

SPECIAL ISSUE

1-15 JANUARY, 2018

Down To Earth

FORTNIGHTLY ON POLITICS OF DEVELOPMENT, ENVIRONMENT AND HEALTH

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AN ECOLOGICAL FAITH

Paying a tribute to a conservation religion that India has forgotten

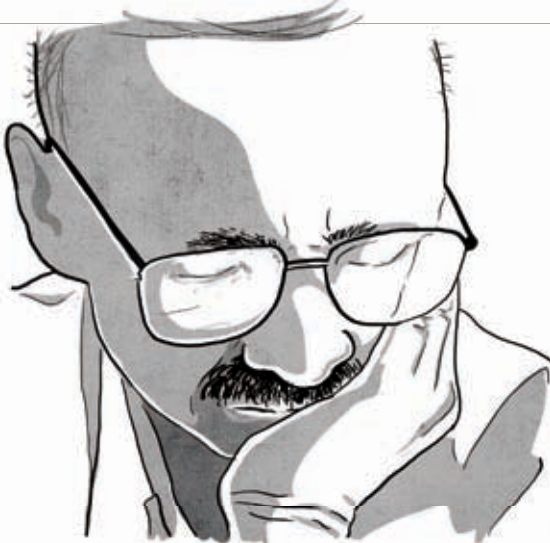


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everyone in the car,**

#PehniKya?



ANIL AGARWAL'S WRITINGS

TV'S 'POP POLITICS'

January 2, 2018 is the 16th death anniversary of Anil Agarwal, founder of the Centre for Science and Environment and *Down To Earth*. His assessment of mass media remains true even today

PEOPLE HAVE talked about globalisation mainly in economic terms. But the 21st century may see a form of political globalisation which could pose a serious threat to the 20th century concept of sovereignty. Political globalisation will be pushed by the same technological change which is pushing economic globalisation, namely, the dramatic changes that are taking place in communication technologies which are turning the world into a global village.

Human rights is today an area in which states are beginning to feel that they have legitimacy in intervening in another state's affairs. A recent article in *The New York Times* points out that "NATO's bombing in Kosovo [is] a clear sign that the West puts a higher priority on human rights than on sovereignty...If slaughter and television come together, as they did in Kosovo, 'right-minded' people in Europe and America demand that their governments do something about it. (If television is absent, as it largely was from the genocide in Rwanda in 1994, the demand is much less insistent, however great the loss of innocent life may prove to be.)"

While TV will definitely continue to play an important role in generating popular emotions and thus influencing political decisions, especially in electoral democracies, it is important to appreciate the limits of the 'pop politics' generated by TV. The

message on the TV screen depends on the biases of the persons behind the camera. What is true of human rights is equally true of environmental concerns. One good TV programme on Amazonian rainforests can force politicians to take action to protect forests. But Western TV failed to pay equal attention to the desertification in Africa, even though it poses a serious threat to the very existence of some of the poorest people on Earth. It, therefore, received little political attention, too. Equally, the camera may fail to catch the non-western dimensions of environmental issues — like the importance of equity in developing a global action plan to combat global warming.

All this means that we might see a steady erosion of sovereignty as technological instruments for creating cross-country consciousness continue to grow. The expansion of human ability to share human travails and tribulations is definitely a welcome trend. But if the instruments that create global consciousness largely remain in the hands of a few, human consciousness could easily become biased and prejudiced. Therefore, leaders have quite a task to ensure that growing global consciousness leads to action that carries global consensus behind it. Leaders from the less powerful nations have an even greater responsibility: to ensure that the world moves in this direction. Inaction could be worse. ■

April 30, 1999

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According to a new report, India is the world's second-most unequal region. Ten per cent of Indians own 55 per cent of national income.

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GLIMPSES FROM OUR ARCHIVE

Déjà vu?

A tigress was poached in Madhya Pradesh's Panna Tiger Reserve recently. Activists have blamed the death on the forest department's laxity. In "Troubled Tiger" (1-15 April, 2005), *Down To Earth* had

noted, "To be effective, the management of tiger reserves should involve neighbouring villages in looking after the habitat. Sadly, this doesn't happen". Panna should listen if it wants to avoid repeating the 2002-07 wiping out of its tigers by poachers.



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letters



TARIQUE AZIZ / CSE

Ode to the window

With reference to the article "Clearing the air" (1-15 December, 2017), we have to keep in mind the indoor air pollution too. The tiny, hazardous, particles easily penetrate our bodies through the respiratory tract and can lead to lung cancer. One way to minimise exposure to these is to open all windows and doors during day time to let in sun light and fresh air. Unfortunately, most houses do not have enough provision for fresh air and sun light as windows are not there. Even the ventilators (*roshandaan*) are no longer part of houses and height of rooms is reduced to minimum for commercial purposes. Sunlight and fresh air is essential for good health and one should try to be outdoors in sunshine for sufficient time and go out for walks and exercise. People should also try to live healthy and consume more fresh vegetables and fruits and drink plenty of water to increase the body's immunity to diseases. We should have positive thoughts to be happy.

MAHESH KAPASI
VIA EMAIL

Development at risk

The column "Poverty@25, India@70" (1-15 November 2017) evokes strong feelings. Poverty persists as a paradox for India since independence. Many countries, born at the same time or after India, have been more successful in poverty alleviation despite India being rich in natural resources. The reason is that our politicians have never sincerely cared for the poor except for nurturing them as their vote bank. Secondly, we have never tried to nip the evil of poverty in the bud. For example, the tribals, who are evicted from their homes in the forests in the name of development, never



TARIQUE AZIZ / CSE

get the promised benefits. The marginalised and poor that do not find a living in the villages move out to cities and swarm to slums. There, they end up becoming poorer than before. The caste-based benefits like reservation in education and jobs are usurped by a creamy layer that has evolved among the SC/ST/OBC category. This disturbing fact is in the knowl-

edge of successive governments, but they never show intent to act. We cannot eradicate poverty unless we develop facilities in the villages and rise above (or look below) the caste-based reservations.

L R SHARMA
HIMACHAL PRADESH

Flyaway dust

This is with reference to the article "Silhouettes in the dust" (16-30 November, 2017). As road dust contribute a whopping 33 per cent of the total air pollution, a policy intervention to ensure continuous and good maintenance of roads would check the problem to a large extent. In fact,

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VIKAS CHOUDHARY / CSE

Letters

road dust contributes to the fine particles that remain suspended in air. Part of road dust could also be because of the loose sand flying off from trucks. Efforts are needed to improve the roads and to ensure that there are no muddy tracks. No doubt, burning of stubble and firecrackers do pollute the air but vehicular emissions and road dust, which are the biggest contributors to air pollution, need to be curbed on priority.

KR SRINIVASAN
VIA EMAIL

Waste not

This is regarding Sunita Narain's editorial "India's twin environmental challenges" (1-15 December, 2013). The article sums up the scenario well. India should not ape the West and must learn to apply its mind. Our courts, for example, jump to apply new emission standards every time someone approaches them. They also impose a ban on 10-15 years old vehicles from plying in our metros. This only means we are shifting the problem elsewhere. Not everyone who owns a vehicle can purchase a new

one, every decade or so. The old vehicles will be sold and will continue to ply elsewhere. Can the courts and environmentalists guarantee that the emissions and pollutions will not reach some other area? What about the resource costs, production costs and environmental costs in producing new vehicles? In such situations, the environmentalists, governments and courts appear to be blind do-gooders oblivious to the greater harm their quick decisions cause to the environment and people. The need of the hour is to see how we utilise existing resources—mobiles, cars, home products—to their maximum potential. We must ensure that manufacturers and producers provide kits



and service points so that consumers can extend life of their goods. Simply banning vehicles after a certain age is a lazy environmental solution. We must not create situations, which add to the mountains of dump and rivers of filth that we leave as a legacy to the coming generations.

SHARAD
VIA EMAIL

Nudge in right direction

This refers to the article by Aditya Mishra titled "The future or the end of it?" (16 - 30 November, 2017). From the humanoid robot Sophia's responses, it seems as though the AI Bot has had excessive inputs of fiction, contemporary cinema, business world and conquests related literature. To transform her present rather "aggressive" intelligence into a holistic one, Sophia needs to learn more wholesome historical stories, holistic sciences, spirituality, philosophy and thought patterns of great thinkers and events in this planet during the past ten thousand plus years.

BHARATH KUMAR K
CHENNAI

Not pollution free

The article "Organic trial" (1-15 April, 2017) is interesting. However, Sikkim has to adopt a strict policy to curb vehicular pollution as well. The tourists are almost blackened by the emissions from trucks and buses plying in the state.

SANJAY
VIA EMAIL

New economics

This has reference to Rakesh Kalschian's commentary "Cautionary tales" (16-30 November 2017) on Jean Dreze's book "Sense and Solidarity: Jholawala economics for everyone". If high-end economics is represented by demonetisation and GST, then India is better off with the down to



TARIQUE AZIZ / CSE

earth economic sense of Mahatma Gandhi, who had preached the nation the use of indigenous resources. Our economists and planners have yet not realised their folly of borrowing from the European model of economy that has proved unsuitable in Indian context. We need to evolve our indigenous economics. The total mechanisation of farming has rendered our cattle idle and those have now become a serious threat to our standing crops as also to the traffic on roads. We need to engage this cattle force back again in farming jobs along with the machines. Similarly, the chemicals and pesticides have done more harm to our food and health. We also need to preserve our traditional seeds to reduce dependence on multinationals for seed.

KIRAN SHARMA
HIMACHAL PRADESH



AAADITHYAN PC / CSE

Permanent solution

Apropos the cover story on permaculture (16-30 November, 2017). This indeed seems to be the solution to many of the problems that have been brought about by modern agriculture. We need to work with the environment in symbiosis and not exploit this resource. This is the only way to ensure our existence. This also provides hope to people like us who live in urban areas. We too can now grow part of our food using permaculture technique. To put people's minds at rest that permaculture can provide sufficient food to meet our needs, we need urgent research. Most of the people involved in permaculture seem to be rich. While they might not be interested in material benefits, research would help the poor adopt the concept.

MAMTA
NEW DELHI

Irrational to the core

This is with respect to the debate on behavioural economics (1-15 November, 2017). I believe that humans are just not capable of rational decisions. We see the impact of this failure all around. For example, we insist on buying cars when we do not have a place to park them. These are parked on the roads and make it impossible for traffic to move unhindered. Ultimately, we are the ones to suffer. This irrational behaviour is visible even at personal level when we happily splurge on junk food though we know very well that it is harmful to health. It is sad that we need a policy to help us make common sense decisions. Unfortunately, public policy too fails in India. For example, we continue to litter even though there are rules on this.

SHASHANK KUMAR
MUMBAI

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WTO trumped by America

WTO's recent ministerial meeting at Buenos Aires highlights the strain on the multilateral trading bloc from US unilateralism and its own 'unfair' system

LATHA JISHNU

WHEN ELEPHANTS fight, it is the grass that suffers—an African aphorism that well describes the current state of play at the World Trade Organization (wto). The 11th ministerial conference in Buenos Aires (December 10-13) was by all accounts a flop show with no movement on any major issue. "Collapse" was the word most commonly used, and had everyone asking the same question. Is it curtains down for the multilateral trading system, with the world's biggest trading power, the US, accusing wto of losing its focus besides attacking its rules? US Trade Representative (ustr) Robert Lighthizer also made clear his disdain for the organisation by leaving the ministerial conference (MC) a day before the event was wrapped up.

For long, developing countries have been mourning the death of wto's Doha

Development Agenda, a round of negotiations that was aimed at improving their trade prospects. Now, it appears all 164 member countries will be mourning the death of the current wto, if the US has its way. The wto may not be the fairest of trading systems but it's possibly the best of options now available to developing nations in a world of predatory free trade agreements and exclusionist plurilateral deals.

The wto so far has functioned as a global club where members know their place. Although theoretically, member nations have equal rights, the hierarchies and privileges are neatly codified. The rules are fixed by the big boys and so is the system, which largely favours the powerful and rich. There was no fundamental challenge to the ruling order till China's entry. With China's exports showing no signs of flagging—the US



trade deficit with China was \$347 billion in 2016—the WTO has emerged as the villain of the piece.

Donald Trump's trade war against China is a carryover from Barack Obama's presidency. What is new, however, is a hardened US position under Trump with his "America First" policy. He believes the WTO's biased trade rules are responsible for the US trade deficit and job losses at home and has, therefore, made the trade body a special target. Like Obama, for Trump the real focus is China, which has undermined the long trade supremacy of the US. Washington views China's state-controlled capitalism as an opaque system that directly threatens the West's free market economy. It wants China's subsidies investigated but thinks the WTO is not up to the challenge.

In recent months, Trump has paralysed the WTO's dispute settlement system by blocking the appointment of several appeals judges to its seven-member appellate body, a move which could stall dispute resolution for years. Some analysts fear this could be used by the US to justify any unilateral action it takes against trade partners, such as the imposition of tariffs or other duties. Champions of the multilateral system view the dispute settlement process as a way of pre-empting trade wars even if the disputes take long to settle.

US Trade Representative Lighthizer had two major grouses that he aired at the opening session of the Buenos Aires MC. The first is that the WTO is losing its "essential focus on negotiation" and becoming a litigation-

Donald Trump's trade war against China is a carryover from Barack Obama's presidency. What is new, however, is a hardened position of the United States under Trump with his 'America First' policy

centred organisation. "Too often, members seem to believe they can gain concessions through lawsuits that they could never get at the negotiating table," he said.

Trump's trade chief also said there was "a need to correct the sad performance of many members in notifications and transparency," and for greater market efficiency, with both the charges aimed at China's subsidies to its state enterprises.

Ironies are rife in the US position. It is Washington that has repeatedly blocked and deflected decisions that have gone against it for clear violation of trade rules. The most egregious example is the cotton subsidy case which it lost to Brazil. In 2005, the WTO appellate body had ordered the US to eliminate its cotton production subsidies which it found were depressing global cotton prices. The economies of four very poor African countries had been destroyed by US subsidies but not surprisingly, the nations had not taken their case to the WTO for want of funds. Instead of cutting its subsidies, the US chose to buy its way out of the decision of the appellate body. It agreed to pay Brazil \$147 million a year indefinitely along with a lump sum \$300 million.

