to six urban slums in Mumbai and Dombivali-Kalyan areas. Listening to the stories of each respondent poignantly brought home to us the ways by which environmental degradation and lack of employment in the villages force people to migrate to the city in search of livelihood.

[xi] The reference is to the culture of the dominant Kodava community.

[xii] As examples of some of the endangered cultural legacy Boverianda Nanjamma and Chinnappa (2018) speak of the 100 beerakalu (hero stones commemorating the death of war heroes) placed on a platform in Surlabi. Each of these stones, they write, commemorates the ancestor of clans living in the area. These stones along with the 500 *balkathi* (swords) are venerated during the festival of Kailpod (worship of weapons). After which, the men dance holding aloft the swords. People also dance holding these swords during the Kettrappa and Kalathamma festivals celebrated once in 12 years. Further, recording the myths associated with old temples, they speak of an unusually old temple of Kiraata, located in one

of the devastated villages. The temple is dedicated to Ishwara who came to the village on a hunt and settled there. When that happened, the Goddess Badrakali, who was the presiding deity of the village, left the village and settled at a different location. Iswara's temple is on a raised platform in a large yard and has a narrow tower shaped like a pagoda. Simple images are embossed on the temple tower and many offerings of terracotta dogs and horses are left on the either side of the steps leading to the temple. During the temple festival, members of the Kodava and Gowda communities perform the Kombata (i.e., with antler horns) wearing the traditional white *kupya* (a long coat).

[xiii] Statistics maintained by the Forestry College in Ponnampet, Kodagu, through a network of rain gauges, show that such heavy rainfall was last seen in 1961 when the rains were spread over a few weeks. This was not so during the monsoons of 2018. The downpour was from 15-18 August. (Rao 2018: 10)

[xiv] The landslides that destroyed Hebbettegeri and Hemmethal are because of the collapse of unauthorized water tanks constructed on hill tops. Survivor Narratives (September 2018)

[xv] The State of the Forest Report defines all land, with an area of one hectare having a canopy density of 10 percent on both government and private land as forest cover. Scrubs are degraded land with a canopy density of 10 -40 percent; Moderate Dense Forests are those areas with a canopy density of 40 to 70 perent; Very dense forests have canopy density of more than 70 percent; and carbon sink is the carbon stored in the ecosystem of the forest especially biomass and soil. (Govt of India (*State of the Forest Report*, 2017.)

[xvi] The State of Forest Report is a biennial report brought out by the Forest Survey of India. Statistics provided by the department through digital interpretation of remote sensing satalite data that the forest cover in Karnatkaka has increased. The data obtained on December 2015 indicates that the state has 37550 sq kms of forest cover which is about 19.58 percent of the total geographical area of Karnataka. Out of this tota area the state has 4502 sq kms as dense forests; 20444 under moderate dense forests and 12604 under open forests. What is sad is while the total forest area in the State has increased, Kodagu shows rampant degradation

[xvii] The NGOs who oppose the Highway widening projects and the railway lines through Kodagu include the Coorg Wildlife Society, Kodagu Maraka Yojane Virodha Vedike and Kavery Sena. (Deccan Herald 2018)

[xviii] The official statistics do not take into account the rampant illegal chopping down of trees by various interested parties.

[xix] The HLWG report had designated 22, 919 sq. kms. of the Western Ghats within Karnataka's boundaries as "natural landscape." It had recommended that a total of 4125 sq. kms (i.e., Madikeri Taluk 1441; Somwarapet taluk 1013 and Virajpet 1661 sq. kms) be treated as "natural landscape."

[xx] Zee News 2019 reports that Karnataka has now accepted the suggestion to selectively accept the Kasturirangan report. It agreed to stop mining but not sand mining and quarrying in eco-sensitive area. Further, instead demarcating 1580 villages as eco-sensitive areas (as recommended by the Kasturirangan report), the Karnataka government has agreed to included 850 villages as eco sensitive areas. (zeenews:2019, downloaded on 11 April 2019).

[xxi] Ecologically Sensitive Zones (ESZs) are assigned to areas outside the protected areas that are in need of protection because these grids comparable with the Protected Area indices in terms of biodiversity richness, species rarity, habitat richness and total biomass productivity. The ESZs are also areas with biological/ecological richness and with important geo-climatic attributes. These may also be areas susceptible to natural hazards such as fire and landslips. (WGEEP 2011:16)

[xxii] Some of the important recommendations made by WGEEP are as follows: 1) no genetically modified plants in the Western Ghats; 2) No opening of Special Economic Zones or opening of new hill stations in ESZ I and II; 3) No change in land use in forest areas in ESZ1 and II; 4) ban on opening new mines and gradual closure of mines, quarrying and sand mining in ESZ 1 and II over a period of 7 to 8 years; 5) no large scale development projects such as dams, thermal plants railways and highways in ESZ I; and 6) ban on polluting industry and no conversion of public land to private land in ESZI; and 7) Environmental clearance is required before constructing large buildings and resorts in forest land . (Government of India 2011: 41)

[xxiii] My inference is based on two important works authored by Madav Gadgil and Ramachandra Guha (1995;2013) which indicates the ideological premises that have informed the WGEEP report. It is apparent that the ideological underpinnings of this document informed by the following ground level realities: 1) the impact of environmental degradation on grassroots communities—the agriculturists and forest dwellers;2) conflicts and struggles for resources in rural India; 3) the impact of large infrastructure projects in disrupting the lives of indigenous people, forcing them as environmental refugees into urban areas; and 4) the struggles of important environmental movements such as Chipko to save the Tehri region of the Himalayas and Apiko to save the Western Ghats.

[xxiv] Singh (2018a) Writes in Karnataka alone in recent years diverted 15860 hectares of forest land for different projects. It has notified less than 1270 hectares of non-forest land under section 4 of the Karnataka Forests for development purposes.

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