While the cotton case highlights the limitations of the dispute settlement body, the majority of members say there is no alternative. On December 11, ministers from 44 developing and developed member countries issued a joint statement strongly supportive of the multilateral trading system and praised the unique role of the disputes settlement body besides calling for all vacancies on the appellate body to be filled forthwith. India, strangely, was not a signatory.

The European Union is at odds with the US in its strong support for the WTO.

European Trade Commissioner Cecilia Malmström says: "For the EU, this is a clear objective: to preserve and to strengthen the rules-based multilateral trading system." But that claim is being questioned by China, which has filed a high stakes case against the EU (the US has made itself a party) for failing to abide by its agreements. China has filed the suit for the EU's refusal to accord Beijing the promised market economy status after 15 years of joining WTO in 2001. The market economy status means WTO members have to take Chinese prices at face value instead of challenging these.

"China joined this organisation in the belief that the WTO is rule-based, non-discriminatory, and promotes free trade. However, the EU's measures defy every single one of those principles: it is rule-bending, discriminatory, and protectionist," China's WTO ambassador Zhang Xiangchen was quoted by *Reuters* as telling a WTO hearing on December 15.

But as the trading giants meet head-on, what of India which was reduced to being on the sidelines at Buenos Aires? Its sole focus was on securing a permanent solution to its food subsidy bill (stockpiling of grains), a contested issue that put it in the thick of controversies at 2013 in Bali and in 2015 at Nairobi. But once again, attempts to reach a consensus hit a dead end after assistant US Trade Representative Sharon Bomer Lauritsen said bluntly that the US was not interested in a permanent solution. The official Indian statement, however, was muted and blamed the US without naming it for reneging on a commitment to "deliver a solution of critical importance for addressing hunger in some of the poorest countries of the world". However, since the interim accord allows it to stockpile food grains till a permanent solution is found, India is not unhappy with the continuing *status quo*.

New Delhi is plainly relieved that it was not in the firing line at Buenos Aires. Commerce Minister Suresh Prabhu said delightedly on his return: "This is the first time that India is not being blamed... we are definitely not going back as villains." When elephants fight, it obviously makes sense for small denizens to keep out of the way. ■



GROVES OF THE GODS

**THESE ARE THE GROVES WHERE
NO TREE CAN BE AXED, NO
BRANCH BROKEN AND NO
GRASS BURNT. TRADITIONALLY
DELIMITED AND PROTECTED BY
COMMUNITIES WHO BELIEVE IN
THE DIVINITY OF NATURE AND
NATURAL RESOURCES, SACRED
GROVES ARE TREASURE TROVES
OF RARE AND ENDEMIC
SPECIES, SOME DATING BACK
MILLENNIA. BUT THEY ARE FAST
LOSING THEIR AURA, WITH
MANY BEING ENCROACHED
UPON OR DESTROYED, AND
OTHERS ON THE VERGE OF RUIN.
IT'S TIME THE GOVERNMENT
MAPPED THESE REPOSITORIES
OF LIFE AND IDENTIFIED THE
SPECIES THEY HARBOUR**



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Daheru Pahan worships a *sal* tree at Lohajimi in Jharkhand's Khunti district. *Sal* holds an important place in tribal ecological consciousness. Social activist Durgawati Oreyra says once upon a time Singh bonga (tribal deity) used to live in people's homes. But somehow He took offence at faults committed by devotees and made the *sal* tree home. Since then, tribals hold it sacred





REVERED YET NEGLECTED

P S RAMAKRISHNAN AND K G SAXENA

Protecting forests and groves for cultural and religious reasons is an ancient practice worldwide. Scriptures and historical documents provide accounts of rulers, setting aside forests for sages who provide spiritual guidance and disseminate knowledge. An appreciation of such “non-use” values of forests and indirect benefits of biodiversity is thus grounded in the social and cultural fabric of communities.

Though guided by beliefs, taboos and myths, the motive behind this sense of appreciation and protection vary enormously. Communities in Himachal Pradesh believe that worshipping the forest deity would protect them from catastrophes like droughts, floods and earthquakes (see ‘Himalaya’s magical grove’, p25). For Rajasthan’s Bishnoi community, it’s a way of following the 29 tenets of the sect that forbid felling of green trees and hunting (see ‘Vanishing oases’, p40). The Khasis of Meghalaya need undisturbed forests for performing some rites and rituals (see ‘Nature’s timeless abode’, p20), while the Buddhists around Kanchenjunga in Sikkim believe that it is their duty to protect sacred treasures that remain hidden in some forests and will be revealed only to enlightened Lamas (spiritual teachers). In a way, these beliefs reflect the kind and strength of the relation communities share with nature.

Small wonder, sacred groves not only vary in terms of ecological distribution, but also in terms of property regime, management practice and socio-ecological relevance. While most belong to and are revered by individual communities, some like the Hariyali sacred forest of Garhwal and Mawsami sacred forest in the Khasi Hills are valued by a village cluster. Then there are groves with a regional appeal. The list includes Jageshwar Dham in Kumaon, Badri Van in Garhwal, Poongavanam (garden



Sacred groves occupy 1 per cent of the total forest area, but generate greater ecosystem services as they are present in all biogeographic regions



of Sabarimala's Lord Ayyappan) in the Western Ghats, Amarkantak in Madhya Pradesh and Demojong in Sikkim. Some individual trees like banyan tree (*Ficus benghalensis*), sacred fig (*Ficus religiosa*) and neem (*Azadirachta indica*) are also revered as they often cover as large areas and host as many species as small sacred groves. However, there are species or forests which are considered sacred at one place but not in others. Bamboo thickets, considered sacred in some Northeastern regions, are believed to house "bad spirit" by several communities in the Indo-Gangetic plains. Land ownership rights and management responsibilities may also vary. At places, individual families are responsible for the management of sacred groves, while at others the onus is on communities, trusts or religious endowments. In the Himalayas, certain areas with legal status of forest remain excluded from silvicultural treatment and are left free for people to perform social functions and utilising resources.

Waterbodies are an integral part of sacred forests, but they serve different purposes at different places. In Rajasthan, they occupy locations crucial for enhancing watershed functions. In the humid region of the Himalayas and in the Western Ghats, they protect settlements from peak-runoff or flash flood while ensuring sustainable flows in springs and streams supplying drinking and irrigation water.

People's dependence on sacred groves also vary. Though some communities use deadwood and other non-timber products from the grove, prohibition on damaging or felling a tree, livestock grazing and fire is a common feature of these patches.

They are repositories of life

Possibly, sacred forests occupy not more than 1 per cent of the country's total forest area, but generate larger ecosystem services as they are present in almost all biogeographic, climatic and agro-ecological regions. Being remnants of primary vegetation or old secondary vegetation, they have high species'



Untrue, insufficient

Different institutes provide different data for sacred groves

- CPR Environmental Education Centre
- Ministry of Environment, Forests and Climate Change

Andhra Pradesh 677 750	Assam 29 40	Chhattisgarh 63 600	Gujarat 42 29	Jharkhand 29 21	Karnataka 1,476 1,424
Arunachal Pradesh 159 58	Bihar 43 -	Goa 93 -	Haryana 57 248	Himachal Pradesh 329 5,000	Jammu & Kashmir 92 -

richness, harbour many rare and threatened species and serve as source of propagules. They also act as “keystone structures”—distinct patches in the matrix of degraded ecosystems. Exceptionally large trees, wet or moist microsites and edges or ecotones (transition area between two biomes) of sacred groves create enormous ecological heterogeneity and associated taxonomic and functional diversity over small patches. At places, they serve as corridors between protected areas, sources of seed rain and refugia of both local and regional species in extreme events like droughts and floods. Sacred forests, being huge carbon sinks, are also significant for climate change mitigation and adaptation. Locally revered groves promote community solidarity while the ones famous across a region help enhance social capital through inter-community exchange of knowledge. Recognition of this knowledge could be a cost-effective way of resolving conflicts between communities and conservators. Conservation ethos of communities is reflected from the high levels of biodiversity and ecosystem services in protected areas, which were owned and managed by people until the late 19th century. Though a large number of sacred groves, spanning less than 0.5 hectares (ha), do not qualify as “forest” as per the Food and Agriculture Organization, they have the potential to augment the ecological and socio-economic functions of protected areas and forests.

Yet, least appreciated

Reports show widespread loss and degradation of sacred forests in recent decades. They are almost non-existent in much of the Indo-Genetic plains, distinguished by high population density, agricultural extensification and intensification, urbanisation and industrialisation. Land grabbing is also said to be a major reason for the degradation. But in the absence of any systematic monitoring, it is difficult to say whether there has been any loss or expansion in the number and extent of sacred groves. The Forest Survey of India monitors forest cover using satellite data with a spatial resolution of 23.5 metres and minimum mappable unit of 1 ha, which is not designed to discern sacred forests. These forests are also not treated as separate land use category in village-level census, surveys and in maps generated by the forest department. Thus, we cannot decipher the contribution of sacred forests to the recent increase of 3,775 sq km (1 sq km is 100 ha) of forest area in the country or the loss of 628 sq km area in the Northeast. Worse, data collected by researchers at different points of time and following different methods (mostly visually estimated or reported area values) is leading to erroneous conclusions. An assessment by CPR Environmental Education Centre, a centre of excellence of the Ministry of Environment, Forests and Climate Change shows that there are 10,377 sacred groves across the country. Going by the ministry’s website the number could be as high as 13,270 (see ‘Untrue, insufficient’).

Such conflicting reports show that sacred groves receive little attention despite their socio-cultural and ecological values. First, sacred forests were not treated as a distinct class of forest when all uncultivated lands were notified as forest and wasteland by the colonial regime. This resulted in their inclusion in reserve and protected forests, controlled by the forest department, or in civil forests under the revenue department. Since most sacred forests had cultural and religious relevance, they suffered overexploitation, primarily by outsiders brought through forest contractors after the introduction of organised forestry and commercial utilisation of forest resources. Communities, deprived of political power, remained mute spectators of this onslaught till the 1970s, when the government banned activities of its own agencies, including conversion of forests and felling of green trees in the hills.

Second, integration of isolated communities with the mainstream and transition from subsistence income to market economy impacted their value systems. Use values and tangible benefits of forest

Kerala 1,096 2,000	Maharashtra 2,820 1,600	Meghalaya 105 79	Puducherry 108 -	Sikkim 16 56	Telangana 57 -	UttaraKhand 133 1
Madhya Pradesh 170 -	Manipur 166 365	Odisha 188 322	Rajasthan 560 9	Tamil Nadu 1,275 448	Uttar Pradesh 32 -	West Bengal 562 670

started getting more attention than non-use values and intangible benefits, reaching to an extreme of replacement of the original concept of sacredness of the forest by sacredness of idols and icons, and resulting in overexploitation of forest resources and conversion of forest land.

Third, sacred groves owned by families suffered the wrought of fragmentation with disintegration of traditional joint families. Fourth, some policies undermine the importance of forest conservation. These include promoting forest-based goods and services at subsidised price; chemical fertilisers serving the functions of manure generated from forest litter; modern health facilities replacing forest resource-based local healthcare; and supplying drinking and irrigation water from sources other than the traditional ones recharged by forests.

Fifth, the government did launch some programmes to promote community forestry, including restoration of degraded and conservation of intact forests, but the quantum of support has been too low—a family in Kerala receives one-time payment of around ₹ 3,000 for maintaining sacred groves in a private dwelling while ₹ 30,000/ha is made available for restoration of community forest lands. Besides, traditional forest knowledge and institutional set up are quite efficient in conservation of intact forests meeting subsistence needs but not in restoring degraded forests and generating sustainable income from forest products. There are no effective rewards for voluntary restoration or penalty for forest degradation. Community participation in forest management is getting more recognition in policies but there is little focus on upgrading indigenous knowledge and storage capacity, value addition and marketing of forest products.

Sixth, people are not fully aware of income opportunities from conservation and enhancement of forest carbon stocks provided in the UN Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD).

The UN's Convention on Biological Diversity, Framework Convention on Climate Change and the Sustainable Development Goals (2015-30) have opened up new opportunities of sustainable socio-economic development through forest conservation and restoration. Harnessing these opportunities requires radical changes in policies. There is a need to replace the short-term (one to three years) project approach of research and treatments by long-term plans in view of the long life of forest trees and slow restoration process of forest cover and ecosystem services.

So far, ecosystem services of sacred forests, such as pollination of crops, control of pests and pathogens, slope stability, recharge of water sources, source of seed rain and climate change mitigation and adaptation, have been expressed only in qualitative terms. There is a need of quantifying these services, valuing them in economic terms and feeding the research output to the people as well as policy-makers to make forest conservation and restoration economically as efficient as other land uses and occupations. Above all, this much-revered-yet-much-neglected landscape should be urgently included in national conservation plans and their management be made an integral component of participatory sustainable cultural landscape and livelihood development programmes. It's the only way to protect our ecosystem.

P S Ramakrishnan is an internationally renowned ecologist who has received several national and international recognitions, and led national and international research programmes.

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NATURE'S TIMELESS ABODE

WITH A RICH NATURAL AND
CULTURAL HERITAGE, MEGHALAYA'S
MAWPHLANG SACRED GROVE NEVER
CEASES TO SURPRISE VISITORS

RHINUSMITA KAKOTY LAHKAR

One can clearly hear the symphony of nature here. Hundreds of tiny honeybees buzz through trees, while crickets stridulate a constant tune that becomes one with bushes. Then there are ladybirds gulping down bright red berries and a bat hiding in a tree hollow, away from the bright sunlight that manages to pour through leaves. Combine this with old monoliths covered with moss, and you can be forgiven for thinking that you are in a fairy land—a land where time has stood still.

This is Mawphlang sacred grove, which literally means moss-covered stone. Spanning 77 hectares (ha) at Mawphlang village in the East Khasi Hills, it is one of the largest ancient woods in Meghalaya. One comes upon it suddenly. First, all you can see is a verdant background to a grassy flat meadow. And then, without realising, you find yourself surrounded by trees and gasping in delight! These are no ordinary woods. According to local Khasi beliefs, it is the abode of their deity, Labasa, and departed souls. Labasa protects the clan and the *hima* (kingdom) from all harm. In fact, they have a saying that: “There can be no *hima* without a sacred forest and no sacred forest without a *hima*”.

Several other taboos are also associated with the grove but my guide Sun Lyndoh asks me to keep in mind two important rules: one, do not take anything away from it, not even a leaf; and two, do not leave anything behind. Even spitting and peeing is inauspicious inside the grove. It's recommended to visit the toilets built just outside the forest before the tour.

There are a group of monoliths at the entrance—three standing or male stones and one seated female stone. Some 50 years ago, when sacrificial rituals were still taking place inside the forest, the elders would seek permission of the deity at these monoliths. If the deity appeared as leopard, they would proceed with the rituals. But sometimes, they would see the vision of a snake. In that case, the ritual would be cancelled.

I enter the grove through a leafy “doorway”, my ears already attuned to the buzz of bees and the hum of crickets. There is a stony pathway ahead but one can move in any direction. The grove has three parts: Laitdyrkhang is towards the hamlet. This is where the Blah clan, who were the original inhabitants, performed their rituals. Phiephandi is the middle section spread over some 40 ha. The Lyndoh clan which is the custodian of all sacred groves in the



East Khasi Hills, carries out its rituals here. Then there is the Law Nongkynrih on the other side, an extension for the defence of the main forest.

Not so far from the entrance is the preparation ground for rituals. The old stone “long table” is now broken but the stones still remain. At a distance lie stones of smaller lengths where young folks used to wait. Only adult men are allowed to enter the ritual spot. At the heart of Phiephandi, there is a large flat monolith, surrounded by five groups of small monoliths. The large stone is where the king used to stand during the sacrificial rituals and small stones were the sites of sacrifice. The sacrifice inside the forest had always been a red bull. But these days, rituals take place at hamlets and the sacrifice is usually of a cock.

In the meantime, my guide Sun stumbles upon a citrus fruit *khasi papeda* (*Citrus latipes*) fallen on the ground. Its leaves are like a double leaf. Sun bites into it, and

makes a face; *khasi papeda* tastes like a very sour orange. Even though one is not allowed to take anything out of the sacred grove, people can freely partake of the fruit inside the forest, making sure that they leave the seed behind. One can even break off a bit of a hive and enjoy the delicious nectar but cannot be greedy and take some home. People can however carry stream water outside to the meadow for picnic. Fallen trees and broken branches lie on the ground undisturbed, adorned with mosses. *Rudraksha* seeds (*Elaeocarpus ganitrus*), considered holy by the Hindus, can be seen lying in abundance on the ground.

On my way back, I go past the house of Tambor Lyndoh, secretary of Mawphlang sacred grove. His house is also the office of Ka Synjuk Ki Hima Arliang Wah Umiam Mawphlang Welfare Society that works on rejuvenation and conservation of environment in the area. He says the grove is a biologist's paradise. There are trees

The monolith at the entrance of the Mawphlang sacred grove where elders seek permission before performing sacrificial rituals



A ritual site
at Mawphlang
sacred grove





over 1,000 years old. Although biologists have carried out a number of studies, all of these have been mostly done on site because nothing can be carried outside the grove. The studies show that there are 450 species of plants and herbs, 25 types of orchids, 200 numbers of Himalayan yew (*Taxus wallichiana*) and English yew (*T. baccata*), 300 *Citrus latipes* trees. Apart from these, numerous rare plant and animal species flourish inside the sacred grove.

The botanical richness of the woods despite changing Khasi traditions had prompted Sanjeeb Kakoty, professor at the Indian Institute of Management, Shillong, to prepare a film on Mawphlang in the early 1990s. "This is a veritable gene pool and species of orchids and trees, thought to be extinct, have been discovered to be existing here," says Kakoty, also founder of the North East Data Bank, a syndicate of articles, documentaries and photographs on Northeast India.

Brahmananda Patiri, Deputy Conservator of Forests based in Barpeta, Assam, says since the area falls in the limestone and gypsum belt, the trees do not rise much above 9 metres. Almost all plants here have therapeutic properties. The *Taxus* species

WHILE TALES AND TABOOS HAVE PLAYED A ROLE IN CONSERVATION OF MAWPHLANG SACRED GROVE, THIS DOES NOT SEEM TO BE THE CASE AT THE OTHER GROVES IN THE STATE

aid in curing breast cancer, pine flowers help in headaches and migraines, the juice of rhododendron trees are used for heart ailments, while the bark of *kaphal* (*Myrica esculenta*) is used for stomach ailments and allergies. Since herbs cannot be taken out, the village residents have extended the woods outside the grove periphery, which can be used.

There are several tales of people who have been punished for felling or harming a tree. The deity never fails to protect the forest. Nothing can also be planted inside the sacred grove. So the plants one sees in the grove have survived and grown on their own. While these tales and taboos might have played a role in the conservation of Mawphlang sacred grove, they do not seem to have worked for the conservation of a large number of the 215 sacred groves present across 56 *himas* in the state. Despite the fact that communities are responsible for management and protection of the groves as per the Khasi wisdom and culture, only 166 are listed with the Khasi Hills Autonomous District Council. Tambor and his associates are now trying to revive the "lost" groves by following the guideline of Khnah Lyndoh Nonsai who started Mawphlang 500 years ago—by planting three species and maintaining those for three years. It is no use planting 10 million trees with a survival rate of 10 per cent. It's better to plant a lesser number like 200 or even 20 but making sure that each one survives, says Tambor.

3 SAPLINGS, 3 YEARS AND 2 CLANS

SEVERAL HUNDREDS of years ago, the Blah clan moved from the Jaintia Hills to the area, now known as Mawphlang. Other clans too joined them and together they formed what is known as the Hima Mawphlang or Kingdom of Mawphlang. Soon they faced a war. The Blah clan won but grew weary of being rulers. Then the Blahs approached a woman who came from Baligaon of Assam and was well-known for her wit. The lady, Khnah Lyndoh Nonsai, was asked for her son to rule over Hima Mawphlang. Khnah Lyndoh wanted to know the will of the gods. She planted three saplings in what is today the Phiephanti area of the forest. These three saplings survived and taking this to be the word of the gods, she permitted her son to become the king. It is since that day that the Lyndohs have ruled over Hima Mawphlang. The first Lyndoh King and four elders from different clans took their oaths on stone benches, which are still present deep inside the forest, to protect not just the people but the environment and the forests.

HIMALAYA'S MAGICAL GROVE

APART FROM BEING A RELIGIOUS
PLACE, HARIYALI DEVI'S FORESTS
HARBOUR SEVERAL HERBS

ISHAN KUKRETI

As I climb Hari mountain in Uttarakhand's Chamoli district, the Hariyali Devi temple atop the peak some 2,850 metres above the sea level comes into view. Those willing to pay obeisance to the goddess, Hariyali Devi can be reached via National Highway-58 from Rudraprayag. The view that greets me is breathtakingly beautiful. Lush forests cover the mountain in stark contrast to the other peaks devoid of vegetation. Though classified as a reserved forest, local people consider it a sacred grove, an enchanted place, ruled by divinity. In fact, stretching

over 5.5 sq km, the green expanse is regarded as one of the largest sacred groves in India. A wide variety of forests, including oak mixed pine forests and broad-leaved forests of *Lyonia* and *Rhododendron*, are seen. The herbaceous layer underneath mainly comprises herbs like *Thalictrum foliolosum* (*leafy meadow-rue*), *Hedychium spicatum* (*kapur kachri*), *Geranium walichianum* (*lal jari*), *Reinwardtia indica* (*pyoli*) and *Swertia chiraita* (*chiraita*), says a study published in the book, *Conserving the sacred: for biodiversity management*.

But stepping into the forest is forbidden for those who have consumed non-

Devotees undertake the journey to the goddess' temple on the peak after offering prayers to the three guardian angels





vegetarian food, onion and garlic. I was barred from entering as I had partaken such food. Gathering fuel and fodder is also strictly limited to the fringe area of the grove. For transgressors, *dand* (punishment) is in store. Local communities believe following these rules pleases the goddess whose temple is located on the mountain peak. So, I choose to visit the three stone structures in the lower region of the Hari mountain. They are dedicated to rather benevolent gods.

A magical place

Besides the goddess and the three guardian spirits, Hariyali Devi also harbours *van devis* (forest spirits), who live in trees. Owing to this, felling trees is prohibited in the grove. Only dead trees and fallen branches can be taken outside. Tales narrating the goddess' magical powers abound. There is a tale about how one Kamal Kant Arora from Chandigarh was brought back to life from the jaws of death as a result of the *devi's* blessings. Another story says a local woman fell ill after she felled a tree. The *van devi* came to her in dreams and asked her to do penance. It is believed that Hariyali Devi protects her devotees in all the 15 villages of Chamoli inhabited by around 6,000 people. According to temple priest Sachidanandan Chamoli, the myth surrounding Hariyali Devi evolved some 400-500 years ago.

Besides the above mentioned restrictions, women are not allowed inside the

A CHILD WHO PREDICTED KANSA'S DEATH

HARIYALI DEVI was Yashoda's daughter, who swapped places with Krishna. When King Kansa was about to kill her inside the prison, the child flew in the air and took the form of a goddess, predicting his death at Krishna's hands. Hariyali Devi later made Hari mountain her abode. Legend also narrates the discovery of the goddess. A cow belonging to Phabo village used to drain her milk on a *linga* hidden in a bush on the mountain. One day locals followed it and spread a handful of *jawar* seeds on the spot for identification. The next day they found the seeds had germinated. Since then the goddess was given the name of Hariyali Devi (bountiful goddess).

HARIYALI DEVI ALSO HARBOURS VAN DEVIS (FOREST SPIRITS), WHO LIVE IN TREES. OWING TO THIS, FELLING TREES IS PROHIBITED

grove. Devotees also have to walk barefoot from Kodima village to the main temple, a distance of some nine kilometres. Narendra Chaudhary of Jasoli village, one of the three bordering the grove, says women are not allowed inside to preserve the purity of the deity. Forbidding women serves another purpose too. "Generally, women are the ones, who gather fodder for cattle and wood for fuel, from forests. Restricting their entry ensures it is not disturbed or degraded," he says. Local ecologist Devraj Chaudhary points out most rules have originated, keeping in mind conservation. Rules pertaining to food and undertaking the journey barefoot help to reduce the number of visitors to the grove.

As a result of strict rules, Hariyali Devi has more biodiversity than any other forest in the area, Chaudhary says. One can find rare trees like *kharso* (*Quercus semecarpifolia*) and *morinda raga* (*Abres spectabilis*) in abundance here as compared to other areas. Wildlife too abounds in the grove. This has been possible due to community efforts in preserving it.

Hariyali Devi acts as seepage tank for Chamoli. During monsoon, water flows out of the grove in the form of six streams, which takes care of water needs in nearby villages. As local people look after Hariyali Devi, the forest department's workload has reduced. "For us it's just a forest. But community participation goes a long way in preserving it," says Rajev Dheeman, Rudraprayag Divisional Forest Officer. Hariyali Devi is a robust example of how a sacred grove can support an entire ecosystem through faith.

SACRED, A WAY OF LIFE

CHANDRA PRAKASH KALA

Every morning, Kamla Devi offers water to the *tulsi* plant in her courtyard. On Mondays, she trudges downhill to worship a giant banyan tree in Sumari, a mountain village about 175 km from Dehradun. When asked about the rituals, Devi says, “It gives me peace of mind. I have grown up watching my mother and grandmother do the same.” Unlike the *tulsi* which is found in Hindu homes, the banyan is a village property. Almost in every Indian village, people share a deep attachment with this tree. The banyan at Sumari has crystal clear water flowing near its roots. It is considered sacred, as its source is associated with the village deity. After marriages are solemnised, new brides are welcomed at this spot. They perform *puja* in the presence of the priest. Like Sumari, residents of Lupunguttu village in Jharkhand’s West Singhbhum district also revere a grove where natural springs flow out of tree roots. People believe that the water has therapeutic properties. “The water could be deriving its therapeutic property from *Arjuna* trees (*Terminalia arjuna*) that dominate the grove,” says Manisha Toppo, post-graduate student at the Bhopal-based Indian Institute of Forest Management.

Whatever be the reason, tree worshipping signifies human association with nature. There are sacred species, sacred groves and sacred landscapes all around us. Spiritual ecology, through which human beings connect themselves with the cosmos, has evolved over time. Today, it is an emerging idea in ecological conservation. Growing interest in this concept may help address environmental issues.

A way to conserve the healer

Trees are intrinsically connected with Hinduism and felling them is generally discouraged. Even Ayurveda practitioners are advised to perform special rituals before gathering plants for treatment of diseases. Many medicinal trees and plants are considered sacred, symbolising deities. For instance, *brahmakamal* (*Saussurea obvallata*), *peepal* (*Ficus religiosa*), *bargad* (*Ficus benghalensis*), *Bael* (*Aegle marmelos*), *tejbal* (*Zanthoxylum armatum*) and *tulsi* (*Ocimum sanctum*) are considered sacred in Hinduism. *Bael* is an important species and used to prepare medicines in India. It is also used to make drinks and jam. Since it is used on a number of occasions, its overexploitation may endanger this species.



Spiritual ecology, through which humans connect themselves with the cosmos, has evolved over time. Today, it is an emerging idea in ecological conservation



This may have compelled people to associate it with Lord Shiva to ensure that devotees revere it. Over the years, offering *bael* leaves to Shiva has become an important ritual. There is a similar reason as to why *rudraksha* (*Elaeocarpus sp*) symbolises Rudra, another name for Shiva. *Tejbal* is also associated with Shiva. Hindus believe *tejbal* wood-sticks keep away impure air and evil spirits.

Different parts of *bargad* are associated with the Hindu triumvirate. The branches symbolise Shiva, the bark Vishnu and the roots stand for Brahma. Similarly, *kadamba* is associated with Lord Krishna, who is depicted as playing flute under its shade. *Saraca indica*, or the *Ashoka*, has medicinal uses and is considered pious in both Hinduism and Buddhism. Even the coconut tree is important, the fruit being widely used in Hindu auspicious ceremonies. *Ban tulsi* (*Origanum vulgare*), which grows in and around the Badrinath valley, enjoys special status as it is offered to Lord Badrinath. Collection of *Brahmakamal*, which grows above 3,800 metres in the Himalayas, is restricted to a few days. To keep many species intact, traditional healers avoid disclosing their medicinal properties. While transferring knowledge to the next generation, healers often make their disciples take oath regarding misuse of knowledge.

Ensuring species' diversity

Besides conserving individual tree species, indigenous communities have marked forested areas associated with deities, spirits, rituals and taboos in many places. Such places, known as sacred groves, are the live manifestations of historical, cultural and emotional attachment of man with forests. Sacred groves are found across the country, ranging from a few square metres to several hectares. They are known as *devray* in Maharashtra, *devarkand* and *siddarvanam* in Karnataka, *oraans*, *kenkari* and *malvan* in Rajasthan, *saran* in Chhattisgarh, and *jaherthan* in Jharkhand. For indigenous communities, such patches are often situated in the vicinity of villages. This helps in conserving species' diversity across different ecosystems.



The idea of preservation is not limited to specific forest patches only. Traditionally, communities have also revered mountain peaks, rivers and wildernesses

Sacred groves also harbour many threatened plants, trees and animals. In Kodagu of the Western Ghats, threatened tree species such as *Actinodaphne lawsonii*, *Hopea ponga*, *Madhuca nerifolia* and *Syzygium zeylanicum* are restricted to sacred groves, along with the presence of birds and microfungi. A 2005 study published in the journal, *Ecology and Society*, authored by SA Bhagwat et al points out that traditional rules prohibiting felling of trees and killing of animals in groves have helped preserve their biodiversity. Forests also hold special significance for indigenous communities. Such an attitude stems from the belief that they provide power to deities. In some communities, the power of the deity is brought to the village temple through various rituals at the time of festivals. Once festivities are over, the same power is returned to the forest by performing specific rituals. Author M K Mishra mentions this in an article published in the journal, *Language & Ecology*, in 2009. Sacred groves not only unite communities spiritually, culturally and socially, but also create space for festivals and social events.

Moving beyond groves

In many cases, the idea of preservation is not limited to specific forest patches only. Traditionally, communities have also revered mountain peaks and wildernesses. Consider the Himalayas. Since time immemorial, it has been a pilgrimage spot for devotees. Many Himalayan peaks such as Kailash, Nanda Devi, Neelkanth, Trishul, Gaura and Om are worshipped as deities. As they are considered sacred, landscapes surrounding such peaks support rich biodiversity. The Nanda Devi Raj Jat, which is celebrated every 12 years, is a combination of a revered pilgrimage and festival held in Chamoli, Almora and Pithoragarh in Uttarakhand. The pilgrimage starts from Nauti village near Karnprayag, goes through a number of villages and finally reaches Roopkund and Homkund with a four-horned ram. Nanda's *Chhatoli*, or the deity's umbrella, is made up of *ringal* (a local dwarf bamboo species called *Thamnocalamus spathiflorus* scientifically). This spreads the idea of respecting animals, trees and the environment among people. In the same spirit, Himalayan lakes like Hemkund, Kakhbusandi, Nandi Kund, Mansarovar and Mansar are considered sacred. The Ganga, which originates from Gaumukh in the Himalayas, covers a long distance. All the places it flows through are also considered sacred.

Many cultural activities are aimed at conservation of seeds. Festivals such as the *Bihu* in Assam, *Baisakhi* in Punjab and *Pongal* in Tamil Nadu are associated with either sowing of seeds or harvesting. Often, seed selection is conducted traditionally. For instance, in Sumari, people collect soil from nearby farms and keep it at a corner of their rooms. They sow barley seeds in this soil on the first day of *Navratra* during October–November. As a mark of respect, every day they sprinkle water over it and offer prayers. This continues till the last day of *Navratra* when the seedlings are uprooted amid the chanting of *mantras*. Finally, they are used to make garlands and offered to the village deity or used in religious functions. This has helped conserve seeds through generations and maintain agro-biodiversity.

Realising the significance of spiritual ecology, the environment ministry has incorporated the “maintenance and enhancement of social, economic, cultural and spiritual benefits” as one of the eight criterion in the National Working Plan Code for determining sustainable management of forests. In the era of climate change, it is necessary to explore ways to preserve natural resources for posterity. Long-established beliefs may go a long way in saving the planet from destruction.

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INHERENT FAITH RUNS DEEP

IN JHARKHAND, SACRED GROVES
DEFINE SOCIAL AND CULTURAL
CONSCIOUSNESS OF TRIBAL PEOPLE

DEEPANWITA GITA NIYOGI

It's that time of the afternoon when the sun casts a golden glow and thousand rays exude a soft glimmer. After a hearty meal at a roadside *dhaba* in Jharkhand's Torpa block, we proceed along a narrow, gravelly road towards the *sarna sthal* or sacred space of the Munda tribe. Two guides accompanying us request to quicken our steps so that we reach there before dusk. The entire Khunti district is conflict-hit where the People's Liberation Front of India, a splinter group of the CPI-Maoist, rules the roost. About 10 minutes later, we reach a dense patch of *sal* (*shorea robusta*), *mahua* (*Madhuca longifolia*), *peepal* (*Ficus religiosa*), *banyan* (*Ficus benghalensis*) and several other tall, semi-deciduous trees on the outskirts of Salgadih village. "This grove, spread over a hectare, is our *sarna*," says Sanika Munda, one of the guides and resident of Salgadih.

As we enter the grove, withered leaves and dried twigs snap under our feet breaking the heavy silence. I can faintly hear unknown species of birds chirping. A huge *sal* tree stands tall in the centre. Sanika says the tree could be over five-century old and is worshipped to invoke *Singh bonga*, the Almighty. Orange mushrooms adorn its gnarled branches that cover the ground. Sanika warns us against lopping a branch or

even plucking a leaf in the grove. "Last year, someone from the nearby Habodi village felled a tree inside the *sarna*. That night, a tiger carried away his cattle. Hurting a tree in the grove can also lead to diseases and death," says Sanika, adding that the *sarna* at Salgadih has been there since the Mundas first settled there.

The Munda tribe traces its lineage to Mohenjodaro and Harappa civilisations. It is believed that the Aryans armed with sophisticated weapons displaced the Mundas and chased them as far as Azamgarh in Uttar Pradesh. The tribe being fiercely independent crossed the Narmada and Son rivers to enter Jharkhand, and settled down near Sutiambe on the Patraturanchi road, about 20 km from Ranchi, some 2,500 years ago.

Sitting in a plastic chair in front of his house in Khunti's Lohajimi village, octogenarian Soma Munda narrates how the original settlers released a red hen and a rooster in the nearby forest full of wild animals and placed a *ghada* (clay pot) full of water under a tree. In the morning, the birds were seen freely roaming about; the water also remained untouched. This indicated that the place was safe for the Mundas to settle down. The tribe cleared some patches to establish villages and farmland, and protected the remaining as *sarna*.



According to Soma Munda, there are 12 types of sarnas, the most predominant being the baha or sarhul sarna. It is believed that worshipping it brings prosperity and wealth to the village. Other important sarnas are chandi sarna, mahadani sarna, keda sarna, bheda sarna and gumi sarna. “Every village in Torpa has at least three types of sarnas. Animal sacrifice is an integral part of our festivals held inside sarnas. Hens, goats, sheep and sometimes even buffaloes are sacrificed,” Munda says. The popular belief is that offering puja in mahadani sarna subjugates one’s enemies. Soma, who has been leading the Koel-Karo Jan Sangathan (KKJS) against the proposed Koel-Karo hydropower project in Khunti, recalls an incident when land survey officials in charge of the project fell ill and eventually left the place after the residents offered puja in mahadani sarna.

Vijay Gudia, the general secretary of KKJS, proudly says Lohajimi, the site for the proposed Karo dam, has all the 12 different sarnas. Though the project was scrapped in 2003, a sense of fear underlies his perfectly unruffled composure

since the Union government has announced to revive the Kutku Mandal dam on the North Koel, 20 years after it was shelved. If the Koel-Karo project is revived, it would submerge the sarnas of Lohajimi, he says, pointing at the Karo that flows just a kilometre away.

Similar fascinating stories surround the sacred groves of Jharkhand. In West Singhbhum, the land of Hos, the Singhaso buru mountain reigns supreme among all groves, called jaherthan or disauli by Hos. Sunayna Boipai, a tribal language teacher at the Tata College in Chaibasa, says, “All Gods who protect us or aid us during hunting reside in the mountain, and we invoke them while offering prayers.” Inside the forest, trees like *Sal*, *Arjun* (*Terminalia arjuna*), *tendu* (*Diospyros melanoxylon*), *kusum* (*Schleichera oleosa*) and *jamun* (*Syzygium cumini*) abound. The majesty of Singhaso buru can be felt at Omonderi village where we are barred from entering the forest. Village residents say only those who have kept a fast visit the forest and its caves accompanied by the priest. They believe

A sarna sthal at Lupunguttu village in West Singhbhum district. One has to cross the swirling Roro river over a tree branch to reach here



MANY FEEL IDENTIFYING SARNAS CAN BE A TACTIC OF THE GOVERNMENT TO INCLUDE THOSE IN LAND BANK, A POOL OF COMMON LAND TO WOO INVESTORS

that *Singhaso buru* protects West Singhbhum. The faith in *Singhaso buru* is equally strong in distant villages like Lupunguttu. "Entering the forest without permission will bring harm to the person as well as communities," says Savitri Deogam, a Ho woman, from Lupunguttu.

Beliefs run deep

A *sarna* called *Matka Mahato* in Saitab village on the Chaibasa-Chakradharpur offers an interesting sight. Here two Arjun trees have joined at the branches and are growing as one. The pattern resembles palms folded in prayer. Couples visit the tree to seek its blessings so that they remain united forever. Village residents say no one collects wood from the *sarna*. The belief is if someone fells a tree in the *sarna*, his cattle would die. No one is allowed to consume tobacco or liquor inside the sacred grove. Writing on tree trunks and lopping of branches are forbidden. Sursingh Angaria, a resident of *Siria putti tola*,

a revenue village just across the road, recalls that a few years ago contract labourers of the public works department camped at the *sarna* spot while constructing a small overbridge next to the road. But the residing deity did not allow them to camp without permission of the gram sabha (village council). At night, the labourers saw a spirit coming out of the forest and fled the camp next morning. Even buses do not ply the *Matka Mahato* road late at night or early in the morning, says Prabhat Khandiyan, another resident. "We have a ritual to appease the forest spirit. Two days before the *Mage porob* (the principal festival of Hos celebrated in December-January), we make animal sacrifices before the *Matka Mahato disauli*," he adds.

In nearby Gararajabasa village in Khutpani block, people even consider the birds of the *sarna* auspicious. *Gindari* (*Ardeidae* family) birds that visit the *sarna* during the monsoon make nests atop the kusum tree and stay there until the winter. They are believed to bring prosperity to the village. "No one kills the birds. Three years ago, a tree branch fell on a person killing him while he was trying to hunt the birds," says resident Sidhio Bandra.

The strong beliefs show that sacred groves are much more than a patch of forest in Jharkhand. For tribals, *sarnas* are part of their cultural, social and ecological consciousness. In June-July, just before sowing paddy, the Mundas celebrate *Batauli puja* inside *sarnas*. The *pahan* or priest sows rice seeds a week before the *puja* and worships the saplings inside the *sarna*, invoking *Singh bonga* to ensure a good harvest. The three-day *Sarhul* festival, celebrated during the spring, is also woven around the *sarna*. Though cooking is allowed inside the grove during festivities, eating is strictly forbidden.

TRACING THE ORIGIN OF MANKIND

LIKE THE Mundas, the Oraons have a fascinating past. They originated from a place called *Sirsita Nale* in Gumla district, where a small, square-shaped pool flows beside paddy fields. The pool water is considered safe for drinking and is supposed to have healing powers. Legend has it that once Lord Shiva became so angry that he sent fire followed by heavy rains from the skies which destroyed all life on Earth. At that time, Goddess Parvati hid a brother and a sister near the pool full of crabs. Local resident Churhu Bhagat narrates through a song sung in Kurukh language how Shiva became tired after searching for mankind. Then out of pity, Parvati told him to search for the brother and sister near the pool. To commemorate Shiva and Parvati, two circular seats have been established at *Putrungi* village. For the Oraons, it is a *sarna sthal* marked by the red and white *Sarna* flag. Here, *puja* is offered every day, but animal sacrifice is strictly forbidden. It is believed that Shiva rested at this spot.

An ancient sal tree with a cavernous trunk dominates the *Sarhul Sarna* at Akashi village in Dumri block, Gumla. Seen here is the village *pahan* (priest) Albert Kujur





The sight of two *Arjuna* trees joined as one, as if in prayer, draws couples wishing to be united in life forever to the Matka Mahato *sarna sthal*

All these spring from a deep-seated reverence towards *sarnas*. At places communities have opposed attempts to alienate them from *sarnas*. In 1990-91, there was a plan to erect a boundary wall around the *sarna sthal* at Birsa Munda zoo in Ormanjhi, Ranchi. But local residents of Chakla and other adjoining villages protested against the move. A few years later, an agreement was reached between the zoo authorities and the locals. Almost a metre high wall with iron grill was permitted at the spot to protect the *sarna*. A separate gate was also constructed for entry. On the day of *Sarhul*, locals are given free entry to the zoo. The *sarna* has been left intact even though *sal* trees belonging to the forest department dominate the place.

At Serangbil village in Tantnagar block, West Singhbhum, a boundary wall protects the *sarna*. "People sometimes make them dirty. So walls are needed to protect them," says Sibnath Biruli, a resident. In Ranchi, the Yuva *Sarna Samiti* (yss), a people's organisation, has taken on itself the responsibility of safeguarding the *sarna* in Simratoli and is fencing it. "All members strive to keep the *sarna* clean. The wall would prevent people from using the place for drinking and playing cards at the *sarna sthal*," says yss member Amit Tirkey. yss now plans to display paintings at the spot to showcase

tribal culture.

In July, the Jharkhand government launched an initiative to protect and beautify *sarnas* outside forest areas. Under the initiative, known as *gherabandi*, the government has identified 575 *sarnas* on community or individual lands and has begun the process of fencing those and setting up platforms around trees that are worshipped. "The maintenance of *sarnas* is needed for social, cultural and religious beliefs as well as ecological benefits of the environment," says L R Singh, Principal Chief Conservator of Forest (wildlife). However, till now no study has been done to estimate the ecological value of *sarnas* in forest lands.

But many feel the initiative is an eyewash. Identifying *sarnas* is probably a tactic of the government to include those in its land bank, a pool of common land created to woo private investors, says Ho language expert Dubroo Biruli from Chaibasa. In Lohajimi, the government has put about 60 hectares (ha) of common land into the land bank. Out of this, about 3 ha belong to *sarnas*, a study by social activist Stan Swamy says. Religious beliefs and taboos around *sarnas* are a way of protecting the forest, its ecosystems and wildlife from undue human interference, says Boipai. Our belief is the reason forests still stand tall in Jharkhand.

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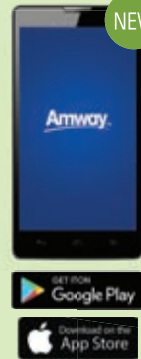
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SURVIVING THROUGH AGES

WESTERN GHATS' KATHALEKAN RETAINS ITS VEGETATION EVEN AFTER A MILLENIUM

AKSHIT SANGOMLA

Zigzagging along the Western Ghats, our jeep rumbles along the National Highway-206, connecting the coastal town of Kumta in Karnataka's Uttara Kannada district to Jog falls. Suddenly, the vehicle screeches to a halt at a sign board that read Kathalekan (dark forest). I had been promised a sojourn in an ancient forest and was surprised to find only areca nut plantations at the spot. My guide M D Subash Chandran, a professor at the Centre for Ecological Sciences, Indian Institute of Science, Bengaluru, got down and started walking from the spot where the sign board stood like a mute spectator. I followed him and found a perfectly preserved instance of an ancient ecosystem deep inside.

Kathalekan is a sacred grove nestled in a valley surrounded by hills, with the gurgling Sharavati river flowing close by. It is a relic forest spanning 25 square kilometres; its vegetation has not changed over a million years. According to Chandran, who has studied the region's ecology for three decades, the grove has been preserved and worshipped for centuries, but there is no trace of the original devotees now. At present, it falls under the state reserved forest. We meet Ganpati Naik, a middle-aged man wearing a T-shirt and *lungi*, who performs rituals at a smaller grove nearby. Once a part of Kathalekan, it is now situated some 500 metres from the main grove, with plantations and farms dotting the landscape in between. According to Naik, his forefathers have been praying at the grove

since ancient times. From nearby Malemane village, Naiks, Gowdas and Idiganaiks perform rituals in the smaller grove now. The presiding deities of Kathalekan are *Chowdi* (mother goddess) and *Bhootappa* (father god), along with *Yakshi bana* and *Nagara bana*. Devotees visit the grove during festivals from the nearby villages of Hejini and Mensi to pray to their ancestors. Three festivals are held here—*Sankranti* in January, *Adri Mali* in June and *Diwali* in October-November.

Remnant of a bygone era

Once, the entire southern stretch of the Western Ghats was covered with evergreen forests, including swamp forests. But there came a time when virgin forests fell prey to human greed. Cultivators felled trees and burnt stretches to clear patches for farming around 3,000 years ago. This changed the landscape completely. Currently, the total area under groves has reduced even though ancient tree species endemic to the region still exist in Kathalekan. One major reason behind this is the deep-rooted faith of local communities combined with water needs.

In Kathalekan, water flows perennially near the roots of *Myristica* trees, a genus of wild nutmeg, found in Asia and Western Pacific. These trees are characterised by stilt roots that grow obliquely above the ground and help in respiration, toxin removal and transpiration. *Myristica* is found in swamp ecosystems and is the oldest flowering tree on Earth. Other tall trees like the endangered *gurjan* (*Dipterocarpus indicus* and



the critically endangered *kere neerilu* (*Syzygium travancoricum*) also do-minate the place. The dense vegetation is home to a rich diversity of flora and fauna. “There are 35 species of amphibians in this area. Kathalekan also harbours 185 flora species, of which 109 are trees, 39 shrubs, 12 herbs and 25 climbers,” Chandran adds.

Apart from old species, new ones like the *Semecarpus kathalekanensis*, a relative of the mango, is also found. It was first rep-orted as *Semecarpus travancorica* by state officer GS Mathuda in 1953. However, it remained unknown until the 1990s when Chandran observed it during one of his visits. Botanists later established it as a separate species endemic to Kathalekan, after studying its morphology in a research paper published in the journal, *Indian Fore-ster*, in 2000. Later, molecular analysis of the tree by Gudasalmani Ravikanth, a botanist working at the Bengaluru-based Ashoka Trust for Research in Ecology and the Environment, supported this theory.

It is surprising that such a rich ecosystem has survived for centuries so close to

a national highway. But the trees in Kathalekan have learnt to adapt themselves to their surroundings. For example, *My-ristica* trees have a thin, moist bark and large leaves, which help them in getting rid of water easily. This has helped the tree survive.

“The ecosystem is at its most evolved state now due to the elimination of unfit species,” says Chandran. He, however, warns that Kathalekan is fragile and any major changes in the ecosystem, especially in the water system, will lead to devastation. This is already happening due to excessive water usage by farmers in the uphill regions where rice and areca are cultivated. In the absence of swamp water, the entire ecosystem is bound to collapse.

According to Chandran, “Perennial water flow is very critical for swamp-specific tree species. Upstream diversion of streams through small check dams and diversion of water into farmlands do not leave adequate water in Kathalekan. This will affect swamp species’ regeneration in scanty rainfall years. Already, trees like *Dipterocarpus indicus* are vanishing. It is a source of camptothecin, a

Chowdamma or mother goddess is the presiding deity of Mattigar sacred grove in Siddapur block of Uttara Kannada district



Myristica trees are characterised by stilt roots that grow obliquely above the ground and help in respiration, toxin removal and transpiration. It is found in swamp ecosystems and is the oldest flowering tree on the planet

potent anti-cancer drug, and sought after by many pharmaceutical companies.”

Threat of destruction

A gradual shift in faith from sacred groves to temple-based gods can mar conservation efforts. This was observed in some groves near Siddapur town. In Elakundali, situated in Sagar Taluka of Shimoga district, a grove spread over six hectares has a temple dedicated to the deity of *Rajeshwari Bhoo-taraja*. Originally, people from Kumbre caste used to worship her. Local belief is that the goddess came to reside here due to disturbance in Bandige village, her original home.

According to the head priest in Elakundali, 68 *pujas* are performed at the temple annually. On the occasion of *Danda puja*, a local festival held in the end of April, the temple hosts 5,000 devotees for whom a feast of sweet dishes is arranged. Though there is no restriction on the entry of devotees from other castes and religions, women are not allowed close to the deity. Cutting of trees is allowed only during ceremonies. The presiding deities in Kalyanpur and Mattigar groves near Siddapur are *Chowdamma* (mother goddess) and *Jetiappa* (father god); the third deity is *Keramma* and *Veerappa* respectively. In both these places, stones have been placed to mark the deities' places. Now, the local community is taking initiatives to build temples inside groves. According to some, this will mean significant changes.

Mitashree Srivastava, assistant professor of anthropology at the University of Delhi, says in such places “the culture of the grove might have been replaced by the construct of power which induces a fear of the gods”. This is the reason why local people fear the wrath of gods in cases of theft. Priests vouch for the punishing power of the deities. In Kalyanpur, locals believe that those who steal from the grove suffer bad luck, ill health and sometimes even meet with accidents.

“Community members have imposed restrictions on the removal of fuelwood, fod-



IN KATHALEKAN, WATER FLOWS NEAR THE ROOTS OF MYRISTICA TREES, A GENUS OF WILD NUTMEG, FOUND IN ASIA AND WESTERN PACIFIC

der and useful non-timber forest products. It is to prevent the exploitation of these resources,” says Jagannatha Rao, associate professor at the Institute of Trans-Disciplinary Health Sciences and Technology (TDU-FRLHT) in Bengaluru. TDU-FRLHT is trying to quantify the ecosystem services provided by groves in Karnataka. It is considering both tangible and intangible services like hydrological security, availability of medicinal herbs and biological diversity. At present, it is awaiting approval from the Union environment ministry. Already, people are knowledgeable about greater water availability in regions where sacred groves abound. Priests in both Kalyanpur and Mattigar affirmed that water was available even during the dry season.

“As a step towards conservation, TDU-FRLHT is encouraging local communities to construct fences and put display boards near sacred groves,” Rao says. To prevent the entry of stray animals, the forest department has dug trenches around the groves. It is fascinating how sacred groves like Kathalekan survived till date in the midst of disturbances.

During the British era, communities lost control over sacred groves as these were not identified separately. They were merged with reserved forests, according to a research published in the journal, *Bioremediation, Biodiversity and Bioavailability* (Special Issue I), in 2010 by Chandran and his colleagues. This continued post-Independence as well when forests were cleared in many places for development projects. But deep community faith has preserved ones like Kathalekan even today.



VANISHING OASES

SACRED GROVES ARE LOSING PATRONAGE IN RAJASTHAN

BANJOT KAUR

Standing on the land where Amrita Devi and 362 others from the Bishnoi community sacrificed their lives some 300 years ago while protecting *khejri* (*Prosopis cineraria*) trees, I wonder what could have prompted them to do so. Then I am told that the thorny tree, one of the few evergreens in the middle of the Thar desert, supports rural economy like no other wild vegetation does. Its protein-rich fruit is relished as a vegetable, *sangria*, and sold as a cash crop. Its dead leaves act as natural fertiliser and are fed to the cattle to improve milk yield. The tree is also valued for timber and firewood. Traditionally it remained protected in the sacred groves, or *orans*, of the Bishnois—a sect founded in the 15th century by Guru Jambeshwar whose tenets provide protection to plants as well as animals. So in 1730, when the King of Jodhpur Abhay Singh sent his men to the *orans* of Khejarli village, now in Luni block of Jodhpur, to get *khejri* wood for burning lime required for the construction of his new

palace, Amrita Devi stood between the axe and the tree, saying: “*Sar Santeria rage to bhi sasto jaan* (If a tree is saved at the cost of one’s head, it’s worth it).”

Today, the area bears no semblance to an *oran*. “There is absolutely no restriction on felling the tree for firewood and timber,” says a study by the World Wide Fund for Nature (wwf)-India in 1998. Worse, 80 per cent of Khejarali residents do not know what an *oran* is. With practically no *oran* land, the concept is almost lost in Khejarli, notes the study published in the book *Conserving the sacred: for biodiversity management*.

Instead, there stands a park Amrita Devi Bishnoi Vatika. Spanning 16.2 hectares (ha), it has 363 ornamental shrubs, planted in the memory of the martyrs. A huge cenotaph has been built next to the old temple of Guru Jambeshwar. “We are now building another temple for our *guru* worth ₹2 crore,” says Gajaram Bishnoi, a resident of Khejarli.

Orans at Khejarli could have degraded due to its close proximity to Jodhpur city, conclude wwf-India researchers after com-



SOME 80 PER CENT RESIDENTS OF KHEJARLI VILLAGE DO NOT KNOW WHAT AN ORAN IS. WITH NO ORAN LAND THE CONCEPT IS ALMOST LOST IN KHEJARLI



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WRATH OF PABUJI MAHARAJ

LEGEND HAS it that one can fell trees in the *oran* of Jodhpur's Kolu Pabuji village if the deity Pabuji Maharaj allows to do so. Once an uncle-nephew duo played a trick to take advantage of this belief. The uncle hid behind the idol, while the nephew asked if he could cut some trees. "The uncle imitated Pabuji and said he could," says Mag Singh, a taxi driver from nearby Osian block. The duo felled trees and carried the timber home. Pabuji decided to punish them. His soul took over the uncle and a brawl ensued between both the families. Soon, all members of the families died. The one who survived left the village.

paring it with the *orans* at another small Bishnoi village, Pipasar, 210 km away in Nagaur. According to their 1998 study, Pipasar had four well-managed *orans*—Jambhoji *ki oran*, Peepanji *ki oran*, Maharaj *ki oran* and Hanumanji *ki oran*—that spanned 36.8 ha and hosted some 60 species of trees, shrubs, herbs and grasses. Today, *orans* at Pipasar are no different from those in Khejarli.

While ponds, step wells (*bawdi*), streams or springs are an essential feature of sacred

groves in the desert state, none of the *orans* at Pipasar has a water reservoir. Latest land records show that the four *orans* are now spread over just 16 ha—this is a reduction of 56 per cent in two decades! What could be the reason for such severe degradation?

Peepenji *ki oran*, named after Peepanji ki Bhagat, guru of the *darji* community, lies largely barren since the tailor families have left the village. Only a small stone in the name of Peepenji and a handful of *khejri* trees can be seen there. On the land of Hanumanji *ki oran*, the government has built a road, a school and a health centre, says Radhey Shyam, a septuagenarian from Pipasar. A few trees of *khejri* and *bordi* (*Ziziphus nummularia*) and a few bushes of *khipp* grass (*Leptadania pyrotechnica*) can be seen on the land that remains untouched. Jamboji *ki oran* appears better than the rest. Apart from *khejri* and *bordi*, there are a number of *kumath* (*Acacia senegal*), *kankeri* (*Mayienus emarginatus*) and *rohida*



The sacred grove, or *oran*, at Mukam village of Bikaner district is spread over 290 hectares. It is being looked after by the Akhil Bhartiya Bishnoi Mahasabha

(*Tecomella undulata*) trees at the grove. But they have been restricted to a small patch as the forest department has built a museum dedicated to Guru Jambheshwar on the land.

Maharaj *ki oran*, which belongs to the temple of Guru Jambheshwar, has been leased out for farming by the temple priest, referred to as Maharaj. “The *orans* are dying due to lack of irrigation,” he says. When asked if the Bishnoi community has failed to protect nature, he evades the question and instead suggests getting in touch with Hanuman Singh, secretary of the Akhil Bhartiya Bishnoi Mahasabha (ABBM), whose office is in neighbouring Mukam village of Bikaner district. Sitting in the posh three-storey office, Singh admits that “it is a community failure that we could not preserve *orans* on the land where our guru was born.”

On our way back, we meet Girdhari Singh from Jaisalsar panchayat mining sand from Maharaj *ji ki oran*. “We do it on a regular basis and give it to our *seth* in Bikaner, who

sells the sand to builders,” he says. Experts say *orans* are being encroached upon both by the government and private bodies because there is no clarity about their legal status. “It is private land for community use, unlike *gochar* (pasture for cows), which are deemed property of the government. So, an *oran* can be allotted for any use by the community,” reads the book *Traditional agricultural and water technologies of the Thar* by non-profit Gramin Vikas Vigyan Samiti (GRAVIS) and the UN Development Programme.

Aman Singh of Krapavis, an Alwar-based non-profit, says they are crucial reserves of food and fodder in the dry season. This is the reason, the Rajasthan government’s forest policy, brought out in 2010, had stated mapping all *orans* in the state, allocating funds for their preservation and facilitating the formation of village-level committees to restore the sense of ownership towards *orans* among communities. But nothing has been done so far, says Singh, adding that his organisation has prepared a directory of *orans* in 16 districts and there could be 25,000 *orans* in the state.

Chief wildlife warden of the state G V Reddy says: “It is impossible for the forest department alone to map all the *orans*. The agriculture and revenue departments will have to pitch in,” he says. “But even then, we won’t be able to protect *orans* as there is no law governing them,” he adds.

G Singh, senior scientist at Jodhpur-based Arid Forest Research Institute who has also authored a book, *Sacred Groves of Rajasthan*, says *orans* are thriving at those places where the community still has faith in them. One such is the 2,715 ha *oran* at Kolu Pabuji village in Jodhpur. Residents of the village claim that none of the trees has been felled since the *oran* was established by their guru Pabuji Maharaj in the 14th century. Former sarpanch Tulsi Singh says some of the *khejri* trees in the *oran* are over 1,000 years old. “No product of *oran* is sold, bought or used for personal use. Only grazing is allowed here,” says Singh. Another septuagenarian villager Saang Singh says, “If someone fells a tree is asked to pay a fine and is admonished in the public. But more than anything, it’s the fear of Pabuji that deters people from causing any harm to the *oran*.”



RESTORE LOST GROVES

M D SUBASH CHANDRAN

The decline of sacred groves began in the Indian plains in tandem with agricultural expansion. Soon, they were replaced by temples. But compared to most parts of the world, where dogmatic religions wiped out nature cults, sacred groves persisted in large numbers in India, especially in the highlands, as repositories of primeval biodiversity, moderators of local climate, protectors of soils and watersheds, giving rise to perennial streams and springs and recharging groundwater.

Some 25 centuries ago, when Gautam Buddha lived, the Gangetic plains were dotted with sacred forests dedicated to sylvan deities like *yakshas*, *yakshis* and mother goddesses. Buddha's sermons were mostly from *vanas* (sacred groves) or *aaramas* (parks) like the Deer Park of Sarnath in Uttar Pradesh. He meditated in Jetavana of Sravasti, an ancient city on the Gangetic plains; established a monastery in the Veluvana (bamboo grove) there; and spent his last days in the *sal* grove at Kusinara of Uttar Pradesh. The sacred groves remained in silence over the next thousands of years, barring sporadic references in anthropological and cultural chronicles. It's only since the 1960s that researchers have started taking keen interest in them, with initial studies emerging from the Western Ghats, a biodiversity hotspot. Although literature on sacred groves has since been flourishing, the focus is more on smaller, isolated groves in humanised landscapes. A prime reason for this is large community-managed sacred groves of the past lost their identity after the British merged those with reserved forests. The real value of the country's sacred groves in terms of ecological and genetic resources thus remain highly eclipsed.

For instance, Kodagu district of southern Karnataka in Western Ghats has the distinction of accommodating the sources of three important rivers—the Cauvery, Kumaradhara and the Barapole—three wildlife sanctuaries and the Nagarhole National Park. All wildlife sanctuaries up to the peaks of shola-grassland complexes are replete with sacred groves, or *devarakadus*, that are places of active pilgrimage. For Kodavas, the self-assertive indigenous community of Kodagu, *devarakadus* devoted to deities like Igguthappa, Aiyappa and mother goddess Bhagavathi are insignia of their cultural identities. During the colonial rule, almost every village had one or more sacred groves. The British could not merge such forests entirely with reserved forests. Though the groves entered into a phase of decadence due to administrative lapses, mounting pressures for commercial crops like coffee, cardamom and tea, and influx of human migrations, Kodagu continues to retain species richness and endemism.



Emphasis should be on rejuvenation of sacred groves and linking those to water courses and other vegetation corridors in a network for efficient conservation of biodiversity



The land and waterbodies constitute rare genetic reservoirs for many threatened fauna and flora, including critically endangered trees like white dammar (*Vateria indica*), *Dipterocarpus bourdillonii* and *Hopea jacobi*, and critically endangered fish like *Barbodes wynaadensis* (Wayanad mahaseer) and Ponmudi bush frog (*Raorchestes ponmudi*). In addition, there are many endangered, vulnerable, near-threatened and other endemic biodiversity. At Kodagu, humans have struck harmony with nature. Its culture and cosmocentrism, epitomised in the veneration of sacred groves and waterbodies, would have been true for the rest of the Western Ghats and other mountainous parts of the country, but for the rude interventions, both cultural and state-sponsored, upsetting the age-old community-centred conservation practices.

In Karnataka's Uttar Kannada-Shimoga districts, *kans*, as sacred groves are called in the region, represent distinct patches of evergreen forests associated with streams and springs, wild pepper and cinnamon. The British while merging the *kans* with the reserved forests did not treat the groves differently. In Shimoga, the *kans* were under the revenue department, which granted some privileges like wild pepper to local communities; the remaining forest however remained inaccessible which prompted people to hack *kans* for biomass needs, initiating impoverishment of watershed. Our studies in the region along with Professor Madhav Gadgil re-emphasised the sacredness of *kans* and explained that their unique vegetation and faunal richness, still shelter many rare elements of biodiversity.

Some 11 species of pepper can be found in the sacred groves of southern Western Ghats. Similarly, cardamom grew in evergreen forests in the southern Anamalais (Cardamom Hills), in forests spared from shifting cultivation for fear of deities by tribes like Muthuvans, Muduvans, Kanis and Kadars. The same is true with *Garcinias*, cinnamon, wild nutmeg, pickle mangoes and toddy, starch and palm jaggery from *Caryota urens*.

It's time that the sacred groves were identified, mapped and conserved as Biodiversity Heritage Sites under the provisions of the Biological Diversity Act, 2002. The emphasis should be on rejuvenation of such groves and linking those to water courses and other vegetation corridors in a network for more efficient conservation of biodiversity and for strengthening other ecological services.

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ON VERGE OF DESTRUCTION

THE TADADI PORT PROJECT IN KARNATAKA WILL DEAL A SEVERE BLOW TO THE SACRED MANGROVES

AKSHIT SANGOMLA

It is a special moment for Govind P Pattgaru Masur, the main priest of Bobburu-lingeshwara shrine. At 12 pm, he closes the doors of the temple's sanctum for a minute after the morning ritual, including *aarti*, is over. After the doors reopen, Masur has visibly transformed. In a high-pitched voice, he starts narrating Kannada verses to a fellow priest waiting outside. The discourse between the two continues for 20 minutes.

Assembled devotees watch the priests eagerly. Bobburu-lingeshwara is situated on an island in the middle of Aghanashini estuary in Uttara Kannada's Kumta, a coastal town. It is a heritage site. Its mangroves considered sacred support a rich biodiversity. The region is home to 130 bird species, bats as well as innumerable fish and crabs, making it one of the most biodiverse estuaries along the western coast. Most of the temple visitors belong to Masoor village in Kumta. On this occasion, they await the deity's answer to be conveyed by the priests. Generally, Masoor residents take important decisions only after seeking divine permission.

Farmers in Masoor grow *kagga* paddy, a variety which can tolerate salinity. Till now machines have never been used for harvesting. But this year due to increased labour costs, cultivators want to use machines and await the divine order on whether this can be done. A long silence ensues after the priests stop talking. The

crowd breaks into cheers after hearing permission has been granted. After partaking of *prasad*, the devotees disperse. Happy with the deity's answer, Masoor residents are unaware about the greatest threat, which can simply obliterate their existence.

Existential threat

The construction of a mega port on the northern shore of Aghanashini at Tadadi will prove fatal for the residents of Masoor and other nearby villages, dominated by Pattagarus (rice growers), Meenugarus (fishermen) and Gowdas. The project was proposed in the 1970s and the environmental impact assessment (EIA) conducted in 2014. The Karnataka Industrial Area Development Board has allocated over 573 hectares (ha) for the port. But according to experts, it is a disaster waiting to happen. "The port would lead to considerable environmental damage to the estuarine ecosystem," M D Subash Chandran, professor at the Centre for Ecological Sciences, Indian Institute of Science, Bengaluru, says. To be built under the Public Private Partnership model, the port will be used to export iron ore and steel products and import coal, cargo and containers. At present, it is awaiting the Karnataka forest department's clearance.

Back in 2014, the Karnataka State Industrial and Infrastructure Development Corporation roped in the Nagpur-based National Environment Engineering Rese-



arch Institute (NEERI) to conduct the EIA. The draft version of the EIA was recommended by an Expert Appraisal Committee of the Union environment ministry. Next year, a revised version of the EIA incorporating slight modifications was also cleared. However, Chandran, finds “serious flaws and distortion of facts” in the revised EIA. In a letter issued to the director general of the Council of Scientific and Industrial Research, he points out how “an institute of the stature of NEERI could exhibit such a degree of ignorance not only on estuarine ecology, but also on land ecology and biodiversity of the region”. A copy of the letter is in possession of *Down To Earth*.

The construction of the port will affect the region’s fishing industry on which locals depend. Those belonging to the Meenugaru caste are ignorant about the project’s im-

pacts. Many are labouring under misconception. For instance Prakash, who works as a contractor in Kumta, says that “the port has been shifted elsewhere owing to protests by locals”. The truth is Aghanashini’s mangroves, marsh vegetation and mudflats are sources of a diverse variety of fish, 30 species of crabs and bivalves. The dense mangrove vegetation is responsible for fish breeding and multiplication of mudcrabs, which sustain local residents and attract tourists, Chandran adds.

According to Shivakumar Haragi, professor at the Post Graduate Centre of the Department of Studies in Marine Biology in Karwar, Uttara Kannada, around 3,000 people depend on edible bivalve collection from January to May. Haragi says eight species, including shell fish and oysters available in the region, are a source of

Devotees partake of prasadam at Bobburulingeshwara shrine. The temple is situated on an island in the middle of the critical Aghanashini estuary where the Tadadi port is being planned



THE EIA REPORT CALCULATES THE TOTAL AREA OF THE ESTUARY TO BE 18,000 HA WHILE CHANDRAN HAS PUT THE NUMBER AT 4,796 HA

sustenance for locals. An individual earns around ₹1,500 on an average per day. On any given day, some 250 people are engaged in bivalve collection in marshy areas of the coast. The number rises to 300 during the south-west monsoon. The port will render the region's traditional fisherfolk jobless and they will have to work as daily labourers. Though there has been a ludicrous proposal to relocate the marshes and mudflats, Chandran says it is not a feasible proposition. Recreating artificial mudflats to culture oysters is not possible as the current habitat has evolved over millions of years and cannot be recreated.

The expert adds that no port should come up as Kumta has been declared an area of "critical erosion" by the environment ministry. "Port structures cannot be built within a five-kilometre stretch on either side of such locations. The EIA has skipped this vital piece of information," Chandran says. Also, environment ministry rules say in erosion-prone areas, EIA has to be carried out over a period of three seasons. But in the case of Tadadi port project, the studies were limited to only one season.

Loopholes in data

Serious irregularities have cropped up in data collection when the EIA was conducted. The report calculates the total area of the estuary to be 18,000 ha while Chandran and his team has put the number at 4,796 ha. The allocated area of 573 ha meant for the port would be around 1/36th of the reported area, and this may have cleared the project. According to Chandran, "All the estuaries of

Karnataka together barely reach the figure of 18,000 ha."

The estuary is home to over 120 species of birds, out of which many are migratory birds. But the EIA quotes the number to be only 55. Many tree and plant species have also been misreported. *Hoppea integrifolia*, one of the trees reported, does not even exist. Reported tree species like *Dhaora* (*Anogeissus latifolia*) and Ceylon Satinwood (*Chloroxylon swietenia*) are not found here. The marine biodiversity has been totally ignored. There are loopholes galore in the reportage of mangrove species too. This was brought out in a separate report titled *Assessment of Present Environmental Quality Status of Tadadi Port Region in 2016*. The EIA team reported 10 species of mangroves out of 13 found in the region. Of these, white mangrove (*Lagunacularia racemosa*) found in America and the west coast of Africa was reported to be found here. Similarly, red mangrove (*Rhizophora mangle*) was reported in Tadadi, but is actually found on the American and East African coasts.

With such loopholes, Chandran says "it is highly unlikely that the EIA team even visited the region". According to experts, the area chosen for data collection was limited to 0.14 ha, which does not reflect the true biodiversity of the region. The mandated collection of data within a 10-km radius was also ignored, thus excluding the Western Ghats close to the estuary.

Chandran hints at a possible connivance between the port development authority and the EIA team to undermine the significance of Aghanashini. Even Prime Minister Narendra Modi has been apprised about the sensitive issue. If the port comes up, it will destroy a 120 million-year-old ecosystem, a biodiversity heritage site declared by the Karnataka Biodiversity Board. Mails sent to the environment ministry and other authorities went unanswered at the time of filing the story.



DIVINE SPIRITS AT RISK

INSTEAD OF IDENTIFICATION,
THE STATE SHOULD ALLOW
TRIBAL RIGHTS OVER GROVES

PRIYA RANJAN SAHU

A sense of disquiet fills Kapila Naik as he leaves behind the paddy fields surrounding his village Bilapagha and starts walking up a hill, deep inside the Similipal Tiger Reserve of Odisha. After walking for a kilometre, he stops and bows before a patch of forest, which appears much taller, denser and greener than the surrounding woods. “This is our *jahira sala*,” says Naik. The grove, spanning less than a hectare, is home to a variety of trees, primarily *sal* (*Shorea robusta*). “They are divine souls,

standing there for centuries,” says Naik, who performs all rituals as *dehuri* (priest) on behalf of the 70 families of the Bathudi tribe living in this village of tribal-dominated Mayurbhanj district. “No one is allowed to step into the grove, forget about felling. Harming the grove invites bad omen and diseases,” he says. His voice starts to quiver.

The century-old dictum has recently been violated by forest officials trying to implement the state government’s Integrated Development of Sacred Grove (IDSG). In 2015, the Odisha government in a rare gesture lau-



THE GOVERNMENT HAS SO FAR IDENTIFIED 2,600 SACRED GROVES; MOST OF THEM LOCATED IN AREAS INHABITED BY TRIBAL COMMUNITIES

nched the programme to identify and demarcate sacred groves, raise seedlings for planting in the groves, ensure their maintenance for three years, prepare management plans for conservation of sacred groves and make people aware about their importance. The government has so far identified 2,600 sacred groves; most of them located in areas inhabited by tribals who comprise 23 per cent, or 9.6 million, of the state's 40 million population.

The grove at Bilapagha is one in the list. In 2015, the forest officials approached its residents to build a concrete wall around the grove and a shed for the forest deity. But the infrastructure had little importance for the nature worshipper, who instead asked the officials to pave the approach road to the grove and build a check dam on a stream next to it. The forest department, which has received ₹10 crore towards the protection of 670 sacred groves in the first phase of IDSG, appeared relentless. One day, the village women saw the officials clearing undergrowth in the sacred grove and dumping bricks and other construction material inside it. They protested. The officials have since not returned to the village.

"Their interference would have destroyed the grove which we have protected over generations," says Sumitra Naik, who led women to oppose the forest officials. "They have little idea about our emotions towards our sacred groves. They wanted to plant all kinds of trees alien to our culture and religious practices," says Maheswar Naik, the 62-year-old advisor to the village forest committee of Bilapagha that has traditionally been protecting 750 ha of forests around the village.

Similar resentment is brewing across Mayurbhanj, where a maximum of 611 sacred groves have been identified, the highest in the state. Tribal communities comprise 59 per cent of the district's population. In Genteisahi, another tribal village located 50 km from Bilapagha, the forest department has, however, managed to carry out some development works. "They constructed a shed over the forest deity, planted around 100 debdaru (*polialthia*), *krush-nachuda* (*Caesalpinia pulcherrima*) and mango trees without informing the village forest committee, clicked photographs and left. Most of the trees did not survive," says Damodar Guia, *dehuri* of the village inhabited by the Kolha tribe. Though there are ample mango trees in the village not a single fruit-bearing tree can be spotted inside the grove that spreads over 1.2 ha and is full of thick *sal* trees. "In our culture, fruit-bearing trees are strictly prohibited in the sacred grove. That is why our forefathers have chosen areas having *sal* trees as our groves," Guia adds.

A few kilometres from Genteisahi is Ramasahi village, where the residents allege that one night last year, the forest officials sneaked

Sal trees stand tall inside the sacred grove at Simillipal Tiger Reserve. The forest department plans to build shed over deities in sacred groves. But in tribal areas, people love to worship nature



into their sacred grove and planted trees using generator sets. The village forest committee was so miffed with the officials that it immediately called a meeting where *dehuri* Ghanashyam Simku imposed a fine worth of two hens on the forest department and drew an apology from the local forester.

Top forest officers, however, insist that the project is being implemented democratically, involving communities. “The forest department cannot impose it on them. There is absolutely no question of villagers resisting it,” A K Pathak, chief conservator of forest (afforestation), told *Down To Earth*.

However, Pathak’s assurances do not seem to reflect on the ground. Worse, the way IDSG is being implemented reflects that the forest department probably does not have proper understanding of sacred groves. For one, some groves are spread over 4 ha while the others are just single trees. In some villages, like in Bilapagha, there are more than one sacred groves, each meant for specific rituals and celebrations. Yet, the department has allocated ₹1.25 lakh for each sacred grove. Besides, while village deities, shrines or temples are part of groves in non-tribal areas, they are rarely seen in sacred groves in tribal areas. Yet, construction of shed over deities is part of the IDSG guidelines. “A single

COEXISTING WITH TIGERS, ELEPHANTS

SOME HUNDREDS of years ago, before establishing Bilapagha, the residents looked for an area where they and their goddess could co-exist with tigers, elephants and other wildlife. Their goddess asked them to settle down in *jahira sala*. Locals say no one from the village has ever been attacked by tigers nor has their crop been destroyed by elephants. This is due to the blessing of *jahira sala*. Residents of Genteisahi also say when their forefathers came to the village from Jharkhand hundreds of years ago, their goddess guided the *dehuri* in his dreams to *jahira sala spot*. Since then the sacred grove is being protected by the village residents as their deity.

framework may not work for protecting all sacred groves that have such diversity and variety. This is the reason most works undertaken by IDSG have gone in vein,” says Lalpati Mahanta, social activist from a village on the outskirts of Jashipur block.

Some analysts fear that IDSG may have some ulterior motive as it does not include a single sacred grove in mineral rich Niyamgiri hill in Kalahandi-Rayagada districts and Khandadhar in Sundargarh. In 2013, Dangaria Kondh tribal community of the Niyamgiri had rejected the bauxite mining proposal of Odisha Mining Corporation for multinational Vedanta, saying the hill is their god. Later, the Supreme Court recognised their religious rights over the hills. Forest officials say they are still in the process of identifying sacred groves. “People of areas like Niyamgiri and Khandhar should inform the forest department about the presence of sacred groves in their areas,” says a forest official who does not wish to be named.

“Sacred groves are the result of an intricate bond between tribals and forests,” says Hemanta Kumar Sahu, researcher with Vasundhara, a Bhubaneswar-based non-profit that works on forest-related issues. “The government project of saving sacred groves has ended up as a form of encroachment of religious and cultural spaces of innocent tribals —intentionally or unintentionally.”

Social activists and tribal groups engaged in forest protection say that if the government was sincere about protecting sacred groves, it should facilitate tribals’ right over the groves under the Forest Rights Act, 2006. The tribals have been the natural protectors of their groves; empowering them, they say, would keep the sacred groves, well, sacred.





THEY ARE PEOPLE'S TREES

MADHAV GADGIL

I am often asked: "What steps should our policymakers take to conserve sacred groves of the country, and why?" Implicit in this question is the assumption that sacred groves are on a consistent decline, and that this is the result of waning religious and cultural beliefs. I would like to approach the issue with both the assumptions.

True, many traditional sacred groves are disappearing, but not everywhere. At places where communities are in control of natural resources and are motivated to safeguard their environment, sacred groves have survived, often with full vigour, as is the case in our tiny neighbour Bhutan that declares that protection of environment and clean administration are foremost to its pursuit of gross national happiness. Elsewhere, sacred groves have been revived, as in Manipur, or are emerging, as in Rajasthan, Uttarakhand and eastern Maharashtra. Moreover, the root cause of their decline is not waning of religious and cultural beliefs but assault on sacred groves by commercial forces with active support from the state machinery.

Such an assault began early under the colonial rule. The East India Company commissioned Francis Buchanan to survey natural resources of the domains of Tipu Sultan, the ruler of Mysore kingdom, following his defeat. Describing a sacred grove near Karwar in Karnataka, Buchanan remarked: "The forests are the property of the gods of the villages in which they are situated and the trees ought not to be cut without having obtained leave from the priest. The god receives nothing for granting this permission; but not asking his leave brings vengeance on the guilty person. This seems, therefore, merely a contrivance to prevent the government from claiming the property."

This attitude of regarding all community-based practices of sustainable use and conservation as impediments to state control and unrestrained use of natural resources to serve commercial interests dominated policies of the British administration.



**At places where communities
are in control of resources and are
motivated to protect their environment,
sacred groves have survived**



PAINTING: RAJ KUMAR SINGH / CSE

Having destroyed all their forests by the 17th century, the British had to bring in Dietrich Brandis, a German botanist as the first Inspector General of Forests, in 1864. Brandis respected India's heritage of conservation practices. He says: "Very little has been published regarding sacred groves in India, but they are, or rather were very numerous. As instances I may mention the Garo and Khasia hills, ...the *Devarakadus* or sacred groves of Coorg. These are in the moister parts of the country. In the dry region sacred groves are particularly numerous in Rajaputana [present-day Rajasthan and parts of Madhya Pradesh and Gujarat]. These sacred forests, as a rule, are never touched by the axe." Brandis not only commended the prudent use of community forests by village residents but also advocated giving them full authority to continue this management regime. Some British administrators supported him. The Madras Revenue Department dubbed state takeover of forests as "confiscation, not conservation". But the rest of the British administrative machinery opposed Brandis and pushed through state reservation of forest lands.

Part of the forest land taken over by the state was set aside for community use as "protected forest". But this established a free-for-all regime. Since nobody was in control of these forests, outsiders overharvested the resources and encroached the forest land for cultivation. Local people, who had a genuine stake in sustainable use of forests, could not oppose them. The result was rampant forest degradation. Around the same time, the authority of communities over sacred groves was extinguished, and those with commercial interests began to liquidate these rich resources.

Regretfully, Independence has brought no change in the culture of forestry, and the forest establishment continues to uphold this legacy of British colonialism. It is the only government agency that refuses to accept devolution of democratic authority and work as part of the machinery of panchayati raj.

Subsidising industry

The only change that Independent India saw in the culture of forestry was that the forest-based industry was now promoted at all costs with raw materials being supplied at throwaway prices. In 1972, when Chipko campaign was involving people of the Garhwal Himalayas in nature conservation and when the Wild Life Protection Act was passed, Karnataka forest department took up commercial felling in hitherto untouched sacred groves of Coorg, because the large softwood trees in demand by the plywood industry had been exhausted from reserve forests. These trees had been handed over to the industry for a pittance, for as low as R60 for a giant Appimidi mango tree that every year yielded mangoes worth hundreds of rupees famous for pickling.

While the forestry establishment refuses to change, Indian democracy has taken root. This has led to the enactment of progressive laws, including the 73rd Amendment to the Constitution, establishing the Panchayats (Extension to Scheduled Areas) Act 1996 (PESA); the Biological Diversity Act (BDA) of 2002; and the Scheduled Tribes and other Traditional Forest Dwellers (Rights over the Forest) Act (FRA) of 2006. These have conferred substantial rights and responsibilities over natural resources on communities, opening up possibilities for them to once again become the custodians of nature, engage in prudent use and conservation of biodiversity, while being rewarded for promoting public good.

BDA, for instance, provides for the establishment of biodiversity management committees (BMCs) of interested citizens at the level of local bodies. These committees will document local biological resources

and traditional knowledge associated with them, and prepare People's Biodiversity Registers (PBR). They are also authorised to regulate the collection of biological resources from their localities and levy collection charges. The BMCs will maintain a Local Biodiversity Fund to which the Central and State Biodiversity Authorities may make grants. It is appropriate that such grants be made as incentive payments for protection of sacred groves, thereby motivating communities for long-term conservation. Mendha (Lekha), a Gond village in Maharashtra's Gadchiroli district, pioneered the preparation of a PBR as a voluntary effort as early as 2004. This led the village residents to realise that the fish of the Kathani river in their locality were being affected by the use of poisons (used to catch fish). They resolved to ban the use of all fish poisons in



Deity in the newly established sacred grove of Mendha (Lekha)

all 32 villages, including Mendha (Lekha) that constitute the traditional *ilakha* of Gonds. The ban is effectively in place even after several years.

Similarly, FRA secures tenure rights of tribals and other forest dwellers, the responsibility and authority of sustainably using and conserving biodiversity while maintaining the ecological balance. It also secures their tenure rights over community forest resources, defined as customary common forest land within the customary boundaries of the village, including reserved forests, protected forests, sanctuaries and national parks. On such land, which may run into 1,000 ha, forest-dependent communities enjoy the right to protect, regenerate, conserve and manage any community resource, including sacred groves.

Our lawless state

But the authorities are refusing to acknowledge these laws and are abusing people's rights to promote commercial interests that profit from the destruction of biodiversity. Such attitude is dissuading people from conserving the biodiversity. In Odisha, the hill range of Niyamgiri, with its forests and springs sacred to the Kondhs, is a striking example of such perversity. The controversy over the Vedanta mining lease on the upper reaches of the Niyamgiri hills in Odisha which must be assigned to gram sabhas (village councils) as per FRA is a tragic demonstration of lawlessness of the state apparatus. This issue was examined by an official committee headed by N C Saxena. I quote below from this report: "The



After winning community forest rights, locals of Mendha (Lekha) and Pachgaon have decided to set apart substantial areas as new sacred groves

Niyamgiri massif, a source of the Vamsadhara river, is important for its rich biodiversity, linking a series of forests and wildlife sanctuaries. The entire Vedanta area is clearly the Community Forest Resource area as well as the habitat of the two Primitive Tribal Groups Kondhs. These villages have been vested with recognizable community and habitat rights by GOI under section 4(1) of the FRA. Despite the reluctance of the administration, several gram sabhas have passed resolutions claiming community and habitat rights over the VEDANTA area, (but) Orissa government has gone to the extent of forwarding false No Objection certificates. The VEDANTA Company has consistently violated the Forest Conservation Act, Forest Rights Act, Environmental Protection Act and the Orissa Forest Act in active collusion with the state officials.”

Emerging sacred groves

Despite this negative approach of the state apparatus, local struggles can yield positive results as has happened in Gadchiroli and Chandrapur districts of eastern Maharashtra. Gond and other communities of the districts have won community forest rights under FRA over extensive areas. In Mendha (Lekha) and Pachgaon, people have spontaneously decided to set apart substantial areas as strict nature reserves, or as *pengeda*. The conferment of these rights activated Pachgaon citizens to work out a series of regulations in consultation with all households. The list was then debated at two days of gram sabha meetings, leading to the finalisation of 115 regulations that were adopted by consensus. The community has now taken to the implementation of the regulations wholeheartedly.

Notably enough, the regulations include setting apart 34 hectares, or 3.4 per cent of the community forest area, as a strictly protected sacred grove. This is an area with the best preserved natural forest, rich wildlife and the sources of perennial streams. The proportion of forest set aside as sacred grove in Pachgaon is close to the proportion of the total forest area of the country set aside as wildlife sanctuaries and national parks. It so happens that *tendu* leaves, used for *bidi*-making, is a major produce of the community forest. Since harvesting *tendu* leaves entails extensive lopping and setting of forest fires, Pachgaon residents have decided to forego this income, and instead focus on marketing bamboo. With stoppage of leaf collection, the *tendu* trees are much healthier and the fruit yield has gone up. These are highly nutritious and can help earn substantial income. However, Pachgaon residents have decided to eat the fruit themselves while letting birds and other denizens of the forest enjoy them.

Nature can thrive only if people are motivated to nurture it. BDA and FRA could accomplish just this. It could bring an end to the systematic 150-year-old campaign to render India's forest cover monotonous and useless from the perspective of local people. The *Aranyasukta* in *Rig Veda* says: “I praise thee, goddess of the forest, fragrant with incense, mother of wild life, who, even though uncultivated, produces an abundance of food!” Implementation of the BDA and the FRA could permit us to once again turn these forests into uncultivated lands, productive of abundance of food and teeming with wildlife. So, implement the laws of our land in letter and spirit and empower the people of our country, who, as our Constitution declares, are the sovereign rulers of the Republic of India. This is what is needed for our sacred groves not only to be conserved but thrive and multiply with renewed vigour!

The author is an ecologist and evolutionary biologist, engaged in basic and applied, in particular, action research as well as teaching, communication and advocacy.

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No sharing or you'll be sued

For distributing a subscription trade newsletter among its staff, a US firm is fined heavily for copyright violations

SHARING IS not a virtue. Not in the corporate world. It can land a company in the courts and forced to pay penalties. Here, intellectual property (IP) is any kind of knowledge that is kept closely guarded in order to reap the maximum benefits from the monopolies bestowed by patent and copyright protection. At times, the business model used by some entities to protect their IP is not sound, resulting in bizarre litigations and absurd penalties.

Take the copyright violation case that's making news in Houston, Texas, US. The offender is investment firm Kayne Anderson Capital Advisors, which is being penalised for sharing copies of energy newsletter *Oil Daily* with more employees than were subscribed to it. The firm invited a major lawsuit for copyright violations and demand for compensation that a jury decided should be over half a million dollars after the case went to trial in early December.

Oil Daily is published by Energy Intelligence Group (EIG), which brings out about 15 pricey newsletters for the oil and gas industry. The New York and London based publishing firm is said to have sued more than a dozen companies in Houston for violating federal copyright law by buying a handful of subscriptions for its publications and then sharing them with non-subscribers in the office. EIG had reached undisclosed settlements with all but one of these companies which, those in the know say, essentially meant that the offenders agreed to buy more subscriptions. It sells standalone articles of *Oil Daily* for \$9, while a single issue is priced at \$95.

In the case of Kayne, the issue went to court after it was discovered that the firm was sharing its five subscriptions of *Oil Daily*, sent by email, with other employees who did not have subscriptions. EIG was tipped off inadvertently by an unsubscribed staffer, who wrote to EIG complaining that she had not received a particular issue. She later mailed the publisher that she had got it

from a colleague.

This would be funny if it didn't have serious consequences. Kayne was slapped with a case of copyright violation and a demand for damages not just for EIG's losses but also for all profits that it had made from using the information in the newsletter! EIG is basing its claim on the fact that *Oil Daily* was being distributed to 20 or more staffers, according to court documents. Kayne started with one subscription and later bought a multi-user license, which entitled five employees to get the bulletin.

Energy Intelligence Group sought unspecified damages for loss of subscription revenue and all profits Kayne Anderson made from using the information from *Oil Daily*. But Kayne denied charges of copyright violation, or of losses suffered by the publisher, and says the matter could have been resolved three years ago if not for the "unrealistic and unreasonable position" of EIG. That did not cut any ice with the jury which asked it to pay damages of \$585,000 for copyright violations. Perhaps the fact that Kayne manages assets of \$24.5 billion could have swung



TARIQ AZIZ/ CSE

opinion against it along with the publishing house boss' whine that distribution of copies "kind of eats your lunch and takes your milk and bread off the dinner table".

This once again raises the question of how industries calculate losses from copyright violations. Earlier, the multinational software industry raised hackles by claiming that piracy resulted in losses of billions of dollars every year. Its lobby group, BSA -The Software Alliance, put out reports of fabulous losses based on the presumption that each piece of pirated software equalled a direct loss of revenue. This is a flawed method and even the United States Government Accountability Office dismisses claims of such piracy losses as unsubstantiated because the data is exaggerated, inaccurate and based on faulty premises. Yet, copyright owners continue to find lawsuits as profitable. ■

ENVIRONMENTAL MANAGEMENT IN INDUSTRIES

TRAINING PROGRAMME

February 20-23, 2018

Environmental issues like climate change, water availability, pollution, waste generation and disposal are commanding considerable global attention. Industries, as a major user of raw materials and energy and source of pollution and waste generation, have a major role in addressing current and emerging environmental issues. Environment managers in industry have a challenging task to keep industry clean, competitive and compliant with national and international rules, Acts and treaties.

Centre for Science and Environment (CSE) had been conducting training programme to build capacity in industry for the past two decades and has trained hundreds of environment managers. This year a four-day training programme is scheduled in February, 2018 in New Delhi.

The takeaway from this training programme includes

improved understanding for participants in:

1. Understanding Environmental Laws for better compliance;
2. Roles and responsibilities of environment managers to comply with such legal requirements and strengthening self regulation mechanism;
3. Processes and procedures to obtain environment and forest clearance, Consent to Establish (CTE), Consents to Operate (CTO), authorization for hazardous wastes and other clearances/licenses;
4. Implementation of Continuous Emission Monitoring System (CEMS);
5. Environment, Health and Safety (EHS) Management System and its implementation;
6. Protocol for conducting environmental audit for improving resource management and
7. Understanding sustainability reporting as per GRI G4 guidelines.

FOR REGISTRATIONS mail at: juhi.purwar@cseindia.org

COURSE FEES

Rs 20,000 per participant

COURSE DURATION

February 20-23, 2018

TIMING

9.30 am to 4.30 pm

COURSE VENUE

CSE, 38, Tughlakabad Institutional Area, New Delhi – 62

LAST DATE FOR APPLYING

February 10, 2018

OPEN FOR ALL

Industry professionals such as Environment Managers; Production Managers; Health Safety and Environment Experts; Environment Auditors; Environment Consultants and Environment Engineers



CIVIL LINES RICHARD MAHAPATRA

Year of electors

In 2018, close to half of the world's population will vote for their governments

IN 2018, about 74 countries will vote for new governments across the globe; some three billion people will cast their vote. This decisively makes 2018 a year of great importance. It will not just be a dance of democracy, but also a mass euphoric display of democracy. These elections come at a time when the world is in the cusp of many historical changes. That's why the year needs more than a normal tracking and scrutiny.

The countries going to vote for new governments are spread across all continents. And each continent is facing its own unique moment in history. Together, they will redefine global development politics. Africa is facing the age-old question of whether democracy would rescue it out of its decades of desperate development indicators. Africa has the world's highest untapped potential in all sectors. Both North and South Americas are facing the challenge of post-disaster rehabilitation and also the unwanted changes in USA's policies. These countries will also need to meet the challenge of years of economic slow-down. They will need to deal with the development dilemma of how much natural resources need to be compromised for economic development. Asia is at the core of the global economy debate. Oil production from this continent will decide the global energy market. Not to forget is the global governance challenge as to how deep democracy would percolate in the Arab world.

On the other hand, there is an increasing lack of confidence in electoral democracy. One can celebrate this periodic display of democratic might. But if elected governments are not able to live up to electors' confidence, there will be insurmountable challenges. Moreover, unemployment, particularly among the youth, is at its peak. Majority of protests across countries are led by young people. Add to it the growing tendency of anti-globalisation sentiment. Whether it is the US or the EU (read Brexit),

there is this "my-country-first" policy, which is invariably deciding the national political discourse. Though all countries voting for new governments have been affected by climate change, there is a sharp division between those who are responsible and those who are victims. This fight for equity to solve the planet's biggest development challenge remains here. So countries might be united in adopting one form of government—electoral democracy—but they are today more divided than ever before on the question of a global agenda for development.

There is no sure way to forecast so many elections and their cumulative impacts on the global development agenda. But in a scenario, where there is an intrinsic connect between global and local issues, one thing is sure that elections in 2018 will have far-reaching ramifications for the global governance regime. For example, if Republicans win the US House of Representatives election, it would further reinforce President Donald Trump's "America First" agenda, a significant indicator of the anti-globalisation sentiment. This will have a ripple effect on countries that share deep ties with the powerful global player. The fight against climate change would also be further weakened. Without an agreement with the planet's historic biggest emitter of greenhouse gases, most of the countries will be affected.

In India, 2018 is important for both electoral and development agendas. This is practically the last year of the incumbent National Democratic Alliance government led by Prime Minister Narendra Modi (he will face elections in 2019). But with an inextinguishable rural distress in many states, he faces a difficult task of gaining back the confidence of rural voters. In 2018, key states like Madhya Pradesh, Karnataka and Rajasthan will elect state governments. These states have witnessed widespread rural distress and protests by farmers. So, will 2018 be the year of rural India, or as they say, Bharat? ■



TARIQUE AZIZ / CSE

TRAINING PROGRAMME ON SELF-REGULATION & ENVIRONMENTAL AUDITING



“Self-Regulation and Environmental Audit” is a tool to assess the status of compliance to regulatory and other requirements such as; performance of pollution control systems installed; conservation & conversion efficiency of input resources and finally for enlisting of the findings as shortcomings or gaps, to initiate corrective and preventive actions. The implementation of self-regulation and auditing definitely results in an all round improvement in the environmental performance of the organizations.

Anil Agarwal Environment Training Institute (AAETI) recognises this need and offers this four-days training programme on ‘Self-Regulation and Environmental Audit’. The objective of the programme is to provide a better understanding of the key aspects of protocol, methods and tools for auditing and self regulation system.

THE COURSE HIGHLIGHTS

1. Self-regulation, Monitoring, Data Management & Analysis;
2. Protocols, Methods and Tools for Auditing;
3. Environmental Auditing and Data Management;
4. Water, Energy and Carbon Foot Prints- Protocol, Methods and Auditing Tools;
5. Audit Gap Analysis and Management Plans for Improvement;
6. Successful case studies (National & International) on benefits of self-regulation and environmental auditing and
7. Implementation challenges.

AAETI SIGNATURE SESSION: GAP ANALYSIS AND PREVENTIVE ACTIONS

Special session in each course on gap analysis with a help of case study from specific sector will be included and the corrective and preventive action required for overcoming the gap identified.

OPEN FOR ALL

Auditors, officials from central and state departments, regulators, consultants, industrialist, academicians, students, and NGO representatives.

COURSE FEES

₹30,000 per participant
(the course fees include accommodation & pick up and drop from Delhi airport/railway station)

COURSE DURATION

6th – 9th March 2018

TIMING

10 a.m. to 5.30 p.m.

COURSE VENUE

Anil Agarwal Environment Training Institute (a Centre for Science and Environment initiative), Nimli (near Alwar), Tijara, Rajasthan

LAST DATE FOR APPLYING

15 February 2018



FOR DETAILS CONTACT:

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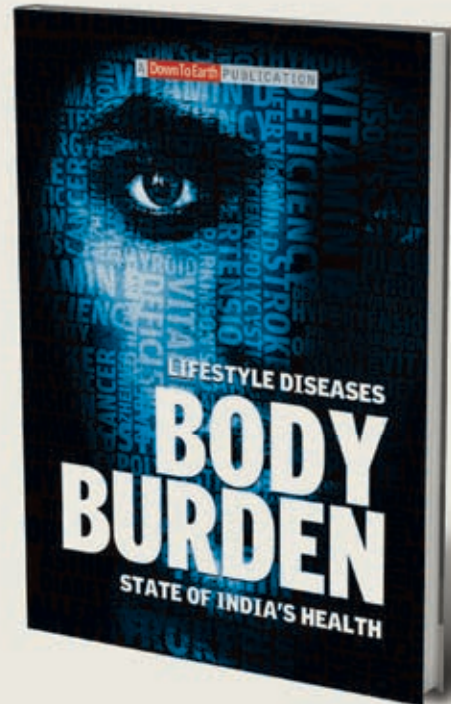
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Write to us if you have any queries, addressed to Ramachandran at: rchandran@cseindia.org